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(54) **Title:** ALPHA-SYNUCLEIN ANTISENSE OLIGONUCLEOTIDES AND USES THEREOF

(57) Abstract: The present disclosure relates to antisense oligonucleotides, which target Alpha-synuclein (SNCA) transcript in a cell, leading to reduced expression of SNCA protein. Reduction of SNCA protein expression is beneficial for the treatment of certain medical disorders, e.g., a neurological disorder such as a synucleinopathy.

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ALPHA-SYNUCLEIN ANTISENSE OLIGONUCLEOTIDES AND USES THEREOF

FIELD OF DISCLOSURE

The present disclosure relates to antisense oligomeric compounds (ASOs) that target alpha-synuclein (*SNCA*) transcript in a cell, leading to reduced expression of alpha-synuclein (SNCA) protein. Reduction of SNCA protein expression can be beneficial for a range of medical disorders, such as multiple system atrophy, Parkinson's disease, Parkinson's Disease Dementia (PDD), and dementia with Lewy bodies.

BACKGROUND

Alpha-synuclein (SNCA), a member of the synuclein protein family, is a small soluble protein that is expressed primarily within the neural tissues. *See* Marques O *et al., Cell Death Dis.* 19: e350 (2012). It is expressed in many cell types but is predominantly localized within the presynaptic terminals of neurons. While the precise function has yet to be fully elucidated, SNCA has been suggested to play an important role in the regulation of synaptic transmission. For instance, SNCA functions as a molecular chaperone in the formation of SNARE complexes, which mediate the docking of synaptic vesicles with the presynaptic membranes of neurons. SNCA can also interact with other proteins like the microtubule-associated protein tau, which helps stabilize microtubules and regulate vesicle trafficking.

Due to SNCA's role in the regulation of synaptic transmission, alterations of SNCA expression and/or function can disrupt critical biological processes. Such disruptions have been thought to contribute to α-synucleinopathies, which are neurodegenerative diseases characterized by abnormal accumulation of SNCA protein aggregates within the brain. Accordingly, insoluble inclusions of misfolded, aggregated, and phosphorylated SNCA protein are a pathological hallmark for diseases such as Parkinson's disease (PD), Parkinson's Disease Dementia (PDD), dementia with Lewy bodies (DLB), and multiple system atrophy (MSA). *See* Galvin JE *et al., Archives of Neurology* 58: 186-190 (2001); and Valera E *et al., J Neurochem* 139 Suppl 1: 346-352 (Oct. 2016)

α-Synucleinopathies, such as Parkinson's disease, are highly prevalent progressive neurodegenerative brain disorders, especially among the elderly. *See* Recchia A *et ai, FASEB J.* 18: 617-26 (2004). It is estimated that approximately seven to ten million people worldwide are living with such disorders, with about 60,000 new cases each year in the United States alone. Medication costs for an individual person can easily exceed $2,500 a year and therapeutic surgery

can cost up to $100,000 per patient. Therefore, a more robust and cost-effective treatment options are greatly needed.

US 2008/0003570 describes translation enhancer elements on alpha-synuclein methods for identifying compounds that modulate alpha-synuclein.

WO 2012/068405 discloses modified antisense oligonucleotides targeting alpha-synuclein.

WO 2005/004794, WO 2005/045034, WO 2006/039253, WO 2007/135426, US 2008/0139799, WO 2008/109509, WO 2009/079399, WO 2012/027713 all describe nucleic acid molecules acting via the RISC complex in the cytosol, such as siRNA molecules. Such molecules are not capable of targeting introns in the SNCA transcript.

WO 201 1/041897, WO 201 1/131693 and WO 2014/064257 describe conjugations of nucleic acid molecules for delivery to CNS to modulate target molecules in the CNS one of these being alpha-synuclein.

SUMMARY OF DISCLOSURE

The present disclosure is directed to antisense oligonucleotide (ASOs) comprising a contiguous nucleotide sequence of 10 to 30 nucleotides in length wherein the contiguous nucleotide sequence is at least 90% complementary to an intron nucleic acid region within an alpha-synuclein *(SNCA)* transcript. In some embodiments, the *SNCA* transcript comprises SEQ ID NO: 1 and the ASOs of the present disclosure are capable of inhibiting the expression of the human *SNCA* transcript in a cell which is expressing the human *SNCA* transcript.

In some embodiments the intron region is selected from intron 1 corresponding to nucleotides 6336 - 7604 of SEQ ID NO: 1; intron 2 corresponding to nucleotides 7751 - 151 12 of SEQ ID NO: 1; intron 3 corresponding to nucleotides 15155 - 20908 of SEQ ID NO: 1 or intron 4 corresponding to nucleotides 21052 - 114019 of SEQ ID NO: 1.

In further embodiments the antisense oligonucleotides (ASOs) comprising a contiguous nucleotide sequence of 10 to 30 nucleotides in length wherein the contiguous nucleotide sequence is at least 90% complementary to a nucleic acid sequence within an alpha-synuclein *(SNCA)* transcript, wherein the nucleic acid sequence is selected from the group consisting of ; i) nucleotides 21052 - 29654 of SEQ ID NO: 1;; ii) nucleotides 30931 - 33938 of SEQ ID NO: 1;; iii)nucleotides 44640 - 44861 of SEQ ID NO: 1; ; iv)nucleotides 47924 - 58752 of SEQ ID NO: 1; ; v) nucleotides 4942 - 5343 of SEQ ID NO: 1; ; vi) nucleotides 6336 - 7041 of SEQ ID NO: 1;; vii) nucleotides 7329 - 7600 of SEQ ID NO: 1; ; viii)nucleotides 7751 - 7783 of SEQ ID NO: 1; ; ix)nucleotides 8277 - 8501 of SEQ ID NO: 1; ; x) nucleotides 9034 - 9526 of SEQ ID NO: 1; ; xi) nucleotides 9982 -

14279 of SEQ ID NO: 1; ; xii)nucleotides 15204 - 19041 of SEQ ID NO: 1; ; xiii) nucleotides 20351 - 20908 of SEQ ID NO: 1; xiv) nucleotides 34932 - 37077 of SEQ ID NO: 1; ; xv)nucleotides 38081 - 42869 of SEQ ID NO: 1;; xvi) nucleotides 38081 - 38303 of SEQ ID NO: 1; xvii)nucleotides 40218 - 42869 of SEQ ID NO: 1; xvii) nucleotides 46173 - 46920 of SEQ ID NO: 1; ; xix) nucleotides 60678 - 60905 of SEQ ID NO: 1; ; xx) nucleotides 62066 - 62397 of SEQ ID NO: 1; ; xxi) nucleotides 67759 - 71625 of SEQ ID NO: 1; ; xxii) nucleotides 72926 - 86991 of SEQ ID NO: 1; ; xxiii) nucleotides 88168 - 93783 of SEQ ID NO: 1; ; xxiv) nucleotides 94976 - 102573 of SEQ ID NO: 1; ; xxv) nucleotides 104920 - 107438 of SEQ ID NO: 1; ; xxvi) nucleotides 106378 - 106755 of SEQ ID NO: 1;; xxvii) nucleotides 106700 - 106755 of SEQ ID NO: 1; ; xxviii) nucleotides 108948 - 114019 of SEQ ID NO: 1; and; xxix) nucleotides 114292 - 116636 of SEQ ID NO: 1.

In certain embodiments, the contiguous nucleotide sequence comprises or consists of consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353.

In some embodiments, the contiguous nucleotide sequence comprises at least one nucleotide analogue. In some embodiments, the antisense oligonucleotide is a gapmer. The gapmer can be comprised of the formula of 5'-A-B-C-3', wherein, (i) region B is a contiguous sequence of at least 6 DNA units, which are capable of recruiting RNase; (ii) region A is a first wing sequence of 1 to 10 nucleotides, wherein the first wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 3' end of A; and (iii) region C is a second wing sequence of 1 to 10 nucleotides, wherein the second wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 5' end of C.

In certain embodiments, the nucleotide analogue or analogues are high affinity analogues such as the 2' sugar modified nucleosides selected from the group consisting of Locked Nucleic Acid (LNA); 2'-0-alkyl-RNA; 2'-amino-DNA; 2'-fluoro-DNA; arabino nucleic acid (ANA); 2'-fluoro-ANA, hexitol nucleic acid (HNA), intercalating nucleic acid (INA), constrained ethyl nucleoside (cEt), 2'-0-methyl nucleic acid (2'-OMe), 2'-0-methoxyethyl nucleic acid (2'-MOE), and any combination thereof. In some embodiments, the nucleotide analogue or analogues comprise a bicyclic sugar. In certain embodiments, the bicyclic sugar comprises cEt, 2',4'-constrained 2'-0-methoxyethyl (cMOE), LNA, a-L-LNA, β-D-LNA, 2'-0,4'-C-ethylene-bridged nucleic acids (ENA), amino-LNA, oxy-LNA, or thio-LNA. In some embodiments, the nucleotide analogue or analogues comprise an LNA.

In some embodiments, the antisense oligonucleotide has an *in vivo* tolerability less than or equal to a total score of 4, wherein the total score is the sum of a unit score of five categories, which are 1) hyperactivity; 2) decreased activity and arousal; 3) motor dysfunction and/or ataxia; 4) abnormal

posture and breathing; and 5) tremor and/or convulsions, and wherein the unit score for each category is measured on a scale of 0-4. In certain embodiments, the *in vivo* tolerability is less than or equal to the total score of 3, the total score of 2, the total score of 1, or the total score of 0.

In some embodiments, the nucleotide sequence of the antisense oligonucleotides comprises, consists essentially of, or consists of a sequence selected from the group consisting of from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 with a design selected from the group consisting of the designs in Figures 1A to 1C, wherein the upper case letter is a sugar modified nucleoside and the lower case letter is DNA. In certain embodiments, the antisense oligonucleotide or the contiguous nucleotide sequence thereof has a the chemical structure selected from the group consisting of ASO-008387; ASO-008388; ASO-008501 ; ASO-008502; ASO-008529; ASO-008530; ASO-008531 ; ASO-008532; ASO-008533; ASO-008534; ASO-008535; ASO-008536; ASO-008537; ASO-008543; ASO-008545; ASO-008584; ASO-008226 and ASO-008261 .

Also provided herein is a pharmaceutical composition comprising the antisense oligonucleotide or a conjugate thereof as disclosed herein and a pharmaceutically acceptable carrier.

The present disclosure further provides a kit comprising the antisense oligonucleotide, a conjugate thereof, or the composition as disclosed herein.

Provided herein is a method for treating a synucleinopathy in a subject in need thereof, comprising administering an effective amount of the antisense oligonucleotide, a conjugate thereof, or the composition of the present disclosure. In some embodiments, the synucleinopathy is selected from the group consisting of Parkinson's disease, Parkinson's Disease Dementia (PDD), multiple system atrophy, dementia with Lewy bodies, and any combinations thereof.

Also provided herein is a use of the antisense oligonucleotide, a conjugate thereof, or the composition of the present disclosure for the manufacture of a medicament. The present disclosure also provides the use of the antisense oligonucleotide, a conjugate thereof, or the composition for the manufacture of a medicament for the treatment of a synucleinopathy in a subject in need thereof. In some embodiments, the antisense oligonucleotide, a conjugate thereof, or the composition of the present disclosure are for use in therapy of a synucleinopathy in a subject in need thereof. In other embodiments, the antisense oligonucleotide, a conjugate thereof, or the composition of the present disclosure are for use in therapy.

In some embodiments, the subject is a human. In some embodiments, the antisense oligonucleotide, a conjugate thereof, or the compositions are administered orally, parenterally, intrathecally, intra-cerebroventricularly, pulmorarily, topically, or intraventricularly.

BRIEF DESCRIPTION OF FIGURES

Figures 1A to 1C show exemplary ASOs targeting a region of the *SNCA* pre-mRNA. FIG. 1A provides exemplary ASOs that target the wild-type *SNCA* mRNA (SEQ ID NO: 2). FIG. 1B provides exemplary ASOs that target a variant *SNCA* mRNA ("variant 47SEQ ID NO: 5; or "variant 27SEQ ID NO: 3). FIG. 1C provides exemplary ASOs that target another variant *SNCA* mRNA ("variant 37SEQ ID NO: 4). Each column of figures 1A to 1C show the Sequence ID number (SEQ ID No.) designated for the sequence only, the target start and end positions on the *SNCA* pre-mRNA sequence, the target start and end positions on the *SNCA* mRNA sequence, the design number (DES No.), the ASO sequence with a design, the ASO number (ASO No.), and the ASO sequence with a chemical structure. In the figures, the annotation of ASO chemistry is as follows Beta-D-oxy LNA nucleotides are designated by OxyB where B designates a nucleotide base such as thymine (T), uridine (U), cytosine (C), 5-methylcytosine (MC), adenine (A) or guanine (G), and thus include OxyA, OxyT, OxyMC, OxyC and OxyG. DNA nucleotides are designated by DNAb, where the lower case b designates a nucleotide base such as thymine (T), uridine (U), cytosine (C), 5-methylcytosine (Me), adenine (A) or guanine (G), and thus include DNAa, DNAt, DNA and DNAg. The letter M before C or c indicates 5-methylcytosine. The letter s is a phosphorothioate internucleotide linkage.

Figure 2 shows ASOs targeting *SNCA* pre-mRNA with exemplary wing design modification. Each column of FIG. 2 shows the Sequence ID number (SEQ ID No.) designated for the sequence only, the target start and end positions on the *SNCA* pre-mRNA sequence, the design number (DES No.), the ASO sequence with a design, the ASO number (ASO No.), and the ASO sequence with a chemical structure and wing design modification identified. DES-287033, DES-287041, DES-287053, DES-287965, DES-288902, DES-288903, DES-288905, DES-290315, and DES-292378 show various ASO designs possible for SEQ ID NO: 1467. DES-286762, DES-286785, and DES-286783 show various ASO designs possible for SEQ ID NO: 1764. For the ASO designs, the upper case letters indicate nucleotide analogues (*e.g.,* LNA or 2'-0-Methyl (OMe)), and the lower case letters indicate DNAs. The upper case letters with or without underlines indicate the two letters can be different nucleotide analogues, *e.g.,* LNA and 2'-0-Methyl. For example, the underlined upper letters can be 2'-0-Methyl while the upper letters without underlines are LNA. In the ASOs with chemical structure column, OMe is 2'-0-Methyl nucleotide, L is LNA, D is DNA, and the numbers followed by L or D mean the number of LNAs or DNAs

Fugure 3 shows the relative *SNCA* mRNA expression level (as a percentage of the vehicle control) in cyno monkeys after ASO-003179 administration. The animals received the vehicle control (circle), 8 mg of ASO-003179 (square), or 16 mg of ASO-003179 (triangle) via ICV injection. The

animals were then sacrificed at 2 weeks post-dosing and the *SNCA* mRNA expression levels were assessed in the following tissues: medulla (top left panel), caudate putamen (top middle panel), pons (top right panel), cerebellum (bottom left panel), lumbar spinal cord (bottom middle panel), and frontal cortex (bottom right panel). Both the data for the individual animals and the mean are shown. The horizontal line marks the reference value of 100% (i.e., value at which the *SNCA* mRNA expression would be equivalent to expression level observed in the vehicle control group).

Figure 4 shows the effect of ASO-003092 on *SNCA* mRNA expression level in the brain tissues of cyno monkeys. The animals were dosed with either 4 mg (square) or 8 mg (triangle) of ASO-003092 and then the *SNCA* mRNA expression level in the different brain tissues was assessed at 2 weeks post-dosing. Animals receiving the vehicle control were used as controls (circle). The *SNCA* mRNA expression level was assessed in the following tissues: medulla (top left panel), caudate putamen (top middle panel), pons (top right panel), cerebellum (bottom left panel), lumbar spinal cord (bottom middle panel), and frontal cortex (bottom right panel). The *SNCA* mRNA expression levels were normalized to the GAPDH and then shown as a percentage of the vehicle control. Both the data for the individual animals and the mean are shown. The horizontal line marks the reference value of 100% (i.e., value at which the *SNCA* mRNA expression would be equivalent to expression level observed in the vehicle control group).

DETAILED DESCRIPTION OF DISCLOSURE

I Definitions

It is to be noted that the term "a" or "an" entity refers to one or more of that entity; for example, "a nucleotide sequence," is understood to represent one or more nucleotide sequences. As such, the terms "a" (or "an"), "one or more," and "at least one" can be used interchangeably herein.

Furthermore, "and/or" where used herein is to be taken as specific disclosure of each of the two specified features or components with or without the other. Thus, the term "and/or" as used in a phrase such as "A and/or B" herein is intended to include "A and B," "A or B," "A" (alone), and "B" (alone). Likewise, the term "and/or" as used in a phrase such as "A, B, and/or C" is intended to encompass each of the following aspects: A, B, and C; A, B, or C; A or C; A or B; B or C; A and C; A and B; B and C; A (alone); B (alone); and C (alone).

It is understood that wherever aspects are described herein with the language "comprising," otherwise analogous aspects described in terms of "consisting of and/or "consisting essentially of" are also provided.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure is related. For example, the Concise Dictionary of Biomedicine and Molecular Biology, Juo, Pei-Show, 2nd ed., 2002, CRC Press; The Dictionary of Cell and Molecular Biology, 3rd ed., 1999, Academic Press; and the Oxford Dictionary Of Biochemistry And Molecular Biology, Revised, 2000, Oxford University Press, provide one of skill with a general dictionary of many of the terms used in this disclosure.

Units, prefixes, and symbols are denoted in their Systeme International de Unites (SI) accepted form. Numeric ranges are inclusive of the numbers defining the range. Unless otherwise indicated, nucleotide sequences are written left to right in 5' to 3' orientation. Amino acid sequences are written left to right in amino to carboxy orientation. The headings provided herein are not limitations of the various aspects of the disclosure, which can be had by reference to the specification as a whole. Accordingly, the terms defined immediately below are more fully defined by reference to the specification in its entirety.

The term "about" is used herein to mean approximately, roughly, around, or in the regions of. When the term "about" is used in conjunction with a numerical range, it modifies that range by extending the boundaries above and below the numerical values set forth. In general, the term "about" can modify a numerical value above and below the stated value by a variance of, *e.g.,* 10 percent, up or down (higher or lower). For example, if it is stated that "the ASO reduces expression of SNCA protein in a cell following administration of the ASO by at least about 60%," it is implied that the SNCA levels are reduced by a range of 50% to 70%.

The term "antisense oligonucleotide" (ASO) refers to an oligomer or polymer of nucleosides, such as naturally-occurring nucleosides or modified forms thereof, that are covalently linked to each other through internucleotide linkages. The ASO useful for the disclosure includes at least one non-naturally occurring nucleoside. An ASO is complementary to a target nucleic acid, such that the ASO hybridizes to the target nucleic acid sequence. The terms "antisense ASO," "ASO," and "oligomer" as used herein are interchangeable with the term "ASO."

The term "nucleic acids" or "nucleotides" is intended to encompass plural nucleic acids. In some embodiments, the term "nucleic acids" or "nucleotides" refers to a target sequence, *e.g.,* pre-mRNAs, mRNAs, or DNAs *in vivo* or *in vitro.* When the term refers to the nucleic acids or nucleotides in a target sequence, the nucleic acids or nucleotides can be naturally occurring sequences within a cell. In other embodiments, "nucleic acids" or "nucleotides" refer to a sequence in the ASOs of the disclosure. When the term refers to a sequence in the ASOs, the nucleic acids or nucleotides are not naturally occurring, *i.e.,* chemically synthesized, enzymatically produced,

recombinantly produced, or any combination thereof. In one embodiment, the nucleic acids or nucleotides in the ASOs are produced synthetically or recombinantly, but are not a naturally occurring sequence or a fragment thereof. In another embodiment, the nucleic acids or nucleotides in the ASOs are not naturally occurring because they contain at least one nucleotide analogue that is not naturally occurring in nature. The term "nucleic acid" or "nucleoside" refers to a single nucleic acid segment, *e.g., a* DNA, an RNA, or an analogue thereof, present in a polynucleotide. "Nucleic acid" or "nucleoside" includes naturally occurring nucleic acids or non-naturally occurring nucleic acids. In some embodiments, the terms "nucleotide", "unit" and "monomer" are used interchangeably. It will be recognized that when referring to a sequence of nucleotides or monomers, what is referred to is the sequence of bases, such as A, T, G, C or U, and analogues thereof.

The term "nucleotide" as used herein, refers to a glycoside comprising a sugar moiety, a base moiety and a covalently linked group (linkage group), such as a phosphate or phosphorothioate internucleotide linkage group, and covers both naturally occurring nucleotides, such as DNA or RNA, and non-naturally occurring nucleotides comprising modified sugar and/or base, which are also referred to as "nucleotide analogues" herein. Herein, a single nucleotide (unit) can also be referred to as a monomer or nucleic acid unit. In certain embodiments, the term "nucleotide analogues" refers to nucleotides having modified sugar moieties. Non-limiting examples of the nucleotides having modified sugar moieties *(e.g.,* LNA) are disclosed elsewhere herein. In other embodiments, the term "nucleotide analogues" refers to nucleotides having modified nucleobase moieties. The nucleotides having modified nucleobase moieties include, but are not limited to, 5-methylcytosine, isocytosine, pseudoisocytosine, 5-bromouracil, 5-propynyluracil, 6-aminopurine, 2-aminopurine, inosine, diaminopurine, and 2-chloro-6-aminopurine.

The term "nucleoside" as used herein is used to refer to a glycoside comprising a sugar moiety and a base moiety, which can be covalently linked by the internucleotide linkages between the nucleosides of the ASO. In the field of biotechnology, the term "nucleoside" is often used to refer to a nucleic acid monomer or unit. In the context of an ASO, the term "nucleoside" can refer to the base alone, *i.e., a* nucleobase sequence comprising cytosine (DNA and RNA), guanine (DNA and RNA), adenine (DNA and RNA), thymine (DNA) and uracil (RNA), in which the presence of the sugar backbone and internucleotide linkages are implicit. Likewise, particularly in the case of oligonucleotides where one or more of the internucleotide linkage groups are modified, the term "nucleotide" can refer to a "nucleoside." For example, the term "nucleotide" can be used, even when specifying the presence or nature of the linkages between the nucleosides.

The term "nucleotide length" as used herein means the total number of the nucleotides (monomers) in a given sequence. For example, the sequence of ctaacaacttctgaacaaca (SEQ ID NO: 1436) has 20 nucleotides; thus the nucleotide length of the sequence is 20. The term "nucleotide length" is therefore used herein interchangeably with "nucleotide number."

As one of ordinary skill in the art would recognize, the 5' terminal nucleotide of an oligonucleotide does not comprise a 5' internucleotide linkage group, although it can comprise a 5' terminal group.

As used herein, a "coding region" or "coding sequence" is a portion of polynucleotide which consists of codons translatable into amino acids. Although a "stop codon" (TAG, TGA, or TAA) is typically not translated into an amino acid, it can be considered to be part of a coding region, but any flanking sequences, for example promoters, ribosome binding sites, transcriptional terminators, introns, untranslated regions ("UTRs"), and the like, are not part of a coding region. The boundaries of a coding region are typically determined by a start codon at the 5' terminus, encoding the amino terminus of the resultant polypeptide, and a translation stop codon at the 3' terminus, encoding the carboxyl terminus of the resulting polypeptide.

The term "non-coding region" as used herein means a nucleotide sequence that is not a coding region. Examples of non-coding regions include, but are not limited to, promoters, ribosome binding sites, transcriptional terminators, introns, untranslated regions ("UTRs"), non-coding exons and the like. Some of the exons can be wholly or part of the 5' untranslated region (5' UTR) or the 3' untranslated region (3' UTR) of each transcript. The untranslated regions are important for efficient translation of the transcript and for controlling the rate of translation and half-life of the transcript.

The term "region" when used in the context of a nucleotide sequence refers to a section of that sequence. For example, the phrase "region within a nucleotide sequence" or "region within the complement of a nucleotide sequence" refers to a sequence shorter than the nucleotide sequence, but longer than at least 10 nucleotides located within the particular nucleotide sequence or the complement of the nucleotides sequence, respectively. The term "sub-sequence" or "subsequence" or “target region” can also refer to a region of a nucleotide sequence.

The term "downstream," when referring to a nucleotide sequence, means that a nucleic acid or a nucleotide sequence is located 3' to a reference nucleotide sequence. In certain embodiments, downstream nucleotide sequences relate to sequences that follow the starting point of transcription. For example, the translation initiation codon of a gene is located downstream of the start site of transcription.

The term "upstream" refers to a nucleotide sequence that is located 5' to a reference nucleotide sequence.

Unless otherwise indicated, the sequences provided herein are listed from 5' end (left) to 3' end (right).

As used herein, the term "regulatory region" refers to nucleotide sequences located upstream (5' non-coding sequences), within, or downstream (3' non-coding sequences) of a coding region, and which influence the transcription, RNA processing, stability, or translation of the associated coding region. Regulatory regions can include promoters, translation leader sequences, introns, polyadenylation recognition sequences, RNA processing sites, effector binding sites, UTRs, and stem-loop structures. If a coding region is intended for expression in a eukaryotic cell, a polyadenylation signal and transcription termination sequence will usually be located 3' to the coding sequence.

The term "transcript" as used herein can refer to a primary transcript that is synthesized by transcription of DNA and becomes a messenger RNA (mRNA) after processing, *i.e., a* precursor messenger RNA (pre-mRNA), and the processed mRNA itself. The term "transcript" can be interchangeably used with "pre-mRNA" and "mRNA." After DNA strands are transcribed to primary transcripts, the newly synthesized primary transcripts are modified in several ways to be converted to their mature, functional forms such as mRNA, tRNA, rRNA, lncRNA, miRNA and others. Thus, the term "transcript" can include exons, introns, 5' UTRs, and 3' UTRs.

The term "expression" as used herein refers to a process by which a polynucleotide produces a gene product, for example, a RNA or a polypeptide. It includes, without limitation, transcription of the polynucleotide into messenger RNA (mRNA) and the translation of an mRNA into a polypeptide. Expression produces a "gene product." As used herein, a gene product can be either a nucleic acid, *e.g., a* messenger RNA produced by transcription of a gene, or a polypeptide which is translated from a transcript. Gene products described herein further include nucleic acids with post transcriptional modifications, e.g., polyadenylation or splicing, or polypeptides with post translational modifications, e.g., methylation, glycosylation, the addition of lipids, association with other protein subunits, or proteolytic cleavage.

The terms "identical" or percent "identity" in the context of two or more nucleic acids refer to two or more sequences that are the same or have a specified percentage of nucleotides or amino acid residues that are the same, when compared and aligned (introducing gaps, if necessary) for maximum correspondence, not considering any conservative amino acid substitutions as part of the sequence identity. The percent identity can be measured using sequence comparison software or algorithms or by visual inspection. Various algorithms and software are known in the art that can be used to obtain alignments of amino acid or nucleotide sequences.

One such non-limiting example of a sequence alignment algorithm is the algorithm described in Karlin *et al,* 1990, *Proc. Natl. Acad. Sci.,* 87:2264-2268, as modified in Karlin *et al,* 1993, *Proc. Natl. Acad. Sci.,* 90:5873-5877, and incorporated into the NBLAST and XBLAST programs (Altschul *et al.,* 1991, *Nucleic Acids Res.,* 25:3389-3402). In certain embodiments, Gapped BLAST can be used as described in Altschul *et al,* 1997, *Nucleic Acids Res.* 25:3389-3402. BLAST-2, WU-BLAST-2 (Altschul *et al.,* 1996, *Methods in Enzymology,* 266:460-480), ALIGN, ALIGN-2 (Genentech, South San Francisco, California) or Megalign (DNASTAR) are additional publicly available software programs that can be used to align sequences. In certain embodiments, the percent identity between two nucleotide sequences is determined using the GAP program in the GCG software package (*e.g.,* using a NWSgapdna.CMP matrix and a gap weight of 40, 50, 60, 70, or 90 and a length weight of 1, 2, 3, 4, 5, or 6). In certain alternative embodiments, the GAP program in the GCG software package, which incorporates the algorithm of Needleman and Wunsch *(J. Mol. Biol.* (48):444-453 (1970)) can be used to determine the percent identity between two amino acid sequences *(e.g.,* using either a BLOSUM 62 matrix or a PAM250 matrix, and a gap weight of 16, 14, 12, 10, 8, 6, or 4 and a length weight of 1, 2, 3, 4, 5). Alternatively, in certain embodiments, the percent identity between nucleotide or amino acid sequences is determined using the algorithm of Myers and Miller (CABIOS, 4:11-17 (1989)). For example, the percent identity can be determined using the ALIGN program (version 2.0) and using a PAM120 with residue table, a gap length penalty of 12 and a gap penalty of 4. One skilled in the art can determine appropriate parameters for maximal alignment by particular alignment software. In certain embodiments, the default parameters of the alignment software are used.

In certain embodiments, the percentage identity "X" of a first nucleotide sequence to a second nucleotide sequence is calculated as 100 x (Y/Z), where Y is the number of amino acid residues scored as identical matches in the alignment of the first and second sequences (as aligned by visual inspection or a particular sequence alignment program) and Z is the total number of residues in the second sequence. If the length of a first sequence is longer than the second sequence, the percent identity of the first sequence to the second sequence will be higher than the percent identity of the second sequence to the first sequence.

Different regions within a single polynucleotide target sequence that align with a polynucleotide reference sequence can each have their own percent sequence identity. It is noted that the percent sequence identity value is rounded to the nearest tenth. For example, 80.11, 80.12, 80.13, and 80.14 are rounded down to 80.1, while 80.15, 80.16, 80.17, 80.18, and 80.19 are rounded up to 80.2. It also is noted that the length value will always be an integer.

As used herein, the terms "homologous" and "homology" are interchangeable with the terms "identity" and "identical."

The term "naturally occurring variant thereof refers to variants of the SNCA polypeptide sequence or *SNCA* nucleic acid sequence (*e.g.,* transcript) which exist naturally within the defined taxonomic group, such as mammalian, such as mouse, monkey, and human. Typically, when referring to "naturally occurring variants" of a polynucleotide the term also can encompass any allelic variant of the *SNCA* -encoding genomic DNA which is found at Chromosomal position 17q21 by chromosomal translocation or duplication, and the RNA, such as mRNA derived therefrom. "Naturally occurring variants" can also include variants derived from alternative splicing of the *SNCA* mRNA. When referenced to a specific polypeptide sequence, *e.g.,* the term also includes naturally occurring forms of the protein, which can therefore be processed, *e.g.,* by co- or post-translational modifications, such as signal peptide cleavage, proteolytic cleavage, glycosylation, etc.

In determining the degree of "complementarity" between ASOs of the disclosure (or regions thereof) and the target region of the nucleic acid which encodes mammalian SNCA protein *(e.g.,* the *SNCA* gene), such as those disclosed herein, the degree of "complementarity" (also, "homology" or "identity") is expressed as the percentage identity (or percentage homology) between the sequence of the ASO (or region thereof) and the sequence of the target region (or the reverse complement of the target region) that best aligns therewith. The percentage is calculated by counting the number of aligned bases that are identical between the two sequences, dividing by the total number of contiguous monomers in the ASO, and multiplying by 100. In such a comparison, if gaps exist, it is preferable that such gaps are merely mismatches rather than areas where the number of monomers within the gap differs between the ASO of the disclosure and the target region.

The term "complement" as used herein indicates a sequence that is complementary to a reference sequence. It is well known that complementarity is the base principle of DNA replication and transcription as it is a property shared between two DNA or RNA sequences, such that when they are aligned antiparallel to each other, the nucleotide bases at each position in the sequences will be complementary, much like looking in the mirror and seeing the reverse of things. Therefore, for example, the complement of a sequence of 5'"ATGC"3' can be written as 3'"TACG"5' or 5'"GCAT"3'. The terms "reverse complement", "reverse complementary" and "reverse complementarity" as used herein are interchangeable with the terms "complement", "complementary" and "complementarity."

The term “% complementary” as used herein, refers to the proportion of nucleotides (in percent) of a contiguous nucleotide sequence in a nucleic acid molecule (e.g. oligonucleotide) which across the contiguous nucleotide sequence, are complementary to a reference sequence (e.g. a target sequence or sequence motif). The percentage of complementarity is thus calculated by counting the number of aligned nucleobases that are complementary (from Watson Crick base pair) between the two sequences (when aligned with the target sequence 5’-3’ and the oligonucleotide sequence from 3’-5’), dividing that number by the total number of nucleotides in the oligonucleotide and multiplying by 100. In such a comparison a nucleobase/nucleotide which does not align (form a base pair) is termed a mismatch. Insertions and deletions are not allowed in the calculation of % complementarity of a contiguous nucleotide sequence. It will be understood that in determining complementarity, chemical modifications of the nucleobases are disregarded as long as the functional capacity of the nucleobase to form Watson Crick base pairing is retained (e.g. 5’-methyl cytosine is considered identical to a cytosine for the purpose of calculating % identity).

The term “fully complementary”, refers to 100% complementarity.

The terms "corresponding to" and "corresponds to," when referencing two separate nucleic acid or nucleotide sequences can be used to clarify regions of the sequences that correspond or are similar to each other based on homology and/or functionality, although the nucleotides of the specific sequences can be numbered differently. For example, different isoforms of a gene transcript can have similar or conserved portions of nucleotide sequences whose numbering can differ in the respective isoforms based on alternative splicing and/or other modifications. In addition, it is recognized that different numbering systems can be employed when characterizing a nucleic acid or nucleotide sequence (e.g., a gene transcript and whether to begin numbering the sequence from the translation start codon or to include the 5'UTR). Further, it is recognized that the nucleic acid or nucleotide sequence of different variants of a gene or gene transcript can vary. As used herein, however, the regions of the variants that share nucleic acid or nucleotide sequence homology and/or functionality are deemed to "correspond" to one another. For example, a nucleotide sequence of a *SNCA* transcript corresponding to nucleotides X to Y of SEQ ID NO: 1 ("reference sequence") refers to an *SNCA* transcript sequence (e.g., *SNCA* pre-mRNA or mRNA) that has an identical sequence or a similar sequence to nucleotides X to Y of SEQ ID NO: 1. A person of ordinary skill in the art can identify the corresponding X and Y residues in the *SNCA* transcript sequence by aligning the *SNCA* transcript sequence with SEQ ID NO: 1.

The terms "corresponding nucleotide analogue" and "corresponding nucleotide" are intended to indicate that the nucleobase in the nucleotide analogue and the naturally occurring nucleotide have the same pairing, or hybridizing, ability. For example, when the 2-deoxyribose unit of the nucleotide

is linked to an adenine, the "corresponding nucleotide analogue" contains a pentose unit (different from 2-deoxyribose) linked to an adenine.

The term "DES Number" or "DES No." as used herein refers to a unique number given to a nucleotide sequence having a specific pattern of nucleosides (*e.g.,* DNA) and nucleoside analogues *(e.g.,* LNA). As used herein, the design of an ASO is shown by a combination of upper case letters and lower case letters. For example, DES-003092 refers to an ASO sequence of ctaacaacttctgaacaaca (SEQ ID NO: 1436) with an ASO design of LDDLLDDDDDDDDDDLDLLL *(i.e.,* CtaACaacttctgaaCaACA), wherein the L *(i.e.,* upper case letter) indicates a nucleoside analogue *(e.g.,* LNA) and the D *(i.e.,* lower case letter) indicates a nucleoside *(e.g.,* DNA).

The term "ASO Number" or "ASO No." as used herein refers to a unique number given to a nucleotide sequence having the detailed chemical structure of the components, *e.g.,* nucleosides *(e.g.,* DNA), nucleoside analogues *(e.g.,* beta-D-oxy-LNA), nucleobase *(e.g.,* A, T, G, C, U, or MC), and backbone structure *(e.g.,* phosphorothioate or phosphorodiester). For example, ASO-003092 refers to OxyMCs DNAts DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyA.

"Potency" is normally expressed as an IC50 or ECso value, in μM, nM, or pM unless otherwise stated. Potency can also be expressed in terms of percent inhibition. IC_{50} is the median inhibitory concentration of a therapeutic molecule. EC_{50} is the median effective concentration of a therapeutic molecule relative to a vehicle or control *(e.g.,* saline). In functional assays, IC_{50} is the concentration of a therapeutic molecule that reduces a biological response, *e.g.,* transcription of mRNA or protein expression, by 50% of the biological response that is achieved by the therapeutic molecule. In functional assays, ECsois the concentration of a therapeutic molecule that produces 50% of the biological response, *e.g.,* transcription of mRNA or protein expression. IC_{50} or EC_{50} can be calculated by any number of means known in the art.

By "subject" or "individual" or "animal" or "patient" or "mammal," is meant any subject, particularly a mammalian subject, for whom diagnosis, prognosis, or therapy is desired. Mammalian subjects include humans, domestic animals, farm animals, sports animals, and zoo animals including, *e.g.,* humans, non-human primates, dogs, cats, guinea pigs, rabbits, rats, mice, horses, cattle, bears, and so on.

The term "pharmaceutical composition" refers to a preparation which is in such form as to permit the biological activity of the active ingredient to be effective, and which contains no additional components which are unacceptably toxic to a subject to which the composition would be administered. Such composition can be sterile.

An "effective amount" of an ASO as disclosed herein is an amount sufficient to carry out a specifically stated purpose. An "effective amount" can be determined empirically and in a routine manner, in relation to the stated purpose.

Terms such as "treating" or "treatment" or "to treat" or "alleviating" or "to alleviate" refer to both (1) therapeutic measures that cure, slow down, lessen symptoms of, and/or halt progression of a diagnosed pathologic condition or disorder and (2) prophylactic or preventative measures that prevent and/or slow the development of a targeted pathologic condition or disorder. Thus, those in need of treatment include those already with the disorder; those prone to have the disorder; and those in whom the disorder is to be prevented. In certain embodiments, a subject is successfully "treated" for a disease or condition disclosed elsewhere herein according to the methods provided herein if the patient shows, *e.g.,* total, partial, or transient alleviation or elimination of symptoms associated with the disease or disorder.

II. Antisense Oligonucleotides

The present disclosure employs antisense oligonucleotides for use in modulating the function of nucleic acid molecules encoding mammalian α-Syn, such as the *SNCA* nucleic acid, *e.g., SNCA* transcript, including *SNCA* pre-mRNA, and *SNCA* mRNA, or naturally occurring variants of such nucleic acid molecules encoding mammalian α-Syn. The term "ASO" in the context of the present disclosure, refers to *a* molecule formed by covalent linkage of two or more nucleotides *(i.e.,* an oligonucleotide).

The ASO comprises a contiguous nucleotide sequence of from about 10 to about 30, such as IQ-20, 16-20, or 15-25 nucleotides in length. The terms "antisense ASO," "antisense oligonucleotide," and "oligomer" as used herein are interchangeable with the term "ASO."

A reference to a SEQ ID number includes a particular nucleobase sequence, but does not include any design or full chemical structure shown in FIG. 1A to C or 2. Furthermore, the ASOs disclosed in the figures herein show a representative design, but are not limited to the specific design shown in the figures unless otherwise indicated. Herein, a single nucleotide (unit) can also be referred to as a monomer or unit. When this specification refers to a specific ASO number, the reference includes the sequence, the specific ASO design, and the chemical structure. When this specification refers to a specific DES number, the reference includes the sequence and the specific ASO design. For example, when a claim (or this specification) refers to SEQ ID NO: 1436, it includes the nucleotide sequence of ctaacaacttctgaacaaca only. When a claim (or the specification) refers to DES-003092, it includes the nucleotide sequence of ctaacaacttctgaacaaca with the ASO design shown in the figures *(i.e.,* CtaACaacttctgaaCaACA). Alternatively, the design of ASO-

003092 can also be written as SEQ ID NO: 1436, wherein each of the 1st nucleotide, 4th nucleotide, 5th nucleotide, 16th nucleotide and 18th-20th nucleotides from the 5' end is a modified nucleotide, *e.g.,* LNA, and each of the other nucleotides is a non-modified nucleotide (*e.g.,* DNA). The ASO number includes the sequence and the ASO design as well as the specific details of the ASO. Therefore, ASO-003092 referred in this application indicates OxyMCs DNAts DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyA , wherein "s" indicates a phosphorothioate linkage.

In various embodiments, the ASO of the disclosure does not comprise RNA (units). In some embodiments, the ASO comprises one or more DNA units. In one embodiment, the ASO according to the disclosure is a linear molecule or is synthesized as a linear molecule. In some embodiments, the ASO is a single stranded molecule, and does not comprise short regions of, for example, at least 3, 4 or 5 contiguous nucleotides, which are complementary to equivalent regions within the same ASO *(i.e.* duplexes) - in this regard, the ASO is not (essentially) double stranded. In some embodiments, the ASO is essentially not double stranded. In some embodiments, the ASO is not a siRNA. In various embodiments, the ASO of the disclosure can consist entirely of the contiguous nucleotide region. Thus, in some embodiments the ASO is not substantially self-complementary.

In one embodiment, the ASO of the disclosure can be in the form of any pharmaceutically acceptable salts. The term "pharmaceutically acceptable salts" as used herein refers to derivatives of the ASOs of the disclosure wherein the ASO is modified (e.g., addition of a cation) by making salts thereof. Such salts retain the desired biological activity of the ASOs without imparting undesired toxicological effects. In some embodiments, the ASO of the disclosure is in the form of a sodium salt. In other embodiments, the ASO is in the form of a potassium salt.

1.A. The Target

Suitably the ASO of the disclosure is capable of down-regulating *(e.g.,* reducing or removing) expression of the *SNCA* mRNA or SNCA protein. In this regard, the ASO of the disclosure can affect indirect inhibition of SNCA protein through the reduction in *SNCA* mRNA levels, typically in a mammalian cell, such as a human cell, such as a neuronal cell. In particular, the present disclosure is directed to ASOs that target one or more regions of the *SNCA* pre-mRNA.

Synonyms of *SNCA* are known and include NACP, non A-beta component of AD amyloid, PARK1, PARK4, and PD1 . The sequence for the *SNCA* gene can be found under publicly available Accession Number NC_000004.12 and the sequence for the *SNCA* pre-mRNA transcript can be found under publicly available Accession Number NG_01 1851.1 (SEQ ID NO: 1). The sequence for SNCA protein can be found under publicly available Accession Numbers: P37840, A8K2A4,

Q13701 , Q4JHI3, and Q6IAU6, each of which is incorporated by reference herein in its entirety. Natural variants of the *SNCA* gene product are known. For example, natural variants of SNCA protein can contain one or more amino acid substitutions selected from: A30P, E46K, H50Q, A53T, and any combinations thereof. Therefore, the ASOs of the present disclosure can be designed to reduce or inhibit expression of the natural variants of the SNCA protein.

Mutations in SNCA are known to cause one or more pathological conditions. The ASOs of the disclosure can be used to reduce or inhibit the expression of a SNP or alternatively spliced *SNCA* transcript containing one or more mutations and consequently reduce the formation of a mutated SNCA protein. Examples of SNCA protein mutants include, but are not limited to a SNCA protein comprising one or more mutations selected from: D2A, E35K, Y39F, FI50A, E57K, G67_V71del, V71_V82del, A76_V77del, A76del, V77del, A78del, A85_F94del, Y125F, Y133F, Y136F , and any combination thereof. The ASO of the disclosure can be designed to reduce or inhibit expression of any mutants of SNCA proteins.

An example of a target nucleic acid sequence of the ASOs is *SNCA* pre-mRNA. SEQ ID NO: 1 represents a *SNCA* genomic sequence. SEQ ID NO: 1 is identical to a *SNCA* pre-mRNA sequence except that the nucleotide "t" in SEQ ID NO: 1 is shown as "u" in the pre-mRNA. In certain embodiments, the "target nucleic acid" comprises an intron region of an SNCA protein-encoding nucleic acids or naturally occurring variants thereof, and RNA nucleic acids derived therefrom, *e.g.,* pre-mRNA. In other embodiments, the "target nucleic acid" comprises an exon region of an SNCA protein-encoding nucleic acids or naturally occurring variants thereof, and RNA nucleic acids derived therefrom, such as a mRNA, pre-mRNA, or a mature mRNA. In some embodiments, for example when used in research or diagnostics the "target nucleic acid" can be a cDNA or a synthetic oligonucleotide derived from the above DNA or RNA nucleic acid targets. In one embodiment, the *SNCA* genomic sequence is shown as GenBank Accession No. NG_01 1851 .1 (SEQ ID NO: 1). The mature mRNA encoding SNCA protein is shown as SEQ ID NO: 2 (NM_000345.3) Variants of this sequence are shown in SEQ ID NO: 3 (NM_001 146054.1) SEQ ID NO: 4 (NM_001 146055.1), and SEQ ID NO: 5 (NM_007308.2), variants 2-4, respectively. Variant 2 corresponds to GenBank Accession No. NM_001 146054.1 . Variant 3 corresponds to GenBank Accession No. NM_001 146055.1 . Variant 4 corresponds to GenBank Accession No. NM_007308.2. The SNCA protein sequence encoded by the *SNCA* mRNA (SEQ ID NO: 2) is shown as SEQ ID NO: 6 .

The target nucleic acid sequences to which the oligonucleotides of the invention are complementa are summarized in the table below:

Species	type	Length (nt)	SEQ ID NO	NCBI ref.	Alternative name/comments
Human	premRNA	121198	1	NG_011851.1	Human (GRCh38.p12) Chromosome 4: position 89,724,099 - 89,838,315 reverse strand
Human	mRNA	3215	2	NM_000345.3	Transcript of SEQ ID NO:1
Human	mRNA	3211	3	NM_001146054.1	Variant 2
Human	mRNA	3022	4	NM_001146055.1	Variant 3
Human	mRNA	3127	5	NM_007308.2	Variant 4

The oligonucleotide of the invention may for example target an exon region of a mammalian *SNCA,* or may for example target an intron region in the *SNCA* pre-mRNA as indicated in the table below:

Exonic regions in the human *SNCA* premRNA (SEQ ID NO 1)			Intronic regions in the human *SNCA* premRNA (SEQ ID NO 1)		
ID	**start**	**end**	**ID**	**start**	**end**
			i0	1	6097
e1	6098	6335	i1	6336	7604
e2	7605	7750	i2	7751	15112
e3	15113	15154	i3	15155	20908
e4	20909	21051	i4	21052	114019
e5	114020	114103	i5	114104	116636
e6	116637	119198	i6	119199	121198

In one embodiment, the ASO according to the disclosure comprises a contiguous nucleotide sequence of 10 to 30 nucleotides in length that are complementary to a nucleic acid sequence within a *SNCA* transcript, *e.g.,* a region corresponding to an exon, intron, or any combination thereof of SEQ ID NO: 1 or a region within SEQ ID NOs: 2, 3, 4, or 5, wherein the nucleic acid sequence corresponds to (i) nucleotides 4942 - 5343 of SEQ ID NO: 1; (ii) nucleotides 6326 - 7041 of SEQ ID NO: 1; (iia) nucleotides 6336 - 7041 of SEQ ID NO: 1; (iii) nucleotides 7329 - 7600 of SEQ ID NO: 1; (iv) nucleotides 7630 - 7783 of SEQ ID NO: 1; (iva) nucleotides 7750 - 7783 of SEQ ID NO: 1; (v) nucleotides 8277 - 8501 of SEQ ID NO: 1; (vi) nucleotides 9034 - 9526 of SEQ ID NO: 1; (vii) nucleotides 9982 - 14279 of SEQ ID NO: 1; (viii) nucleotides 15204 - 19041 of SEQ ID NO: 1; (ix) nucleotides 20351 - 29654 of SEQ ID NO: 1; (ixa) nucleotides 20351 - 20908 of SEQ ID NO: 1; (ixb) nucleotides 21052 - 29654 of SEQ ID NO: 1; (x) nucleotides 30931 - 33938 of SEQ ID NO: 1; (xi) nucleotides 34932 - 37077 of SEQ ID NO: 1; (xii) nucleotides 38081 - 42869 of SEQ ID NO: 1; (xiii) nucleotides 44640 - 44861 of SEQ ID NO: 1; (xiv) nucleotides 46173 - 46920 of SEQ ID NO: 1; (xv) nucleotides 47924 - 58752 of SEQ ID NO: 1; (xvi) nucleotides 60678 - 60905 of SEQ ID NO: 1; (xvii) nucleotides 62066 - 62397 of SEQ ID NO: 1; (xviii) nucleotides 67759 - 71625 of SEQ ID NO: 1; (xix) nucleotides 72926 - 86991 of SEQ ID NO: 1; (xx) nucleotides 88168 - 93783 of SEQ ID NO: 1; (xxi) nucleotides 94976 - 102573 of SEQ ID NO: 1;

(xxii) nucleotides 104920 - 107438 of SEQ ID NO: 1; (xxiii) nucleotides 108948 - 119285 of SEQ ID NO: 1; (xxiiia) nucleotides 108948 - 114019 of SEQ ID NO: 1; (xxiiib) nucleotides 114292 - 116636 of SEQ ID NO: 1; (xxiv) nucleotides 131 - 678 of SEQ ID NO: 5; (xxv) nucleotides 131-348 of SEQ ID NO: 3; (xxvi) nucleotides 1 - 162 of SEQ ID NO: 4; (xxvii) nucleotides 126 - 352 of SEQ ID NO: 2; (xxviii) nucleotides 276 - 537 of SEQ ID NO: 2; (xxix) nucleotides 461 - 681 of SEQ ID NO: 2; and (xxx) nucleotides 541 - 766 of SEQ ID NO: 2.

In another embodiment, the ASO according to the disclosure comprises a contiguous nucleotide sequence of 10-30 nucleotides that hybridizes to or is complementary, such as at least 90% complementary, such as fully complementary, to a region within an intron of a *SNCA* transcript, *e.g.,* a region corresponding to an intron of SEQ ID NO: 1 (*e.g.,* intron 1, 2, 3, or 4).

In some embodiments the ASO comprises a contiguous nucleotide sequence of 10 to 30 nucleotides in length that is at least 90% complementary, such as fully complementary, to an intron region present in the pre-mRNA of human SNCA , selected from intron iO (nucleotides 1-6097 of SEQ ID NO: 1); i1 (nucleotides 6336 - 7604 of SEQ ID NO: 1); i2 (nucleotides 7751 - 151 12 of SEQ ID NO: 1); i3 (nucleotides 15155 - 20908 of SEQ ID NO: 1); i4 (nucleotides 21052 - 114019 of SEQ ID NO: 1); i5 (nucleotides 114104 - 116636 of SEQ ID NO: 1) or i6 (nucleotides 11919 9 - 12 1198 of SEQ ID NO: 1).

In some embodiments the ASO comprises a contiguous nucleotide sequence of 10 to 30 nucleotides in length that is at least 90% complementary, such as fully complementary to a of human SNCA, wherein the nucleic acid sequence corresponds to nucleotides 21052 -20351 - 29654 of SEQ ID NO: 1; nucleotides 30931 - 33938 of SEQ ID NO: 1; nucleotides 44640 - 44861 of SEQ ID NO: 1; or nucleotides 47924 - 58752 of SEQ ID NO: 1.

In particular, an ASO complementary to intron 4 (nucleotides 21052 - 114019 of SEQ ID NO: 1), such as intron 4 regions selected from nucleotides 21052 - - 29654 of SEQ ID NO: 1; nucleotides 24483 - 28791 of SEQ ID NO: 1; nucleotides 30931 - 33938 of SEQ ID NO: 1; nucleotides 32226 - 32242 of SEQ ID NO: 1; nucleotides 44640 - 44861 of SEQ ID NO: 1; nucleotides 44741 - 44758 of SEQ ID NO: 1; nucleotides 47924 - 58752 of SEQ ID NO: 1 or nucleotides 48641 - 48659 of SEQ ID NO: 1 are advantageous.

In another embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence of 10-30 nucleotides that hybridizes to or is complementary, such as at least 90% complementary, such as fully complementary, to a nucleic acid sequence, or a region within the sequence, of a *SNCA* transcript, wherein the nucleic acid sequence corresponds to nucleotides 6,426-6,825; 18,569-20,555; or 3 1,398-107,220 of SEQ ID NO: 1, and wherein the ASO has one of the designs

described herein (*e.g.,* Section II.G. *e.g.,* a gapmer design, *e.g.,* an alternating flank gapmer design) or a chemical structure shown elsewhere herein *(e.g.,* FIGs. 1A to 1C and 2).

In another embodiment, the target region corresponds to nucleotides 5,042-5,243 of SEQ ID NO: 1.

In other embodiments, the target region corresponds to nucleotides 6336 - 7604 of SEQ ID NO: 1.

In other embodiments, the target region corresponds to nucleotides 6336 - 7041 of SEQ ID NO: 1

In other embodiments, the target region corresponds to nucleotides 6,426-6,941 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 7,429-7,600 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 7,630-7,683 of SEQ ID NO: 1.

In other embodiments, the target region corresponds to nucleotides 7751 - 151 12 of SEQ ID NO: 1.

In other embodiments, the target region corresponds to nucleotides 7751 - 7783 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 8,377-8,401 of SEQ ID NO: 1.

In another embodiment, the target region corresponds to nucleotides 9,134-9,426 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 10,082-14,179 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 15,304-18,941 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 15155 - 20908 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 20,451-29,554 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 20351 - 20908 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 21052 - 114019 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 21052 - 29654 of SEQ ID NO: 1

In one embodiment, the target region corresponds to nucleotides 31,031-33,838 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 30931 - 33938 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 35032-36977 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 38181-42769 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 44640 - 44861 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 44740-44761 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 46273-46820 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 47924 - 58752 of SEQ ID NO: 1.

In other embodiments, the target region corresponds to nucleotides 48024-58752 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 60778-60805 of SEQ ID NO: 1.

In some embodiment, the target region corresponds to nucleotides 62,166-62,297 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 67,859-71 ,525 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 73026-86891 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 88268-93683 of SEQ ID NO: 1.

In some embodiment, the target region corresponds to nucleotides 95076-102473 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 105020-107338 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 109,048-1 19,185 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides 108948 - 114019 of SEQ ID NO: 1.

In some embodiments, the target region corresponds to nucleotides nucleotides 114292 - 116636 of SEQ ID NO: 1.

In one embodiment, the target region corresponds to nucleotides 231 - 248 or 563 - 578 of SEQ ID NO: 5.

In another embodiment, the target region corresponds to nucleotides 231 - 248 of SEQ ID NO: 3.

In some embodiments, the target region corresponds to nucleotides 38 - 62 of SEQ ID NO: 4.

In other embodiments, the target region corresponds to nucleotides 226-252 of SEQ ID NO: 2.

In one embodiment, the target region corresponds to nucleotides 376-437 of SEQ ID NO: 2.

In another embodiment, the target region corresponds to nucleotides 561-581 of SEQ ID NO: 2.

In one embodiment, the target region corresponds to nucleotides 641-666 of SEQ ID NO: 2.

In certain embodiments, the ASOs hybridize to or are complementary, such as at least 90% complementary, such as fully complementary, to a region within a *SNCA* transcript, *e.g.,* SEQ ID

NO: 1, and have a sequence score equal to or greater than about 0.1 , 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, or 1.0. Calculation methods of the sequence score are disclosed elsewhere herein.

In one embodiment, the ASO according to the disclosure comprises a contiguous nucleotide sequence that hybridizes to a region within an exon of a *SNCA* transcript, *e.g.,* a region corresponding to an exon of SEQ ID NO: 1, *e.g.,* exon 2, 4, 5, or 6. In another embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence that hybridizes to a nucleic acid sequence, or a region within the sequence, of a *SNCA* transcript ("target region"), wherein the nucleic acid sequence corresponds to nucleotides 7,630-7,683; 20,932-21 ,032; 114,059-1 14,098; or 116,659-1 19,185 of SEQ ID NO: 1. In another embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence that hybridizes to a nucleic acid sequence, or a region within the sequence, of a *SNCA* transcript, wherein the nucleic acid sequence corresponds to nucleotides 7,630-7,683; 20,926-21 ,032; 114,059-1 14,098; or 116,659-1 19,185 of SEQ ID NO: 1, and wherein the ASO has one of the designs described herein *(e.g.,* Section II.G. *e.g.,* a gapmer design, *e.g.,* an alternating flank gapmer design) or a chemical structure shown elsewhere herein *(e.g.,* FIGs. 1A to 1C and 2).

In another embodiment, the target region corresponds to nucleotides 7,630-7,683 of SEQ ID NO: 1. In some embodiments, the target region corresponds to nucleotides 20,932-21 ,032 of SEQ ID NO: 1. In certain embodiments, the target region corresponds to nucleotides 114,059-1 14,098 of SEQ ID NO: 1. In one embodiment, the target region corresponds to nucleotides 116,659-1 19,185 of SEQ ID NO: 1. In another embodiment, the target region corresponds to nucleotides 116,981-117,212 of SEQ ID NO: 1. In some embodiments, the target region corresponds to nucleotides 116,981-1 17,019 of SEQ ID NO: 1. In other embodiments, the target region corresponds to nucleotides 117,068-1 17,098 of SEQ ID NO: 1. In certain embodiments, the target region corresponds to nucleotides 117,185-1 17,212 of SEQ ID NO: 1. In another embodiment, the target region corresponds to nucleotides 118,706-1 18,725 of SEQ ID NO: 1. In certain embodiments, the ASOs hybridize to a region within an exon of a *SNCA* transcript, *e.g.,* SEQ ID NO: 1, and have a sequence score equal to or greater than about 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, or 1.0. Calculation methods of the sequence score are disclosed elsewhere herein.

In other embodiments, the target region corresponds to nucleotides 6,426-6,825 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In some embodiments, the target region corresponds to nucleotides 18,569-20,555 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In another embodiment, the target region corresponds to nucleotides 20,926-21 ,032 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both.

In other embodiments, the target region corresponds to nucleotides 31,398-31,413 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In some embodiments, the target region corresponds to nucleotides 35,032-35,049 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In certain embodiments, the target region corresponds to nucleotides 68,373-69,827 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In another embodiment, the target region corresponds to nucleotides 78,418-78,487 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In other embodiments, the target region corresponds to nucleotides 91,630-91,646 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In some embodiments, the target region corresponds to nucleotides 100,028-101,160 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In certain embodiments, the target region corresponds to nucleotides 107,205-107,220 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In another embodiment, the target region corresponds to nucleotides 114,059-114,098 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In other embodiments, the target region corresponds to nucleotides 116,659-119,185 of SEQ ID NO: 1 ± 10, ± 20, ± 30, ± 40, ± 50, ± 60, ± 70, ± 80, or ± 90 nucleotides at the 3' end, the 5' end, or both. In other embodiments, the target region corresponds to nucleotides 7,604-7,620 of SEQ ID NO: 1 ± 1, ± 2, ± 3, ± 4, ± 5, ± 6, ± 7, ± 8, or ± 9 nucleotides at the 3' end, the 5' end, or both.

In certain embodiments, the ASO of the disclosure is capable of hybridizing to the target nucleic acid (e.g., *SNCA* transcript) under physiological condition, *i.e., in vivo* condition. In some embodiments, the ASO of the disclosure is capable of hybridizing to the target nucleic acid (e.g., *SNCA* transcript) *in vitro.* In some embodiments, the ASO of the disclosure is capable of hybridizing to the target nucleic acid (e.g., *SNCA* transcript) *in vitro* under stringent conditions. Stringency conditions for hybridization *in vitro* are dependent on, *inter alia,* productive cell uptake, RNA accessibility, temperature, free energy of association, salt concentration, and time *(see, e.g.,* Stanley T Crooks, Antisense Drug Technology: Principles, Strategies and Applications, 2nd Edition, CRC Press (2007)). Generally, conditions of high to moderate stringency are used for *in vitro* hybridization to enable hybridization between substantially similar nucleic acids, but not between dissimilar nucleic acids. An example of stringent hybridization conditions include hybridization in 5X saline-sodium citrate (SSC) buffer (0.75 M sodium chloride/0.075 M sodium citrate) for 1 hour at 40° C, followed by washing the sample 10 times in 1X SSC at 40° C and 5 times in 1X SSC buffer at room temperature. *In vivo* hybridization conditions consist of intracellular conditions (e.g.,

physiological pH and intracellular ionic conditions) that govern the hybridization of antisense oligonucleotides with target sequences. *In vivo* conditions can be mimicked *in vitro* by relatively low stringency conditions. For example, hybridization can be carried out *in vitro* in 2X SSC (0.3 M sodium chloride/0.03 M sodium citrate), 0.1% SDS at 37°C. A wash solution containing 4X SSC, 0.1% SDS can be used at 37° C, with a final wash in 1X SSC at 45° C.

II.B. ASO Sequences

The ASOs of the disclosure comprise a contiguous nucleotide sequence which corresponds to the complement of a region of *SNCA* transcript, *e.g.,* a nucleotide sequence corresponding to SEQ ID NO: 1.

In certain embodiments, the disclosure provides an ASO which comprises a contiguous nucleotide sequence of a total of from 10-30 nucleotides, such as 10-25 nucleotides, such as 16 to 22, such as 10-20 nucleotides, such as 14 to 20 nucleotides, such as 17 to 20 nucleotides, such as 10-15 nucleotides, such as 12-14 nucleotides in length, wherein the contiguous nucleotide sequence has at least about 85%, at least about 90%, at least about 95%, at least about 98%, or at least about 99% sequence identity to a region within the complement of a mammalian *SNCA* transcript, such as SEQ ID NO: 1 or SEQ ID NO: 2 or naturally occurring variant thereof (SEQ ID NO: 3, 4, or 5). Thus, for example, the ASO hybridizes to a single stranded nucleic acid molecule having the sequence of SEQ ID NOs: 1 to 5 or a portion thereof.

In some embodiments, the oligonucleotide comprises a contiguous sequence of 10 to 30 nucleotides such as 10-25 nucleotides, such as 16 to 22, such as 10-20 nucleotides, such as 14 to 20 nucleotides, such as 17 to 20 nucleotides, such as 10-15 nucleotides, such as 12-14 nucleotides in length, which is at least 90% complementary, such as at least 91%, such as at least 92%, such as at least 93%, such as at least 94%, such as at least 95%, such as at least 96%, such as at least 97%, such as at least 98%, or 100% complementary with a region of a mammalian *SNCA* transcript, such as SEQ ID NO: 1, 2, 3, 4 and/or 5.

The ASO can comprise a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to the equivalent region of a target nucleic acid which encodes a mammalian SNCA protein (e.g., SEQ ID NOs: 1-5). The ASO can comprise a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to a target nucleic acid sequence, or a region within the sequence, such as an intron region, corresponding to nucleotides X-Y of SEQ ID NO: 1, wherein X and Y are the pre-mRNA start site and the pre-mRNA end site of NG_01 1851.1, respectively. Examples of such regions are liseted in section II.A “The Target”. Furthermore, the ASO can have a design described elsewhere herein (e.g., Section II.G. e.g., a gapmer design, e.g.,

an alternating flank gapmer design) or a chemical structure shown elsewhere herein (*e.g.,* FIGs. 1A to 1C and 2). In some embodiments, the ASO comprises a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to a target nucleic acid sequence, or a region within the sequence, corresponding to nucleotides X-Y of SEQ ID NO: 2, wherein X and Y are the mRNA start site and the mRNA end site, respectively. Examples of such regions are liseted in section II.A "The Target". In other embodiments, the ASO comprises a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to a target nucleic acid sequence, or a region within the sequence, corresponding to nucleotides X-Y of SEQ ID NO: 3, wherein X and Y are the mRNA start site and the mRNA end site, respectively. Examples of such regions are liseted in section 1.A "The Target". In other embodiments, the ASO comprises a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to a target nucleic acid sequence, or a region within the sequence, corresponding to nucleotides X-Y of SEQ ID NO: 4, wherein X and Y are the mRNA start site and the mRNA end site, respectively. Examples of such regions are liseted in section II.A "The Target". In other embodiments, the ASO comprises a contiguous nucleotide sequence which is fully complementary (perfectly complementary) to a target nucleic acid sequence, or a region within the sequence, corresponding to nucleotides X-Y of SEQ ID NO: 5, wherein X and Y are the mRNA start site and the mRNA end site, respectively. Examples of such regions are liseted in section II.A "The Target".

In certain embodiments, the nucleotide sequence of the ASOs of the disclosure or the contiguous nucleotide sequence has at least about 80% sequence identity to a sequence selected from SEQ ID NOs: 7 to 1878 *(i.e.,* the sequences in FIGs. 1A to 1C and 2), such as at least about 85%, at least about 90%, at least about 91%, at least about 92%, at least about 93%, at least about 94%, at least about 95%, at least about 96% sequence identity, at least about 97% sequence identity, at least about 98% sequence identity, at least about 99% sequence identity, such as about 100% sequence identity (homologous). In some embodiments, the ASO has a design described elsewhere herein *(e.g.,* Section II.G.I, *e.g., a* gapmer design, *e.g.,* an alternating flank gapmer design) or a nucleoside chemical structure shown elsewhere herein *(e.g.,* FIGs. 1A to 1C and 2).

In certain embodiments, the nucleotide sequence of the ASOs of the disclosure or the contiguous nucleotide sequence has at least about 80% sequence identity to a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 such as at least about 85%, at least about 90%, at least about 91%, at least about 92%, at least about 93%, at least about 94%, at least about 95%, at least about 96% sequence identity, at least about 97% sequence identity, at least about 98% sequence identity, at least about 99% sequence identity, such as about 100% sequence identity (homologous). In some embodiments, the ASO has a design described elsewhere herein

(*e.g.,* Section II.G.1, *e.g.,* a gapmer design, *e.g.,* an alternating flank gapmer design) or a nucleoside chemical structure shown elsewhere herein *(e.g.,* FIGs. 1A to 1C and 2)

In a further embodiment the nucleotide sequence of the ASOs of the disclosure or the contiguous nucleotide sequence consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353.

In one embodiment the nucleotide sequence of the ASOs of the disclosure or the contiguous nucleotide sequence comprises or consists of a sequence selected from the group consisting of SEQ ID NO: 276; 278; 296; 295; 325; 328; 326; 329; 330; 327; 332; 333; 331 ; 339; 341 ; 390; 522 and 559.

In some embodiments, the ASO of the disclosure comprises at least one ASO with the design *(e.g.,* DES number) disclosed in FIGs. 1A to 1C and 2. In some embodiments, the ASO of the disclosure comprises at least one ASO with the design *(e.g.,* DES number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 3' end than the ASOs disclosed in FIGs. 1A to 1C and 2. In other embodiments, the ASO of the disclosure comprises at least one ASO with the design *(e.g.,* DES number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 5' end than the ASOs disclosed in FIGs. 1A to 1C and 2. In yet other embodiments, the ASO of the disclosure comprises at least one ASO with the design *(e.g.,* DES number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 5' end and/or the 3' end than the ASOs disclosed in FIGs. 1A to 1C and 2.

In one embodiment the contiguous nucleotide sequence comprises or consists a sequence and a design selected from the group consisting of:

TTCtctatataacatCACT (SEQ ID NO: 276)

TTTCtctatataacaT CAC (SEQ ID NO: 278);

AACTtttacataccACAT (SEQ ID NO: 296);

AACTtttacataccaCATT (SEQ ID NO: 295);

ATTAttcatcacaatCCA (SEQ ID NO: 325);

ATTAttcatcacaATCC (SEQ ID NO:328);

CattattcatcacaaTCCA (SEQ ID NO:326);

CATtattcatcacaATCC (SEQ ID NO:329);

ACAttattcatcacaaTCC (SEQ ID NO: 330);

AcattattcatcacaaTCCA (SEQ ID NO: 327);

ACATtattcatcacAAT C (SEQ ID NO: 332);

TACAttattcatcacAAT C (SEQ ID NO: 333);
TAcattattcatcacaaTCC (SEQ ID NO: 331);
TTCaacatttttatttCACA (SEQ ID NO:339);
ATTCaacatttttattTCAC (SEQ ID NO: 341);
ACTAtgatacttcACTC (SEQ ID NO: 390);
ACACattaactactCATA (SEQ ID NO: 522) and
GTCAaaatattcttaCTTC (SEQ ID NO:559),
wherein the upper case letters indicate a sugar modified nucleoside analouge and the lower case letters indicate DNAs.

In other embodiments, the ASO of the disclosure comprises at least one ASO with the chemical structure (*e.g.,* ASO number) disclosed in FIGs. 1A to 1C and 2. In some embodiments, the ASO of the disclosure comprises at least one ASO with the chemical structure *(e.g.,* ASO number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 3' end than the ASOs disclosed in FIGs. 1A to 1C and 2. In other embodiments, the ASO of the disclosure comprises at least one ASO with the chemical structure *(e.g.,* ASO number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 5' end than the ASOs disclosed in FIGs. 1A to 1C and 2. In yet other embodiments, the ASO of the disclosure comprises at least one ASO with the chemical structure *(e.g.,* ASO number) disclosed in FIGs. 1A to 1C and 2, wherein the ASO is one nucleotide, two nucleotides, three nucleotides, or four nucleotides shorter at the 5' end and/or the 3' end than the ASOs disclosed in FIGs. 1A to 1C and 2.

In some embodiments the ASO (or contiguous nucleotide portion thereof) is selected from, or comprises, one of the sequences selected from the group consisting of SEQ ID NOs: 7 to 1878 and a region of at least 10 contiguous nucleotides thereof, wherein the ASO (or contiguous nucleotide portion thereof) can optionally comprise one, two, three, or four mismatches when compared to the corresponding *SNCA* transcript. It is advantageous if there are with no more than 1 mismatch or no more than 2 mismatches.

In some embodiments the ASO (or contiguous nucleotide portion thereof) is selected from, or comprises, one of the sequences selected from the group consisting of SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 and a region of at least 10 contiguous nucleotides thereof, wherein the ASO (or contiguous nucleotide portion thereof) can optionally comprise one, two, three, or four mismatches when compared to the corresponding *SNCA* transcript. It is advantageous if there are with no more than 1 mismatch or no more than 2 mismatches.

In one embodiment, the ASO comprises a sequence selected from the group consisting of SEQ ID NO: 1436 (the sequence of ASO-003092) and SEQ ID NO: 1547 (the sequence of ASO-003179)).

In another embodiment, the ASO comprises a sequence selected from the group consisting of ASO-008387; ASO-008388; ASO-008501 ; ASO-008502; ASO-008529; ASO-008530; ASO-008531 ; ASO-008532; ASO-008533; ASO-008534; ASO-008535; ASO-008536; ASO-008537; ASO-008543; ASO-008545; ASO-008584; ASO-008226 and ASO-008261 .

In some embodiments, an ASO of the disclosure binds to the target nucleic acid sequence (*e.g., SNCA* transcript) and is capable of inhibiting or reducing expression of the *SNCA* transcript by at least about 10%, at least about 20% , at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in a tissue *(e.g.,* a brain region) of a mouse expressing a human *SNCA* gene *(e.g.,* A53T-PAC) when administered *in vivo* at doses of 3.13 µg, 12.5 µg, 25 pg, 50 pg, or 100 pg compared to the control *(e.g.,* an internal control such as GADPH or tubulin, or a mouse administered with vehicle control alone), as measured by an assay, *e.g.,* quantitative PCR or QUANTIGENE® analysis disclosed herein.

In some embodiments, an ASO of the disclosure is capable of reducing expression of SNCA protein by at least about 10%, at least about 20% , at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in a tissue *(e.g.,* a brain region) of a mouse expressing a human *SNCA* gene *(e.g.,* A53T-PAC) when administered *in vivo* at doses of 3.13 pg, 12.5 pg, 25 pg, 50 pg, or 100 pg compared to the control *(e.g.,* an internal control such as GADPH or tubulin, or a mouse administered with vehicle control alone), as measured by an assay, *e.g.,* High Content Assay disclosed herein *(see* Example 2A).

In some embodiments, an ASO of the disclosure binds to the target nucleic acid sequence *(e.g., SNCA* transcript) and is capable of inhibiting or reducing expression of the *SNCA* transcript by at least about 10%, at least about 20% , at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in a tissue *(e.g.,* a brain region) of a cyno expressing the wild-type *SNCA* gene when administered once or twice *in vivo* at doses of 4 mg, 8 mg, or 16 mg compared to the control *(e.g.,* an internal control such as GADPH or tubulin, or a cyno administered with vehicle control alone), as measured by an assay, *e.g.,* quantitative PCR or QUANTIGENE® analysis disclosed herein.

In some embodiments, an ASO of the disclosure is capable of reducing expression of SNCA protein by at least about 10%, at least about 20% , at least about 30%, at least about 40%, at least

about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in a tissue (*e.g.*, a brain region) of a cyno expressing the wild-type *SNCA* gene when administered once or twice *in vivo* at doses of 4 mg, 8 mg, or 16 mg compared to the control *(e.g.,* an internal control such as GADPH or tubulin, or a cyno administered with vehicle control alone), as measured by an assay, *e.g.,* High Content Assay disclosed herein *(see* Example 2A).

In other embodiments, an ASO of the disclosure is capable of reducing expression of *SNCA* mRNA *in vitro* by at least about 20%, at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in mouse primary neurons expressing a full-length human *SNCA* gene *(e.g.,* PAC neurons) when the neurons are in contact with 5 μM, 3.3 pM, 1 pM, 4 nM, 40 nM, or 200 nM of the antisense oligonucleotide compared to a control *(e.g.,* an internal control such as GADPH or tubulin, or mouse primary neurons expressing a full-length human *SNCA* gene in contact with saline alone), as measured by an assay, *e.g.,* QUANTIGENE® analysis disclosed herein.

In yet other embodiments, an ASO of the disclosure is capable of reducing expression of SNCA protein *in vitro* by at least about 60%, at least about 70%, at least about 80%, at least about 90%, or at least about 95% in mouse primary neurons expressing a full-length human *SNCA* gene *(e.g.,* PAC neurons) when the neurons are in contact with 5 pM, 3.3 pM, 1 pM, 4 nM, 40 nM, or 200 nM of the antisense oligonucleotide compared to a control *(e.g.,* an internal control such as GADPH or tubulin, or mouse primary neurons expressing a full-length human *SNCA* gene in contact with saline alone), as measured by an assay, *e.g.,* High Content Assay disclosed herein *(see* Example 2A).

In some embodiments, an ASO of the disclosure is capable of reducing expression of *SNCA* mRNA *in vitro* by at least about 10%, at least about 20%, at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in human neuroblastoma cell line *(e.g.,* SK-N-BE(2)) expressing a full-length human *SNCA* gene when the neuroblastoma cells are in contact with 25 pM of the antisense oligonucleotide compared to control *(e.g.,* an internal control such as GADPH or tubulin, or neuroblastoma cells expressing a full-length human *SNCA* gene in contact with saline alone), as measured by an assay, *e.g.,* quantitative PCR disclosed herein.

In some embodiments, an ASO disclosed herein is capable of reducing expression of SNCA protein *in vitro* by at least about 10%, at least about 20%, at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% in human neuroblastoma cell line *(e.g.,* SK-N-BE(2)) expressing a full-length human *SNCA* gene when the neuroblastoma cells are in contact with 25 pM of the antisense

oligonucleotide compared to control (*e.g.*, an internal control such as GADPH or tubulin, or neuroblastoma cells expressing a full-length human *SNCA* gene in contact with saline alone), as measured by an assay, *e.g.,* High Content Assay analysis disclosed herein (*see* Example 2A).

In certain embodiments, an ASO of the disclosure binds to the *SNCA* transcript and inhibit or reduce expression of the *SNCA* mRNA by at least about 10% or about 20% compared to the normal *(i.e.* control) expression level in the cell, *e.g.,* at least about 30%, about 40%, about 50%, about 60%, about 70%, about 80%, about 90% or about 95% compared to the normal expression level (such as the expression level in the absence of the ASO(s) or conjugate(s)) in the cell. In certain embodiments, the ASO reduces expression of SNCA protein in a cell following administration of the ASO by at least 60%, at least 70%, at least 80%, or at least 90% compared to a cell not exposed to the ASO *(i.e.,* control). In some embodiments, the ASO reduces expression of SNCA protein in a cell following administration of the ASO by at least about 60%, at least about 70%, at least about 80%, or at least about 90% compared to a cell not exposed to the ASO *(i.e.,* control).

In certain embodiments, an ASO of the disclosure has at least one property selected from: (1) reduces expression of *SNCA* mRNA in a cell, compared to a control cell that has not been exposed to the ASO; (2) does not significantly reduce calcium oscillations in a cell; (3) does not significantly reduce tubulin intensity in a cell; (4) reduces expression of α-Syn protein in a cell; and (5) any combinations thereof compared to a control cell that has not been exposed to the ASO.

In some embodiments, the ASO of the disclosure does not significantly reduce calcium oscillations in a cell, *e.g.,* neuronal cells. If the ASO does not significantly reduce calcium oscillations in a cell, this property of the ASO corresponds with a reduced neurotoxicity of the ASO. In some embodiments, calcium oscillations are greater than or equal to 95%, greater than or equal to 90%, greater than or equal to 85%, greater than or equal to 80%, greater than or equal to 75%, greater than or equal to 70%, greater than or equal to 65%, greater than or equal to 60%, greater than or equal to 55%, or greater than or equal to 50% of oscillations in a cell not exposed to the ASO.

Calcium oscillations are important for the proper functions of neuronal cells. Networks of cortical neurons have been shown to undergo spontaneous calcium oscillations resulting in the release of the neurotransmitter glutamate. Calcium oscillations can also regulate interactions of neurons with associated glia, in addition to other associated neurons in the network, to release other neurotransmitters in addition to glutamate. Regulated calcium oscillations are required for homeostasis of neuronal networks for normal brain function. *(See,* Shashank *et ai, Brain Research,* 1006(1): 8-17 (2004); Rose *et al., Nature Neurosci.,* 4:773 - 774 (2001); Zonta *et al., J Physiol Paris.,* 96(3-4):193-8 (2002); Pasti *et ai, J. Neurosci.,* 21(2): 477-484 (2001).) Glutamate

also activates two distinct ion channels, a-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptors and N-methyl-D-aspartate (NMDA) receptors.

In some embodiments, the calcium oscillations measured in the present methods are AMPA-dependent calcium oscillations. In some embodiments, the calcium oscillations are NMDA-dependent calcium oscillations. In some embodiments, the calcium oscillations are gamma-aminobutyric acid (GABA)-dependent calcium oscillations. In some embodiments, the calcium oscillations can be a combination of two or more of AMPA-dependent, NMDA-dependent or GABA-dependent calcium oscillations.

In certain embodiments, the calcium oscillations measured in the present methods are AMPA-dependent calcium oscillations. In order to measure AMPA-dependent calcium oscillations, the calcium oscillations can be measured in the presence of Mg^{2+} ions (*e.g.,* $MgCl_2$). In certain embodiments, the method further comprises adding Mg^{2+} ions *(e.g.,* MgCh) at an amount that allows for detection of AMPA-dependent calcium oscillations. In some embodiments, the effective ion concentration allowing for detection of AMPA-dependent calcium oscillations is at least about 0.5 mM. In other embodiments, the effective ion concentration to induce AMPA-dependent calcium oscillations is at least about 0.6 mM, at least about 0.7 mM, at least about 0.8 mM, at least about 0.9 mM, at least about 1 mM, at least about 1.5 mM, at least about 2.0 mM, at least about 2.5 mM, at least about 3.0 mM, at least about 4 mM, at least about 5 mM, at least about 6 mM, at least about 7 mM, at least about 8 mM, at least about 9 mM, or at least about 10mM. In a particular embodiment, the concentration of Mg^{2+} ions *(e.g.,* MgCh) useful for the methods is 1mM. In certain embodiments, the concentration of Mg^{2+} ions *(e.g.,* $MgCl_2$) useful for the present methods is about 1 mM to about 10 mM, about 1 mM to about 15mM, about 1 mM to about 20 mM, or about 1 mM to about 25 mM. Mg^{2+} ions can be added by the addition of magnesium salts, such as magnesium carbonate, magnesium chloride, magnesium citrate, magnesium hydroxide, magnesium oxide, magnesium sulfate, and magnesium sulfate heptahydrate.

In some embodiments, calcium oscillations are measured in the present method through the use of fluorescent probes which detect the fluctuations of intracellular calcium levels. For example, detection of intracellular calcium flux can be achieved by staining the cells with fluorescent dyes which bind to calcium ions (known as fluorescent calcium indicators) with a resultant, detectable change in fluorescence *(e.g.,* Fluo-4 AM and Fura Red AM dyes available from Molecular Probes. Eugene, OR, United States of America).

In other embodiments, the ASO of the disclosure does not significantly reduce the tubulin intensity in a cell. In some embodiments, tubulin intensity is greater than or equal to 95%, greater than or equal to 90%, greater than or equal to 85%, greater than or equal to 80%, greater than or equal to

75%, greater than or equal to 70%, greater than or equal to 65%, greater than or equal to 60%, greater than or equal to 55%, or greater than or equal to 50% of tubulin intensity in a cell not exposed to the ASO (or exposed to saline).

In some embodiments, such property is observed when using from 0.04 nM to 400 µM concentration of the ASO of the disclosure. In the same or a different embodiment, the inhibition or reduction of expression of *SNCA* mRNA and/or SNCA protein in the cell results in less than 100%, such as less than 98%, less than 95%, less than 90%, less than 80%, such as less than 70%, mRNA or protein levels compared to cells not exposed to the ASO. Modulation of expression level can be determined by measuring SNCA protein levels, *e.g.,* by methods such as SDS-PAGE followed by western blotting using suitable antibodies raised against the target protein. Alternatively, modulation of expression levels can be determined by measuring levels of *SNCA* mRNA, *e.g.,* by northern blot or quantitative RT-PCR. When measuring inhibition via mRNA levels, the level of down-regulation when using an appropriate dosage, such as from about 0.04 nM to about 400 µM concentration, is, in some embodiments typically to a level of from about 10-20% the normal levels in the cell in the absence of the ASO.

In certain embodiments, the ASO of the disclosure has an *in vivo* tolerability less than or equal to a total score of 4, wherein the total score is the sum of a unit score of five categories, which are 1) hyperactivity; 2) decreased activity and arousal; 3) motor dysfunction and/or ataxia; 4) abnormal posture and breathing; and 5) tremor and/or convulsions, and wherein the unit score for each category is measured on a scale of 0-4. In certain embodiments, the *in vivo* tolerability is less than or equal to the total score of 3, the total score of 2, the total score of 1, or the total score of 0. In some embodiment, the assessment for *in vivo* tolerability is determined as described in the examples below.

In some embodiments, the ASO can tolerate 1, 2, 3, or 4 (or more) mismatches, when hybridizing to the target sequence and still sufficiently bind to the target to show the desired effect, *i.e.,* down-regulation of the target mRNA and/or protein. Mismatches can, for example, be compensated by increased length of the ASO nucleotide sequence and/or an increased number of nucleotide analogues, which are disclosed elsewhere herein.

In some embodiments, the ASO of the disclosure comprises no more than 3 mismatches when hybridizing to the target sequence. In other embodiments, the contiguous nucleotide sequence comprises no more than 2 mismatches when hybridizing to the target sequence. In other embodiments, the contiguous nucleotide sequence comprises no more than 1 mismatch when hybridizing to the target sequence.

In some embodiments the ASO according to the disclosure comprises a nucleotide sequence, or a region within the sequence, according to any one of SEQ ID NOs: 7 to 1878, the ASO sequences with the design as described in FIGs. 1A to 1C and 2, and the ASO sequence with the chemical structure as described in FIGs. 1A to 1C and 2.

However, it is recognized that, in some embodiments, the nucleotide sequence of the ASO can comprise additional 5' or 3' nucleotides, such as, 1 to 5, such as 2 to 3 additional nucleotides, such as independently, 1, 2, 3, 4 or 5 additional nucleotides. The additional 5' and/or 3' nucleotides are preferably non-complementary to the target sequence. In this respect the ASO of the disclosure, can, in some embodiments, comprise a contiguous nucleotide sequence which is flanked 5' and/or 3' by additional nucleotides. In some embodiments the additional 5' and/or 3' nucleotides are naturally occurring nucleotides, such as DNA or RNA. In a further embodiment the natural occurring nucleotides at the 5'- or 3'-end are linked with phosphodiester (PO) internucleotide linkages. Such terminal PO linkages are cleavable by nucleases upon entry into the target cell, and are also termed biocleavable linkers and are describe in detail in WO 2014/076195.

In some embodiments, the ASO of the disclosure has a sequence score greater than or equal to 0.2, wherein the sequence score is calculated by formula I:

$$\frac{\#\text{ of C nucleotides and analogues thereof} - \#\text{ of G nucleotides and analogues thereof}}{\text{Total nucleotide length.}} \quad (I)$$

In other embodiments, the ASO of the disclosure has a sequence score greater than or equal to 0.2, wherein the sequence score is calculated by formula IA:

$$\frac{\#\text{ of C nucleotides and 5-methylcytosine nucleotides} - \#\text{ of G nucleotides}}{\text{Total nucleotide length.}} \quad (IA)$$

In these embodiments, a sequence score of greater than or equal to a cut off value corresponds to a reduced neurotoxicity of the ASO.

In certain embodiments, the ASO of the disclosure has a sequence score greater than or equal to about 0.1, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, or 1.0.

In one embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence hybridizing to a non-coding region of a *SNCA* transcript, wherein the sequence score of the ASO is greater than or equal to about 0.1, 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, or 1.0.

In another embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence hybridizing to an intron region of a *SNCA* transcript, wherein the sequence score of the ASO is

greater than or equal to about 0.1 , 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, or 1.0.

In another embodiment, the ASO of the disclosure comprises a contiguous nucleotide sequence hybridizing to an intron exon junction of a *SNCA* transcript, wherein the sequence score of the ASO is greater than or equal to about 0.1 , 0.2, 0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, 0.8, 0.85, 0.9, 0.95, or 1.0.

In all of these embodiments, when the sequence score is greater than or equal to the cut off value, the ASO is considered to have reduced neurotoxicity.

11. C. ASO Length

The ASOs can comprise a contiguous nucleotide sequence of a total of 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 2 1, 22, 23, 24, 25, 26, 27, 28, 29, or 30 contiguous nucleotides in length.

In some embodiments, the ASOs comprise a contiguous nucleotide sequence of a total of about 10-22, such as 10-21, such as 12-20, such as15-20, such as 17-20, such as 12-18, such as 13-17 or 12-16, such as 13, 14, 15, 16, 17, 18, 19, 20, or 2 1 contiguous nucleotides in length.

In some embodiments, the ASOs comprise a contiguous nucleotide sequence of a total of 10, 11, 12, 13, or 14 contiguous nucleotides in length.

In some embodiments, the ASOs comprise a contiguous nucleotide sequence of a total of 16, 17, 18, 19 or 20 contiguous nucleotides in length.

In some embodiments, the ASO according to the disclosure consists of no more than 22 nucleotides, such as no more than 2 1 or 20 nucleotides, such as no more than 18 nucleotides, such as 15, 16 or 17 nucleotides. In some embodiments the ASO of the disclosure comprises less than 22 nucleotides. It should be understood that when a range is given for an ASO, or contiguous nucleotide sequence length, the range includes the lower and upper lengths provided in the range, for example from (or between) 10-30, includes both 10 and 30.

II. D. Nucleosides and Nucleoside analogues

In one aspect of the disclosure, the ASOs comprise one or more non-naturally occurring nucleotide analogues. "Nucleotide analogues" as used herein are variants of natural nucleotides, such as DNA or RNA nucleotides, by virtue of modifications in the sugar and/or base moieties. Analogues could in principle be merely "silent" or "equivalent" to the natural nucleotides in the context of the oligonucleotide, *i.e.* have no functional effect on the way the oligonucleotide works to inhibit target gene expression. Such "equivalent" analogues can nevertheless be useful if, for example, they are easier or cheaper to manufacture, or are more stable to storage or manufacturing conditions, or

represent a tag or label. In some embodiments, however, the analogues will have a functional effect on the way in which the ASO works to inhibit expression; for example by producing increased binding affinity to the target and/or increased resistance to intracellular nucleases and/or increased ease of transport into the cell. Specific examples of nucleoside analogues are described by *e.g.* Freier & Altmann; *Nucl. Acid Res.,* 1997, 25, 4429-4443 and Uhlmann; *Curr. Opinion in Drug Development,* 2000, 3(2), 293-213, and illustrated in section II.D.a and in Scheme 1 (section IID.2b).

II.D.1. Nucleobase

The term nucleobase includes the purine *(e.g.,* adenine and guanine) and pyrimidine *(e.g.,* uracil, thymine and cytosine) moiety present in nucleosides and nucleotides which form hydrogen bonds in nucleic acid hybridization. In the context of the present disclosure the term nucleobase also encompasses modified nucleobases which may differ from naturally occurring nucleobases, but are functional during nucleic acid hybridization. In some embodiments the nucleobase moiety is modified by modifying or replacing the nucleobase. In this context "nucleobase" refers to both naturally occurring nucleobases such as adenine, guanine, cytosine, thymidine, uracil, xanthine and hypoxanthine, as well as non-naturally occurring variants. Such variants are for example described in Hirao *et ai,* (2012*) Accounts of Chemical Research* vol 45 page 2055 and Bergstrom (2009) Current Protocols in Nucleic Acid Chemistry Suppl. 37 1.4.1.

In some embodiments the nucleobase moiety is modified by changing the purine or pyrimidine into a modified purine or pyrimidine, such as substituted purine or substituted pyrimidine, such as a nucleobase selected from isocytosine, pseudoisocytosine, 5-methyl cytosine, 5-thiozolo-cytosine, 5-propynyl-cytosine, 5-propynyl-uracil, 5-bromouracil 5-thiazolo-uracil, 2-thio-uracil, 2'thio-thymine, inosine, diaminopurine, 6-aminopurine, 2-aminopurine, 2,6-diaminopurine and 2-chloro-6-aminopurine.

The nucleobase moieties may be indicated by the letter code for each corresponding nucleobase, *e.g.,* A, T, G, C or U, wherein each letter may optionally include modified nucleobases of equivalent function. For example, in the exemplified oligonucleotides, the nucleobase moieties are selected from A, T, G, C, and 5-methyl cytosine. Optionally, for LNA gapmers, 5-methyl cytosine LNA (MC) nucleosides may be used.

II.D.2. Sugar Modification

The ASO of the disclosure can comprise one or more nucleosides which have a modified sugar moiety, *i.e.* a modification of the sugar moiety when compared to the ribose sugar moiety found in DNA and RNA. Numerous nucleosides with modification of the ribose sugar moiety have been

made, primarily with the aim of improving certain properties of oligonucleotides, such as affinity and/or nuclease resistance.

Such modifications include those where the ribose ring structure is modified, *e.g.* by replacement with a hexose ring (HNA), or a bicyclic ring, which typically have a biradical bridge between the C2' and C4' carbons on the ribose ring (LNA), or an unlinked ribose ring which typically lacks a bond between the C2' and C3' carbons *(e.g.,* UNA). Other sugar modified nucleosides include, for example, bicyclohexose nucleic acids (WO201 1/017521) or tricyclic nucleic acids (WO201 3/1 54798). Modified nucleosides also include nucleosides where the sugar moiety is replaced with a non-sugar moiety, for example in the case of peptide nucleic acids (PNA), or morpholino nucleic acids.

Sugar modifications also include modifications made via altering the substituent groups on the ribose ring to groups other than hydrogen, or the 2'-OH group naturally found in RNA nucleosides. Substituents may, for example be introduced at the 2', 3', 4' or 5' positions. Nucleosides with modified sugar moieties also include 2' modified nucleosides, such as 2' substituted nucleosides. Indeed, much focus has been spent on developing 2' substituted nucleosides, and numerous 2' substituted nucleosides have been found to have beneficial properties when incorporated into oligonucleotides, such as enhanced nucleoside resistance and enhanced affinity.

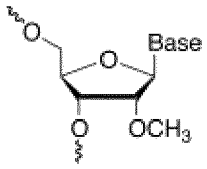
In some embodiments, the sugar modification comprises an affinity enhancing sugar modification, *e.g.,* LNA. An affinity enhancing sugar modification increases the binding affinity of the ASOs to the target RNA sequence. In some embodiments, an ASO comprising a sugar modification disclosed herein has a binding affinity to a target RNA sequence that is enhanced by at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, or at least 100% compared to a control *(e.g.,* an ASO without such sugar modification).

II.D.2.a 2' modified nucleosides

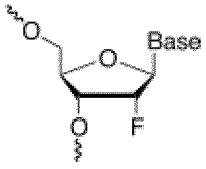
A 2' sugar modified nucleoside is a nucleoside which has a substituent other than H or -OH at the 2' position (2' substituted nucleoside) or comprises a 2' linked biradical capable of forming a bridge between the 2' carbon and a second carbon in the ribose ring, such as LNA (2' - 4' biradical bridged) nucleosides.

Indeed, much focus has been spent on developing 2' sugar substituted nucleosides, and numerous 2' substituted nucleosides have been found to have beneficial properties when incorporated into oligonucleotides. For example, the 2' modified sugar may provide enhanced binding affinity and/or increased nuclease resistance to the oligonucleotide. Examples of 2' substituted modified nucleosides are 2'-0-alkyl-RNA, 2'-0-methyl-RNA, 2'-alkoxy-RNA, 2'-0-methoxyethyl-RNA (MOE),

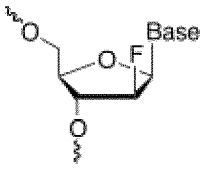
2'-amino-DNA, 2'-Fluoro-RNA, and 2'-F-ANA nucleoside. For further examples, *see, e.g.,* Freier & Altmann; *Nucl. Acid Res.,* 1997, 25, 4429-4443 and Uhlmann; *Curr. Opinion in Drug Development,* 2000, 3(2), 293-213, and Deleavey and Damha, *Chemistry and Biology* 2012, 19, 937. Below are illustrations of some 2' substituted modified nucleosides.



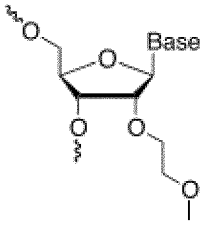
2'-O-Me



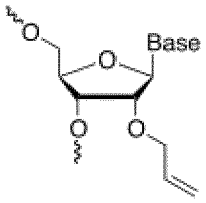
2'F-RNA



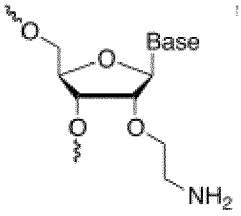
2'F-ANA



2'-O-M0E



2'~0-Allyl



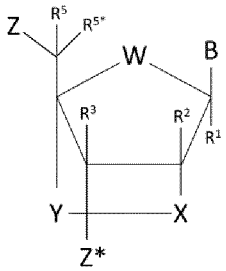
2'-O-Etf ylVmine

In relation to the present invention 2' substituted sugar modified nucleosides does not include 2' bridged nucleosides like LNA.

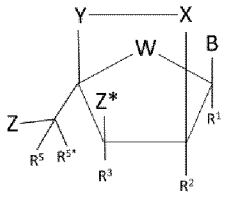
II.D.2.b Locked Nucleic Acid Nucleosides (LNA).

LNA nucleosides are modified nucleosides which comprise a linker group (referred to as a biradical or a bridge) between C2' and C4' of the ribose sugar ring of a nucleotide. These nucleosides are also termed bridged nucleic acid or bicyclic nucleic acid (BNA) in the literature.

In some embodiments, the modified nucleoside or the LNA nucleosides of the ASO of the disclosure has a general structure of the formula II or III:



β-D



α-L

or

Formula II Formula III

wherein W is selected from -0-, -S-, -N(R^a)-, -C(R^aR^b)-, such as, in some embodiments -0-; B designates a nucleobase or modified nucleobase moiety; Z designates an internucleoside linkage to an adjacent nucleoside, or a 5'-terminal group; Z^* designates an internucleoside linkage to an adjacent nucleoside, or a 3'-terminal group; and X designates a group selected from the group consisting of -C(R^aR^b)-, -C(R^a)=C(R^b)-, -C(R^a)=N-, -0-, -Si(R^a)$_2$-, -S-, -S0 $_2$-, -N(R^a)-, and >C=Z.

In some embodiments, X is selected from the group consisting of: -0-, -S-, NH-, NR^aR^b, -CH$_2$-, CR^aR^b, -C(=CH$_2$)-, and -C(=CR $^aR^b$)-. In some embodiments, X is -0-.

In some embodiments, Y designates a group selected from the group consisting of -C(R^aR^b)-, -C(R^a)=C(R^b)-, -C(R^a)=N-, -0-, -Si(R^a)$_2$-, -S-, -S0 $_2$-, -N(R^a)-, and >C=Z. In some embodiments, Y is selected from the group consisting of: -CH $_2$-, -C(R^aR^b)-, -CH $_2$CH$_2$-, -C(R^aR^b)-C(R^aR^b)-, -CH$_2$CH$_2$CH$_2$-, -C(R^aR^b)C(R^aR^b)C(R^aR^b)-, -C(R^a)=C(R^b)-, and -C(R^a)=N-.

In some embodiments, Y is selected from the group consisting of: -CH$_2$-, -CHR ^{a}-, -CHCH3-, CR^aR^b-, and -X-Y- together designate a bivalent linker group (also referred to as a radicle) together designate a bivalent linker group consisting of 1, 2, 3 or 4 groups/atoms selected from the group consisting of -C(R^aR^b)-, -C(R^a)=C(R^b)-, -C(R^a)=N-, -0-, -Si(R^a)$_2$-, -S-, -S0 $_2$-, -N(R^a)-, and >C=Z.

In some embodiments, -X-Y designates a biradical selected from the groups consisting of: -X-CH$_2$-, -X-CR $^aR^b$-, -X-CHR ^{a}-, -X-C(HCH $_3$)$^-$, -0-Y-, -0-CH $_2$-, -S-CH $_2$-, -NH-CH $_2$-, -O-CHCH3-, -CH $_2$-0-CH $_2$, -0-CH(CH $_3$C H$_3$)-, -O-CH $_2$-CH $_2$-, OCH $_2$-CH $_2$-CH $_2$-,-O-CH $_2$OCH $_2$-, -O-NCH $_2$-, -C(=CH $_2$)-CH$_2$-, -NR ^{a}-CH$_2$-, N-0-CH $_2$, -S-CR $^aR^b$- and -S-CHR ^{a}-.

In some embodiments -X-Y- designates -0-CH $_2$- or -0-CH(CH $_3$)-.

In certain embodiments, Z is selected from -0-, -S-, and -N(R^a)-, and R^a and, when present R^b, each is independently selected from hydrogen, optionally substituted Ci$_{-6}$-alkyl, optionally substituted C_{2-6}-alkenyl, optionally substituted C_{2-6}-alkynyl, hydroxy, optionally substituted C1-6-alkoxy, C_{2-6}-alkoxyalkyl, C_{2-6}-alkenyloxy, carboxy, Ci-$_6$-alkoxycarbonyl, Ci-$_6$-alkylcarbonyl, formyl, aryl, aryloxy-carbonyl, aryloxy, arylcarbonyl, heteroaryl, heteroaryloxy-carbonyl, heteroaryloxy, heteroarylcarbonyl, amino, mono- and di(Ci$_{-6}$-alkyl)amino, carbamoyl, mono- and di(Ci$_{-6}$-alkyl)-amino-carbonyl, amino-Ci- $_6$-alkyl-aminocarbonyl, mono- and di(Ci-$_6$-alkyl)amino-Ci- $_6$-alkyl-aminocarbonyl, Ci-$_6$-alkyl-carbonylamino, carbamido, Ci-$_6$-alkanoyloxy, sulphono, C1-6-alkylsulphonyloxy, nitro, azido, sulphanyl, Ci$_{-6}$-alkylthio, halogen, where aryl and heteroaryl may be optionally substituted and where two geminal substituents R^a and R^b together may designate optionally substituted methylene (=CH$_2$), wherein for all chiral centers, asymmetric groups may be found in either *R* or S orientation.

In some embodiments, R^1, R^2, R^3, R^5 and R^{5*} are independently selected from the group consisting of: hydrogen, optionally substituted C-i-$_6$-alkyl, optionally substituted C2-6-alkenyl, optionally substituted C2-6-alkynyl, hydroxy, Ci-$_6$-alkoxy, C2-6-alkoxyalkyl, C2-6-alkenyloxy, carboxy, C-i-$_6$-alkoxycarbonyl, Ci-$_6$-alkylcarbonyl, formyl, aryl, aryloxy-carbonyl, aryloxy, arylcarbonyl, heteroaryl, heteroaryloxy-carbonyl, heteroaryloxy, heteroarylcarbonyl, amino, mono- and di(Ci-$_6$-alkyl)amino, carbamoyl, mono- and di(Ci-$_6$-alkyl)-amino-carbonyl, amino-Ci-$_6$-alkyl-aminocarbonyl, mono- and di(Ci-6-alkyl)amino-Ci-6-alkyl-aminocarbonyl, Ci-6-alkyl-carbonylamino, carbamido, Ci-6-alkanoyloxy, sulphono, Ci-$_6$-alkylsulphonyloxy, nitro, azido, sulphanyl, Ci_$_6$-alkylthio, halogen, where aryl and heteroaryl may be optionally substituted, and where two geminal substituents together may designate oxo, thioxo, imino, or optionally substituted methylene.

In some embodiments R^1, R^2, R^3, R^5 and R^{5*} are independently selected from Ci_$_6$ alkyl, such as methyl, and hydrogen.

In some embodiments R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen.

In some embodiments R^1, R^2, R^3, are all hydrogen, and either R^5 and R^{5*} is also hydrogen and the other of R^5 and $R^{5*}$is other than hydrogen, such as Ci_$_6$ alkyl such as methyl.

In some embodiments, R^a is either hydrogen or methyl. In some embodiments, when present, R^b is either hydrogen or methyl.

In some embodiments, one or both of R^a and R^b is hydrogen.

In some embodiments, one of R^a and R^b is hydrogen and the other is other than hydrogen.

In some embodiments, one of R^a and R^b is methyl and the other is hydrogen.

In some embodiments, both of R^a and R^b are methyl.

In some embodiments, the biradical -X-Y- is -O-CH2-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such LNA nucleosides are disclosed in WO99/014226, WO00/66604, WO98/039352 and W02004/046160 which are all hereby incorporated by reference, and include what are commonly known as beta-D-oxy LNA and alpha-L-oxy LNA nucleosides.

In some embodiments, the biradical -X-Y- is -S-CH2-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such thio LNA nucleosides are disclosed in WO99/014226 and W02004/046160.

In some embodiments, the biradical -X-Y- is -NH-CH2-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such amino LNA nucleosides are disclosed in WO99/014226 and W02004/046160.

In some embodiments, the biradical -X-Y- is -O-CH2-CH2- or -O-CH2-CH2- CH2-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such LNA nucleosides are disclosed in WO00/047599 and Morita et al, Bioorganic & Med.Chem. Lett. 12 73-76, which are hereby incorporated by reference, and include what are commonly known as 2'-0-4'C-ethylene bridged nucleic acids (ENA).

In some embodiments, the biradical -X-Y- is -O-CH2-, W is O, and all of R^1, R^2, R^3, and one of R^5 and R^{5*} are hydrogen, and the other of R^5 and R^{5*} is other than hydrogen such as C1-6 alkyl, such as methyl. Such 5' substituted LNA nucleosides are disclosed in W02007/134181.

In some embodiments, the biradical -X-Y- is -0-CR ^{a}R^b-, wherein one or both of R^a and R^b are other than hydrogen, such as methyl, W is O, and all of R^1, R^2, R^3, and one of R^5 and R^{5*} are hydrogen, and the other of R^5 and R^{5*} is other than hydrogen such as C1-6 alkyl, such as methyl. Such bis modified LNA nucleosides are disclosed in WO201 0/077578.

In some embodiments, the biradical -X-Y- designate the bivalent linker group -0-CH(CH $_2$0CH $_3$)- (2' O-methoxyethyl bicyclic nucleic acid - Seth at al., 2010, J. Org. Chem. Vol 75(5) pp. 1569-81). In some embodiments, the biradical -X-Y- designate the bivalent linker group -0-CH(CH $_2$CH$_3$)- (2'O - ethyl bicyclic nucleic acid - Seth at al., 2010, J. Org. Chem. Vol 75(5) pp. 1569-81). In some embodiments, the biradical -X-Y- is -0-CHR ^{a}-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such 6' substituted LNA nucleosides are disclosed in W01 0036698 and W007090071.

In some embodiments, the biradical -X-Y- is -0-CH(CH $_2$0CH $_3$)-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such LNA nucleosides are also known as cyclic MOEs in the art (cMOE) and are disclosed in W007090071 .

In some embodiments, the biradical -X-Y- designates the bivalent linker group -0-CH(CH $_3$)-. - in either the R- or S- configuration. In some embodiments, the biradical -X-Y- together designate the bivalent linker group -O-CH2-O-CH2- (Seth at al., 2010, J. Org. Chem). In some embodiments, the biradical -X-Y- is -0-CH(CH $_3$)-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such 6' methyl LNA nucleosides are also known as cET nucleosides in the art, and may be either (S)cET or (R)cET stereoisomers, as disclosed in W007090071 (beta-D) and WO201 0/036698 (alpha-L)).

In some embodiments, the biradical -X-Y- is -0-CR ^{a}R^b-, wherein in neither R^a or R^b is hydrogen, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. In some embodiments, R^a and R^b are both methyl. Such 6' di-substituted LNA nucleosides are disclosed in WO 2009006478.

In some embodiments, the biradical -X-Y- is -S-CHR ^{a}-, W is O, and all of R^1, R^2, R^3, R^5 and R^{5*} are all hydrogen. Such 6' substituted thio LNA nucleosides are disclosed in W01 1156202. In some 6' substituted thio LNA embodiments R^a is methyl.

In some embodiments, the biradical -X-Y- is -C(=CH2)-C(R ^{a}R^{b})-, such as -C(=CH $_{2}$)-CH2- , or -C(=CH2)-CH(CH $_{3}$)-W is O, and all of R^{1}, R^{2}, R^{3}, R^{5} and R^{5*} are all hydrogen. Such vinyl carbo LNA nucleosides are disclosed in WO081 54401 and WO09067647.

In some embodiments the biradical -X-Y- is -N(-OR ^{a})-, W is O, and all of R^{1}, R^{2}, R^{3}, R^{5} and R^{5*} are all hydrogen. In some embodiments R^{a} is Ci$_{-6}$ alkyl such as methyl. Such LNA nucleosides are also known as N substituted LNAs and are disclosed in W02008/1 50729. In some embodiments, the biradical -X-Y- together designate the bivalent linker group -0-NR ^{a}-CH $_{3}$- (Seth at al., 2010, J. Org. Chem). In some embodiments the biradical -X-Y- is -N(R ^{a})-, W is O, and all of R^{1}, R^{2}, R^{3}, R^{5} and R^{5*} are all hydrogen. In some embodiments R^{a} is Ci$_{-6}$ alkyl such as methyl.

In some embodiments, one or both of R^{5} and R^{5*} is hydrogen and, when substituted the other of R^{5} and R^{5*} is C-i-$_{6}$ alkyl such as methyl. In such an embodiment, R^{1}, R^{2}, R^{3}, may all be hydrogen, and the biradical -X-Y- may be selected from -0-CH2- or -0-CH(CR ^{a})-, such as -0-CH(CH3)-.

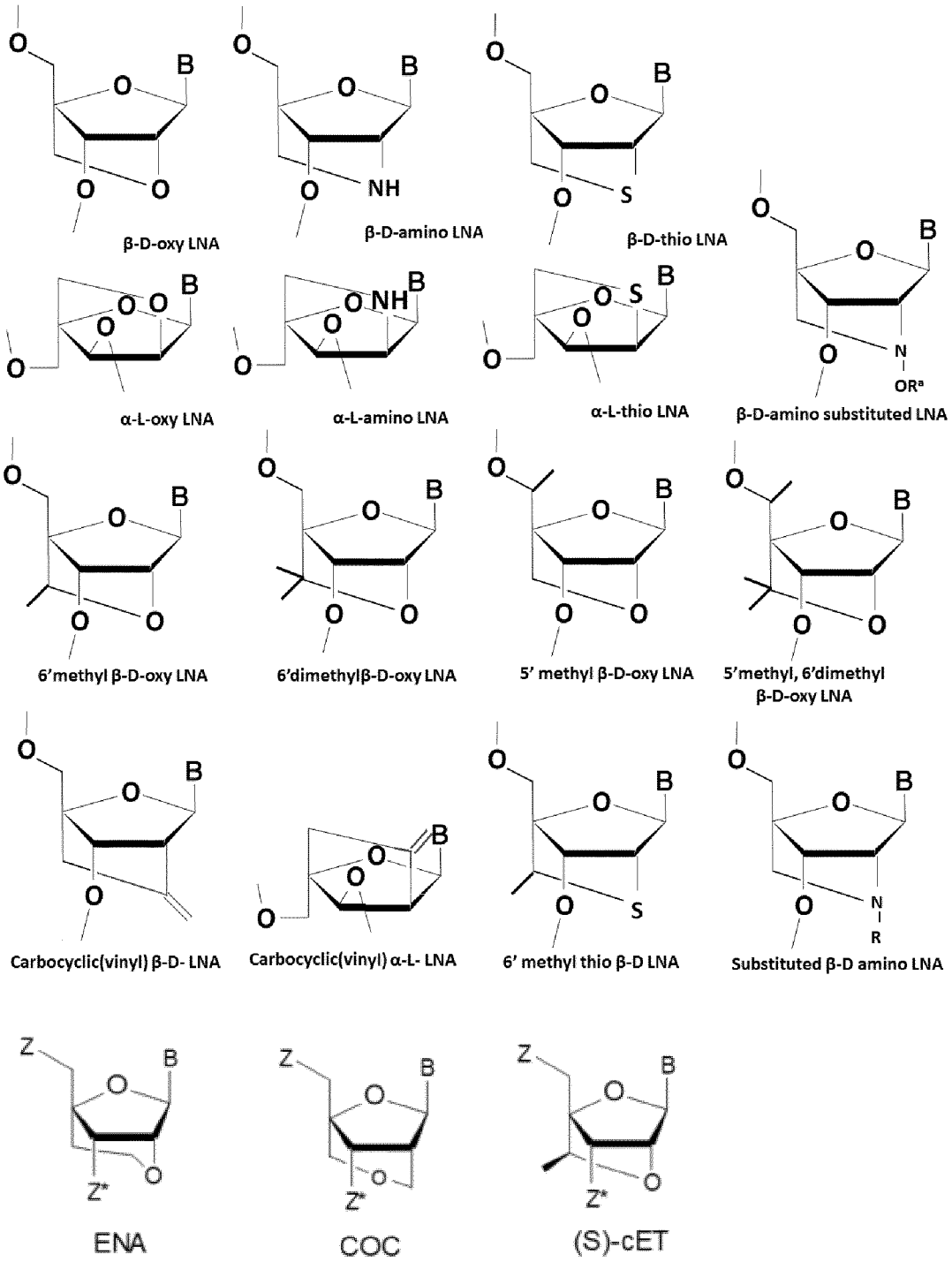
In some embodiments, the biradical is -CR ^{a}R^{b}-0-CR ^{a}R^{b}-, such as CH2-O-CH2-, W is O and all of R^{1}, R^{2}, R^{3}, R^{5} and R^{5*} are all hydrogen. In some embodiments R^{a} is C1-6 alkyl such as methyl. Such LNA nucleosides are also known as conformationally restricted nucleotides (CRNs) and are disclosed in WO201 3036868.

In some embodiments, the biradical is -0-CR ^{a}R^{b}-0-CR ^{a}R^{b}-, such as O-CH2-O-CH2-, W is O and all of R^{1}, R^{2}, R^{3}, R^{5} and R^{5*} are all hydrogen. In some embodiments R^{a} is C1-6 alkyl such as methyl. Such LNA nucleosides are also known as COC nucleotides and are disclosed in Mitsuoka et al., *Nucleic Acids Research* 2009 37(4), 1225-1 238.

It will be recognized than, unless specified, the LNA nucleosides may be in the beta-D or alpha-L stereoisoform.

Certain examples of LNA nucleosides are presented in Scheme 1.

Scheme 1



Particular LNA nucleosides are beta-D-oxy-LNA, 6'-methyl-beta-D-oxy LNA such as (S)-6'-methyl-beta-D-oxy-LNA (ScET) and ENA.

As illustrated in the examples, in some embodiments of the disclosure the LNA nucleosides in the oligonucleotides are beta-D-oxy-LNA nucleosides.

If one of the starting materials or compounds of the invention contain one or more functional groups which are not stable or are reactive under the reaction conditions of one or more reaction steps, appropriate protecting groups (as described e.g. in “Protective Groups in Organic Chemistry” by T. W. Greene and P. G. M. Wuts, 3rd Ed., 1999, Wiley, New York) can be introduced before the critical step applying methods well known in the art. Such protecting groups can be removed at a later stage of the synthesis using standard methods described in the literature. Examples of protecting groups are tert-butoxycarbonyl (Boc), 9-fluorenylmethyl carbamate (Fmoc), 2-trimethylsilylethyl carbamate (Teoc), carbobenzyloxy (Cbz) and p-methoxybenzyloxycarbonyl (Moz).

The compounds described herein can contain several asymmetric centers and can be present in the form of optically pure enantiomers, mixtures of enantiomers such as, for example, racemates, mixtures of diastereoisomers, diastereoisomeric racemates or mixtures of diastereoisomeric racemates.

The term “asymmetric carbon atom” means a carbon atom with four different substituents. According to the Cahn-lngold-Prelog Convention an asymmetric carbon atom can be of the “R” or “S” configuration.

In the present description the term “alkyl”, alone or in combination, signifies a straight-chain or branched-chain alkyl group with 1 to 8 carbon atoms, particularly a straight or branched-chain alkyl group with 1 to 6 carbon atoms and more particularly a straight or branched-chain alkyl group with 1 to 4 carbon atoms. Examples of straight-chain and branched-chain C-i-Ce alkyl groups are methyl, ethyl, propyl, isopropyl, butyl, isobutyl, tert.-butyl, the isomeric pentyls, the isomeric hexyls, the isomeric heptyls and the isomeric octyls, particularly methyl, ethyl, propyl, butyl and pentyl. Particular examples of alkyl are methyl, ethyl and propyl.

The term “cycloalkyl”, alone or in combination, signifies a cycloalkyl ring with 3 to 8 carbon atoms and particularly a cycloalkyl ring with 3 to 6 carbon atoms. Examples of cycloalkyl are cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl and cyclooctyl, more particularly cyclopropyl and cyclobutyl. A particular example of “cycloalkyl” is cyclopropyl.

The term “alkoxy”, alone or in combination, signifies a group of the formula alkyl-O- in which the term "alkyl" has the previously given significance, such as methoxy, ethoxy, n-propoxy, isopropoxy, n-butoxy, isobutoxy, sec.butoxy and tert.butoxy. Particular “alkoxy” are methoxy and ethoxy. Methoxyethoxy is a particular example of “alkoxyalkoxy”.

The term “oxy”, alone or in combination, signifies the -O- group.

The term “alkenyl”, alone or in combination, signifies a straight-chain or branched hydrocarbon residue comprising an olefinic bond and up to 8, preferably up to 6, particularly preferred up to 4 carbon atoms. Examples of alkenyl groups are ethenyl, 1-propenyl, 2-propenyl, isopropenyl, 1-butenyl, 2-butenyl, 3-butenyl and isobutenyl.

The term “alkynyl”, alone or in combination, signifies a straight-chain or branched hydrocarbon residue comprising a triple bond and up to 8, preferably up to 6, particularly preferred up to 4 carbon atoms.

The terms “halogen” or “halo”, alone or in combination, signifies fluorine, chlorine, bromine or iodine and particularly fluorine, chlorine or bromine, more particularly fluorine. The term “halo”, in combination with another group, denotes the substitution of said group with at least one halogen, particularly substituted with one to five halogens, particularly one to four halogens, i.e. one, two, three or four halogens.

The term “haloalkyl”, alone or in combination, denotes an alkyl group substituted with at least one halogen, particularly substituted with one to five halogens, particularly one to three halogens. Examples of haloalkyl include monofluoro-, difluoro- or trifluoro-methyl, -ethyl or -propyl, for example 3,3,3-trifluoropropyl, 2-fluoroethyl, 2,2,2-trifluoroethyl, fluoromethyl or trifluoromethyl. Fluoromethyl, difluoromethyl and trifluoromethyl are particular “haloalkyl”.

The term “halocycloalkyl”, alone or in combination, denotes a cycloalkyl group as defined above substituted with at least one halogen, particularly substituted with one to five halogens, particularly one to three halogens. Particular example of “halocycloalkyl” are halocyclopropyl, in particular fluorocyclopropyl, difluorocyclopropyl and trifluorocyclopropyl.

The terms “hydroxyl” and “hydroxy”, alone or in combination, signify the -OH group.

The terms “thiohydroxyl” and “thiohydroxy”, alone or in combination, signify the -SH group.

The term “carbonyl”, alone or in combination, signifies the -C(O)- group.

The term “carboxy” or “carboxyl”, alone or in combination, signifies the -COOH group.

The term “amino”, alone or in combination, signifies the primary amino group (-NH2), the secondary amino group (-NH-), or the tertiary amino group (-N-).

The term “alkylamino”, alone or in combination, signifies an amino group as defined above substituted with one or two alkyl groups as defined above.

The term “sulfonyl”, alone or in combination, means the -SO2 group.

The term “sulfinyl”, alone or in combination, signifies the -SO- group.

The term “sulfanyl”, alone or in combination, signifies the -S- group.

The term “cyano”, alone or in combination, signifies the -CN group.

The term “azido”, alone or in combination, signifies the -N3 group.

The term “nitro”, alone or in combination, signifies the NO2 group.

The term “formyl”, alone or in combination, signifies the -C(0)H group.

The term “carbamoyl”, alone or in combination, signifies the -C(0)NH_2 group.

The term “cabamido”, alone or in combination, signifies the -NH-C(0)-NH_2 group.

The term “aryl”, alone or in combination, denotes a monovalent aromatic carbocyclic mono- or bicyclic ring system comprising 6 to 10 carbon ring atoms, optionally substituted with 1 to 3 substituents independently selected from halogen, hydroxyl, alkyl, alkenyl, alkynyl, alkoxy, alkoxyalkyl, alkenyloxy, carboxyl, alkoxycarbonyl, alkylcarbonyl and formyl. Examples of aryl include phenyl and naphthyl, in particular phenyl.

The term “heteroaryl”, alone or in combination, denotes a monovalent aromatic heterocyclic mono- or bicyclic ring system of 5 to 12 ring atoms, comprising 1, 2, 3 or 4 heteroatoms selected from N, O and S, the remaining ring atoms being carbon, optionally substituted with 1 to 3 substituents independently selected from halogen, hydroxyl, alkyl, alkenyl, alkynyl, alkoxy, alkoxyalkyl, alkenyloxy, carboxyl, alkoxycarbonyl, alkylcarbonyl and formyl. Examples of heteroaryl include pyrrolyl, furanyl, thienyl, imidazolyl, oxazolyl, thiazolyl, triazolyl, oxadiazolyl, thiadiazolyl, tetrazolyl, pyridinyl, pyrazinyl, pyrazolyl, pyridazinyl, pyrimidinyl, triazinyl, azepinyl, diazepinyl, isoxazolyl, benzofuranyl, isothiazolyl, benzothienyl, indolyl, isoindolyl, isobenzofuranyl, benzimidazolyl, benzoxazolyl, benzoisoxazolyl, benzothiazolyl, benzoisothiazolyl, benzooxadiazolyl, benzothiadiazolyl, benzotriazolyl, purinyl, quinolinyl, isoquinolinyl, quinazolinyl, quinoxalinyl, carbazolyl or acridinyl.

The term “heterocyclyl”, alone or in combination, signifies a monovalent saturated or partly unsaturated mono- or bicyclic ring system of 4 to 12, in particular 4 to 9 ring atoms, comprising 1, 2,3 or 4 ring heteroatoms selected from N, O and S, the remaining ring atoms being carbon, optionally substituted with 1 to 3 substituents independently selected from halogen, hydroxyl, alkyl, alkenyl, alkynyl, alkoxy, alkoxyalkyl, alkenyloxy, carboxyl, alkoxycarbonyl, alkylcarbonyl and formyl. Examples for monocyclic saturated heterocyclyl are azetidinyl, pyrrolidinyl, tetrahydrofuranyl, tetrahydro-thienyl, pyrazolidinyl, imidazolidinyl, oxazolidinyl, isoxazolidinyl, thiazolidinyl, piperidinyl, tetrahydropyranyl, tetrahydrothiopyranyl, piperazinyl, morpholinyl, thiomorpholinyl, 1,1-dioxo-thiomorpholin-4-yl, azepanyl, diazepanyl, homopiperazinyl, or oxazepanyl. Examples for bicyclic

saturated heterocycloalkyl are 8-aza-bicyclo[3.2.1]octyl, quinuclidinyl, 8-oxa-3-aza-bicyclo[3.2.1]octyl, 9-aza-bicyclo[3.3.1]nonyl, 3-oxa-9-aza-bicyclo[3.3.1]nonyl, or 3-thia-9-aza-bicyclo[3.3.1]nonyl. Examples for partly unsaturated heterocycloalkyl are dihydrofuryl, imidazolinyl, dihydro-oxazolyl, tetrahydro-pyridinyl or dihydropyranyl.

II.E. Nuclease mediated degradation

Nuclease mediated degradation refers to an oligonucleotide capable of mediating degradation of a complementary nucleotide sequence when forming a duplex with such a sequence.

In some embodiments, the oligonucleotide may function via nuclease mediated degradation of the target nucleic acid, where the oligonucleotides of the disclosure are capable of recruiting a nuclease, particularly and endonuclease, preferably endoribonuclease (RNase), such as RNase H. Examples of oligonucleotide designs which operate via nuclease mediated mechanisms are oligonucleotides which typically comprise a region of at least 5 or 6 DNA nucleosides and are flanked on one side or both sides by affinity enhancing nucleosides, for example gapmers.

II.F. RNase H Activity and Recruitment

The RNase H activity of an antisense oligonucleotide refers to its ability to recruit RNase H when in a duplex with a complementary RNA molecule and induce cleavage and subsequent degradation of the complementary RNA molecule. WO01/23613 provides *in vitro* methods for determining RNase H activity, which may be used to determine the ability to recruit RNase H. Typically an oligonucleotide is deemed capable of recruiting RNase H if it, when provided with a complementary target nucleic acid sequence, has an initial rate, as measured in pmol/l/min, of at least 5%, such as at least 10% or more than 20% of the of the initial rate determined when using a oligonucleotide having the same base sequence as the modified oligonucleotide being tested, but containing only DNA monomers, with phosphorothioate linkages between all monomers in the oligonucleotide, and using the methodology provided by Example 91 - 95 of WO01/23613.

In some embodiments, an oligonucleotide is deemed essentially incapable of recruiting RNaseH if, when provided with the complementary target nucleic acid, the RNaseH initial rate, as measured in pmol/l/min, is less than 20%, such as less than 10%, such as less than 5% of the initial rate determined when using a oligonucleotide having the same base sequence as the oligonucleotide being tested, but containing only DNA monomers, with no 2' substitutions, with phosphorothioate linkages between all monomers in the oligonucleotide, and using the methodology provided by Example 91 - 95 of WO01/23613.

II.G. ASO Design

The ASO of the disclosure can comprise a nucleotide sequence which comprises both natural nucleotides and nucleotide analogues, and can be in the form of a gapmer. Examples of configurations of a gapmer that can be used with the ASO of the disclosure are described in U.S. Patent Appl. Publ. No. 2012/0322851 .

The term gapmer as used herein refers to an antisense oligonucleotide which comprises a region of RNase H recruiting oligonucleotides (gap) which is flanked 5' and 3' by one or more affinity enhancing modified nucleosides (flanks). Various gapmer designs are described herein. The term LNA gapmer is a gapmer oligonucleotide wherein at least one of the affinity enhancing modified nucleosides is an LNA nucleoside. The term mixed wing gapmer refers to a LNA gapmer wherein the flank regions comprise at least one LNA nucleoside and at least one DNA nucleoside or non-LNA modified nucleoside, such as at least one 2' substituted modified nucleoside, such as, for example, 2'-0-alkyl-RNA, 2'-0-methyl-RNA, 2'-alkoxy-RNA, 2'-0-methoxyethyl-RNA (MOE), 2'-amino-DNA, 2'-Fluoro-RNA and 2'-F-ANA nucleoside(s). In some embodiments the mixed wing gapmer has one flank which comprises LNA nucleosides (*e.g.,* 5' or 3') and the other flank (3' or 5' respectfully) comprises 2' substituted modified nucleoside(s).

In some embodiments, in addition to enhancing affinity of the ASO for the target region, some nucleoside analogues also mediate RNase *(e.g.,* RNaseH) binding and cleavage. Since a-L-LNA monomers recruit RNaseH activity to a certain extent, in some embodiments, gap regions *(e.g.,* region B as referred to herein) of ASOs containing α-L-LNA monomers consist of fewer monomers recognizable and cleavable by the RNaseH, and more flexibility in the mixmer construction is introduced.

II.G.1. Gapmer Design

In one embodiment, the ASO of the disclosure is a gapmer. A gapmer ASO is an ASO which comprises a contiguous stretch of nucleotides which is capable of recruiting an RNase, such as RNaseH, such as a region of at least 6 DNA nucleotides, referred to herein in as region B (B), wherein region B is flanked both 5' and 3' by regions of affinity enhancing nucleotide analogues, such as from 1-10 nucleotide analogues 5' and 3' to the contiguous stretch of nucleotides which is capable of recruiting RNase - these regions are referred to as regions A (A) and C (C) respectively.

In certain embodiments, the gapmer is an alternating flank gapmer, examples of which are discussed below. In certain embodiments, the alternating flank gapmer exhibits less off target binding than a traditional gapmer. In certain embodiments, the alternating flank gapmer has better long term tolerability than a traditional gapmer.

An alternating flank gapmer can comprise a (poly)nucleotide sequence of formula (5' to 3'), A-B-C, wherein: region A (A) (5' region or a first wing sequence) comprises at least one nucleotide analogue, such as at least one LNA unit, such as from 1-10 nucleotide analogues, such as LNA units, and; region B (B) comprises at least six consecutive nucleotides which are capable of recruiting RNase (when formed in a duplex with a complementary RNA molecule, such as the pre-mRNA or mRNA target), such as DNA nucleotides, and; region C (C) (3'region or a second wing sequence) comprises at least one nucleotide analogue, such as at least one LNA unit, such as from 1-10 nucleotide analogues, such as LNA units; wherein regions A and C can include at any position in A and C 1-3 insertions of DNA nucleotide regions (*e.g.,* DNA Insertions), in which these DNA insertions can each be 1-6 DNA units long.

In certain other embodiments, the gapmer, *e.g.,* an alternating flank gapmer, comprises a (poly)nucleotide sequence of formula (5' to 3'), A-B-C, or optionally A-B-C-D or D-A-B-C, wherein: region A (A) (5' region) comprises at least one nucleotide analogue, such as at least one LNA unit, such as from 1-10 nucleotide analogues, such as LNA units, and; region B (B) comprises at least five consecutive nucleotides which are capable of recruiting RNase (when formed in a duplex with a complementary RNA molecule, such as the mRNA target), such as DNA nucleotides, and; region C (C) (3'region) comprises at least one nucleotide analogue, such as at least one LNA unit, such as from 1-10 nucleotide analogues, such as LNA units, and; region D (D), when present comprises 1, 2 or 3 nucleotide units, such as DNA nucleotides.

In some embodiments, region A comprises 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 nucleotide analogues, such as LNA units, such as from 2-5 nucleotide analogues, such as 2-5 LNA units, such as 2-5 nucleotide analogues, such as 3-5 LNA units; and/or region C consists of 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 nucleotide analogues, such as LNA units, such as from 2-5 nucleotide analogues, such as 2-5 LNA units, such as 2-5 nucleotide analogues, such as 3-5 LNA units.

In some embodiments B comprises 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23 consecutive nucleotides which are capable of recruiting RNase, or from 6-14, 7-14, 8-14, or from 7-10, or from 7-9, such as 8, such as 9, such as 10, or such as 14 consecutive nucleotides which are capable of recruiting RNase. In some embodiments region B comprises at least five DNA nucleotide unit, such as 5-23 DNA units, such as from 5-20 DNA units, such as from 5-18 DNA units, such as from 6-14 DNA units, such as from 8-14 DNA units, such as 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 DNA units.

In some embodiments region A comprises 3, 4, or 5 nucleotide analogues, such as LNA, region B consists of 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14 DNA units, and region C consists of 3, 4, or 5 nucleotide analogues, such as LNA. Such designs include (A-B-C) 5-10-5, 3-14-3, 3-10-3, 3-10-4,

4-10-3, 3-9-3, 3-9-4, 4-9-3, 3-8-3, 3-8-4, 4-8-3, 3-7-3, 3-7-4, and 4-7-3, and can further include region D, which can have one to 3 nucleotide units, such as DNA units.

In some embodiments, the ASO of the disclosure, *e.g.,* an alternating flank gapmer, comprises the formula of 5'-A-B-C-3', wherein

(i) region B is a contiguous sequence of at least 5, 6, 7, or 8, *e.g.,* 5 to 18 DNA units, which are capable of recruiting RNase;

(ii) region A is a first wing sequence of 1 to 10 nucleotides, wherein the first wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units *(e.g.,* DNA insertion) and wherein at least one of the nucleotide analogues is located at the 3' end of A; and

(iii) region C is a second wing sequence of 1 to 10 nucleotides, wherein the second wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units *(e.g.,* DNA insertion) and wherein at least one of the nucleotide analogues is located at the 5' end of C.

In some embodiments, the first wing sequence (region A in the formula) comprises a combination of nucleotide analogues and DNA units selected from (i) 1-9 nucleotide analogues and 1 DNA unit; (ii) 1-8 nucleotide analogues and 1-2 DNA units; (iii) 1-7 nucleotide analogues and 1-3 DNA units; (iv) 1-6 nucleotide analogues and 1-4 DNA units; (v) 1-5 nucleotide analogues and 1-5 DNA units; (vi) 1-4 nucleotide analogues and 1-6 DNA units; (vii) 1-3 nucleotide analogues and 1-7 DNA units; (viii) 1-2 nucleotide analogues and 1-8 DNA units; and (ix) 1 nucleotide analogue and 1-9 DNA units.

In certain embodiments, the second wing sequence (region C in the formula) comprises a combination of nucleotide analogues and DNA unit selected from (i) 1-9 nucleotide analogues and 1 DNA unit; (ii) 1-8 nucleotide analogues and 1-2 DNA units; (iii) 1-7 nucleotide analogues and 1-3 DNA units; (iv) 1-6 nucleotide analogues and 1-4 DNA units; (v) 1-5 nucleotide analogues and 1-5 DNA units; (vi) 1-4 nucleotide analogues and 1-6 DNA units; (vii) 1-3 nucleotide analogues and 1-7 DNA units; (viii) 1-2 nucleotide analogues and 1-8 DNA units; and (ix) 1 nucleotide analogue and 1-9 DNA units.

In some embodiments, region A in the ASO formula has a sub-formula selected from the first wing design of any ASOs in FIGs. 1A to 1C and 2, and/or region C in the ASO formula has a sub-formula selected from the second wing design of any ASOs in FIGs. 1A to 1C and 2, wherein the upper letter is a nucleotide analogue *(e.g.,* sugar modified analogue, which can also be written as L) and the lower letter is DNA (which can also be written as D).

In certain embodiments, the ASO, *e.g.,* an alternating flank gapmer, has the formula of 5' A-B-C 3', wherein region B is a contiguous sequence of 5 to 18 DNA units, region A has a formula of LLDLL, LDLLL, or LLLDL and region C has a formula of LLDLL or LDLDLL, and wherein L is an LNA unit and D is a DNA unit.

In some embodiments, the ASO has the formula of 5' A-B-C 3', wherein region B is a contiguous sequence of 10 DNA units, region A has the formula of LDL, and region C has the formula of LLLL, wherein L is an LNA unit and D is a DNA unit.

Further gapmer designs are disclosed in W02004/046160, which is hereby incorporated by reference in its entirety. W02008/1 13832 hereby incorporated by reference in its entirety, refers to 'shortmer' gapmer ASOs. In some embodiments, ASOs presented herein can be such shortmer gapmers.

In some embodiments the ASO, *e.g.,* an alternating flank gapmer, comprises a contiguous nucleotide sequence of a total of 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 nucleotide units, wherein the contiguous nucleotide sequence is of formula (5' - 3'), A-B-C, or optionally A-B-C-D or D-A-B-C, wherein; region A consists of 1, 2, 3, 4, or 5 nucleotide analogue units, such as LNA units; region B consists of 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 or 15 contiguous nucleotide units which are capable of recruiting RNase when formed in a duplex with a complementary RNA molecule (such as a mRNA target); and region C consists of 1, 2, 3, 4, or 5 nucleotide analogue units, such as LNA units. When present, region D consists of a single DNA unit.

In some embodiments A comprises 1 LNA unit. In some embodiments region A comprises 2 LNA units. In some embodiments region A comprises 3 LNA units. In some embodiments region A comprises 4 LNA units. In some embodiments region A comprises 5 LNA units. In some embodiments region C comprises 1 LNA unit. In some embodiments C comprises 2 LNA units. In some embodiments region C comprises 3 LNA units. In some embodiments region C comprises 4 LNA units. In some embodiments region C comprises 5 LNA units. In some embodiments region B comprises 6 nucleotide units. In some embodiments region B comprises 7 nucleotide units. In some embodiments region B comprises 8 nucleotide units. In some embodiments region B comprises 9 nucleotide units. In certain embodiments, region B comprises 10 nucleoside units. In certain embodiments, region B comprises 11 nucleoside units. In certain embodiments, region B comprises 12 nucleoside units. In certain embodiments, region B comprises 13 nucleoside units. In certain embodiments, region B comprises 14 nucleoside units, region B comprises 15 nucleoside units. In certain embodiments, region B comprises 7-23 DNA monomers or 5-18 DNA monomers. In some embodiments region B comprises from 6-23 DNA units, such as 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 2 1, 22, or 23 DNA units. In some embodiments region B consists of DNA units.

In some embodiments region B comprises at least one LNA unit which is in the alpha-L configuration, such as 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23 LNA units in the alpha-L-configuration. In some embodiments region B comprises at least one alpha-L-oxy LNA unit or wherein all the LNA units in the alpha-L- configuration are alpha-L-oxy LNA units.

In some embodiments the number of nucleotides present in A-B-C are selected from (nucleotide analogue units - region B - nucleotide analogue units): 1-8-1, 1-8-2, 2-8-1, 2-8-2, 3-8-3, 2-8-3, 3-8-2, 4-8-1, 4-8-2, 1-8-4, 2-8-4, or 1-9-1, 1-9-2, 2-9-1, 2-9-2, 2-9-3, 3-9-2, 1-9-3, 3-9-1, 4-9-1, 1-9^1, 4-9-4 or 1-10-1, 1-10-2, 2-10-1, 2-10-2, 1-10-3, 3-10-1 and 4-10-4 or 3-11-4, 4-11-3 and 4-11-4 or 3-12-4 and 4-12-4, or 3-13-3 and 3-13-4 or 1-14-4, or 1-15-4 and 2-15-3. In some embodiments the number of nucleotides in A-B-C is selected from: 2-7-1, 1-7-2, 2-7-2, 3-7-3, 2-7-3, 3-7-2, 3-7-4, and 4-7-3.

In other embodiments, the ASO contains 10 DNA units in B, LDLLL in A (first wing) and LLDLL in C (second wing). In yet other embodiments, the ASO contains 9 DNA units in B, LDDLL in A, and LDLDLL in C. In still other embodiments, the ASO contains 10 DNA units in B, LLDLL in A, and LLDLL in C. In further embodiments, the ASO contains 9 DNA units in B, LLLLL in A, and LDDLL in C. In certain embodiments, each of regions A and C comprises three LNA monomers, and region B consists of 7, 8, 9, 10, 11, 12, 13, 14, or 15 nucleoside monomers, for example, DNA monomers. In some embodiments both A and C consist of two LNA units each, and B consists of 7, 8, or 9 nucleotide units, for example DNA units. In various embodiments, other gapmer designs include those where regions A and/or C consists of 3, 4, 5 or 6 nucleoside analogues, such as monomers containing a 2'-0-methoxyethyl-ribose sugar (2'-MOE) or monomers containing a 2'-fluoro-deoxyribose sugar, and region B consists of 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23 nucleosides, such as DNA monomers, where regions A-B-C have 3-8-3, 3-9-3, 3-10-3, 5-10-5 or 4-12-4 monomers. Further gapmer designs are disclosed in WO 2007/14651 1A2, hereby incorporated by reference in its entirety.

In some embodiments, the alternating flank ASO has at least 10 contiguous nucleotides, comprising region A, region B, and region C (A-B-C), wherein region B comprises at least 5 consecutive nucleoside units and is flanked at 5' by region A of 1-8 contiguous nucleoside units and at 3' by region C of 1-8 contiguous nucleoside units, wherein region B, when formed in a duplex with a complementary RNA, is capable of recruiting RNaseH, and wherein region A and region C are selected from the group consisting of:

(i) region A comprises a 5' LNA nucleoside unit and a 3' LNA nucleoside unit, and at least one DNA nucleoside unit between the 5' LNA nucleoside unit and the 3' LNA nucleoside unit, and, region C comprises at least two 3' LNA nucleosides;

(ii) region A comprises at least one 5' LNA nucleoside and region C comprises a 5' LNA nucleoside unit, at least two terminal 3' LNA nucleoside units, and at least one DNA nucleoside unit between the 5' LNA nucleoside unit and the 3' LNA nucleoside units, and

(iii) region A comprises a 5' LNA nucleoside unit and a 3' LNA nucleoside unit, and at least one DNA nucleoside unit between the 5' LNA nucleoside unit and the 3' LNA nucleoside unit; and region C comprises a 5' LNA nucleoside unit, at least two terminal 3' LNA nucleoside units, and at least one DNA nucleoside unit between the 5' LNA nucleoside unit and the 3' LNA nucleoside units.

In some embodiments, region A or region C comprises 1, 2, or 3 DNA nucleoside units. In other embodiments, region A and region C comprise 1, 2, or 3 DNA nucleoside units. In yet other embodiments, region B comprises at least five consecutive DNA nucleoside units. In certain embodiments, region B comprises 6, 7, 8, 9, 10, 11, 12, 13 or 14 consecutive DNA nucleoside units. In some embodiments, region B is 8, 9 10, 11, or 12 nucleotides in length. In other embodiments, region A comprises two 5' terminal LNA nucleoside units. In some embodiments, region A has formula 5'[LNA]l-$_3$[DNA]l-$_3$[LNA]l-$_3$, or 5'[LNA]l-$_2$[DNA]l-$_2$[LNA]l-$_2$[DNA]l-$_2$[LNA]l-$_2$. In other embodiments, region C has formula [LNA]$_{l-3}$[DNA]$_{l-3}$[LNA]$_{2-3}$3', or [LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{2-3}$3'. In yet other embodiments, region A has formula 5'[LNA]$_{l-3}$[DNA]$_{l-3}$[LNA]$_{l-3}$, or 5'[LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{l-2}$, and region C comprises 2, 3, 4 or 5 consecutive LNA nucleoside units. In some embodiments, region C has formula [LNA]$_{l-3}$[DNA]$_{l-3}$[LNA]$_{2-3}$3' or [LNA]i-$_2$[DNA]$_{l-2}$[LNA]$_{l-2}$[DNA]$_{l-2}$[LNA]$_{2-3}$3', and region A comprises 1, 2, 3, 4 or 5 consecutive LNA nucleoside units. In still other embodiments, region A has a sequence of LNA and DNA nucleosides, 5' - 3' selected from the group consisting of L, LL, LDL, LLL, LLDL, LDLL, LDDL, LLLL, LLLLL, LLLDL, LLDLL, LDLLL, LLDDL, LDDLL, LLDLD, LDLLD, LDDDL, LLLLLL, LLLLDL, LLLDLL, LLDLLL, LDLLLL, LLLDDL, LLDLDL, LLDDLL, LDDLLL, LDLLDL, LDLDLL, LDDDLL, LLDDDL, and LDLDLD, wherein L represents a LNA nucleoside, and D represents a DNA nucleoside. In yet other embodiments, region C has a sequence of LNA and DNA nucleosides, 5' - 3' selected from the group consisting of LL, LLL, LLLL, LDLL, LLLLL, LLDLL, LDLLL, LDDLL, LDDLLL, LLDDLL, LDLDLL, LDDDLL, LDLDDLL, LDDLDLL, LDDDLLL, and LLDLDLL. In a further embodiment, region A has a sequence of LNA and DNA nucleosides, 5' - 3' selected from the group consisting of LDL, LLDL, LDLL, LDDL, LLLDL, LLDLL, LDLLL, LLDDL, LDDLL, LLDLD, LDLLD, LDDDL, LLLLDL, LLLDLL, LLDLLL, LDLLLL, LLLDDL, LLDLDL, LLDDLL, LDDLLL, LDLLDL, LDLDLL, LDDDLL, LLDDDL, and LDLDLD, and region C has a sequence of LNA and

DNA nucleosides, 5' - 3' selected from the group consisting of LDLL, LLDL, LLLLL, LLDLL, LDLLL, LDDLL, LDDLLL, LLDDLL, LDLDLL, LDDDLL, LDLDDLL, LDDLDLL, LDDDLLL, and LLDLDLL.

In certain embodiments, the alternating flank ASO has contiguous nucleotides comprising a sequence of nucleosides, 5'—3', selected from the group consisting of LDLDDDDDDDDDLLLL, LLDDDLLDDDDDDDDLL, LDLLDLDDDDDDDDDLL, LLLDDDDDDDDDDLDLL, LLLDDDDDDDDDLDDLL, LLLDDDDDDDDDLDDDLL, LLLDDDDDDDDDLDLDLL, LLLDLDDDDDDDDDLLL, LLLDLDDDDDDDDLDLL, LLLLDDDDDDDDDLDLL, LLLLDDDDDDDDLDDLL, LLLDDDLDDDDDDDDLL, LLLDDLDDDDDDDDDLL, LLLDDLLDDDDDDDDLL, LLLDDLLDDDDDDDLLL, LLLLLDDDDDDDLDDLL, LDLLLDDDDDDDDDDLL, LDLLLDDDDDDDLDDLL, LDLLLLDDDDDDDDDLL, LLDLLLDDDDDDDDDLL, LLLDLDDDDDDDDDDLL, LLLDLDDDDDDDLDDLL, LLLDLLDDDDDDDDDLL, LLLLDDDDDDDLDDDLL, LLLLLDDDDDDDDDLDLL, LLLLDDDDDDDDDLDLDLL, LLLLDDDDDDDDLDDLDLL, LLLLDDDDDDDLDDLDLL, LLLLDDDDDDDDDLDDLL, LDLLLDDDDDDDDDDLL, LDLLLDDDDDDDDLDLL, LLLDLDDDDDDDDDDDLL, LLLDLDDDDDDDDLDLL, LLLDLDDDDDDDDLDDLL, LLLDLDDDDDDDLDLDLL, LLLLDDDDDDDDDLLDLL, LLLLLDDDDDDDDDLDDLL, LLLLDDDDDDDDDDLLDLL, LLLDDDDDDDDDDLLDLL, LLLDDDDDDDDDDLDDLL, LDLLLDDDDDDDDDLDDLL, LLLDLDDDDDDDDDDLDLL, LLLDLDDDDDDDDLDDLLL, LLLLDDDDDDDDDLDLDLL, LLLLDDDDDDDDLLDLDLL, LLLDDDDDDDDDDDLLLLL, LDLLLDDDDDDDDDDLLDLL, LDDLLDDDDDDDDDDLDLLL, LLDLLDDDDDDDDDDLLDLL, LLDLDDDDDDDDDDDDLLLL, LLDDLDDDDDDDDDDDLLLL, LLLDLDDDDDDDDDDDLLLL, LLDLDDDDDDDDDDDDLLLL, LLDLLDDDDDDDDDDDLLLL, LLDDLDDDDDDDDDDDLLLL, LLLLDDDDDDDDDLDDLLL, LLLDLDDDDDDDDDDLDLLL, LLDLDDLDDDDDDDDDLLLL, LLLLDDDDDDDDDLDLDDL, LLLDLDDDDDDDDDDLDLLL, LLDLDLDDDDDDDDDLDLL, LLDLLDDDDDDDDDLDDLLL, LLLDLDDDDDDDDDDLDLLL, LLDLDDLDDDDDDDDDLLLL, LLLLDDDDDDDDDLDLDDL, LLLDLDDDDDDDDDDLDLLL, LLDLDLDDDDDDDDDLDLL, LLDLLDDDDDDDDDLDLLLL, LLDLDLDDDDDDDDDDLLDLL, LLDDLLDDDDDDDDDDLLDLL, LLLLDDDDDDDDDLDDLDL, LLLDDLDDDDDDDDDDLLDLL, LLDLLDDDDDDDDDLLDDL, LLDLDLDDDDDDDDDLDLLL, LLLDLDDDDDDDDDDLLDDL, LLDDLLDDDDDDDDDDLLLL,

LLDLLDDDDDDDDLDLDLL, LLLLDDDDDDDDDLDDLLL, LLLDDLDDDDDDDDDDLLLL, LLLDLDDDDDDDDDDLLDLL, LLLLDDDDDDDDDDLDLDLL, LLLLDDDDDDDDDDLDLLL, and LLDDLLDDDDDDDDDDLDLL; wherein L represents a LNA nucleoside, and D represents a DNA nucleoside. In other embodiments, the LNA nucleoside is beta-D-oxy LNA.

In yet other embodiments, an alternating flank ASO has contiguous nucleotides comprising an alternating sequence of LNA and DNA nucleoside units , 5'—3', selected from the group consisting of : 2-3-2-8-2, 1-1-2-1-1-9-2, 3-10-1-1-2, 3-9-1-2-2, 3-8-1-3-2, 3-8-1-1-1-1-2, 3-1-1-9-3, 3-1-1-8-1-1-2, 4-9-1-1-2, 4-8-1-2-2, 3-3-1-8-2, 3-2-1-9-2, 3-2-2-8-2, 3-2-2-7-3, 5-7-1-2-2, 1-1-3-10-2, 1-1-3-7-1-2-2, 1-1-4-9-2, 2-1-3-9-2, 3-1-1-10-2, 3-1-1-7-1-2-2, 3-1-2-9-2, 4-7-1-3-2, 5-9-1-1-2, 4-10-1-1-2, 3-11-1-1-2, 2-1-1-10-1-1-2, 1-1-3-9-1-1-2, 3-10-1-2-2, 3-9-1-3-2, 3-8-1-1-1-2-2, 4-9-1-2-2, 4-9-1-1-3, 4-8-1-3-2, 4-8-1-2-3, 4-8-1-1-1-1-2, 4-7-1-2-1-1-2, 4-7-1-1-1-2-2, 2-1-2-1 1-2, 2-1-3-8-1-1-2, 3-1-1-11-2, 3-1-1-9-1-1-2, 3-1-1-8-1-2-2, 3-1-1-7-1-1-1-1-2, 4-9-2-1-2, 4-7-1-3-3, 5-9-1-1-3, 5-9-1-2-2, 4-10-2-1-2, 4-10-1-1-3, 4-10-1-2-2, 3-1 1-2-1-2, 3-1 1-1-1-3, 5-9-2-1-2, 3-1 1-1-2-2, 2-1-2-9-1-2-2, 3-1-1-10-1-1-2, 3-1-1-9-1-2-2, 4-9-1-1-1-1-2, 4-8-2-1-1-1-2, 1-1-3-10-2-1-2, 2-1-2-10-2-1-2, 2-1-1-12-4, 2-2-1-1 1-4, 3-1-1-1 1-4, 2-1-1-13-3, 2-1-2-1 1-4, 2-2-1-12-3, 3-1 1-1-2-3, 3-1-1-12-3, 2-1-2-12-3, 4-11-2-1-2, 4-10-2-2-2, 3-2-1-9-1-1-3, 2-2-1-1-1-9-4, 2-2-2-9-1-1-3, 3-1-1-9-1-1-1-1-2, 2-1-2-9-1-2-3, 3-1-1-10-1-1-3, 2-1-1-2-1-9-4, 4-9-1-1-1-2-2, 3-1-1-9-1-2-3, 2-1-1-1-1-10-4, 2-1-2-10-1-1-3, 2-1-1-1-1-9-2-1-2, 2-2-2-9-2-1-2, 4-9-1-2-1-1-2, 3-2-1-9-2-1-2, 2-1-2-9-2-2-2, 2-1-1-1-1-9-1-1-3, 3-1-1-9-2-2-2, 2-2-2-10-4, 2-1-2-9-1-1-1-1-2, 4-10-1-2-3, 3-2-1-10-4, 3-1-1-10-2-1-2, 4-10-1-1-1-1-2, 4-1 1-1-1-3, 3-12-4, 1-2-2-10-1-1-3, and 2-2-2-10-1-1-2; wherein the first numeral represents an number of LNA units, the next a number of DNA units, and alternating LNA and DNA regions thereafter.

In other embodiments, the ASOs of the disclosure are represented as any one of ASO numbers selected from FIGs. 1A to 1C and 2.

II.H. Internucleotide Linkages

The monomers of the ASOs described herein are coupled together via linkage groups. Suitably, each monomer is linked to the 3' adjacent monomer via a linkage group.

The person having ordinary skill in the art would understand that, in the context of the present disclosure, the 5' monomer at the end of an ASO does not comprise a 5' linkage group, although it may or may not comprise a 5' terminal group.

The terms "linkage group" and "internucleotide linkage" are intended to mean a group capable of covalently coupling together two nucleotides. Specific and preferred examples include phosphate groups and phosphorothioate groups.

The nucleotides of the ASO of the disclosure or contiguous nucleotides sequence thereof are coupled together via linkage groups. Suitably each nucleotide is linked to the 3' adjacent nucleotide via a linkage group.

Suitable internucleotide linkages include those listed within W02007/031091 , for example the internucleotide linkages listed on the first paragraph of page 34 of W02007/031091 (hereby incorporated by reference in its entirety).

Examples of suitable internucleotide linkages that can be used with the disclosure include phosphodiester linkage (PO or subscript o), a phosphotriester linkage, a methylphosphonate linkage, a phosphoramidate linkage, a phosphorothioate linkage (PS or subscript s), and combinations thereof.

It is, in some embodiments, preferred to modify the internucleotide linkage from its normal phosphodiester to one that is more resistant to nuclease attack, such as phosphorothioate or boranophosphate - these two, being cleavable by RNaseH, also allow that route of antisense inhibition in reducing the expression of the target gene.

Suitable sulphur (S) containing internucleotide linkages as provided herein may be preferred. Phosphorothioate internucleotide linkages are also preferred, particularly for the gap region (B) of gapmers. Phosphorothioate linkages can also be used for the flanking regions (A and C, and for linking A or C to D, and within region D, as appropriate).

Regions A, B and C, can, however, comprise internucleotide linkages other than phosphorothioate, such as phosphodiester linkages, particularly, for instance when the use of nucleotide analogues protects the internucleotide linkages within regions A and C from endo-nuclease degradation - such as when regions A and C comprise LNA nucleotides.

The internucleotide linkages in the ASO can be phosphodiester, phosphorothioate or boranophosphate so as to allow RNaseH cleavage of targeted RNA. Phosphorothioate is preferred for improved nuclease resistance and other reasons, such as ease of manufacture.

In some embodiments, the internucleotide linkages comprise one or more stereo-defined internucleotide linkages (e.g., such as stereo-defined modified phosphate linkages, e.g., phosphodiester, phosphorothioate, or boranophosphate linkages with a defined stereochemical structure). The term "stereo-defined internucleotide linkage" is used interchangeably with "chirally controlled internucleotide linkage" and refers to a internucleotide linkage in which the stereochemical designation of the phosphorus atom is controlled such that a specific amount of R_p or S_p of the internucleotide linkage is present within an ASO strand. The stereochemical designation of a chiral linkage can be defined (controlled) by, for example, asymmetric synthesis.

An ASO having at least one stereo-defined internucleotide linkage can be called as a stereo-defined ASO, which includes both a fully stereo-defined ASO and a partially stereo-defined ASO.

In some embodiments, an ASO is fully stereo-defined. A fully stereo-defined ASO refers to an ASO sequence having a defined chiral center (R_p or S_p) in each internucleotide linkage in the ASO. In some embodiments, an ASO is partially stereo-defined. A partially stereo-defined ASO refers to an ASO sequence having a defined chiral center (R_p or S_p) in at least one internucleotide linkage, but not in all of the internucleotide linkages. Therefore, a partially stereo-defined ASO can include linkages that are achiral or stereo-nondefined in addition to the at least one stereo-defined linkage. When an internucleotide linkage in an ASO is stereo-defined, the desired configuration, either R_p or S_p, is present in at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 55%, at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or essentially 100% of the ASO.

In one aspect of the ASO of the disclosure, the nucleotides and/or nucleotide analogues are linked to each other by means of phosphorothioate groups. With the oligonucleotides of the invention it is advantageous to use phosphorothioate internucleoside linkages.

Phosphorothioate internucleoside linkages are particularly useful due to nuclease resistance, beneficial pharmacokinetics and ease of manufacture. In some embodiments at least 50% of the internucleoside linkages in the oligonucleotide, or contiguous nucleotide sequence thereof, are phosphorothioate, such as at least 60%, such as at least 70%, such as at least 75%, such as at least 80% or such as at least 90% of the internucleoside linkages in the oligonucleotide, or contiguous nucleotide sequence thereof, are phosphorothioate. In some embodiments all of the internucleoside linkages of the oligonucleotide, or contiguous nucleotide sequence thereof, are phosphorothioate.

It is recognized that the inclusion of phosphodiester linkages, such as one or two linkages, into an otherwise phosphorothioate ASO, particularly between or adjacent to nucleotide analogue units (typically in region A and or C) can modify the bioavailability and/or bio-distribution of an ASO - see W02008/1 13832, hereby incorporated by reference.

In some embodiments, such as the embodiments referred to above, where suitable and not specifically indicated, all remaining linkage groups are either phosphodiester or phosphorothioate, or a mixture thereof.

In some embodiments, the oligonucleotide of the invention comprises both phosphorothioate internucleoside linkages and at least one phosphodiester linkage, such as 2, 3 or 4 phosphodiester

linkages, in addition to the phosphorodithioate linkage(s). In a gapmer oligonucleotide, phosphodiester linkages, when present, are suitably not located between contiguous DNA nucleosides in the gap region G.

In some embodiments all the internucleotide linkage groups are phosphorothioate.

When referring to specific gapmer oligonucleotide sequences, such as those provided herein it will be understood that, in various embodiments, when the linkages are phosphorothioate linkages, alternative linkages, such as those disclosed herein can be used, for example phosphate (phosphodiester) linkages can be used, particularly for linkages between nucleotide analogues, such as LNA, units. Likewise, when referring to specific gapmer oligonucleotide sequences, such as those provided herein, when the C residues are annotated as 5-'methyl modified cytosine, in various embodiments, one or more of the Cs present in the ASO can be unmodified C residues.

US Publication No. 201 1/0130441 , which was published June 2, 201 1 and is incorporated by reference herein in its entirety, refers to ASO compounds having at least one bicyclic nucleoside attached to the 3' or 5' termini by a neutral internucleoside linkage. The ASOs of the disclosure can therefore have at least one bicyclic nucleoside attached to the 3' or 5' termini by a neutral internucleoside linkage, such as one or more phosphotriester, methylphosphonate, MMI (3'-CFI_2—$N(CH_3)$—0-5'), amide-3 (3'-CH_2—C(=0) —N(H)-5'), formacetal (3'-0 —CH_2—0-5') or thioformacetal (3'-S—CH_2—0-5'). The remaining linkages can be phosphorothioate.

In some embodiments, the ASOs of the disclosure have internucleotide linkages described in FIGs. 1A to 1C and 2. As used herein, *e.g.,* FIGs. 1A to 1C and 2, phosphorothioate linkages are indicated as "s", and phosphorodiester linkages are indicated by the absence of "s".

II.I. Conjugates

The term conjugate as used herein refers to an oligonucleotide which is covalently linked to a non-nucleotide moiety (conjugate moiety or region C or third region).

Conjugation of the oligonucleotide of the disclosure to one or more non-nucleotide moieties may improve the pharmacology of the oligonucleotide, *e.g.* by affecting the activity, cellular distribution, cellular uptake or stability of the oligonucleotide. In some embodiments the conjugate moiety modify or enhance the pharmacokinetic properties of the oligonucleotide by improving cellular distribution, bioavailability, metabolism, excretion, permeability, and/or cellular uptake of the oligonucleotide. In particular the conjugate may target the oligonucleotide to a specific organ, tissue or cell type and thereby enhance the effectiveness of the oligonucleotide in that organ, tissue or cell type. At the same time the conjugate may serve to reduce activity of the oligonucleotide in non-target cell types, tissues or organs, *e.g.,* off target activity or activity in non-target cell types, tissues

or organs. WO 93/07883 and WO201 3/033230 provides suitable conjugate moieties. Further suitable conjugate moieties are those capable of binding to the asialoglycoprotein receptor (ASGPr). In particular tri-valent N-acetylgalactosamine conjugate moieties are suitable for binding to the ASGPr, see for example WO 2014/076196, WO 2014/207232, and WO 2014/179620.

Oligonucleotide conjugates and their synthesis has also been reported in comprehensive reviews by Manoharan in Antisense Drug Technology, Principles, Strategies, and Applications, S.T. Crooke, ed., Ch. 16, Marcel Dekker, Inc., 2001 and Manoharan, Antisense and Nucleic Acid Drug Development, 2002, 12, 103.

In an embodiment, the non-nucleotide moiety (conjugate moiety) is selected from the group consisting of carbohydrates (e.g. GalNAc), cell surface receptor ligands, drug substances, hormones, lipophilic substances, polymers, proteins, peptides, toxins *(e.g.* bacterial toxins), vitamins, viral proteins *(e.g.* capsids), and combinations thereof.

In some embodiments, the conjugate is an antibody or an antibody fragment which has a specific affinity for a transferrin receptor, for example as disclosed in WO 2012/143379 herby incorporated by reference. In some embodiments the non-nucleotide moiety is an antibody or antibody fragment, such as an antibody or antibody fragment that facilitates delivery across the blood-brain-barrier, in particular an antibody or antibody fragment targeting the transferrin receptor.

II.J. Activated ASOs

The term "activated ASO," as used herein, refers to an ASO of the disclosure that is covalently linked *(i.e.,* functionalized) to at least one functional moiety that permits covalent linkage of the ASO to one or more conjugated moieties, *i.e.,* moieties that are not themselves nucleic acids or monomers, to form the conjugates herein described. Typically, a functional moiety will comprise a chemical group that is capable of covalently bonding to the ASO via, *e.g.,* a 3'-hydroxyl group or the exocyclic NH_2 group of the adenine base, a spacer that can be hydrophilic and a terminal group that is capable of binding to a conjugated moiety *(e.g.,* an amino, sulfhydryl or hydroxyl group). In some embodiments, this terminal group is not protected, *e.g.,* is an NH_2 group. In other embodiments, the terminal group is protected, for example, by any suitable protecting group such as those described in "Protective Groups in Organic Synthesis" by Theodora W Greene and Peter G M Wuts, 3rd edition (John Wiley & Sons, 1999).

In some embodiments, ASOs of the disclosure are functionalized at the 5' end in order to allow covalent attachment of the conjugated moiety to the 5' end of the ASO. In other embodiments, ASOs of the disclosure can be functionalized at the 3' end. In still other embodiments, ASOs of the disclosure can be functionalized along the backbone or on the heterocyclic base moiety. In yet

other embodiments, ASOs of the disclosure can be functionalized at more than one position independently selected from the 5' end, the 3' end, the backbone, and the base.

In some embodiments, activated ASOs of the disclosure are synthesized by incorporating during the synthesis one or more monomers that is covalently attached to a functional moiety. In other embodiments, activated ASOs of the disclosure are synthesized with monomers that have not been functionalized, and the ASO is functionalized upon completion of synthesis.

III. Pharmaceutical Compositions and Administration Routes

The ASO of the disclosure can be used in pharmaceutical formulations and compositions. Suitably, such compositions comprise a pharmaceutically acceptable diluent, carrier, salt, or adjuvant.

The ASO of the disclosure can be included in a unit formulation such as in a pharmaceutically acceptable carrier or diluent in an amount sufficient to deliver to a patient a therapeutically effective amount without causing serious side effects in the treated patient. However, in some forms of therapy, serious side effects may be acceptable in terms of ensuring a positive outcome to the therapeutic treatment.

The formulated drug may comprise pharmaceutically acceptable binding agents and adjuvants. Capsules, tablets, or pills can contain for example the following compounds: microcrystalline cellulose, gum or gelatin as binders; starch or lactose as excipients; stearates as lubricants; various sweetening or flavoring agents. For capsules the dosage unit may contain a liquid carrier like fatty oils. Likewise, coatings of sugar or enteric agents may be part of the dosage unit. The oligonucleotide formulations can also be emulsions of the active pharmaceutical ingredients and a lipid forming a micellular emulsion.

The pharmaceutical compositions of the present disclosure can be administered in a number of ways depending upon whether local or systemic treatment is desired and upon the area to be treated. Administration can be (a) oral (b) pulmonary, *e.g.,* by inhalation or insufflation of powders or aerosols, including by nebulizer; intratracheal, intranasal, (c) topical including epidermal, transdermal, ophthalmic and to mucous membranes including vaginal and rectal delivery; or (d) parenteral including intravenous, intraarterial, subcutaneous, intraperitoneal or intramuscular injection or infusion; or intracranial, *e.g.,* intrathecal, intra-cerebroventricular, intravitrea or intraventricular, administration. In one embodiment the ASO is administered IV, IP, orally, topically or as a bolus injection or administered directly in to the target organ. In another embodiment, the ASO is administered intrathecal or intra-cerebroventricular as a bolus injection.

Pharmaceutical compositions and formulations for topical administration can include transdermal patches, ointments, lotions, creams, gels, drops, sprays, suppositories, liquids and powders.

Conventional pharmaceutical carriers, aqueous, powder or oily bases, thickeners and the like may be necessary or desirable. Examples of topical formulations include those in which the ASO of the disclosure are in admixture with a topical delivery agent such as lipids, liposomes, fatty acids, fatty acid esters, steroids, chelating agents and surfactants. Compositions and formulations for oral administration include but are not limited to powders or granules, microparticulates, nanoparticulates, suspensions or solutions in water or non-aqueous media, capsules, gel capsules, sachets, tablets or minitablets. Compositions and formulations for parenteral, intrathecal, intra-cerebroventricular, or intraventricular administration can include sterile aqueous solutions which can also contain buffers, diluents and other suitable additives such as, but not limited to, penetration enhancers, carrier compounds and other pharmaceutically acceptable carriers or excipients.

Pharmaceutical compositions of the present disclosure include, but are not limited to, solutions, emulsions, and liposome-containing formulations. These compositions may be generated from a variety of components that include, but are not limited to, preformed liquids, self-emulsifying solids and self-emulsifying semisolids. Delivery of drug to the target tissue can be enhanced by carrier-mediated delivery including, but not limited to, cationic liposomes, cyclodextrins, porphyrin derivatives, branched chain dendrimers, polyethylenimine polymers, nanoparticles and microspheres (Dass CR. J Pharm Pharmacol 2002; 54(l):3-27).

The pharmaceutical formulations of the present disclosure, which can conveniently be presented in unit dosage form, can be prepared according to conventional techniques well known in the pharmaceutical industry. Such techniques include the step of bringing into association the active ingredients with the pharmaceutical carrier(s) or excipient(s). In general, the formulations are prepared by uniformly and intimately bringing into association the active ingredients with liquid carriers or finely divided solid carriers or both, and then, if necessary, shaping the product.

For parenteral, subcutaneous, intradermal or topical administration the formulation can include a sterile diluent, buffers, regulators of tonicity and antibacterials. The active ASOs can be prepared with carriers that protect against degradation or immediate elimination from the body, including implants or microcapsules with controlled release properties. For intravenous administration the carriers can be physiological saline or phosphate buffered saline. International Publication No. W02007/031091 (A2), published March 22, 2007, further provides suitable pharmaceutically acceptable diluent, carrier and adjuvants - which are hereby incorporated by reference.

The invention also provides for the use of the oligonucleotide or oligonucleotide conjugate of the invention as described for the manufacture of a medicament wherein the medicament is in a dosage form for intrathecal or intra-cerebroventricular administration.

IV. Diagnostics

This disclosure further provides a diagnostic method useful during diagnosis of SNCA related diseases, *e.g.,* a synucleinopathy. Non-limiting examples of synucleinopathy include, but are not limited to, Parkinson's disease, Parkinson's Disease Dementia (PDD), dementia with Lewy bodies, and multiple system atrophy.

The ASOs of the disclosure can be used to measure expression of *SNCA* transcript in a tissue or body fluid from an individual and comparing the measured expression level with a standard *SNCA* transcript expression level in normal tissue or body fluid, whereby an increase in the expression level compared to the standard is indicative of a disorder treatable by an ASO of the disclosure.

The ASOs of the disclosure can be used to assay *SNCA* transcript levels in a biological sample using any methods known to those of skill in the art. (Touboul *et. al., Anticancer Res.* (2002) 22 (6A): 3349-56; Verjout *et. al., Mutat. Res.* (2000) 640: 127-38); Stowe *et. al., J. Virol. Methods* (1998) 75 (1): 93-91).

By "biological sample" is intended any biological sample obtained from an individual, cell line, tissue culture, or other source of cells potentially expressing *SNCA* transcript. Methods for obtaining tissue biopsies and body fluids from mammals are well known in the art.

V. Kits comprising ASOs

This disclosure further provides kits that comprise an ASO of the disclosure described herein and that can be used to perform the methods described herein. In certain embodiments, a kit comprises at least one ASO in one or more containers. In some embodiments, the kits contain all of the components necessary and/or sufficient to perform a detection assay, including all controls, directions for performing assays, and any necessary software for analysis and presentation of results. One skilled in the art will readily recognize that the disclosed ASO can be readily incorporated into one of the established kit formats which are well known in the art.

VI. Methods of Using

The ASOs of the disclosure can be utilized for therapeutics and prophylaxis.

SNCA is a 140 amino acid protein preferentially expressed in neurons at pre-synaptic terminals where it is thought to play a role in regulating synaptic transmission. It has been proposed to exist natively as both an unfolded monomer and as a stable tetramer of a-helices and has been shown to undergo several posttranslational modifications. One modification that has been extensively studied is phosphorylation of SNCA at amino acid serine 129 (S129). Normally, only a small percentage of SNCA is constitutively phosphorylated at S129 (pS129), whereas the vast majority of

SNCA found in pathological intracellular inclusions is pS129 SNCA. These pathological inclusions consist of aggregated, insoluble accumulations of misfolded SNCA proteins and are a characteristic feature of a group of neurodegenerative diseases collectively known as synucleinopathies.

In synucleinopathies, SNCA can form pathological aggregates in neurons known as Lewy bodies, which are characteristic of both Parkinson's Disease (PD), Parkinson's Disease Dementia (PDD), and dementia with Lewy bodies (DLB). The present ASOs therefore can reduce the number of the SNCA pathological aggregates or prevent formation of the SNCA pathological aggregates. Additionally, abnormal SNCA-rich lesions called glial cytoplasmic inclusions (GCIs) are found in oligodendrocytes, and represent the hallmark of a rapidly progressing, fatal synucleinopathy known as multiple systems atrophy (MSA). In some embodiments, the ASOs of the disclosure reduce the number of GCIs or prevent formation of GCIs. Reports of either undetectable or low levels of *SNCA* mRNA expression in oligodendrocytes suggest that some pathological form of SNCA is propagated from neurons, where it is highly expressed, to oligodendrocytes. In certain embodiments, the ASOs of the disclosure reduce or prevent propagation of SNCA, *e.g.,* pathological form of SNCA, from neurons.

The ASOs can be used in research, *e.g.,* to specifically inhibit the synthesis of SNCA protein (typically by degrading or inhibiting the mRNA and thereby prevent protein formation) in cells and experimental animals thereby facilitating functional analysis of the target or an appraisal of its usefulness as a target for therapeutic intervention. Further provided are methods of down-regulating the expression of *SNCA* mRNA and/or SNCA protein in cells or tissues comprising contacting the cells or tissues, *in vitro* or *in vivo,* with an effective amount of one or more of the ASOs, conjugates, or compositions of the disclosure.

For therapeutics, an animal or a human, suspected of having a disease or disorder, which can be treated by modulating the expression of *SNCA* transcript and/or SNCA protein is treated by administering ASO compounds in accordance with this disclosure. Further provided are methods of treating a mammal, such as treating a human, suspected of having or being prone to a disease or condition, associated with expression of *SNCA* transcript and/or SNCA protein by administering a therapeutically or prophylactically effective amount of one or more of the ASOs or compositions of the disclosure. The ASO, a conjugate, or a pharmaceutical composition according to the disclosure is typically administered in an effective amount. In some embodiments, the ASO or conjugate of the disclosure is used in therapy.

The disclosure further provides for an ASO according to the disclosure, for use in treating one or more of the diseases referred to herein, such as a disease selected from the group consisting of

Parkinson's disease, Parkinson's Disease Dementia (PDD), dementia with Lewy bodies, multiple system atrophy, and any combinations thereof.

The disclosure further provides for a method for treating a-synucleinopathies, the method comprising administering an effective amount of one or more ASOs, conjugates, or pharmaceutical compositions thereof to an animal in need thereof (such as a patient in need thereof).

In certain embodiments, the disease, disorder, or condition is associated with overexpression of *SNCA* gene transcript and/or SNCA protein.

The disclosure also provides for methods of inhibiting (*e.g.,* by reducing) the expression of *SNCA* gene transcript and/or SNCA protein in a cell or a tissue, the method comprising contacting the cell or tissue, *in vitro* or *in vivo,* with an effective amount of one or more ASOs, conjugates, or pharmaceutical compositions thereof, of the disclosure to affect degradation of expression of *SNCA* gene transcript thereby reducing SNCA protein.

In certain embodiments, the ASOs are used to reduce the expression of *SNCA* mRNA in one or more sections of brain, *e.g.,* hippocampus, brainstem, striatum, or any combinations thereof. In other embodiments, the ASOs reduce the expression of *SNCA* mRNA, *e.g.,* in brain stem and/or striatum, less than 70%, less than 60%, less than 50%, less than 40%, less than 30%, less than 20%, less than 10%, or less than 5% compared to the *SNCA* mRNA expression after administration of or exposure to a vehicle (no ASO), at day 3, day 5, day 7, day 10, day 14, day 15, day 20, day 21, or day 25. In some embodiments, the expression of *SNCA* mRNA is maintained below 70%, below 60%, below 50%, below 40%, below 30%, below 20%, below 10%, or below 5% compared to the *SNCA* mRNA expression after administration of or exposure to a vehicle (no ASO) until day 28, day 30, day 32, day 35, day 40, day 42, day 45, day 49, day 50, day 56, day 60, day 63, day 70, or day 75.

In other embodiments, the ASOs of the present disclosure reduces *SNCA* mRNA and/or SNCA protein expression in medulla, caudate putamen, pons cerebellum, lumbar spinal cord, frontal cortex, and/or any combinations thereof.

The disclosure also provides for the use of the ASO or conjugate of the disclosure as described for the manufacture of a medicament. The disclosure also provides for a composition comprising the ASO or conjugate thereof for use in treating a disorder as referred to herein, or for a method of the treatment of as a disorder as referred to herein. The present disclosure also provides ASOs or conjugates for use in therapy. The present disclosure additionally provides ASOs or conjugates for use in the treatment of synucleinopathy.

The disclosure further provides for a method for inhibiting SNCA protein in a cell which is expressing SNCA comprising administering an ASO or a conjugate according to the disclosure to the cell so as to affect the inhibition of SNCA protein in the cell.

The disclosure includes a method of reducing, ameliorating, preventing, or treating neuronal hyperexcitability in a subject in need thereof comprising administering an ASO or a conjugate according to the disclosure.

The disclosure also provides for a method for treating a disorder as referred to herein the method comprising administering an ASO or a conjugate according to the disclosure as herein described and/or a pharmaceutical composition according to the disclosure to a patient in need thereof.

The ASOs and other compositions according to the disclosure can be used for the treatment of conditions associated with over expression or expression of mutated version of SNCA protein.

The disclosure provides for the ASO or the conjugate according to disclosure, for use as a medicament, such as for the treatment of a-Synucleinopathies. In some embodiments the a-Synucleinopathy is a disease selected from the group consisting of Parkinson's disease, Parkinson's Disease Dementia (PDD), dementia with Lewy bodies, multiple system atrophy, and any combinations thereof.

The disclosure further provides use of an ASO of the disclosure in the manufacture of a medicament for the treatment of a disease, disorder or condition as referred to herein. In some embodiments, the ASO or conjugate of the disclosure is used for the manufacture of a medicament for the treatment of a a-Synucleinopathy, a seizure disorder, or a combination thereof.

Generally stated, one aspect of the disclosure is directed to a method of treating a mammal suffering from or susceptible to conditions associated with abnormal levels of SNCA *i.e.,* a a-synucleinopathy), comprising administering to the mammal and therapeutically effective amount of an ASO targeted to *SNCA* transcript that comprises one or more LNA units. The ASO, a conjugate or a pharmaceutical composition according to the disclosure is typically administered in an effective amount.

In some embodiments, the oligonucleotide, oligonucleotide conjugate or pharmaceutical composition of the invention is administered at a dose of 0.1 - 15 mg/kg, such as from 0.2 - 10 mg/kg, such as from 0.25 - 5 mg/kg. The administration can be once a week, every 2nd week, every third week or even once a month.

The disease or disorder, as referred to herein, can, in some embodiments be associated with a mutation in the *SNCA* gene or a gene whose protein product is associated with or interacts with

SNCA protein. Therefore, in some embodiments, the target mRNA is a mutated form of the *SNCA* sequence.

An interesting aspect of the disclosure is directed to the use of an ASO (compound) as defined herein or a conjugate as defined herein for the preparation of a medicament for the treatment of a disease, disorder, or condition as referred to herein.

The methods of the disclosure can be employed for treatment or prophylaxis against diseases caused by abnormal levels of SNCA protein. In some embodiments, diseases caused by abnormal levels of SNCA protein are a-synucleinopathies. In certain embodiments, a-synucleinopathies include Parkinson's disease, Parkinson's Disease Dementia (PDD), dementia with Lewy bodies, and multiple system atrophy.

Alternatively stated, in some embodiments, the disclosure is furthermore directed to a method for treating abnormal levels of SNCA protein, the method comprising administering an ASO of the disclosure, or a conjugate of the disclosure, or a pharmaceutical composition of the disclosure to a patient in need thereof.

The disclosure also relates to an ASO, a composition, or a conjugate as defined herein for use as a medicament.

The disclosure further relates to use of a compound, composition, or a conjugate as defined herein for the manufacture of a medicament for the treatment of abnormal levels of SNCA protein or expression of mutant forms of SNCA protein (such as allelic variants, such as those associated with one of the diseases referred to herein).

A patient who is in need of treatment is a patient suffering from or likely to suffer from the disease or disorder.

The practice of the present disclosure will employ, unless otherwise indicated, conventional techniques of cell biology, cell culture, molecular biology, transgenic biology, microbiology, recombinant DNA, and immunology, which are within the skill of the art. Such techniques are explained fully in the literature. See, for example, Sambrook *et al.,* ed. (1989) Molecular Cloning A Laboratory Manual (2nd ed.; Cold Spring Harbor Laboratory Press); Sambrook *et al.,* ed. (1992) Molecular Cloning: A Laboratory Manual, (Cold Springs Harbor Laboratory, NY); D. N. Glover ed., (1985) DNA Cloning, Volumes I and II; Gait, ed. (1984) Oligonucleotide Synthesis; Mullis *et al.* U.S. Pat. No. 4,683,195; Hames and Higgins, eds. (1984) Nucleic Acid Hybridization; Hames and Higgins, eds. (1984) Transcription And Translation; Freshney (1987) Culture Of Animal Cells (Alan R. Liss, Inc.); Immobilized Cells And Enzymes (IRL Press) (1986); Perbal (1984) A Practical Guide To Molecular Cloning; the treatise, Methods In Enzymology (Academic Press, Inc., N.Y.); Miller and

Calos eds. (1987) Gene Transfer Vectors For Mammalian Cells, (Cold Spring Harbor Laboratory); Wu *et al.,* eds., Methods In Enzymology, Vols. 154 and 155; Mayer and Walker, eds. (1987) Immunochemical Methods In Cell And Molecular Biology (Academic Press, London); Weir and Blackwell, eds., (1986) Handbook Of Experimental Immunology, Volumes I-IV; Manipulating the Mouse Embryo, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y., (1986);); Crooke, Antisense drug Technology: Principles, Strategies and Applications, 2nd Ed. CRC Press (2007) and in Ausubel *et al.* (1989) Current Protocols in Molecular Biology (John Wiley and Sons, Baltimore, Md.).

All of the references cited above, as well as all references cited herein, are incorporated herein by reference in their entireties.

EMODIMENTS

1. An antisense oligonucleotide comprising a contiguous nucleotide sequence of 10 to 30 nucleotides in length that is complementary to a nucleic acid sequence within an alpha-synuclein (*SNCA)* transcript, wherein the nucleic acid sequence is selected from the group consisting of (i) nucleotides 4942 - 5343 of SEQ ID NO: 1; (ii) nucleotides 6326 - 7041 of SEQ ID NO: 1; (iia) nucleotides 6336 - 7041 of SEQ ID NO: 1; (iii) nucleotides 7329 - 7600 of SEQ ID NO: 1; (iv) nucleotides 7630 - 7783 of SEQ ID NO: 1; (iva) nucleotides 7750 - 7783 of SEQ ID NO: 1; (v) nucleotides 8277 - 8501 of SEQ ID NO: 1; (vi) nucleotides 9034 - 9526 of SEQ ID NO: 1; (vii) nucleotides 9982 - 14279 of SEQ ID NO: 1; (viii) nucleotides 15204 - 19041 of SEQ ID NO: 1; (ix) nucleotides 20351 - 29654 of SEQ ID NO: 1; (ixa) nucleotides 20351 - 20908 of SEQ ID NO: 1; (ixb) nucleotides 21052 - 29654 of SEQ ID NO: 1; (x) nucleotides 30931 - 33938 of SEQ ID NO: 1; (xi) nucleotides 34932 - 37077 of SEQ ID NO: 1; (xii) nucleotides 38081 - 42869 of SEQ ID NO: 1; (xiii) nucleotides 44640 - 44861 of SEQ ID NO: 1; (xiv) nucleotides 46173 - 46920 of SEQ ID NO: 1; (xv) nucleotides 47924 - 58752 of SEQ ID NO: 1; (xvi) nucleotides 60678 - 60905 of SEQ ID NO: 1; (xvii) nucleotides 62066 - 62397 of SEQ ID NO: 1; (xviii) nucleotides 67759 - 71625 of SEQ ID NO: 1; (xix) nucleotides 72926 - 86991 of SEQ ID NO: 1; (xx) nucleotides 88168 - 93783 of SEQ ID NO: 1; (xxi) nucleotides 94976 - 102573 of SEQ ID NO: 1; (xxii) nucleotides 104920 - 107438 of SEQ ID NO: 1; (xxiii) nucleotides 108948 - 119285 of SEQ ID NO: 1; (xxiiia) nucleotides 108948 - 114019 of SEQ ID NO: 1; (xxiib) nucleotides 114292 - 116636 of SEQ ID NO: 1; (xxiv) nucleotides 131 - 678 of SEQ ID NO: 5; (xxv) nucleotides 131-348 of SEQ ID NO: 3; (xxvi) nucleotides 1 - 162 of SEQ ID NO: 4; (xxvii) nucleotides 126 - 352 of SEQ ID NO: 2; (xxviii) nucleotides 276 - 537 of SEQ ID NO: 2; (xxix) nucleotides 461 - 681 of SEQ ID NO: 2; and (xxx) nucleotides 541 - 766 of SEQ ID NO: 2.

2. The antisense oligonucleotide of embodiment 1, wherein the nucleic acid sequence is selected from the group consisting of (i) nucleotides 4992 - 5109 of SEQ ID NO: 1; (ii) nucleotides 6376 - 6991 of SEQ ID NO: 1; (iii) nucleotides 7379 - 7600 of SEQ ID NO: 1; (iv) nucleotides 7630 - 7733 of SEQ ID NO: 1; (v) nucleotides 8327 - 8451 of SEQ ID NO: 1; (vi) nucleotides 9084 - 9476 of SEQ ID NO: 1; (vii) nucleotides 10032 - 14229 of SEQ ID NO: 1; (viii) nucleotides 15254 - 18991 of SEQ ID NO: 1; (ix) nucleotides 20401 - 29604 of SEQ ID NO: 1; (x) nucleotides 30981 - 33888 of SEQ ID NO: 1; (xi) nucleotides 34982 - 37027 of SEQ ID NO: 1; (xii) nucleotides 38131 - 42819 of SEQ ID NO: 1; (xiii) nucleotides 44690 - 4481 1 of SEQ ID NO: 1; (xiv) nucleotides 46223 - 46870 of SEQ ID NO: 1; (xv) nucleotides 47974 - 58702 of SEQ ID NO: 1; (xvi) nucleotides 60728 - 608555 of SEQ ID NO: 1; (xvii) nucleotides 621 16 - 62347 of SEQ ID NO: 1; (xviii) nucleotides 67809 - 71575 of SEQ ID NO: 1; (xix) nucleotides 72976 - 86941 of SEQ ID NO: 1; (xx) nucleotides 88218 - 93733 of SEQ ID NO: 1; (xxi) nucleotides 95026 - 102523 of SEQ ID NO: 1; (xxii) nucleotides 104970 - 107388 of SEQ ID NO: 1; (xxiii) nucleotides 108998 - 119235 of SEQ ID NO: 1; (xxiv) nucleotides 181 - 628 of SEQ ID NO: 5; (xxv) nucleotides 181 - 298 of SEQ ID NO: 3; (xxvi) nucleotides 15 - 112 of SEQ ID NO: 4; (xxvii) nucleotides 176 - 302 of SEQ ID NO: 2; (xxviii) nucleotides 326 - 487 of SEQ ID NO: 2; (xxix) nucleotides 511 - 631 of SEQ ID NO: 2; and (xxx) nucleotides 591 - 716 of SEQ ID NO: 2.

3. The antisense oligonucleotide of embodiment 1, wherein the nucleic acid sequence is selected from the group consisting of (i) nucleotides 5042 - 5243 of SEQ ID NO: 1; (ii) nucleotides 6426 - 6941 of SEQ ID NO: 1; (iii) nucleotides 7429 - 7600 of SEQ ID NO: 1; (iv) nucleotides 7630 - 7683 of SEQ ID NO: 1; (v) nucleotides 8377- 8401 of SEQ ID NO: 1; (vi) nucleotides 9134 - 9426 of SEQ ID NO: 1; (vii) nucleotides 10082 - 14179 of SEQ ID NO: 1; (viii) nucleotides 15304 - 18941 of SEQ ID NO: 1; (ix) nucleotides 20451 - 29554 of SEQ ID NO: 1; (x) nucleotides 31031 - 33838 of SEQ ID NO: 1; (xi) nucleotides 35032 - 36977 of SEQ ID NO: 1; (xii) nucleotides 38181 - 42769 of SEQ ID NO: 1; (xiii) nucleotides 44740 - 44761 of SEQ ID NO: 1; (xiv) nucleotides 46273 - 46820 of SEQ ID NO: 1; (xv) nucleotides 48024 - 58752 of SEQ ID NO: 1; (xvi) nucleotides 60778 - 60805 of SEQ ID NO: 1; (xvii) nucleotides 62166 - 62297 of SEQ ID NO: 1; (xviii) nucleotides 67859 - 71525 of SEQ ID NO: 1; (xix) nucleotides 73026 - 86891 of SEQ ID NO: 1; (xx) nucleotides 88268 - 93683 of SEQ ID NO: 1; (xxi) nucleotides 95076 - 102473 of SEQ ID NO: 1; (xxii) nucleotides 105020 - 107338 of SEQ ID NO: 1; (xxiii) nucleotides 109048 - 119185 of SEQ ID NO: 1; (xxiv) nucleotides 231 - 248 or 563 - 578 of SEQ ID NO: 5; (xxv) nucleotides 231 - 248 of SEQ ID NO: 3; (xxvi) nucleotides 38 - 62 of SEQ ID NO: 4; (xxvii) nucleotides 226 - 252 of SEQ ID NO: 2; (xxviii) nucleotides

376 - 437 of SEQ ID NO: 2; (xxix) nucleotides 561 - 581 of SEQ ID NO: 2; and (xxx) nucleotides 641 - 666 of SEQ ID NO: 2.

4. The antisense oligonucleotide of embodiment 1, wherein the nucleic acid sequence corresponds to nucleotides nucleotides 21052 - 29654 of SEQ ID NO: 1;nucleotides 30931 - 33938 of SEQ ID NO: 1; nucleotides 44640 - 44861 of SEQ ID NO: 1; or nucleotides 47924 - 58752 of SEQ ID NO: 1.

5. The antisense oligonucleotide of embodiment 1 or 4, wherein the nucleic acid sequence corresponds to nucleotides 24483 - 28791 of SEQ ID NO: 1; nucleotides 32225 - 32245 of SEQ ID NO: 1; nucleotides 44740 - 44760 of SEQ ID NO: 1or nucleotides 48640 - 48660 of SEQ ID NO: 1.

6. The antisense oligonucleotide of embodiment 1, wherein the nucleic acid sequence corresponds to (i) nucleotides 7502 - 7600 of SEQ ID NO: 1; (ii) nucleotides 7630 - 7719 of SEQ ID NO: 1; (iii) nucleotides 116881 - 117312 of SEQ ID NO: 1; or (iv) nucleotides 118606 - 118825 of SEQ ID NO: 1.

7. The antisense oligonucleotide of embodiment 1 or 6, wherein the nucleic acid sequence is nucleotides 116881 - 1171 19 of SEQ ID NO: 1; nucleotides 116968 - 117198 of SEQ ID NO: 1; or nucleotides 117085 - 11731 2 of SEQ ID NO: 1.

8. The antisense oligonucleotide of embodiment 1, 6 or 7 wherein the nucleic acid sequence is nucleotides (i) nucleotides 7552 - 7600 of SEQ ID NO: 1; (ii) nucleotides 7630 - 7669 of SEQ ID NO: 1; (iii) nucleotides 116931 - 117262 of SEQ ID NO: 1; or (iv) nucleotides 118656 - 118775 of SEQ ID NO: 1.

9. The antisense oligonucleotide of embodiment 8, wherein the nucleic acid sequence is nucleotides 116931 - 117069 of SEQ ID NO: 1; nucleotides 117018 - 117148 of SEQ ID NO: 1; or nucleotides 117135 - 117262 of SEQ ID NO: 1.

10. The antisense oligonucleotide of embodiment 1, wherein the nucleic acid sequence is nucleotides (i) nucleotides 116981 — 117212 of SEQ ID NO: 1 or (ii) nucleotides 118706 - 118725 of SEQ ID NO: 1.

11. The antisense oligonucleotide of embodiment 10, wherein the nucleic acid sequence is nucleotides 116981 - 117019 of SEQ ID NO: 1; nucleotides 117068 - 117098 of SEQ ID NO: 1; or nucleotides 117185 - 11721 2 of SEQ ID NO: 1.

12. The antisense oligonucleotide of any one of embodiments 1 to 11, which has from 10 to 24 nucleotides in length or from 14 to 2 1 nucleotides in length.

13. The antisense oligonucleotide of any one of embodiments 1 to 12, which has 14, 15, 16, 17, 18, 19, 20, or 21 nucleotides in length.

14. The antisense oligonucleotide of any one of embodiments 1 to 13, wherein the *SNCA* transcript comprises SEQ ID NO: 1.

15. The antisense oligonucleotide of any one of embodiments 1 to 14, wherein the contiguous nucleotide sequence comprises SEQ ID NO: 7 to SEQ ID NO: 1878 with one, two, three, or four mismatches.

16. The antisense oligonucleotide of any one of embodiments 1 to 15, wherein the contiguous nucleotide sequence comprises SEQ ID NO: 7 to SEQ ID NO: 1878.

17. The antisense oligonucleotide of embodiment 1 or 4, wherein the contiguous nucleotide sequence comprises a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 with no more than 2 mismatches.

18. The antisense oligonucleotide of embodiment 1 or 17, wherein the contiguous nucleotide sequence consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353.

19. The antisense oligonucleotide of any one of embodiments 1, 4, 5, 11 - 18, wherein the contiguous nucleotide sequence comprises a sequence selected from the group consisting of SEQ ID NO: 276; 278; 296; 295; 325; 328; 326; 329; 330; 327; 332; 333; 331; 339; 341 ; 390; 522 and 559.

20. The antisense oligonucleotide of any one of embodiments 1 to 19, wherein the antisense oligonucleotide is capable of inhibiting the expression of the human *SNCA* transcript in a cell which is expressing the human *SNCA* transcript.

21. The antisense oligonucleotide of any of embodiments 1 to 20, wherein the contiguous nucleotide sequence comprises at least one nucleotide analogueue.

22. The antisense oligonucleotide of any of embodiment 21, whereinthe nucleotide analogue is a 2' sugar modified nucleoside.

23. The method of embodiment 22, wherein the 2' sugar modified nucleoside is an affinity enhancing sugar modified nucleoside.

24. The antisense oligonucleotide of any one of embodiments 1 to 23, which is a gapmer.

25. The antisense oligonucleotide of embodiment 24, which is an alternating flank gapmer.

26. The antisense oligonucleotide of embodiment 24 or 25, which comprises the formula of 5-A-B-C-3', wherein

a) region B is a contiguous sequence of at least 6 DNA units, which are capable of recruiting RNase;

a) region A is a first wing sequence of 1 to 10 nucleotides, wherein the first wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 3' end of A; and

a) region C is a second wing sequence of 1 to 10 nucleotides, wherein the second wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 5' end of C.

27. The antisense oligonucleotide of embodiment 26, wherein region A comprises 1-4 nucleotide analogues, region B consist of 8 to 15 DNA units and region C comprises 2 to 4 nucleotide analogues.

28. The antisense oligonucleotide of embodiment 26 or 27, wherein region A comprises a combination of nucleotide analogues and DNA unit selected from (i) 1-9 nucleotide analogues and 1 DNA unit; (ii) 1-8 nucleotide analogues and 1-2 DNA units; (iii) 1-7 nucleotide analogues and 1-3 DNA units; (iv) 1-6 nucleotide analogues and 1-4 DNA units; (v) 1-5 nucleotide analogues and 1-5 DNA units; (vi) 1-4 nucleotide analogues and 1-6 DNA units; (vii) 1-3 nucleotide analogues and 1-7 DNA units; (viii) 1-2 nucleotide analogues and 1-8 DNA units; and (ix) 1 nucleotide analogue and 1-9 DNA units.

29. The antisense oligonucleotide of embodiment 26 or 27, wherein region C comprises a combination of nucleotide analogues and DNA unit selected from (i) 1-9 nucleotide analogues and 1 DNA unit; (ii) 1-8 nucleotide analogues and 1-2 DNA units; (iii) 1-7 nucleotide analogues and 1-3 DNA units; (iv) 1-6 nucleotide analogues and 1-4 DNA units; (v) 1-5 nucleotide analogues and 1-5 DNA units; (vi) 1-4 nucleotide analogues and 1-6 DNA units; (vii) 1-3 nucleotide analogues and 1-7 DNA units; (viii) 1-2 nucleotide analogues and 1-8 DNA units; and (ix) 1 nucleotide analogue and 1-9 DNA units.

30. The antisense oligonucleotide of any one of embodiments 26 to 29, wherein region A is a first wing design selected from any ASOs in FIGs. 1A to 1C and 2, and/or region C is a second wing design selected from any ASOs in FIGs. 1A to 1C and 2, wherein the upper letter is a nucleoside analog and the lower letter is a DNA.

31. The antisense oligonucleotide of any one of embodiments 1 to 30, which comprises at least two, at least three, at least four, at least five, at least six, at least seven, at least eight, at least nine, or at least ten nucleotide analogues.

32. The antisense oligonucleotide of any one of embodiments 21 to 31, wherein the nucleotide analogue or analogues are independently selected from one or more 2' sugar modified nucleosides selected from the group consisting of Locked Nucleic Acid (LNA); 2'-0-alkyl-RNA; 2'-amino-DNA; 2'-fluoro-DNA; arabino nucleic acid (ANA); 2'-fluoro-ANA, hexitol nucleic acid (HNA), intercalating nucleic acid (INA), constrained ethyl nucleoside (cEt), 2'-0-methyl nucleic acid (2'-OMe), 2'-0-methoxyethyl nucleic acid (2'-MOE), and any combination thereof.

33. The antisense oligonucleotide of any one of embodiments 1 to 32, wherein the nucleotide analogue or analogues comprise a bicyclic sugar.

34. The antisense oligonucleotide of embodiment 33, wherein the bicyclic sugar comprises cEt, 2',4'-constrained 2-O-methoxyethyl (cMOE), a-L-LNA, β-D-LNA, 2'-0,4'-C-ethylene-bridged nucleic acids (ENA), amino-LNA, oxy-LNA, or thio-LNA.

35. The antisense oligonucleotide of any one of embodiments 21 to 34, wherein the nucleotide analogue or analogues comprise a β-D-oxy-LNA.

36. The antisense oligonucleotide of any one of embodiments 21 to 35, wherein the antisense oligonucleotide comprises one or more 5'methyl cytosine nucleobases.

37. The antisense oligonucleotide of any one of embodiments 24 to 36, which comprises two to five LNAs on the 5' region of the antisense oligonucleotide.

38. The antisense oligonucleotide of any one of embodiments 24 to 37, which comprises two to five LNAs on the 3' region of the antisense oligonucleotide.

39. The antisense oligonucleotide of any one of embodiments 1 to 38, which comprises an internucleoside linkage selected from: a phosphodiester linkage, a phosphotriester linkage, a methylphosphonate linkage, a phosphoramidate linkage, a phosphorothioate linkage, and combinations thereof.

40. The antisense oligonucleotide of any one of embodiments 1 to 39, wherein 50% of the internucleoside linkages within the contiguous nucleotide sequence are phosphorothioate internucleoside linkages.

41. The antisense oligonucleotide of any one of embodiments 1 to 40, wherein the internucleoside linkage comprises one or more stereodefined, modified phosphate linkages.

42. The antisense oligonucleotide of any one of embodiments 1 to 40, wherein all the internucleoside linkages in the contiguous nucleotide sequence are phosphorothioate.

43. The antisense oligonucleotide of any one of embodiments 1 to 42, wherein the antisense oligonucleotide has an *in vivo* tolerability less than or equal to a total score of 4, wherein the total score is the sum of a unit score of five categories, which are 1) hyperactivity; 2) decreased activity and arousal; 3) motor dysfunction and/or ataxia; 4) abnormal posture and breathing; and 5) tremor and/or convulsions, and wherein the unit score for each category is measured on a scale of 0-4.

44. The antisense oligonucleotide of embodiment 43, wherein the *in vivo* tolerability is less than or equal to the total score of 3, the total score of 2, the total score of 1, or the total score of 0.

45. The antisense oligonucleotide of any one of embodiments 1 to 44, which reduces expression of *SNCA* mRNA in a cell by at least about 20%, at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% compared to a cell not exposed to the antisense oligonucleotide.

46. The antisense oligonucleotide of any one of embodiments 1 to 45, which reduces expression of SNCA protein in a cell by at least about 60%, at least about 70%, at least about 80%, at least about 90%, or at least about 95% compared to a cell not exposed to the antisense oligonucleotide.

47. The antisense oligonucleotide of any one embodiments 1 to 46, which comprises the nucleotides A, T, C, and G and at least one analogue of the nucleotides A, T, C, and G, and has a sequence score greater than or equal to 0.2, wherein the sequence score is calculated by formula I:

$$\frac{\#\text{ of C nucleotides and analogues thereof} - \#\text{ of G nucleotides and analogues thereof}}{\text{Total nucleotide length.}} \quad \text{(I)}$$

48. The antisense oligonucleotide of embodiment 1 to 47, wherein the nucleotide sequence comprises, consists essentially of, or consists of a sequence selected from the group consisting of SEQ ID NOs: 7 to 1878 with a design selected from the group consisting of the designs in Figures 1A to 1C and 2, wherein the upper case letter is a sugar modified nucleoside and the lower case letter is DNA.

49. The antisense oligonucleotide of embodiment 37, wherein the nucleotide sequence comprises, consists essentially of, or consists of SEQ ID NO: 1436 with the design of ASO-003092 and SEQ ID NO: 1547 with the design of ASO-003179. wherein the upper case letter is a nucleoside analogue and the lower case letter is DNA.

50. The antisense oligonucleotide of embodiment 1 to, 48 wherein the nucleotide sequence comprises, consists essentially of, or consists of a sequence selected from the group consisting of wherein the contiguous nucleotide sequence consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 with a design selected from the group consisting of the designs in Figures 1A to 1C, wherein the upper case letter is a sugar modified nucleoside and the lower case letter is DNA.

51. The antisense oligonucleotide of embodiment 50, wherein the contiguous nucleotide sequence comprises a sequence selected from the group consisting of with a design selected from the group consisting of:

TTCtctatataacatCACT (SEQ ID NO: 276)
TTTCtctatataacaTCAC (SEQ ID NO: 278);
AACTtttacataccACAT (SEQ ID NO: 296);
AACTtttacataccaCATT (SEQ ID NO: 295);
ATTAttcatcacaatCCA (SEQ ID NO: 325);
ATTAttcatcacaATCC (SEQ ID NO:328);
CattattcatcacaaTCCA (SEQ ID NO:326);
CATtattcatcacaATCC (SEQ ID NO:329);
ACAttattcatcacaaTCC (SEQ ID NO: 330);
AcattattcatcacaaTCCA (SEQ ID NO: 327);
ACATtattcatcacAATC (SEQ ID NO: 332);
TACAttattcatcacAATC (SEQ ID NO: 333);
TAcattattcatcacaaTCC (SEQ ID NO: 331);
TTCaacatttttatttCACA (SEQ ID NO:339);
ATTCaacatttttattTCAC (SEQ ID NO: 341);
ACTAtgatacttcACTC (SEQ ID NO: 390);
ACACattaactactCATA (SEQ ID NO: 522) and
GTCAaaatattcttaCTTC (SEQ ID NO:559),

wherein the upper case letters indicate a sugar modified nucleoside analouge and the lower case letters indicate DNAs.

52. The antisense oligonucleotide of any one of embodiments 1 to 48, wherein the nucleotide sequence comprises, consists essentially of, or consists of a sequence selected from the group consisting of SEQ ID NOs: 7 to 1878 with the corresponding chemical structure in FIGs. 1A to 1C and 2.

53. The antisense oligonucleotide of any one of embodiment 1 to 52, wherein the contiguous nucleotide sequence has a the chemical structure of ASO-003092 or ASO-003179.

54. The antisense oligonucleotide of any one of claims one of embodiment 1 to 52, wherein the contiguous nucleotide sequence has a the chemical structure selected from the group consisting of ASO-008387; ASO-008388; ASO-008501 ; ASO-008502; ASO-008529; ASO-008530; ASO-008531 ; ASO-008532; ASO-008533; ASO-008534; ASO-008535; ASO-008536; ASO-008537; ASO-008543; ASO-008545; ASO-008584; ASO-008226 and ASO-008261 .

55. A conjugate comprising the antisense oligonucleotide of any one of embodiments 1 to 53, wherein the antisense oligonucleotide is covalently attached to at least one non-nucleotide or non-polynucleotide moiety.

56. The conjugate of embodiment 55, wherein the non-nucleotide or non-polynucleotide moiety comprises a protein, a fatty acid chain, a sugar residue, a glycoprotein, a polymer, or any combinations thereof.

57. The conjugate of embodiment 55, wherein the conjugate is an antibody fragment which has a specific affinity for a transferrin receptor.

58. A pharmaceutical composition comprising the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, and a pharmaceutically acceptable carrier.

59. The composition of embodiment 58, which further comprises a therapeutic agent.

60. The composition of embodiment 59, wherein the therapeutic agent is an alpha-synuclein antagonist.

61. The composition of embodiment 60, wherein the alpha-synuclein antagonist is an anti-alpha-synuclein antibody or fragment thereof.

62. A kit comprising the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61, and instructions for use.

63. A diagnostic kit comprising the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61, and instructions for use.

64. A method of inhibiting or reducing SNCA protein expression in a cell, the method comprising administering the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate

of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 to the cell expressing SNCA protein, wherein the SNCA protein expression in the cell is inhibited or reduced after the administration.

65. The method of embodiment 64 wherein the antisense oligonucleotide inhibits or reduces expression of *SNCA* mRNA in the cell after the administration.

66. The method of embodiment 64 or 65, wherein the expression of *SNCA* mRNA is reduced by at least about 20%, at least about 30%, at least about 40%, at least about 50%, at least about 60%, at least about 70%, at least about 80%, at least about 90%, or about 100% after the administration compared to a cell not exposed to the antisense oligonucleotide.

67. The method of any one of embodiments 64 to 66, wherein the antisense oligonucleotide reduces expression of SNCA protein in the cell after the administration by at least about 60%, at least about 70%, at least about 80%, or at least about 90% compared to a cell not exposed to the antisense oligonucleotide.

68. The method of any one of embodiments 64 to 67, wherein the cell is a neuron.

69. A method for treating a synucleinopathy in a subject in need thereof, comprising administering an effective amount of the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 to the subject.

70. Use of the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 for the manufacture of a medicament.

71. Use of the antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 for the manufacture of a medicament for the treatment of a synucleinopathy in a subject in need thereof.

72. The antisense oligonucleotide of any one of embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 for use in therapy.

73. The antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61 for use in therapy of a synucleinopathy in a subject in need thereof.

74. The method of embodiment 64 to 69, the use of embodiment 70 or 71, or the antisense oligonucleotide for use of embodiment 72 or 73, wherein the synucleinopathy is selected from the group consisting of Parkinson's disease, Parkinson's Disease Dementia (PDD), multiple system atrophy, dementia with Lewy bodies, and any combinations thereof.

75. The method of embodiment 64 to 69, the use of embodiment 70 or 71, or the antisense oligonucleotide for use of embodiment 72 or 73, wherein the subject is a human.

76. The method of any one of embodiments 64 to 69, the use of embodiment 70 or 71, or the antisense oligonucleotide for use of embodiment 72 or 73, wherein the antisense oligonucleotide, the conjugate, or the composition is administered orally, parenterally, intrathecally, intra-cerebroventricularly, pulmorarily, topically, or intraventricularly.

77. The antisense oligonucleotide of any one embodiments 1 to 57 or the conjugate of embodiment 55 to 57, or the composition of any one of embodiments 58 to 61, the kit of embodiment 62 or 63, the method of any one of embodiments 64 to 69, the use of embodiment 70 or 71, or the antisense oligonucleotide for use of embodiment 72 or 73, wherein the nucleotide analogue comprises a sugar modified nucleoside.

78. The method of embodiment 64, wherein the sugar modified nucleoside is an affinity enhancing sugar modified nucleoside.

EXAMPLES

The following examples are offered by way of illustration and not by way of limitation.

Example 1: Construction of ASOs

Antisense oligonucleotides described herein were designed to target various regions in the *SNCA* pre-mRNA as shown in SEQ ID NO: 1 (genomic *SNCA* sequence), or in *SNCA* cDNA as shown in SEQ ID NO: 2, 3, 4 and 5. For example, the ASOs were constructed to target the regions denoted using the pre-mRNA start site and pre-mRNA end site of NG_01 1851.1 (SEQ ID NO: 1) and/or mRNA start site and end site of its mRNAs. The exemplary sequences of the ASOs (*e.g.,* SEQ ID Numbers) are described in FIGs. 1A to 1C and 2. In some embodiments, the ASOs were designed to be gapmers or alternating flank gapmers. *See* DES Numbers.

FIGs. 1A to 1C and 2 show non-limiting examples of the ASO design for selected sequences. The same methods can be applied to any other sequences disclosed herein. The gapmers were constructed to contain locked nucleic acids - LNAs (upper case letters). For example, a gapmer can have Beta-D-oxy LNA at the 5' end and the 3' end and have a phosphorothioate backbone. But the LNAs can also be substituted with any other nucleotide analogues and the backbone can be

other types of backbones (*e.g.,* a phosphodiester linkage, a phosphotriester linkage, a methylphosphonate linkage, a phosphoramidate linkage, or combinations thereof).

The ASOs were synthesized using methods well known in the art. Exemplary methods of preparing such ASOs are described in Barciszewski *et al,* Chapter 10 - " Locked Nucleic Acid Aptamers" in *Nucleic Acid and Peptide Aptamers: Methods and Protocols,* vol. 535, Gunter Mayer (ed.) (2009), the entire contents of which is hereby expressly incorporated by reference herein.

Example 2A: High Content Assay to Measure Reduction of SNCA Protein in Primary Neurons

ASOs targeting *SNCA* were tested for their ability to reduce SNCA protein expression in primary mouse neurons. The primary neuronal cultures were established from the forebrain of PAC-Tg(SA/CA^{A53T})$^{+/+}$;SA/CA$^{-/-}$ ("PAC-A53T") mice carrying the entire human *SNCA* gene with a A53T mutation on a mouse *SNCA* knockout background. *See* Kuo Y *et al, Hum Mol Genet.,* 19: 1633-50 (2010). All procedures involving mice were conducted according to Animal Test Methods (ATM) approved by the Bristol-Myers Squibb Animal Care and Use Committee (ACUC). Primary neurons were generated by papain digestion according to manufacturer's protocol (Worthington Biochemical Corporation, LK0031050). Isolated neurons were washed and resuspended in Neurobasal medium (NBM, Invitrogen) supplemented with B27 (Gibco), 1.25 μM Glutamax (Gibco), 100 unit/ml penicillin, 100 pg/ml streptomycin, and 25 pg/ml Amphotericin B.

Cells were plated on multi-well poly D-Lysine coated plates at 5,400 cells/cm^2 (for example in 384 well plates 6,000 cells/well in 25 pi NBM). ASOs were diluted in water and added to the cells at DIV01 *(i.e.,* 1 day post plating). ASOs were added to 2X final concentration in medium then delivered to cells manually. Alternatively, ASOs in water were dispensed using a Labcyte ECHO acoustic dispenser. For ECHO dispense, 250 nl of ASO in water was added to cells in medium followed by the addition of an equal volume aliquot of fresh aliquot of NBM. For primary screening, the ASOs were added to final concentrations of 5 μM, 3.3 μM, 1 μM, 200 nM, or 40 nM. For potency determination, 8-10 point titrations of the ASOs were prepared from 0.75 mM stock then delivered to cultured cells for a final concentration range of 2.7-4000 nM or 4.5-1 0,000 nM. ASO-000010 (TCTgtcttggctTTG, SEC ID NO: 1879) and ASO-000838 (AGAaataagtggtAGT, SEC ID NO: 1404) (5 pM) were included in each plate as reference control inhibitors for tubulin and SNCA, respectively. The cells were incubated with the ASOs for 14 days to achieve steady state reduction of mRNA.

After the 14-day incubation, the cells were fixed by the addition of fixative to final concentrations of 4% formaldehyde (J.T. Baker) and 4% sucrose (Sigma) in the wells. The cells were fixed for 15

minutes, and then, the fixative aspirated from the wells. Then, the cells were permeabilized for 20 minutes with a phosphate buffered saline (PBS) solution containing 0.3% Triton-X 100 and 3% bovine serum albumin (BSA) or 3% Normal goat serum Afterwards, the permeabilization buffer was aspirated from the wells, and the cells were washed once with PBS. The primary antibodies were then diluted in PBS containing 0.1% Triton X-100 and 3% BSA. Dilutions of 1:1000 of rabbit anti-SNCA (Abeam) and 1:500 of chicken anti-tubulin (Abeam) were used. Cells were incubated with the primary antibodies between 2 hours to overnight. Following the incubation, the primary antibody staining solution was aspirated, and the cells were washed 2-times with PBS. A secondary staining solution containing 1:500 dilution of goat-anti-chicken Alexa 567 antibody, goat anti-rabbit-Alexa 488 antibody, and Hoechst (10 pg/ml) in PBS containing 0.1% Triton X-100 with 3% BSA was added to the wells, and the plates were incubated for 1 hour. Afterwards, the secondary staining solution was aspirated from the wells, and the cells were washed 3-times with PBS. After washing the cells, 60 pi of PBS was added to each well. Plates were then stored in the PBS until imaging.

For imaging, the plates were scanned on a Thermo-Fisher (Cellomics) CX5 imager using the Spot Detector bio-application (Cellomics) to quantify nuclei (Floechst stain, Channel 1), tubulin extensions (Alexa 567, channel 2) and SNCA (Alexa 488, channel 3). Object count (nuclei) was monitored but not published to the database. The total area covered by tubulin was quantified as the feature SpotTotalAreaCh2 and total intensity of staining for SNCA quantified as SpotTotalIntenCh3. The tubulin measure was included to monitor toxicity. To determine the reduction of SNCA protein, the ratio of SNCA intensity to the tubulin staining area was calculated and results normalized as % inhibition median using the median of vehicle treated wells as total and ASO-000010 or ASO-000838 wells as maximally inhibited wells for tubulin or SNCA, respectively. The results are shown in Table 1, 2 and 3 below.

Table 1 shows the percent reduction of SNCA protein expression in both a human neuroblastoma cell line SK-N-BE(2) ("SK cells") and primary neurons isolated from A53T-PAC transgenic mice ("PAC neurons") after *in vitro* culture with various ASOs from figure 1A to 1C. The cultivation of the PAC neurons is described in Example 2A and Example 2E describes the cultivation of the the SK cells. For the SK cells, the cells were treated with 25 pM of ASO and the *SNCA* mRNA expression (normalized to GAPDFI) is shown as a percent of the control. For the PAC neurons, the cells were treated with either 40 nM or 5 pM of ASO and the SNCA protein expression (normalized to tubulin)

is shown as percent inhibition. Where no value is provided, the particular ASO was not tested under the particular conditions.

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
000838			93.72	005231	34.88	44.18	
000871		76.92		005232	61.94	46.84	
000944		93.71		005233	55.00	42.98	
001215			87.53	005234	59.61	48.30	
001216			70.23	005235	48.55	54.20	
001217			78.61	005236	64.58	43.82	
001218			44.15	005237	76.10	50.85	
001219			74.23	005238	58.89	37.30	
001220			45.19	005239	53.91	50.20	
001221			88.01	005240	49.68	60.10	
001222			89.32	005241	46.30	68.14	
001223			97.25	005242	71.92	38.32	
001224			81.80	005243	60.65	72.40	
001225			87.39	005244	44.93	73.00	
001226			89.46	005245	33.95	80.83	
001227			82.60	005246	40.65	67.26	
001228			92.13	005247	51.33	57.75	
001229			38.57	005248	64.71	29.11	
001230			64.61	005249	65.49	44.92	
001231			85.90	005250	59.12	56.71	
001232			97.52	005251	46.14	52.67	
001233			92.56	005252	69.43	43.26	
001234			71.25	005253	60.92	39.22	
001235			98.36	005254	61.34	65.79	
001236			95.77	005255	50.04	70.16	
001237			63.04	005256	72.20	60.01	
001238			89.50	005257	57.82	77.12	
001239			80.33	005258	39.88	71.48	
001240			90.26	005259	45.61	77.75	
001241			82.99	005260	58.25	33.64	
001242			86.40	005261	55.88	66.66	
001243			98.53	005262	43.64	81.42	
001244			95.88	005263	45.59	58.90	
001245			93.77	005264	41.46	72.58	
001246			90.82	005265	45.89	61.52	
001247			97.48	005266	47.48	56.68	
001248			93.67	005267	43.83	78.24	
001249			47.69	005268	48.81	66.14	
001250			81.30	005269	39.65	60.97	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001251			92.94	005270	36.82	62.53	
001252			65.16	005271	41.90	64.71	
001253			78.95	005272	47.97	61.19	
001254			90.36	005273	35.28	81.48	
001256			98.12	005274	45.44	57.24	
001257			68.58	005275	40.97	68.49	
001258			98.61	005276	38.97	68.12	
001259			98.39	005277	39.51	76.52	
001260			48.29	005278	44.86	75.07	
001261			92.53	005279	50.60	62.52	
001262			11.86	005280	58.51	50.62	
001264			88.31	005281	44.45	54.63	
001265			78.33	005282	44.50	57.45	
001266			91.34	005283	34.26	65.61	
001267			55.49	005284	46.66	57.00	
001268	35.33		95.85	005285	39.59	86.23	
001269			89.81	005286	62.91	46.94	
001270			97.29	005287	34.88	87.27	
001271			86.95	005288	39.59	70.30	
001272			44.51	005289	42.84	62.23	
001273			93.30	005290	41.97	65.69	
001274			91.42	005291	32.24	70.95	
001275			88.46	005292	32.43	83.62	
001276			74.14	005293	53.70	67.64	
001277			84.41	005294	61.01	54.60	
001278			87.79	005295	51.33	62.32	
001279			97.27	005296	42.19	73.78	
001280			83.63	005297	53.58	52.99	
001281			97.32	005298	47.07	41.12	
001282			94.25	005299	50.56	65.62	
001283			31.00	005300	63.23	13.82	
001284			93.18	005301	67.38	26.21	
001285			86.10	005302	83.32	26.29	
001286			80.62	005303	50.40	58.57	
001287			23.11	005304	44.75	56.31	
001288			67.56	005305	33.34	78.10	
001289			86.74	005306	49.89	53.29	
001290			66.46	005307	55.34	41.69	
001291			85.76	005308	39.01	74.61	
001292			92.26	005309	42.98	64.78	
001293			93.32	005310	61.89	55.05	
001294			64.02	005311	62.63	30.63	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001295			94.93	005312	69.06	18.51	
001296			90.24	005313	54.58	64.77	
001297			86.81	005314	46.02	61.62	
001298			91.01	005315	53.20	48.93	
001299			65.65	005316	54.78	32.32	
001300			94.40	005317	43.46	81.73	
001301			92.02	005318	74.94	36.85	
001302			92.69	005319	49.72	50.63	
001303			95.62	005320	55.05	71.07	
001304			98.14	005321	46.98	54.91	
001305			48.41	005322	60.58	26.66	
001306			98.79	005323	51.00	35.64	
001307			84.65	005324	48.71	73.43	
001308			93.86	005325	68.99	46.68	
001309			90.91	005326	54.94	42.37	
001310			84.82	005327	55.34	56.95	
001311			84.94	005328	47.29	48.13	
001312			95.91	005329	63.45	42.36	
001313			61.41	005330	49.78	81.92	
001314			42.39	005331	62.98	27.03	
001315			91.32	005332	64.80	18.30	
001316			87.26	005333	61.42	44.54	
001317			60.85	005334	58.99	40.14	
001318			95.84	005335	53.89	52.91	
001319			8.18	005336	40.83	58.21	
001320			85.45	005337	75.32	36.80	
001321			69.37	005338	35.69	84.70	
001322			28.55	005339	48.36	48.75	
001323			87.84	005340	48.12	57.88	
001324			92.81	005341	58.15	36.60	
001325			77.19	005342	72.91	36.06	
001326			94.59	005343	53.37	67.24	
001327			82.85	005344	72.26	41.55	
001328			95.78	005345	60.26	47.54	
001329			0.00	005346	50.62	56.52	
001330			85.68	005347	70.74	34.62	
001331			86.34	005348	47.46	74.57	
001332			95.33	005349	61.95	53.47	
001333			55.39	005350	76.01	41.52	
001334			86.33	005351	56.42	49.40	
001335			92.50	005352	52.01	41.92	
001336			57.28	005353	53.53	57.32	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001337			77.14	005354	43.16	50.51	
001338			89.06	005355	53.75	46.31	
001339			91.57	005356	63.93	45.46	
001340			67.34	005357	71.88	40.82	
001341			78.26	005358	47.58	61.41	
001342			86.73	005359	82.11	21.37	
001343			83.45	005360	63.34	47.07	
001344			88.15	005361	56.11	71.64	
001345			85.47	005362	54.42	57.04	
001346			81.85	005363	97.38	-32.23	
001347			84.87	005364	66.27	48.41	
001348			84.06	005365	65.30	44.53	
001349			89.69	005366	77.81	54.19	
001350			87.68	006658		58.89	
001351			8.05	006659		35.00	
001352			73.26	006660		32.33	
001353			40.01	006661		32.92	
001354			93.23	006662		32.63	
001355			89.69	006663		67.61	
001356			91.26	006664		84.01	
001357			89.88	006665		26.12	
001358			43.68	006666		32.02	
001359			88.47	006667		42.45	
001360			94.42	006668		56.06	
001361			88.15	006669		17.96	
001362			93.42	006670		37.48	
001363			87.88	006671		31.41	
001364			68.99	006672		32.67	
001365			95.09	006673		32.06	
001366			95.58	006674		29.16	
001367			86.95	006675		18.87	
001368			96.18	006676		13.88	
001369			91.02	006677		9.75	
001370			70.67	006678		-4.00	
001371			66.13	006679		-1.04	
001372			72.71	006680		27.72	
001373			90.13	006681		9.52	
001374			92.72	006682		11.67	
001375			93.58	006683		-3.12	
001376			85.61	006684		21.49	
001377			71.01	006685		61.73	
001378			0.00	006686		68.24	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001379			27.03	006687		68.61	
001380			88.23	006688		92.89	
001381			95.05	006689		-6.54	
001382			90.04	006690		-4.19	
001383			93.92	006691		-4.72	
001384			91.73	006692		-15.84	
001385			80.17	006693		-29.61	
001386			16.10	006694		-30.74	
001387			47.37	006695		52.27	
001388			4.30	006696		38.76	
001389			82.65	006697		13.29	
001390			95.66	006698		-4.94	
001391			86.09	006699		31.60	
001392			86.25	006700		98.85	
001393			84.71	006701		19.40	
001394			85.67	006702		55.72	
001395		37.01	82.51	006703		10.08	
001396			11.64	006704		43.55	
001397			70.48	006705		-11.86	
001398			92.61	006706		73.23	
001399			87.04	006707		82.89	
001400			89.92	006708		6.26	
001401			89.29	006709		85.24	
001402			89.30	006710		10.85	
001403			83.13	006711		21.66	
001404			56.75	006712		89.98	
001405			87.46	006713		89.08	
001406			96.31	006714		88.46	
001407			83.56	006715		86.61	
001408			92.38	006716		98.14	
001409			87.22	006717		76.37	
001410			75.54	006718		54.91	
001411			0.00	006719		9.05	
001413			89.97	006720		-12.37	
001414			83.35	006721		9.42	
001415			92.07	006722		10.57	
001416			81.65	006723		-33.60	
001417			66.39	006724		-24.76	
001418			91.34	006725		-4.64	
001419			95.97	006726		-58.51	
001420			89.45	006727		2.01	
001422			26.41	006728		14.83	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001423			89.46	006729		-11.20	
001424			75.68	006730		24.05	
001425			84.24	006731		1.76	
001426			78.65	006732		1.45	
001427			86.02	006733		-33.44	
001428			87.14	006734		-19.26	
001429			79.78	006735		3.51	
001430			95.27	006736		-17.79	
001431			84.42	006737		-23.12	
001432			12.51	006738		-1.94	
001433			89.85	006739		-10.54	
001434			86.60	006740		-19.34	
001436			90.20	006741		4.52	
001437			82.67	006742		20.61	
001438			64.18	006743		49.39	
001439			84.32	006744		26.67	
001440			94.46	006745		1.67	
001441			94.20	006746		-14.69	
001442			95.66	006747		71.41	
001443			87.32	006748		-9.20	
001444			86.51	006749		-4.77	
001445			88.60	006750		36.48	
001446			90.39	006751		32.62	
001447			82.04	006752		-2.29	
001448			92.17	006753		33.15	
001449			60.30	007825	90.91	6.25	
001450			96.45	007826	98.45	19.41	
001451			84.72	007827	33.89	76.63	
001452			92.90	007828	71.22	14.19	
001453			84.30	007829	89.09	24.77	
001454			83.64	007830	69.02	45.88	
001455			89.70	007831	52.61	65.25	
001456			88.28	007832	45.77	64.13	
001457			79.27	007833	35.27	66.93	
001458			96.77	007834	55.75	69.23	
001459			85.61	007835	50.44	62.14	
001460			84.09	007836	83.57	1.61	
001461			56.21	007837	21.27	49.39	
001462			90.67	007838	38.67	29.18	
001463			90.19	007839	15.87	67.92	
001465			84.33	007840	31.14	39.74	
001466			92.61	007841	93.61	8.20	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001467			88.34	007842	33.20	39.43	
001468			89.59	007843	72.64	-3.50	
001469			87.01	007844	30.46	58.52	
001470			94.90	007845	36.50	37.25	
001471			94.17	007846	65.57	16.35	
001472			76.82	007847	54.41	9.77	
001473			86.75	007848	44.89	26.42	
001474			79.57	007849	63.62	10.09	
001475			86.00	007850	25.40	22.71	
001476			71.74	007851	72.80	3.37	
001477			89.83	007852	30.09	22.42	
001478			81.05	007853	35.11	67.33	
001479			89.33	007854	46.62	18.67	
001480			93.81	007855	28.38	81.42	
001481			95.98	007856	30.19	45.29	
001482			93.95	007857	36.65	51.05	
001483			73.67	007858	31.33	60.45	
001484			90.45	007859	9.22	58.74	
001485			83.78	007860	99.21	4.04	
001486			89.29	007861	19.20	36.21	
001487			88.97	007862	27.80	34.54	
001488			0.00	007863	35.15	50.15	
001489			95.56	007864	13.78	57.98	
001491			97.87	007865	31.57	36.37	
001492			95.49	007866	83.12	-9.69	
001493			98.56	007867	83.71	13.53	
001494			96.76	007868	81.70	33.84	
001495			97.27	007869	9.38	21.24	
001496			99.04	007870	25.74	21.96	
001497			93.76	007871	59.12	18.39	
001498			97.76	007872	81.08	14.20	
001499			96.59	007873	79.14	24.50	
001500			86.77	007874	29.03	7.04	
001501			98.74	007875	72.85	13.88	
001502			98.16	007876	89.11	-5.50	
001503			95.86	007877	71.59	34.39	
001504			93.12	007878	53.55	75.38	
001505			94.71	007879	30.00	65.89	
001506			97.09	007880	27.63	48.64	
001507			95.03	007881	18.64	55.32	
001508			98.47	007882	31.80	44.28	
001509			98.00	007883	14.24	61.01	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001510			98.78	007884	13.69	65.37	
001511			98.15	007885	7.65	83.34	
001512			97.94	007886	25.22	73.06	
001513			98.42	007887	12.83	73.68	
001514			90.13	007888	8.62	70.07	
001515			96.51	007889	23.48	54.75	
001516			86.92	007890	14.76	62.18	
001517			94.99	007891	34.07	16.50	
001518			55.55	007892	25.34	49.17	
001519			64.78	007893	41.07	21.97	
001520			89.81	007894	34.40	44.36	
001521			98.46	007895	19.12	68.86	
001522			43.77	007896	22.59	40.30	
001523			86.12	007897	27.09	30.03	
001524			88.36	007898	29.06	29.97	
001525			96.84	007899	11.40	60.32	
001526			95.91	007900	16.92	57.20	
001527			97.03	007901	18.70	48.75	
001528			98.57	007902	19.97	44.39	
001529			42.58	007903	58.49	8.26	
001530			82.22	007904	50.08	33.45	
001531			98.96	007905	89.08	1.68	
001532			97.36	007906	43.31	10.34	
001533			94.01	007907	51.83	-14.10	
001534			98.77	007908	43.19	-31.83	
001535			98.66	007909	47.18	7.85	
001536			36.22	007910	53.39	20.72	
001537			98.10	007911	21.84	50.54	
001538			14.11	007912	61.80	13.34	
001539			89.73	007913	20.16	50.15	
001540			94.65	007914	30.22	52.23	
001541			97.37	007915	17.21	57.41	
001542			46.47	007916	31.52	41.55	
001543			83.28	007917	34.69	37.70	
001544			98.35	007918	52.90	11.77	
001545			97.35	007919	88.65	12.37	
001546			93.48	007920	76.86	9.80	
001547			94.75	007921	8.59	69.61	
001548			98.94	007922	20.82	51.06	
001549			96.93	007923	43.75	24.38	
001550			40.06	007924	11.96	54.98	
001551			92.73	007925	12.70	65.01	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001552			81.48	007926	68.37	2.64	
001553			51.25	007927	7.64	48.49	
001554			95.76	007928	81.26	21.17	
001555			58.84	007929	21.74	53.63	
001556			97.54	007930	44.83	57.41	
001557			94.59	007931	24.55	58.90	
001558			95.20	007932	28.59	73.25	
001559			96.90	007933	34.94	57.41	
001560			95.72	007934	12.19	67.62	
001561			98.11	007935	13.19	73.08	
001562			99.43	007936	6.99	91.64	
001563			96.50	007937	10.02	84.05	
001564			95.13	007938	6.06	88.94	
001565			97.29	007939	5.53	88.11	
001566			7.34	007940	11.10	81.11	
001567			48.99	007941	10.93	87.49	
001568			9.48	007942	6.06	94.37	
001569			88.70	007943	8.99	83.43	
001570			45.55	007944	78.30	10.37	
001571			28.53	007945	55.03	25.03	
001572			24.38	007946	47.58	21.46	
001573			40.00	007947	82.61	-14.05	
001574			53.37	007948	62.42	16.02	
001575			82.87	007949	106.76	-18.93	
001576			0.00	007950	66.12	-21.13	
001577			4.24	007951	82.92	-3.02	
001578			88.26	007952	98.71	-15.24	
001579			89.67	007953	82.13	-22.52	
001580			4.30	007954	99.46	-9.90	
001581			68.48	007955	101.97	-22.11	
001582			97.42	007956	101.43	-25.78	
001583			89.36	007957	80.47	-0.57	
001584			88.14	007958	12.52	41.42	
001585			96.53	007959	34.82	9.60	
001586			1.70	007960	42.45	48.38	
001587			83.16	007961	11.01	68.82	
001588			97.69	007962	12.20	38.28	
001589			96.73	007963	9.45	69.16	
001590			25.31	007964	11.29	49.13	
001591			89.49	007965	42.52	14.76	
001592			92.15	007966	87.30	-13.68	
001593			98.01	007967	16.55	45.65	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001594			94.49	007968	55.58	-4.50	
001595			95.32	007969	37.76	30.76	
001596			97.53	007970	24.28	30.57	
001597			96.76	007971	14.79	62.40	
001598			99.01	007972	28.84	44.82	
001599			31.61	007973	39.65	58.60	
001600			43.20	007974	20.24	57.13	
001601			97.02	007975	31.21	20.78	
001602			97.29	007976	24.51	37.98	
001603			85.39	007977	17.80	59.12	
001604			96.88	007978	47.91	21.70	
001605		80.20	98.32	007979	72.76	4.55	
001606		81.32	96.49	007980	61.27	22.58	
001607			93.58	007981	62.59	1.68	
001608			87.86	007982	59.81	22.75	
001609			97.39	007983	87.07	12.00	
001610			97.75	007984	78.59	19.42	
001611			95.64	007985	82.91	16.85	
001612			85.04	007986	90.68	26.26	
001613			93.59	007987	39.02	41.88	
001614			97.47	007988	52.78	1.91	
001615			94.15	007989	33.16	36.14	
001616			95.26	007990	28.31	52.08	
001617			96.66	007991	68.28	9.73	
001618			99.14	007992	78.17	26.84	
001619			92.11	007993	83.36	6.25	
001620			98.32	007994	52.99	33.90	
001621			98.28	007995	90.92	11.29	
001622			65.91	007996	78.60	8.99	
001623			97.22	007997	79.65	-6.28	
001624			37.36	007998	102.82	-1.89	
001625			98.98	007999	121.19	16.07	
001626			19.81	008000	130.28	15.99	
001627			1.50	008001	84.59	16.10	
001628			96.82	008002	95.26	17.26	
001629			95.28	008003	106.06	-1.76	
001630			75.33	008004	41.49	53.55	
001631			98.61	008005	55.92	24.61	
001632			92.03	008006	42.94	60.56	
001633			96.54	008007	65.62	41.22	
001634			96.04	008008	27.91	57.41	
001635			97.03	008009	38.76	47.35	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001636			95.33	008010	42.55	51.20	
001637		69.47	98.13	008011	42.50	39.28	
001638			90.61	008012	25.60	71.89	
001639			96.14	008013	20.03	79.57	
001640			95.08	008014	13.24	77.03	
001641			94.21	008015	47.33	32.67	
001642			99.28	008016	3.93	86.61	
001643			98.97	008017	55.12	51.88	
001644			97.73	008018	41.16	55.37	
001645			98.20	008019	32.70	48.13	
001646			73.02	008020	46.11	30.25	
001647			83.71	008021	41.00	30.87	
001648			98.00	008022	40.06	50.34	
001650			97.92	008023	30.02	62.98	
001651			87.49	008024	31.84	58.58	
001652			95.29	008025	21.50	71.54	
001653			98.48	008026	36.54	60.73	
001654			68.87	008027	26.61	48.43	
001655			59.51	008028	37.71	56.71	
001656			34.27	008029	42.03	61.10	
001657			53.42	008030	66.16	48.68	
001658			38.63	008031	62.90	45.58	
001659			98.43	008032	26.91	80.00	
001660			96.93	008033	9.31	86.60	
001661			98.57	008034	36.73	64.43	
001664			21.64	008035	20.72	70.12	
001665		68.25	97.09	008036	35.45	39.31	
001666			21.20	008037	11.98	84.20	
001667			76.17	008038	68.54	25.69	
001668			23.46	008039	83.82	19.31	
001669			95.13	008040	119.54	6.64	
001670			88.70	008041	70.09	28.57	
001671			96.79	008042	96.16	23.09	
001672			86.43	008043	110.12	7.64	
001673			93.03	008044	85.13	-3.82	
001674			93.49	008045	18.20	47.29	
001675			53.18	008046	9.30	70.65	
001676			96.53	008047	19.37	74.12	
001677			89.85	008048	108.64	14.06	
001678			96.92	008049	78.36	32.38	
001679			99.01	008050	10.02	70.37	
001680			92.80	008051	14.29	77.77	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001681			46.47	008052	59.21	46.51	
001682			23.90	008053	30.41	42.57	
001683			96.76	008054	34.03	70.45	
001684			98.07	008055	100.68	25.49	
001685			88.51	008056	36.85	70.50	
001686			46.72	008057	26.69	66.36	
001687			55.48	008058	69.46	14.96	
001688			87.56	008059	76.20	17.89	
001689			96.55	008060	101.05	-42.04	
001690			91.63	008061	55.16	4.51	
001691			72.70	008062	107.80	5.19	
001692			88.15	008063	95.54	13.90	
001693			75.79	008064	111.74	0.48	
001694			97.17	008065	99.24	6.89	
001695			84.27	008066	49.03	35.04	
001696			73.76	008067	86.71	-30.43	
001697			81.28	008068	42.88	23.93	
001698			92.78	008069	17.31	59.72	
001699			87.80	008070	12.73	82.15	
001700			96.54	008071	13.36	74.35	
001701			81.50	008072	12.81	74.31	
001702			96.42	008073	14.85	78.37	
001703			99.36	008074	5.77	97.91	
001704			62.57	008075	6.60	90.35	
001705			76.93	008076	9.52	56.26	
001706			96.55	008077	29.81	65.59	
001707			97.41	008078	16.32	74.58	
001708			98.62	008079	20.19	72.81	
001709			93.57	008080	11.00	62.17	
001710			91.05	008081	43.93	18.16	
001711			78.79	008082	45.23	32.77	
001712			98.12	008083	9.93	81.06	
001713			82.95	008084	50.27	10.40	
001714			96.29	008085	17.52	38.06	
001715			84.66	008086	26.27	40.21	
001716			93.49	008087	46.71	17.50	
001717			77.89	008088	69.77	22.57	
001718			95.26	008089	82.95	7.77	
001719			78.69	008090	50.97	42.26	
001720			97.97	008091	75.98	-5.32	
001721			98.37	008092	50.82	22.12	
001722			75.87	008093	98.53	35.95	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001723			96.81	008094	58.36	32.04	
001724			92.03	008095	78.20	26.56	
001725			95.15	008096	76.52	24.98	
001726			48.65	008097	89.41	16.03	
001727			61.40	008098	56.14	26.76	
001728			68.82	008099	53.69	23.21	
001729			99.24	008100	53.79	57.71	
001730			97.45	008101	19.59	86.78	
001731			98.82	008102	16.83	92.56	
001732			78.91	008103	25.45	89.09	
001733			98.43	008104	15.10	96.32	
001734			97.45	008105	37.83	30.57	
001735			98.69	008106	12.27	81.49	
001736			95.63	008107	39.07	74.08	
001737			37.00	008108	16.37	56.89	
001738			83.19	008109	65.37	30.94	
001739			84.08	008110	84.01	21.59	
001740			63.16	008111	23.27	52.20	
001741			77.16	008112	26.26	33.34	
001742			83.19	008113	70.31	33.66	
001743			96.66	008114	24.58	32.88	
001744			99.00	008115	26.53	47.18	
001745			96.87	008116	59.72	21.30	
001746			99.50	008117	28.89	86.00	
001747			74.14	008118	22.13	88.23	
001748			86.48	008119	31.41	77.00	
001749			98.64	008120	25.55	86.25	
001750			90.50	008121	24.84	67.70	
001751			98.73	008122	39.61	65.84	
001752			97.99	008123	35.93	68.46	
001753			91.35	008124	51.95	83.26	
001754			95.51	008125	41.28	84.75	
001755			96.16	008126	24.86	85.98	
001756			98.19	008127	19.61	94.88	
001757			98.24	008128	24.70	77.51	
001758			98.79	008129	33.16	76.42	
001759			98.91	008130	36.10	74.97	
001760			99.17	008131	33.30	80.49	
001761			25.21	008132	31.82	68.74	
001762			99.25	008133	3.07	71.27	
001763			98.79	008134	5.25	70.33	
001764			94.82	008135	11.95	66.23	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
001765			97.59	008136	9.70	76.98	
001766			95.90	008137	13.17	73.27	
001767			97.68	008138	18.84	65.30	
001768			91.15	008139	17.79	77.58	
001769			97.84	008140	18.27	55.79	
001770			98.67	008141	48.99	39.55	
001771			98.38	008142	28.53	64.64	
001772			71.36	008143	37.91	29.96	
001773			94.64	008144	78.90	-1.50	
001774			98.19	008145	37.15	31.34	
001775			98.22	008146	75.86	19.37	
001776			97.56	008147	104.08	13.91	
001777			98.32	008148	13.32	76.17	
002497			96.00	008149	137.45	-5.70	
002498			73.09	008150	60.94	34.50	
002501			40.30	008151	124.55	17.51	
002502			97.11	008152	115.55	17.26	
002505			97.00	008153	34.90	27.56	
002506			89.76	008154	60.02	31.91	
002509			36.73	008155	69.99	17.34	
002510			96.60	008156	72.62	6.97	
002512			89.51	008157	84.96	12.07	
002513			97.00	008158	8.73	74.48	
002515			93.89	008159	20.63	61.75	
002516			94.05	008160	51.87	34.32	
002518			84.02	008161	32.85	57.35	
002519			93.27	008162	52.45	15.77	
002521			80.85	008163	38.43	32.49	
002522			95.25	008164	43.21	30.95	
002682		95.33		008165	49.33	30.98	
002683		1.20		008166	41.27	39.31	
002684		-9.54		008167	7.28	84.28	
002685		-14.92		008168	24.84	56.84	
002686	23.43	66.50		008169	81.47	34.33	
002687		22.28		008170	4.61	81.51	
002688		22.98		008171	87.01	3.32	
002689		21.33		008172	67.12	10.72	
002690	17.77	80.59		008173	36.71	37.49	
002691		10.92		008174	45.09	30.14	
002692	46.47	50.45		008175	28.76	30.23	
002693	25.37	73.62		008176	36.56	19.39	
002694	13.73	89.68		008177	31.67	43.28	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002695		4.33		008178	70.95	24.84	
002696		54.50		008179	38.16	-0.99	
002697		18.82		008180	40.51	8.33	
002698		78.14		008181	17.10	47.31	
002699		54.43		008182	6.84	61.68	
002700		37.56		008183	30.96	46.12	
002701		29.12		008184	62.32	30.55	
002702		61.10		008185	9.01	69.14	
002703		19.91		008186	9.92	50.59	
002704		15.92		008187	47.88	2.74	
002705	43.93	26.99		008188	18.65	31.05	
002706		63.55		008189	15.14	36.37	
002707		1.11		008190	28.38	15.26	
002708		-2.77		008191	89.01	15.35	
002709		2.59		008192	42.88	28.79	
002710		62.26		008193	90.34	3.80	
002711		15.08		008194	31.19	4.70	
002712		26.32		008195	105.33	-4.79	
002713		46.80		008196	90.57	11.53	
002714		62.81		008197	83.58	12.39	
002715		37.41		008198	96.91	-19.15	
002716		7.02		008199	86.43	-1.40	
002717		3.29		008200	7.56	65.95	
002718		71.97		008201	106.12	16.42	
002719		30.10		008202	47.01	30.68	
002720		54.17		008203	79.32	-16.59	
002721		68.28		008204	22.33	-3.98	
002722		38.34		008205	34.90	4.62	
002723		92.32		008206	49.12	3.70	
002724		54.18		008207	103.20	27.65	
002725		41.66		008208	44.64	18.07	
002726		-7.44		008209	54.40	0.01	
002727		48.69		008210	45.03	4.90	
002728		50.35		008211	18.70	-11.25	
002729		62.82		008212	23.47	23.14	
002730	19.98	71.02		008213	47.65	28.77	
002731		-9.08		008214	35.89	29.45	
002732		22.18		008215	34.78	35.62	
002733		-26.37		008216	28.59	36.29	
002734		32.00		008217	10.25	26.47	
002735		37.47		008218	11.69	26.70	
002736		51.16		008219	21.85	12.37	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002737		82.19		008220	15.12	92.25	
002738	28.50	95.49		008221	15.26	72.03	
002739	31.73	93.88		008222	18.42	33.49	
002740		-11.63		008223	13.85	48.58	
002741		75.63		008224	22.35	37.14	
002742		24.64		008225	4.69	69.70	
002743		59.33		008226	3.61	84.00	
002744		-26.74		008227	8.25	72.26	
002745		-43.83		008228	6.29	62.28	
002746		57.42		008229	30.82	40.19	
002747		28.09		008230	7.61	73.25	
002748		72.43		008231	56.26	31.85	
002749		53.95		008232	66.56	46.57	
002750		43.67		008233	54.78	15.43	
002751		74.80		008234	12.17	66.92	
002752		64.91		008235	112.23	0.09	
002753		50.58		008236	98.75	-22.49	
002754		-25.68		008237	41.06	38.16	
002756		11.92		008238	22.39	74.20	
002757		43.09		008239	23.22	74.19	
002758		63.86		008240	17.68	80.49	
002759		-25.37		008241	66.10	20.58	
002760		47.32		008242	29.17	14.26	
002761	37.76	78.45		008243	84.73	-18.67	
002762	15.98	92.30		008244	20.68	39.38	
002763	25.18	60.22		008245	12.92	53.15	
002764		2.36		008246	8.80	48.85	
002765	24.45	52.94		008247	17.59	43.71	
002766		15.20		008248	21.26	15.95	
002767		-29.58		008249	14.25	47.75	
002768		48.77		008250	7.25	79.18	
002769		45.69		008251	9.17	60.46	
002770		38.67		008252	10.00	63.76	
002771		37.54		008253	81.03	-15.99	
002772		54.79		008254	32.11	18.35	
002773		42.63		008255	83.84	-0.91	
002774		13.83		008256	58.17	3.07	
002775		-11.57		008257	6.53	60.92	
002776		0.87		008258	24.24	27.57	
002777		-14.96		008259	8.86	63.53	
002778		41.12		008260	7.43	52.54	
002779	2.88	96.07		008261	4.74	80.82	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002781		-7.21		008262	43.21	6.68	
002782		18.54		008263	37.38	18.63	
002783		-17.40		008264	51.77	-13.47	
002784		33.49		008265	73.34	-12.22	
002785	18.22	82.74		008266	74.99	-4.89	
002786		64.97		008267	96.96	5.59	
002787		48.31		008268	54.16	14.67	
002788		70.21		008269	69.52	-7.42	
002789		22.04		008270	102.07	-23.69	
002790		-35.98		008271	98.12	-2.72	
002791		82.42		008272	53.29	14.89	
002792		5.33		008273	105.43	0.23	
002793		-72.87		008274	67.65	11.74	
002794		13.30		008275	117.82	-23.52	
002795		17.01		008276	111.38	-14.08	
002796		-15.62		008277	115.30	-24.91	
002797		-11.81		008278	56.02	1.19	
002798	20.46	92.79		008279	80.79	47.99	
002799		36.69		008280	56.83	76.04	
002800		8.18		008281	70.71	18.03	
002801	24.63	78.64		008282	75.86	2.95	
002802		24.94		008283	46.04	5.69	
002803		59.45		008284	35.78	23.82	
002804	14.68	72.02		008285	45.24	8.41	
002805	5.48	101.11		008286	45.76	29.08	
002806		-51.77		008287	93.27	9.04	
002807		29.71		008288	72.46	1.81	
002808		13.64		008289	72.71	2.26	
002809		14.03		008290	24.01	18.96	
002810		7.26		008291	25.01	1.77	
002811		0.47		008292	22.67	13.43	
002812		23.34		008293	26.72	13.31	
002813		28.04		008294	91.83	-7.23	
002814		38.49		008295	15.97	41.66	
002815		48.52		008296	10.68	44.06	
002817	6.88	79.56		008297	22.31	34.51	
002818		46.21		008298	40.79	28.28	
002819		19.80		008299	15.52	61.12	
002820	30.99	59.98		008300	40.04	31.97	
002821		14.53		008301	12.72	39.45	
002822		10.38		008302	71.43	-8.15	
002823		28.46		008303	92.63	-28.14	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002824		64.36		008304	56.89	-8.90	
002825		57.18		008305	57.90	30.25	
002826		61.70		008306	82.97	53.57	
002827		80.80		008307	97.02	4.31	
002828	24.17	94.67		008308	92.71	-10.91	
002829		74.62		008309	77.69	-23.36	
002830		56.37		008310	81.48	2.06	
002831		68.47		008311	72.07	-35.71	
002832		70.03		008312	53.23	24.35	
002833	23.72	97.46		008313	62.65	1.63	
002834		77.62		008314	69.03	8.83	
002835		85.90		008315	24.45	10.47	
002836	23.08	97.91		008316	23.44	12.02	
002837	19.28	94.65		008317	34.87	16.77	
002838	18.33	104.88		008318	30.38	44.13	
002839		85.79		008319	36.15	27.49	
002840		85.59		008320	58.43	29.61	
002841		92.58		008321	54.72	34.66	
002842	18.82	95.83		008322	52.18	18.69	
002843		101.31		008323	93.13	10.44	
002844		92.28		008324	95.24	2.58	
002845		97.70		008325	83.16	8.86	
002846		92.26		008326	99.56	4.41	
002847	16.72	94.46		008327	65.57	0.34	
002848	25.33	87.32		008328	105.10	-12.65	
002849	20.05	94.91		008329	74.61	17.91	
002850	16.14	99.26		008330	108.70	-22.11	
002851		90.11		008331	83.72	-9.12	
002852	9.88	96.79		008332	79.35	-15.30	
002853		86.42		008333	58.45	-15.82	
002854		97.04		008334	60.79	40.00	
002855		82.28		008335	66.22	41.79	
002856		89.01		008336	88.87	60.12	
002857		98.68		008337	97.55	24.43	
002858	12.25	89.87		008338	84.91	10.25	
002859	10.30	94.96		008339	97.28	31.05	
002860	21.65	83.01		008340	103.42	5.22	
002861		52.61		008341	79.11	-5.51	
002862		71.58		008342	106.42	-12.19	
002863	22.64	76.10		008343	17.32	48.63	
002864	32.06	72.52		008344	102.86	-26.65	
002865		77.41		008345	77.52	24.80	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002866		90.16		008346	92.45	-17.45	
002867	25.45	68.04		008347	95.63	-8.04	
002868		84.17		008348	65.16	-6.42	
002869		96.43		008349	78.78	-15.57	
002870		96.31		008350	88.65	-15.28	
002871		84.28		008351	27.60	52.68	
002872		92.88		008352	5.62	79.17	
002873		57.41		008353	71.84	28.85	
002874		83.22		008354	13.57	60.26	
002875		76.54		008355	2.67	68.53	
002876		72.10		008356	21.07	45.91	
002877		68.45		008357	20.67	42.12	
002878		66.91		008358	6.52	84.78	
002879		49.09		008359	10.20	76.95	
002880		49.72		008360	6.76	80.77	
002881		81.79		008361	10.71	67.80	
002882		51.80		008362	5.16	67.30	
002883		74.95		008363	64.44	-23.84	
002884		69.44		008364	30.17	9.59	
002885		53.71		008365	76.68	2.17	
002886		60.10		008366	60.36	11.19	
002887		87.87		008367	45.28	40.74	
002888		57.43		008368	69.18	37.04	
002889		69.96		008369	84.30	5.53	
002890		60.39		008370	3.19	62.48	
002891		46.41		008371	22.45	12.41	
002892		72.22		008372	7.45	28.50	
002893		79.33		008373	43.39	0.89	
002894		76.86		008374	48.11	-10.71	
002895		78.35		008375	46.35	22.48	
002896		84.26		008376	11.27	81.58	
002897		90.55		008377	53.22	2.35	
002898		89.03		008378	12.41	65.59	
002899		86.63		008379	7.05	68.90	
002900		90.84		008380	12.44	64.66	
002901	17.19	93.64		008381	17.12	64.21	
002902		72.42		008382	46.94	52.68	
002903		63.04		008383	14.70	61.67	
002904	37.80	72.98		008384	6.60	77.21	
002905		57.74		008385	2.07	100.40	
002906	22.25	88.63		008386	3.23	93.44	
002907		65.67		008387	3.80	97.24	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002908	23.07	62.36		008388	2.82	97.77	
002909	25.58	73.56		008389	5.90	83.57	
002910		65.86		008390	34.56	49.25	
002911	35.41	58.77		008391	8.18	72.24	
002912		73.36		008392	69.95	25.72	
002913		31.74		008393	41.15	38.39	
002914		59.69		008394	57.07	48.37	
002915		27.75		008395	36.53	58.28	
002916		45.10		008396	69.58	19.29	
002917		60.59		008397	88.93	3.38	
002918		13.88		008398	94.58	4.35	
002919		28.74		008399	91.83	17.41	
002920		0.85		008400	94.57	10.66	
002921		51.73		008401	78.87	2.52	
002922		61.98		008402	77.69	16.13	
002923		41.41		008403	85.76	-10.19	
002924		65.74		008404	99.57	16.74	
002925		56.59		008405	52.54	22.39	
002926		46.85		008406	41.35	20.70	
002927		4.82		008407	87.19	16.92	
002928		54.34		008408	84.72	-11.70	
002929		71.20		008409	50.08	33.39	
002930		58.30		008410	43.50	2.69	
002931		71.04		008411	89.13	-40.63	
002932		69.92		008418	7.61	39.27	
002933		74.66		008419	29.46	33.86	
002934		41.68		008420	119.06	-2.42	
002935	35.29	63.18		008421	105.01	-21.43	
002936		62.82		008422	81.48	-22.75	
002937		51.06		008423	41.55	-1.35	
002938	41.44	79.88		008424	46.88	12.78	
002939		41.98		008425	49.52	45.96	
002940		27.73		008426	63.30	13.89	
002941		35.61		008427	50.14	26.28	
002942		44.94		008428	40.91	22.32	
002943		18.85		008429	53.49	2.76	
002944		48.41		008430	68.65	4.67	
002945		23.64		008431	33.62	54.21	
002946		-4.83		008432	51.46	38.70	
002947		54.67		008433	62.43	39.14	
002948		41.03		008434	31.83	40.49	
002949		4.17		008435	20.66	51.87	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002950		22.52		008436	41.54	35.26	
002951		72.99		008437	29.68	49.20	
002952		65.01		008438	38.82	24.98	
002953		49.43		008439	35.66	-5.69	
002954		14.23		008440	42.72	10.94	
002955		82.17		008441	53.95	-10.45	
002956		78.37		008442	23.72	16.38	
002957		41.97		008443	25.61	-6.29	
002958		47.59		008444	40.16	2.56	
002959		53.29		008445	41.81	7.16	
002960		63.16		008446	88.89	5.84	
002961		40.33		008447	38.91	32.29	
002962		76.96		008448	108.85	1.08	
002963		70.92		008449	79.14	7.22	
002964		58.89		008450	94.26	-25.65	
002965		82.07		008451	91.31	-32.08	
002966		81.55		008452	82.11	-39.17	
002967		94.11		008453	73.97	-29.90	
002968	27.54	81.58		008454	74.64	3.68	
002969		86.51		008455	106.24	34.24	
002970		52.77		008456	103.54	-18.60	
002971		55.04		008457	101.19	-17.45	
002972		77.75		008458	36.74	43.65	
002973		51.75		008459	40.34	38.13	
002974		44.56		008460	48.90	23.25	
002975		25.94		008461	55.67	67.84	
002976		58.69		008462	69.33	37.95	
002977		55.99		008463	20.10	78.14	
002978		38.04		008464	85.74	-27.49	
002979		74.10		008465	74.12	15.11	
002980		77.28		008466	65.57	-35.99	
002981		61.74		008467	57.61	-31.57	
002982	36.47	88.88		008468	28.73	-4.08	
002983	35.04	56.83		008469	81.82	-15.33	
002984		54.64		008470	50.25	9.74	
002985		27.53		008471	39.69	47.91	
002986		6.97		008472	67.79	2.14	
002987		69.57		008473	53.58	1.73	
002988		68.81		008474	56.28	9.80	
002989	25.80	71.60		008475	65.69	47.96	
002990	29.45	68.74		008476	54.24	39.98	
002991	28.01	65.69		008477	104.37	-3.39	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
002992	36.12	48.78		008478	95.67	20.07	
002993	27.05	39.64		008479	112.06	28.12	
002994	24.77	64.32		008480	66.46	54.30	
002995	48.48	38.31		008481	94.72	4.55	
002996		30.55		008482	110.11	8.57	
002997		33.31		008483	112.36	8.26	
002998		32.09		008484	68.41	-1.04	
002999		51.54		008485	75.62	41.62	
003000		35.18		008486	106.62	20.41	
003001		22.05		008487	88.40	55.72	
003002		55.54		008488	84.72	30.21	
003003		52.49		008489	99.75	9.47	
003004		28.96		008490	95.25	3.31	
003005		32.53		008491	71.03	20.76	
003006		52.82		008492	58.37	22.56	
003007		34.61		008493	58.13	37.50	
003008		55.33		008494	80.75	37.30	
003009		55.30		008495	95.86	24.74	
003010		23.41		008496	57.89	40.77	
003011		28.72		008497	27.16	21.81	
003012		26.69		008498	83.08	1.76	
003013		50.85		008499	87.91	6.76	
003014		25.80		008500	25.94	29.28	
003015		58.24		008501	1.72	87.42	
003016		57.76		008502	1.61	69.55	
003017		60.10		008503	34.25	52.85	
003018		55.98		008504	29.28	-7.25	
003019		37.95		008505	40.18	47.18	
003020		51.08		008506	60.75	0.04	
003021		49.22		008507	41.83	21.51	
003022		27.15		008508	34.91	37.89	
003023		45.72		008509	71.80	-14.64	
003024		21.63		008510	80.61	-6.40	
003025		10.98		008511	5.69	64.19	
003026		58.38		008512	38.68	24.76	
003027		60.66		008513	4.28	78.53	
003028		85.31		008514	50.75	7.70	
003029		90.85		008515	13.34	25.84	
003030		83.55		008516	12.16	45.28	
003031		80.99		008517	33.59	13.29	
003032		58.38		008518	11.39	49.67	
003033		88.79		008519	32.53	38.83	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003034		88.43		008520	21.77	59.27	
003035		60.36		008521	28.90	62.73	
003036		66.47		008522	31.55	46.54	
003037		75.80		008523	66.82	-21.00	
003038		62.86		008524	86.26	-62.50	
003039		53.38		008525	112.10	-16.24	
003040		68.27		008526	94.70	2.50	
003041		82.91		008527	72.96	12.66	
003042		77.35		008528	93.18	-7.03	
003043		88.89		008529	1.88	99.04	
003044		82.69		008530	2.27	91.35	
003045		91.31		008531	1.39	80.64	
003046		90.21		008532	1.04	91.15	
003047		77.62		008533	1.19	87.02	
003048		91.95		008534	3.73	82.31	
003049		70.94		008535	3.28	77.58	
003050		68.28		008536	1.11	86.48	
003051		23.34		008537	4.74	68.14	
003052		89.15		008538	21.35	59.00	
003053		79.91		008539	10.28	62.40	
003054		75.11		008540	18.97	42.59	
003055		40.65		008541	27.06	60.19	
003056		64.49		008542	28.41	44.08	
003057		46.73		008543	4.66	72.34	
003058	18.38	79.72		008544	4.73	73.86	
003059		64.89		008545	4.19	81.08	
003060		82.81		008546	6.06	62.56	
003061	35.17	77.51		008547	20.33	32.30	
003062		91.09		008548	76.10	-59.95	
003063	24.07	83.73		008549	90.60	-74.35	
003064		76.58		008550	96.18	4.99	
003065		33.05		008551	80.34	26.28	
003066		46.13		008552	27.93	25.41	
003067		55.28		008553	19.38	20.13	
003068		60.22		008554	18.12	44.27	
003069	23.24	90.99		008555	27.78	40.95	
003070		100.65		008556	19.94	51.94	
003071		100.06		008557	23.20	42.43	
003072		83.67		008558	14.23	47.73	
003073		52.68		008559	19.26	49.24	
003074		40.20		008560	15.41	48.03	
003075		46.91		008561	12.91	73.32	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003076		94.63		008562	106.19	-22.88	
003077		36.22		008563	52.52	-0.19	
003078		73.25		008564	59.22	-16.32	
003079		30.02		008565	74.50	-36.52	
003080	26.56	63.86		008566	39.32	5.59	
003081		41.53		008567	86.82	7.62	
003082		28.13		008568	62.94	4.97	
003083		29.28		008569	56.64	34.24	
003084		62.36		008570	84.80	-3.60	
003085		56.40		008571	29.00	-7.70	
003086		40.35		008572	36.07	-10.85	
003087		46.51		008573	19.27	22.46	
003088		81.62		008574	14.29	21.12	
003089		40.70		008575	22.21	43.66	
003090		16.74		008576	21.97	54.57	
003091		-31.97		008577	25.21	26.23	
003092	27.33	75.64		008578	16.70	56.13	
003093		57.04		008579	9.88	56.33	
003094		47.08		008580	14.69	21.29	
003095		50.25		008581	31.82	20.19	
003096		97.99		008582	5.37	79.00	
003097		21.77		008583	10.01	71.97	
003098		28.49		008584	1.50	94.47	
003099		28.12		008585	27.78	32.87	
003100		42.21		008586	38.37	3.21	
003101		21.21		008587	61.87	14.52	
003102		64.79		008588	39.07	21.39	
003103		38.31		008589	30.36	7.73	
003104		47.01		008590	77.32	26.31	
003105		49.06		008591	66.39	23.41	
003106		34.90		008592	83.33	-2.62	
003107		75.42		008593	87.31	-46.33	
003108		43.21		008594	91.50	-20.13	
003109		49.01		008595	84.56	10.77	
003110		36.26		008596	99.76	-24.78	
003111		23.63		008597	87.43		
003112		66.14		008598	98.73		
003113		34.90		008599	93.92	-7.14	
003114		58.51		008600	92.89	-13.36	
003115		38.73		008601	84.08	-29.91	
003116		51.08		008602	77.11	-1.29	
003117		55.85		008603	98.86	-33.69	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003118		51.05		008604	97.78	11.74	
003119		76.32		008605	89.40	15.55	
003120		38.75		008606	97.80	-24.70	
003121		41.33		008607	99.13	-23.15	
003122		26.75		008608	101.58	22.19	
003123		89.71		008609	102.61	-20.97	
003124		94.73		008610	88.07	14.66	
003125		36.37		008611	67.93	19.97	
003126		45.19		008612	96.84	39.36	
003127		48.72		008613	97.72	19.80	
003128		96.16		008614	104.96	6.65	
003129		75.36		008615	53.49	52.14	
003130		79.23		008616	72.32	16.79	
003131		32.12		008617	59.08	22.33	
003132		86.82		008618	21.11	86.06	
003133		91.23		008619	25.08	74.87	
003134		91.15		008620	20.59	56.54	
003135		61.01		008621	40.80	56.14	
003136		92.96		008622	42.87	30.93	
003137		98.16		008623	20.12	21.58	
003138		96.08		008624	36.23	62.53	
003139		85.71		008625	20.50	56.99	
003140		93.92		008626	21.85	68.58	
003141		83.10		008627	74.62	2.25	
003142		49.19		008628	24.42	54.20	
003143		68.12		008629	40.53	46.28	
003144		72.13		008630	45.97	36.97	
003145		88.75		008631	43.20	9.45	
003146		52.03		008632	30.06	60.57	
003147		85.96		008633	39.74	38.65	
003148		81.98		008634	43.72	40.50	
003149		60.54		008635	44.20	44.95	
003150		76.59		008636	46.23	19.51	
003151		88.52		008637	48.27	42.91	
003152		61.33		008638	35.60	75.46	
003153		65.84		008639	41.45	50.54	
003154		-22.95		008640	38.63	66.05	
003155		55.13		008641	48.44	66.16	
003156		55.05		008642	22.75	88.00	
003157		57.84		008643	29.02	74.22	
003158		67.08		008644	46.00	64.65	
003159		90.69		008645	59.76	51.99	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003160		72.52		008646	37.91	78.53	
003161		74.97		008647	51.76	58.99	
003162		60.08		008648	30.23	70.94	
003163		59.49		008649	33.54	83.38	
003164		59.78		008650	54.27	57.50	
003165		81.07		008651	100.27	27.28	
003166		73.40		008652	81.00	30.20	
003167		70.43		008653	72.23	15.07	
003168		66.28		008654	66.92	9.73	
003169		83.03		008655	66.26	14.18	
003170		53.53		008656	57.45	12.46	
003171		52.55		008657	74.32	17.81	
003172	35.33	85.95		008658	67.55	21.14	
003173	20.25	83.03		008659	43.67	33.40	
003174		62.18		008660	50.49	35.83	
003175		79.00		008661	45.17	42.72	
003176	30.83	77.82		008662	39.03	23.82	
003177		61.99		008663	43.03	40.46	
003178		45.26		008664	105.40	-6.50	
003179	25.35	73.05		008665	81.88	4.16	
003180		79.38		008666	92.28	6.70	
003181		70.10		008667	60.19	43.73	
003182		74.37		008668	63.66	19.92	
003183		73.15		008669	94.07	8.48	
003184		59.43		008670	48.31	43.81	
003185		44.93		008671	51.68	23.34	
003186		53.61		008672	72.23	16.98	
003187		46.54		008673	66.41	27.67	
003188		47.63		008674	28.09	51.95	
003189		48.17		008675	7.60	59.96	
003190		30.31		008676	100.11	0.57	
003191		47.32		008677	58.31	9.26	
003192		40.98		008678	49.53	6.48	
003193		49.25		008679	69.02	-8.39	
003194		42.57		008680	71.05	18.78	
003195		36.82		008681	70.42	23.46	
003196		-25.70		008682	52.80	13.96	
003197		35.92		008683	36.48	72.06	
003198	33.09	44.05		008684	30.17	78.02	
003199	32.12	69.44		008685	12.54	48.73	
003200		23.75		008686	11.09	79.37	
003201		47.15		008687	20.11	76.19	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003202		59.65		008688	14.29	79.90	
003203	35.85	67.82		008689	10.53	82.79	
003204		42.96		008690	10.98	84.56	
003205		-17.25		008691	15.05	40.07	
003206		71.37		008692	12.93	68.76	
003207		20.74		008693	22.38	66.83	
003208		66.08		008694	13.87	75.99	
003209		44.05		008695	27.81	59.48	
003210		58.38		008696	22.24	62.24	
003211		17.14		008697	82.14	1.37	
003212		56.51		008698	81.57	-8.67	
003213		27.62		008699	100.46	-11.16	
003214		27.76		008700	59.78	-5.82	
003215		42.83		008701	57.00	39.68	
003216		37.45		008702	56.80	5.60	
003217		1.28		008703	39.24	9.05	
003218		57.76		008704	64.80	-9.23	
003219		8.08		008705	76.57	15.49	
003220		38.66		008706	16.76	53.96	
003221		53.42		008707	36.03	34.26	
003222		21.62		008708	10.00		
003223		-17.26		008709	11.61	80.91	
003224		19.25		008710	8.81	88.32	
003225		58.69		008711	84.04	0.03	
003226	45.22	67.60		008712	76.06	17.37	
003227		32.63		008713	25.61	84.31	
003228		66.33		008714	12.88		
003229	32.72	91.79		008715	76.98	-2.75	
003230		84.54		008716	94.96	11.83	
003231	18.30	110.67		008717	93.91	2.40	
003232		38.03		008718	100.17	-16.30	
003233		59.42		008719	91.54	13.49	
003234		55.28		008720	97.94	7.92	
003235		69.81		008721	100.28	31.06	
003236		-8.88		008722	101.50	21.56	
003237		35.74		008723	94.78	12.67	
003238		40.93		008724	86.03	31.68	
003239		65.69		008725	93.84	28.07	
003240		61.50		008726	84.38	21.37	
003241		26.85		008727	71.50	6.72	
003242		8.46		008728	34.62	34.34	
003274		75.48		008729	62.65	16.28	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003275		81.53		008730	93.91	-1.01	
003276		86.28		008731	94.63	-3.52	
003277		89.60		008732	104.86	-21.83	
003278		98.90		008733	87.33	-0.89	
003279	31.60	86.29		008734	90.07	-6.51	
003280		30.88		008735	12.76	75.03	
003281		64.42		008736	15.68	59.26	
003282		63.62		008737	22.45	43.45	
003283		22.11		008738	15.62	76.17	
003284		30.73		008739	17.72	79.88	
003285		76.98		008740	36.15	51.83	
003286		63.56		008741	25.98	65.80	
003287		74.35		008742	40.95	23.08	
003288		78.57		008743	47.24	30.97	
003289		78.13		008744	11.85		
003290		93.20		008745	29.81	34.45	
003291		83.96		008746	102.09	51.23	
003292		70.56		008747	13.74	67.47	
003293		72.75		008748	29.79		
003294		77.67		008749	13.25	77.62	
003295		13.96		008750	30.33	65.46	
003296		38.53		008751	14.95		
003297		71.74		008752	27.50		
003298		58.27		008753	27.75	29.10	
003299		55.71		008754	26.68	65.84	
003300		71.55		008755	29.58	58.42	
003301		43.11		008756	63.80	24.58	
003302		51.44		008757	83.62	-8.59	
003303		29.31		008758	99.02	-13.63	
003304		82.51		008759	102.25	-4.26	
003305		90.20		008760	108.26	-20.36	
003306		80.15		008761	92.73	-15.24	
003307		84.71		008762	10.50		
003308		76.87		008763	20.08	80.81	
003309		22.92		008764	37.65	76.43	
003310		19.40		008765	7.18	85.46	
003311		70.95		008766	10.48	77.25	
003312		71.27		008767	19.59	64.53	
003313		72.19		008768	10.37	86.37	
003314		66.48		008769	18.43	-42.72	
003315		71.96		008770	24.87	67.85	
003316		42.88		008771	12.63	80.76	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
003317		75.76		008772	11.47		
003318		40.39		008773	61.58	-2.84	
003319		23.04		008774	13.87	63.48	
003320		63.14		008775	71.43	-50.77	
003321		37.14		008776	47.25	-15.93	
003322		25.13		008777	96.37	16.36	
003323		87.00		008778	73.74	61.94	
003324		58.90		008779	68.14	41.00	
003325		55.25		008780	100.54	18.68	
003326		3.60		008781	43.90	49.68	
003327		33.45		008782	61.07	-7.51	
003328		56.37		008783	61.91	19.67	
003329		60.49		008784	70.96	-0.06	
003330		81.29		008785	51.11	11.89	
003331		76.22		008786	45.57	41.46	
003332		74.15		008787	27.87		
003333		44.44		008788	36.19	78.55	
003334		-19.13		008789	37.25	58.80	
003335		42.85		008790	18.90	59.50	
003336		69.34		008791	39.68	42.57	
003337		74.87		008792	35.77	53.91	
003338		77.48		008793	25.24	58.97	
003339		73.78		008794	23.12	77.38	
003340		52.89		008795	44.61	11.30	
003341		41.75		008796	21.41	76.54	
003342		77.95		008797	83.94	-9.77	
003343		50.80		008798	50.21	50.37	
003344		57.59		008799	37.25	75.62	
003345	26.98	74.35		008800	37.42	-36.80	
003346		-21.50		008801	20.94	56.21	
003347		63.11		008802	96.86	-0.99	
003348		61.47		008803	106.01		
003349		86.85		008804	90.76	8.55	
003350		14.40		008805	97.38	3.92	
003351		61.89		008806	54.14	44.43	
003352		70.61		008807	97.46	9.01	
003353		73.88		008808	102.33	-8.76	
003354		55.78		008809	87.28	25.67	
003355		24.37		008810	56.16	60.39	
003356		65.30		008811	82.15	27.77	
003357		69.87		008812	47.52	56.66	
004842	66.43	60.01		008813	83.92	30.12	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
004843	78.67	6.69		008814	94.04	17.42	
004844	106.29	32.11		008815	77.58	12.66	
004845	89.51	1.14		008816	58.92	19.47	
004846	106.28	14.57		008817	45.37	21.46	
004847	38.71	43.24		008818	55.98	43.35	
004848	55.61	32.35		008819	54.03	53.98	
004849	75.08	16.35		008820	64.33	58.54	
004850	76.30	58.79		008821	52.50	55.12	
004851	83.17	34.11		008822	74.80	22.86	
004852	42.61	51.86		008823	95.21		
004853	60.12	47.34		008824	36.13	63.15	
004854	90.33	0.16		008825	32.09	64.49	
004855	94.95	16.20		008826	81.11	45.29	
004856	31.66	57.54		008827	76.18	36.36	
004857	31.76	73.09		008828	83.63	21.20	
004858	68.75	41.66		008829	87.88	38.64	
004859	73.63	49.78		008830	82.31	47.66	
004860	66.87	36.74		008831	72.16	81.78	
004861	16.75	93.47		008832	71.96	84.78	
004862	28.88	75.56		008833	98.60	32.15	
004863	55.59	31.89		008834	101.20	7.29	
004864	41.42	56.48		008835	95.58	15.90	
004865	48.89	41.88		008836	27.69	78.30	
004866	22.93	86.43		008837	22.36	92.45	
004867	23.55	83.72		008838	30.05	87.30	
004868	37.28	42.41		008839	59.59	38.83	
004869	56.13	73.75		008840	66.41		
004870	65.76	62.33		008841	65.78	4.01	
004871	22.71	97.66		008842	48.10	40.87	
004872	36.75	43.17		008843	56.40		
004873	58.22	30.67		008844	48.84	21.62	
004874	51.16	60.26		008845	45.77	53.83	
004875	72.81	40.30		008846	38.79	59.81	
004876	33.85	71.57		008847	61.46	33.64	
004877	47.33	46.70		008848	78.28	-11.96	
004878	68.08	20.64		008849	83.14	18.21	
004879	68.60	34.25		008850	35.26	22.50	
004880	66.72	45.90		008851	21.04	76.97	
004881	13.43	100.98		008852	64.79	22.08	
004882	23.94	97.34		008853	52.82	28.91	
004883	27.38	55.94		008854	78.28	40.47	
004884	28.69	42.19		008855	108.07	14.72	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
004885	37.72	89.15		008856	96.40		
004886	20.94	85.41		008857	64.70	46.14	
004887	28.41	86.07		008858	79.46	43.07	
004888	31.68	60.85		008859	75.71		
004889	26.57	92.62		008860	42.15	61.77	
004890	56.87	83.42		008861	51.48	69.41	
004891	22.53	97.52		008862	119.59	9.36	
004892	27.44	97.04		008863	99.49	1.99	
004893	39.21	65.29		008864	57.74	36.42	
004894	29.74	93.37		008865	58.09	27.89	
004895	54.33	66.52		008866	74.09	9.96	
004896	29.02	42.73		008867	56.76	25.23	
004897	92.43	91.36		008868	94.07	16.49	
004898	53.08	74.59		008869	114.08	-6.54	
004899	55.34	91.21		008870	66.64	43.95	
004900	64.11	74.38		008871	36.94	45.83	
004901	23.34	67.79		008872	60.83	0.98	
004902	21.57	91.34		008873	99.17	11.28	
004903	17.33	92.92		008874	111.48	15.50	
004904	38.63	82.17		008875	104.32	19.90	
004905	53.40	82.51		008876	105.53	25.85	
004906	56.36	86.11		008877	88.62	8.29	
004907	71.44	63.30		008878	95.77	9.11	
004908	45.27	74.84		008879	89.72	7.56	
004909	34.39	72.69		008880	44.12	29.47	
004910	36.45	85.01		008881	65.38	-70.54	
004911	39.02	62.84		008882	79.98	46.28	
004912	31.57	65.97		008883	61.35	36.83	
004913	35.70	86.56		008884	62.50	25.09	
004914	36.92	74.59		008885	58.54	20.30	
004915	30.83	91.77		008886	95.93	51.85	
004916	41.11	72.85		008887	40.76	31.60	
004917	34.83	83.73		008888	44.84	9.24	
004918	50.68	42.52		008889	69.14	39.04	
004919	48.45	28.74		008890	80.68		
004920	76.97	-1.98		008891	96.58	27.91	
004921	40.45	78.05		008892	80.78	7.95	
004922	36.28	45.00		008893	51.17	24.19	
004923	52.79	49.31		008894	44.82	27.33	
004924	45.10	52.15		008895	114.09		
004925	43.67	45.03		008896	134.80		
004926	50.14	54.69		008897	99.70	17.68	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
004927	56.64	64.52		008898	89.07	16.71	
004928	65.48	66.42		008899	38.29	44.32	
004929	62.59	43.66		008900	55.27	-3.26	
004930	72.38	60.75		008901	100.02	17.95	
004931	39.55	75.60		008902	73.53	18.18	
004932	26.83	90.35		008903	104.88	-0.27	
004933	31.40	76.43		008904	27.88	56.68	
004934	43.52	80.52		008905	26.15	51.25	
004935	39.38	43.83		008906	29.06	52.77	
004936	47.32	82.57		008907	23.23	60.57	
005008		29.20		008908	16.53	78.72	
005009		63.57		008909	16.13	88.43	
005010		60.83		008910	34.17	52.80	
005011		59.08		008911	76.84	-6.26	
005012		47.35		008912	83.79	-4.78	
005013		30.27		008913	102.22	7.25	
005014		65.35		008914	99.50	-3.97	
005015		70.87		008915	104.15	0.84	
005016		60.67		008916	96.05	10.83	
005017		55.88		008917	76.54	12.60	
005018		24.75		008918	83.94	2.69	
005019		7.46		008919	101.02	-19.99	
005020		23.06		008920	91.71	-0.01	
005021		60.79		008921	72.06	-6.88	
005022		70.44		008922	76.87	22.49	
005023		69.98		008923	103.01	-13.97	
005024		68.10		008924	70.79	6.49	
005025		66.38		008925	55.25	48.18	
005026		31.66		008926	56.49	19.86	
005027		57.57		008927	35.19	50.78	
005028		65.54		008928	35.19	36.86	
005029		66.90		008929	48.70	46.97	
005030		68.43		008930	29.86	88.58	
005031		58.90		008931	47.83	63.73	
005032		41.55		008932	51.51	69.14	
005033		28.77		008933	70.03	38.53	
005034		73.61		008934	58.98	63.66	
005035		71.12		008935	61.55	35.30	
005036		73.98		008936	58.07	30.95	
005037		72.64		008937	46.88	46.47	
005038		79.28		008938	54.92	61.08	
005039		59.37		008939	123.45	-5.94	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
005040		29.99		008940	116.82	-47.46	
005041		30.56		008941	28.62	30.27	
005042		65.98		008942	65.62	-16.74	
005043		63.95		008943	39.33	31.95	
005044		64.87		008944	63.48	30.41	
005045		70.95		008945	67.14	16.25	
005046		69.64		008946	49.01	-34.12	
005047		57.93		008947	49.79	61.47	
005048		44.19		008948	41.01	71.95	
005049		54.45		008949	48.76	45.13	
005050		80.99		008950	44.72	18.21	
005051		86.49		008951	47.66	-11.32	
005052		88.12		008952	59.87	-7.73	
005053		84.16		008953	78.68	12.14	
005054		83.94		008954	69.52	18.01	
005055		55.45		008955	86.22	-6.78	
005056		37.48		008956	103.89	-9.37	
005057		41.74		008957	100.69	10.97	
005058		77.41		008958	105.40	26.92	
005059		75.79		008959	104.13	-8.60	
005060		73.97		008960	77.53	7.28	
005061		74.08		008961	43.55	28.47	
005062		26.45		008962	22.43	55.20	
005063		24.24		008963	32.26	53.94	
005064		20.10		008964	54.49	36.16	
005065		25.22		008965	61.14	-2.80	
005066		59.16		008966	30.18	70.44	
005067		52.52		008967	23.66	71.89	
005068		84.87		008968	34.22	63.68	
005069		79.78		008969	28.27	67.70	
005070		54.26		008970	30.27	73.92	
005071		63.79		008971	31.82	35.74	
005072		42.21		008972	41.65	58.44	
005073		69.43		008973	39.29	57.97	
005074		57.10		008974	33.31	60.39	
005075		79.53		008975	42.66	66.78	
005076		70.39		008976	53.86	65.19	
005077		69.15		008977	112.73	-11.73	
005078		48.26		008978	112.79	-16.95	
005163	47.38	77.83		008979	107.98	-17.22	
005164	45.78	48.54		008980	107.97	-21.91	
005165	48.64	52.03		008981	101.56	-3.76	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
005166	36.99	67.67		008982	94.98	-7.28	
005167	64.21	52.50		008983	101.95	-42.77	
005168	94.18	11.02		008984	117.87	-10.50	
005169	47.39	76.00		008985	50.93	21.86	
005170	62.02	52.88		008986	69.30		
005171	42.23	81.86		008987	40.92	51.72	
005172	63.80	54.69		008988	86.03	11.94	
005173	60.15	73.83		008989	98.73		
005174	66.79	45.84		008990	93.40	-26.23	
005175	67.35	21.60		008991	114.15	-29.70	
005176	61.49	20.26		008992	112.79	-29.20	
005177	58.17	33.03		008993	83.04	10.48	
005178	59.94	31.08		008994	51.80	40.10	
005179	55.09	34.81		008995	88.85	-0.20	
005180	34.06	40.31		008996	63.75	9.43	
005181	39.61	31.91		008997	27.60	45.22	
005182	45.49	67.69		008998	41.05	15.40	
005183	33.60	70.61		008999	64.39	15.78	
005184	36.09	60.64		009000	32.63	32.17	
005185	36.13	53.42		009001	36.47	44.02	
005186	34.30	42.37		009002	73.22	25.36	
005187	37.78	30.28		009003	87.01	12.32	
005188	36.77	26.58		009004	91.06	15.83	
005189	51.51	24.87		009005	72.69	9.83	
005190	33.26	59.30		009006	70.86	37.49	
005191	34.56	25.68		009007	60.31	33.13	
005192	48.09	14.48		009008	92.31	3.32	
005193	39.51	29.52		009009	80.63	24.95	
005194	34.64	39.93		009010	86.33	6.03	
005195	29.47	23.19		009011	86.70	33.64	
005196	27.53	46.58		009012	82.69	1.71	
005197	48.02	21.35		009013	31.56	45.26	
005198	31.40	53.62		009014	101.02	12.09	
005199	34.70	32.21		009015	93.66	7.25	
005200	38.66	47.06		009016	99.43	31.26	
005201	35.74	53.03		009017	70.91	-0.98	
005202	39.83	25.31		009018	41.24	53.60	
005203	61.60	3.69		009019	34.57	55.30	
005204	36.95	39.92		009020	52.43	61.69	
005205	54.06	26.87		009021	59.98	51.39	
005206	36.52	47.82		009022	74.14	33.58	
005207	30.21	61.54		009023	72.14	-0.71	

ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM	ASO_NO	SK cells asyn/GAPDH %inhb @25 uM	PAC neuron asyn/tub %inh @40nM	PAC neuron aysn/tub % Inh @5 uM
005208	27.68	37.86		009024	72.66	4.00	
005209	37.91	32.22		009025	77.57	-6.84	
005210	41.54	59.06		009026	94.95	17.73	
005211	36.16	40.08		009027	36.59	69.55	
005212	46.29	46.75		009028	22.91	60.53	
005213	42.59	14.86		009029	32.75	75.07	
005214	43.10	35.43		009030	99.82	2.17	
005215	50.21	10.22		009031	46.18	46.27	
005216	40.03	32.74		009032	72.06	22.16	
005217	40.25	30.60		009033	32.71	59.98	
005218	38.34	32.13		009034	32.30	65.60	
005219	51.90	34.55		009035	29.11	49.79	
005220	44.35	57.77		009036	43.80	59.17	
005221	41.32	59.38		009037	62.94	27.78	
005222	39.96	30.87		009038	41.07	78.41	
005223	50.33	16.11		009039	41.74	59.76	
005224	34.89	34.61		009040	79.46	22.12	
005225	41.18	9.75		009041	73.58	39.76	
005226	33.90	37.60		009042	74.10	48.08	
005227	44.80	-5.95		009043	90.10	15.32	
005228	35.86	24.66		009044	79.40	27.06	
005229	45.12	6.62		009045	70.14	32.33	
005230	59.74			009046	61.17	26.16	

Table 2 shows the potency of the various ASOs in reducing SNCA protein expression in primary neurons isolated from A53T-PAC transgenic mice *in vitro.* The PAC neurons were cultured *in vitro* with the 10-point titration (indicates above) of the different ASOs and the potency (IC50) of the ASOs is shown as a ratio of SNCA to tubulin expression (µM).

ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)
ASO-000838	0.03	ASO-002521	1.95	ASO-003199	0.01
ASO-001233	1.52	ASO-002522	0.002	ASO-003202	0.02
ASO-001268	0.04	ASO-002686	0.03	ASO-003203	0.05
ASO-001281	0.19	ASO-002690	0.03	ASO-003206	0.02
ASO-001282	0.07	ASO-002692	0.11	ASO-003229	0.03
ASO-001308	0.02	ASO-002693	0.01	ASO-003279	0.01
ASO-001310	0.21	ASO-002694	0.01	ASO-003323	0.01
ASO-001328	0.003	ASO-002705	0.06	ASO-003330	0.01
ASO-001334	0.16	ASO-002730	0.06	ASO-003345	0.02
ASO-001344	0.03	ASO-002738	0.05	ASO-003349	0.01

ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)
ASO-001357	0.03	ASO-002739	0.09	ASO-004871	0.05
ASO-001363	0.03	ASO-002761	0.05	ASO-004881	0.02
ASO-001365	0.01	ASO-002762	0.01	ASO-004885	0.16
ASO-001367	0.22	ASO-002763	0.05	ASO-004901	0.13
ASO-001384	0.10	ASO-002765	0.04	ASO-004902	0.03
ASO-001395	0.03	ASO-002779	0.04	ASO-004903	0.02
ASO-001398	0.02	ASO-002785	0.01	ASO-004910	0.02
ASO-001434	0.15	ASO-002798	0.02	ASO-004913	0.07
ASO-001453	0.46	ASO-002801	0.01	ASO-004917	0.03
ASO-001459	0.28	ASO-002804	0.03	ASO-004932	0.06
ASO-001463	0.11	ASO-002805	0.01	ASO-004934	0.08
ASO-001467	0.30	ASO-002817	0.03	ASO-004936	0.11
ASO-001468	0.12	ASO-002820	0.04	ASO-005273	0.05
ASO-001471	0.03	ASO-002825	0.02	ASO-005276	0.04
ASO-001481	0.05	ASO-002828	0.02	ASO-005281	0.09
ASO-001484	0.25	ASO-002832	0.01	ASO-005289	0.11
ASO-001486	0.06	ASO-002833	0.01	ASO-005292	0.02
ASO-001532	0.06	ASO-002836	0.04	ASO-005304	0.05
ASO-001537	0.02	ASO-002837	0.02	ASO-005305	0.02
ASO-001549	0.01	ASO-002838	0.01	ASO-005308	0.05
ASO-001554	0.15	ASO-002842	0.13	ASO-005309	0.02
ASO-001560	0.06	ASO-002843	0.01	ASO-005317	0.03
ASO-001561	0.01	ASO-002844	0.01	ASO-005319	0.07
ASO-001582	0.07	ASO-002847	0.01	ASO-005330	0.02
ASO-001585	0.03	ASO-002848	0.01	ASO-005336	0.08
ASO-001605	0.01	ASO-002849	0.01	ASO-005348	0.02
ASO-001606	0.01	ASO-002850	0.005	ASO-006712	0.01
ASO-001638	0.05	ASO-002852	0.01	ASO-008226	0.01
ASO-001639	0.10	ASO-002858	0.01	ASO-008261	0.01
ASO-001665	0.02	ASO-002860	0.01	ASO-008387	0.01
ASO-001669	0.10	ASO-002863	0.01	ASO-008388	0.01
ASO-001671	0.01	ASO-002864	0.01	ASO-008501	0.004
ASO-001673	0.08	ASO-002867	0.02	ASO-008502	0.01
ASO-001677	0.52	ASO-002901	0.02	ASO-008529	0.004
ASO-001694	0.24	ASO-002908	0.08	ASO-008530	0.01
ASO-001702	0.18	ASO-002935	0.02	ASO-008531	0.01
ASO-001730	0.22	ASO-002968	0.01	ASO-008532	0.004
ASO-001755	0.32	ASO-002983	0.04	ASO-008533	0.01
ASO-001757	0.29	ASO-002990	0.04	ASO-008534	0.01
ASO-001774	0.19	ASO-002992	0.35	ASO-008535	0.01
ASO-002041	0.04	ASO-002994	0.04	ASO-008536	0.003
ASO-002497	10.08	ASO-002995	0.11	ASO-008537	0.01
ASO-002498	6.00	ASO-003058	0.02	ASO-008543	0.01

ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)	ASO_NO	LE PAC ASyn/Tub IC50 (uM)
ASO-002501	6.00	ASO-003061	0.03	ASO-008545	0.01
ASO-002502	0.04	ASO-003063	0.05	ASO-008584	0.003
ASO-002505	17.45	ASO-003069	0.03	ASO-286762	0.03
ASO-002506	2,165.47	ASO-003072	0.09	ASO-286785	0.12
ASO-002509	10,000.00	ASO-003092	0.04	ASO-287033	0.03
ASO-002510	560.94	ASO-003172	0.01	ASO-287041	0.57
ASO-002512	1.47	ASO-003173	0.01	ASO-287053	4.00
ASO-002513	55.07	ASO-003175	0.01	ASO-287965	0.06
ASO-002515	19.89	ASO-003176	0.02	ASO-288902	0.11
ASO-002516	1.01	ASO-003177	0.02	ASO-288903	0.27
ASO-002518	2.71	ASO-003179	0.02	ASO-288905	0.04
ASO-002519	10.56	ASO-003181	0.01	ASO-290315	0.02
				ASO-292378	0.07

Table 3 shows the effect of additional exemplary ASOs from figure 1A to 1C on SNCA protein expression in PAC neurons when cultured *in vitro* with 5 µM of the ASO. The SNCA protein expression was normalized to tubulin expression and is shown as a percent of the control.

ASO_NO	"PAC neurons aysn/tub % Ctrl@5 uM"	ASO_NO	"PAC neurons aysn/tub % Ctrl@5 uM"	ASO_NO	"PAC neurons aysn/tub % Ctrl@5 uM"
ASO-000875	17.41	ASO-000885	43.42	ASO-000862	117.31
ASO-000873	29.15	ASO-000882	20.58	ASO-000840	8.82
ASO-000872	26.91	ASO-000880	88.38	ASO-000847	12.14
ASO-000874	4.94	ASO-000884	105.54	ASO-000850	15.52
ASO-000878	11.16	ASO-000883	55.93	ASO-000842	15.68
ASO-000879	5.54	ASO-000837	43.76	ASO-000865	18.84
ASO-000835	12.81	ASO-000836	19.21	ASO-000866	20.29
ASO-000876	36.99	ASO-000839	37.85	ASO-000843	20.39
ASO-000877	7.82	ASO-000855	48.04	ASO-000853	21.49
ASO-000867	170.64	ASO-000856	103.49	ASO-000852	25.01
ASO-000869	71.40	ASO-000857	118.02	ASO-000851	27.66
ASO-000864	146.16	ASO-000858	141.21	ASO-000845	30.91
ASO-000863	205.30	ASO-000859	60.26	ASO-000846	32.06
ASO-000870	71.03	ASO-000860	62.01	ASO-000841	37.83
ASO-000881	6.19	ASO-000861	111.60	ASO-000844	58.08

Example 2B: Spontaneous Calcium Oscillation Measurement

Reduced oscillations in intracellular free calcium concentration (calcium oscillation) corresponds to increased neurotoxicity and therefore, can indicate reduced tolerability *in vivo.* To measure primary cortical neuron spontaneous calcium oscillation, rat primary cortical neurons were prepared from Sprague-Dawley rat embryos (E19). Briefly, the brain cortex was dissected and incubated at 37°C for 30-45 minutes in papain/DNase/Earle's balanced salt solution (EBSS) solution. After trituration and centrifugation of the cell pellet, the reaction was stopped by incubation with EBSS containing protease inhibitors, bovine serum albumin (BSA), and DNase. The cells were then triturated and washed with Neurobasal (NB, Invitrogen) supplemented with 2% B-27, 100 µg/ml penicillin, 85 µg/ml streptomycin, and 0.5 mM glutamine.

The cells were plated at a concentration of 25,000 cells/well onto 384-well poly-D-lysine coated fluorescent imaging plates (BD Biosciences) in 25 pl/well supplemented Neurobasal (NB) media (containing B27 supplement and 2 mM glutamine). The cells were grown for 12 days at 37°C in 5% CO2 and fed with 25 pi of additional media on DIV04 *(i.e., 4* days after plating) and DIV08 *(i.e.,* 8 days after plating) for use on DIV12 *(i.e.,* 12 days after plating).

On the day of the experiment, the NB media was removed from the plate and the cells were washed once with 50 µl/well of 37°C assay buffer (Hank's Balanced Salt Solution, containing 2 mM CaCh and 10 mM Hopes pH 7.4). Oscillations were tested both in the presence and in the absence of 1mM $MgCl_2$. The cells were loaded with a cell permanent fluorescent calcium dye, Fluo-4-AM (Invitrogen, Molecular Probes F14201). Fluo-4-AM was prepared at 2.5 mM in DMSO containing 10% pluronic F-127 and then diluted 1:1000 in the assay buffer for a final concentration of 2.5 µM. The cells were incubated for 1 hr with 20 µl of 2.5 µM Fluo-4-AM at 37°C in 5% CO2. After the incubation, an additional 20 µl of room temperature assay buffer was added, and the cells were allowed to equilibrate to room temperature in the dark for 10 minutes.

The plates were read on a FDSS 7000 fluorescent plate reader (Hamamatsu) at an excitation wavelength of 485 nm and emission wavelength of 525 nm. The total fluorescence recording time was 600 seconds at 1Hz acquisition rate for all 384 wells. An initial baseline signal (measurement of intracellular calcium) was established for 99 seconds before the addition of the ASOs. ASOs were added with a 384 well head in the FLIPR in 20 pi of assay buffer at 75 pM for a final concentration of 25 pM. In some instances an ASO targeting *tau* such as ASO-000013 (OxyAs OxyTs OxyTs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAts DNAts DNAcs DNAas OxyMCs OxyTs OxyT; ATTtccaaattcaCTT, SEQ ID NO: 1880) or ASO-000010 (TCTgtcttggctTTG, SEQ ID NO: 1879) was included as controls.

Fluorescence time sequence intensity measurements (described above) were exported from the Hamamatsu reader, and transferred to an in-house proprietary application in IDBS E-Workbook

suite for data reduction and normalization. In each 384 well screening plate, up to a maximum of 48 individual ASOs were tested in quadruplicate wells. 12 wells were exposed to a positive control (ASO-000010), which significantly inhibits the calcium oscillations counted during the 300 sec acquisition time frame and 12 wells were exposed to an negative control inactive ASO (ASO-000013) which does not inhibit the observation of calcium oscillations. Finally, 24 wells were dedicated to a vehicle control consisting of RNase-DNase-free water at the same concentration used to dilute the test ASOs. The effects of test ASOs in individual wells on calcium oscillation frequency (over the 300sec period) were expressed as a % control of the median number of calcium oscillations counted in the 24 vehicle control wells. Individual 384 well assay plates passed QC standards if the positive and negative ASO controls (ASO-000010 and ASO-000013) exhibited well characterized pharmacology in the Ca assay, and if the vehicle and pharmacological control wells generated a minimum of ~20 calcium oscillations over the 300 sec experimental time period.

Example 2C: QUANTIGENE® Analysis (96-well assay) to Measure mRNA Reduction in Human Neurons

The ability of ASOs to reduce human *SNCA* mRNA and/or possible human off target mRNA species was measured *in vitro* by QUANTIGENE ® analysis. Human neurons (Cellular Dynamics Inc., "iNeurons"), were thawed, plated, and cultured per manufacturer's specifications. These iNeurons are highly pure population of human neurons derived from induced pluripotent stem (iPS) cells using Cellular Dynamic's proprietary differentiation and purification protocols.

Lysis: Cells were plated on poly-L-ornithine/laminin coated 96-well plates at 50,000 to 100,000 cells per well (dependent on the expression of the off target being investigated) and maintained in Neurobasal media supplemented with B27, glutamax, and Penicillin-Streptomycin. The ASOs were diluted in water and added to cells at DIV01 *(i.e.,* 1 day post plating). For single point measurements, a final ASO concentration of 0.5 µM was typically used. For IC50 determinations, the neurons were treated with a seven-point concentration response dilution of 1:4, with the highest concentration as 5 µM to define the IC50. The cells were then incubated at 37°C and 5% CO2 for 6 days to achieve steady state reduction of mRNA.

After the incubation, the media was removed and cells were washed 1X in DPBS and lysed as follows. Measurement of lysate messenger RNA was performed using the QUANTIGENE ® 2.0 Reagent System (AFFYMETRIX ®), which quantitates RNA using a branched DNA-signal amplification method reliant on the specifically designed RNA capture probe set. The working cell lysis buffer solution was made by adding 50 pi proteinase K to 5ml of pre-warmed (37°C) Lysis mix and diluted in dH_20 to a 1:4 final dilution. The working lysis buffer was added to the plates (100 to 150 pi/ well, depending on the expression of the off target being investigated), triturated 10 times,

sealed and incubated for 30 min at 55°C. Following the lysis, the wells were triturated 10 more times, and the plates were stored at -80°C or assayed immediately.

Assay: Depending on the specific capture probe used *(i.e., SNCA, PROS1,* or tubulin), the lysates were diluted (or not diluted) in the lysis mix. Then, the lysates were added to the capture plates (96-well polystyrene plate coated with capture probes) at a total volume of 80 pl/well. Working probe sets reagents were generated by combining nuclease-free water (12.1 pi), lysis mixture (6.6 pi), blocking reagent (1 pi), and specific 2.0 probe set (0.3 pi) (human *SNCA* catalogue #SA-50528, human PROS1 catalogue #SA-10542, or human beta 3 tubulin catalogue #SA-15628) per manufacturer's instructions (QUANTIGENE ® 2.0 AFFYMETRIX ®). Next, 20 pi working probe set reagents were added to 80 pi lysate dilution (or 80 pi lysis mix for background samples) on the capture plate. Plates were centrifuged at 240g for 20 seconds and then incubated for 16-20 hours at 55°C to hybridize (target RNA capture).

Signal amplification and detection of target RNA began by washing plates with buffer 3 times (300 pl/well) to remove any unbound material. Next, the 2.0 Pre-Amplifier hybridization reagent (100 pl/well) was added, incubated at 55°C for 1 hour, then aspirated, and wash buffer was added and aspirated 3 times. The 2.0 Amplifier hybridization reagent was then added as described (100 pl/well), incubated for 1 hour at 55°C and the wash step repeated as described previously. The 2.0 Label Probe hybridization reagent was added next (100 pl/well), incubated for 1 hour at 50°C and the wash step was repeated as described previously. The plates were again centrifuged at 240g for 20 seconds to remove any excess wash buffer and then, the 2.0 Substrate was added (100 pl/well) to the plates. Plates were incubated for 5 minutes at room temperature and then, the plates were imaged on a PerkinElmer Envision multilabel reader in luminometer mode within 15 minutes.

Data determination: For the gene of interest, the average assay background signal was subtracted from the average signal of each technical replicate. The background-subtracted, average signals for the gene of interest were then normalized to the background-subtracted average signal for the housekeeping tubulin RNA. The percent inhibition for the treated sample was calculated relative to the control treated sample lysate.

Example 2D: QUANTIGENE® Analysis (96-well assay) to Measure mRNA Reduction in Ramos Cells

To measure possible human off target IKZF3 (IKAROS family zinc finger 3) mRNA reduction, Ramos cells (a human lymphocytic cell line) were used. Since Ramos cells do not express *SNCA, RB1* (RB transcriptional corepressor 1), which is expressed in Ramos cells, was used as a positive control for assessing ASO-mediated knockdown IKZF3 mRNA expression. Two ASOs were

synthesized to bind to and knockdown human RB1 mRNA expression. Beta-2 microglobulin (β2M) was used as a housekeeping gene control. The Ramos cells were grown in suspension in RPMI media supplemented with FBS, glutamine, and Pen/Strep.

Lysis: Cells were plated on poly-L-ornithine/laminin coated 96 well plates at 20,000 cells per well and maintained in Neurobasal media containing B27, glutamax and Penicillin-Streptomycin. ASOs were diluted in water and added to cells at 1 day post plating (DIV01) to a final concentration of 1 µM. Following ASO treatment, the cells were incubated at 37°C for 4 days to achieve steady state reduction of mRNA. After the incubation, the media was removed and cells lysed as follows. Measurement of lysate messenger RNA was performed using the QUANTIGENE ® 2.0 Reagent System (AFFYMETRIX ®), which quantitated RNA using a branched DNA-signal amplification method reliant on the specifically designed RNA capture probe set. Lysis mix (QuantiGene 2.0 Affymetrix) was pre-warmed in an incubator at 37°C for 30 minutes. For lysing cells in suspension, 100 pi of 3X Lysis Buffer (with 10 pl/ml proteinase K) was added to 200 pi of cells in suspension. The cells were then triturated 10 times to lyse, and the plate sealed and incubated for 30 min at 55°C. Afterwards, the lysates were stored at -80°C or assayed immediately.

Assay: Depending on the specific capture probe used *(i.e.,* IKZF3, RB1, and β2M), the lysates were diluted (or not diluted) in the lysis mix. Then, the lysates were added to the capture plate (96 well polystyrene plate coated with capture probes) at a total volume of 80 pl/well. Working probe sets reagents were generated by combining nuclease-free water 12.1 pi, lysis mixture 6.6 pi, blocking reagent 1 pi, specific 2.0 probe set 0.3 pi (human IKZF3 catalogue #SA-17027, human RB1 catalogue #SA-10550, or human beta-2 microglobulin catalogue #SA-10012) per manufacturer instructions (QUANTIGENE ® 2.0 AFFYMETRIX ®). Then 20 pi working probe set reagents were added to 80 pi lysate dilution (or 80 pi lysis mix for background samples) on the capture plate. Plates were then incubated for 16-20 hours at 55°C to hybridize (target RNA capture). Signal amplification and detection of target RNA was begun by washing plates with buffer 3 times (300 pl/well) to remove any unbound material. Next, the 2.0 Pre-Amplifier hybridization reagent (100 pl/well) was added, incubated at 55°C for 1 hour then aspirated and wash buffer was added and aspirated 3 times. The 2.0 Amplifier hybridization reagent was then added as described (100 pl/well), incubated for 1 hour at 55°C and the wash step was repeated as described previously. The 2.0 Label Probe hybridization reagent was added next (100 pl/well), incubated for 1 hour at 50°C and the wash step again was repeated as described previously. The plates were again centrifuged at 240g for 20 seconds to remove any excess wash buffer and then, the 2.0 Substrate was added (100 pl/well) to the plates. Plates were incubated for 5 minutes at room temperature, and then, the

plates were imaged on a PerkinElmer Envision multilabel reader in luminometer mode within 15 minutes.

Data determination: For the gene of interest, the average assay background signal *(i.e.,* no lysate, just 1X lysis buffer) was subtracted from the average signal of each technical replicate. The background-subtracted, average signals for the gene of interest were then normalized to the background-subtracted average signal for the housekeeping mRNA (for Ramos cells, it was beta-2-microglobulin). The percent inhibition for the treated sample was calculated relative to the average of the untreated sample lysate.

Example 2E: qPCR assay to measure reduction of *SNCA* mRNA in SK-N-BE(2) cells

ASOs targeting *SNCA* were tested for its ability to reduce *SNCA* mRNA expression in human SK-N-BE(2) neuroblastoma cell acquired from ATCC (CRL-2271).

SK-N-BE(2) cells were grown in cell culturing media (MEM [Sigma, cat.no M2279] supplemented with 10% Fetal Bovine Serum [Sigma, cat.no F7524], 1x GlutamaxTM [Sigma, cat.no 3050-038] 1x MEM Non-essential amino acid solution [Sigma, cat.no M7145] and 0.025mg/ml Gentamycin [Sigma, cat.no G1397]). Cells were trypsinized every 5 days, by washing with Phosphate Buffered Saline (PBS), [Sigma cat.no 14190-094] followed by addition of 0.25% Trypsin-EDTA solution (Sigma, T3924), 2-3 minutes incubation at 37°C, and trituration before cell seeding. Cells were maintained in culture for up to 15 passages.

For experimental use, 12,500 cells per well were seeded in 96 well plates (Nunc cat.no 167008) in 100µL growth media. Oligonucleotides were prepared from a 750µM stock. ASO dissolved in PBS was added approximately 24 hours after the cells were seeded to a final concentration of 25µM for single point studies. Cells were incubated for 4 days without any media change. For potency determination, 8 concentrations of ASO were prepared for a final concentration range of 16-50,000 nM. ASO-004316 (CcAAAtcttataataACtAC, SEQ ID NO: 1881) and ASO-002816 (TTCctttacaccACAC, SEQ ID NO: 1882) were included as controls.

After incubation, cells were harvested by removal of media followed by addition of 125µL Purel_ink©Pro 96 Lysis buffer (Invitrogen 12173.001A) and 125µL 70% ethanol. RNA was purified according to the manufacture's instruction and eluted in a final volume of 50µL water resulting in an RNA concentration of 10-20ng/pl. RNA was diluted 10 fold in water prior to the one-step qPCR reaction. For one-step qPCR reaction qPCR-mix (qScript TMXLE 1-step RT-qPCR TOUGFIMIX®Low ROX from QauntaBio, cat.no 95134-500) was mixed with two Taqman probes in a ratio 10:1 :1 (qPCR mix: probe1 :probe2) to generate the mastermix. Taqman probes were acquired from LifeTechnologies: SNCA: Fls01 103383_m1 ; PROS1 : Fls00165590_m1: TBP:

4325803; GAPDH 4325792. Mastermix (6μl) and RNA (4μl, 1-2 ng/pL) were then mixed in a qPCR plate (MICROAMP®optical 384 well, 4309849). After sealing, the plate was given a quick spin, 1000g for 1 minute at RT, and transferred to a ViiaTM 7 system (Applied Biosystems, Thermo), and the following PCR conditions used: 50°C for 15 minutes; 95°C for 3 minutes; 40 cycles of: 95°C for 5 sec followed by a temperature decrease of 1.6°C/sec followed by 60°C for 45 sec. The data was analyzed using the QuantStudioTM Real_time PCR Software.

The results are shown in Table 1 under Example 2A.

Example 3: *In vitro* Analysis of ASO-003092 and ASO-003179 on the Reduction of Human *SNCA* mRNA

ASO-: 1436003092 (20-base SEQ ID NO) and ASO-003179 (19-base SEQ ID NO:1547) are LNA-modified ASOs that target the exon6 region of human SNCA pre-mRNA (SEQ ID NO:1).

Potency of ASO-003092 and ASO-003179 in Mouse Neurons

Using the methods described above in Example 2A, ASO-003092 and ASO-003179 were tested for their ability to reduce SNCA protein expression as a downstream result of reduction in *SNCA* mRNA. Briefly, primary neurons derived from PAC-A53T mice were treated with ASO-003092, ASO-003179, or control ASOs for 14 days. Cells were then fixed and the levels of SNCA protein and tubulin protein were measured by high content imaging. Tubulin levels were measured to monitor toxicity and to normalize SNCA protein reduction.

As shown in Table 4 below and Table 1 in Example 2A, incubation of cells with 40 nM of ASO-003092 or ASO-003179 resulted in 76% and 73% reduction in SNCA protein expression, respectively. In contrast, both ASOs had minimal to no effect on the level of tubulin protein expression.

Table 4: ASO-003092 and ASO-003179 activity in A53T-PAC neurons

ASO	ASO concentration	aSyn/tub %inh	SD	N	Tub %inh	SD	N
ASO-003092	40 nM	75.64	13.81	3	-11.29	18.70	4
ASO-003179	40 nM	73.05	9.54	4	-9.51	19.17	4

SD = standard deviation

N = number of tests

The above results demonstrate that ASO-003092 and ASO-003179 effectively reduce *SNCA* mRNA, which in turn mediates the reduction of SNCA protein levels. These ASOs were well tolerated both in mouse and in human neurons. These findings support the continued development of SNCA-specific ASOs (e.g., ASO-003092 and ASO-003179) as a disease-modifying therapeutic for the treatment of synucleinopathies.

Example 4: *In Vivo* Tolerability and *In Vivo SNCA* mRNA Reduction

The *in vivo* tolerability of selected ASOs was tested to see how the ASOs were tolerated when injected into different animal models *(i.e.,* mice and cynomolgous monkeys):

Mice

Subjects: Male and female (2-3 months old) *PAC-JQ(SNCA*^{S3T})$^{+/+}$;SNCA$^{-/-}$* ("PAC-A53T") mice carrying the entire human *SNCA* gene with a A53T mutation on a mouse *SNCA* knockout background were used for acute, long term, and PK/PD *in vivo* efficacy studies. In some cases wild-type (WT) C57B/6 mice were used for long term *(i.e.,* 4 weeks) health assessment. Mice were housed in groups of 4 or 5 in a temperature controlled housing room with food and water available *ad libitum.* All procedures involving mice were conducted according to Animal Test Methods (ATM) approved by the Bristol-Myers Squibb Animal Care and Use Committee (ACUC).

ASO Dosing Solution Preparation: Sterile saline (1 mL) syringes fitted with 0.2 pm Whatman filters and nuclease free centrifuge tubes were used to prepare dosing solutions. Indicated volume of water or saline was added to an ASO powder and was vortexed (~1 min) to dissolve the ASO powder. The solution was then allowed to sit for 10 min and was vortexed again for ~1 min. The tubes were briefly centrifuged to return all of the liquid to the bottom of the tube, and then, the solution was filtered through a 0.2 pm sterile filter into a 2nd RNase free tube. A small aliquot of the primary stock was diluted to 1 mg/ml for analysis of the concentration using Nanodrop. The analytical sample was vortexed three times with manual inversion to mix thoroughly. Then, the UV absorbance of the sample was measured twice at 260 nm with Nanodrop (the pedestal was rinsed and wiped three times before applying the sample). The test sample was discarded once the analysis was complete. The sample was considered ready for dosing if UV absorbance was between 90 and 110% of the sample. If UV absorbance exceeded 110% of the sample, a secondary dilution was prepared; if the absorbance was < 90%, the sample was prepared at a higher initial concentration and similar steps were followed as described above. Samples were stored at 4°C until use.

Freehand Intracerebroventricular (ICV) Injection: ICV injections were performed using a Hamilton micro syringe fitted with a 27 or 30-gauge needle, according to the method of Haley and McCormick. The needle was equipped with a polyethylene guard at 2.5-3 mm from the tip in order to limit its penetration into the brain. Mice were anesthetized using isoflurane anesthetic (1-4%). Once sufficiently anesthetized, the mice were held by the loose skin at the back of the neck with the thumb and first fingers of one hand. Applying gentle but firm pressure, the head of the animal was then immobilized by pressing against a firm flat level surface. Dosing was conducted using 10 pi

Hamilton syringes fitted with a 27 ½ g needle. The needle tip was then inserted through the scalp and the skull, about 1 mm lateral and 1 mm caudal to bregma *(i.e.,* right of the midline, about 3mm back as measured from the eye line). Once the needle was positioned, the ASO was given in a volume of 5 pi in saline vehicle and injected over ~30 seconds. The needle was left in place for 5-10 seconds before removal. The mice were returned to their home cage and allowed to recover for ~2-4 min. Mice were observed continuously for 30 minutes immediately after dosing for adverse behavioral effects of drug and/or dosing. During this time, any mouse that convulsed more than 3 separate times was immediately euthanized and given an automatic score of 20. Drug tolerability was scored 1 hr ± 15min post dosing. Animals dosed with non-tolerated compounds (tolerability score > 4) were euthanized immediately following the 1 hr evaluation.

ASO Tolerability Assessment: Animals dosed with the ASOs were evaluated right after the dosing and monitored for 2 hours for any adverse effects. For acute tolerability (AT) studies, mice were evaluated at the time of dosing and again at the takedown, *i.e.,* 3 days post ASO injection. For long term health assessment, the mice were weighed weekly and monitored for any health and behavioral issues until the completion of the experiment. Mice that had weight losses of greater than 15% of their initial body weight or exhibited tolerability issues were removed from the studies and euthanized. Health and tolerability assessments were conducted according to the following chart:

Table 5: Tolerability scoring system[a]

Category	Score 1	Score 2	Score 3	Score 4
Hyperactivity, stereotypies, home cage behavior	•Very slightly increased home cage exploration or rearing compared to controls	•Increased home cage exploration *(e.g.* digging, burying, etc.) •Increased grooming	•Moderately increased home cage activity •Detectable stereotypies *(e.g.* circling, repetitive behaviors, etc.)	•Marked hyperactivity •Marked stereotypies
Decreased vigilance, exploration and responsiveness	•Some reduction in exploratory activity •Responds normally to stimulation	•Drowsiness •Slightly reduced response to touch or handling	•Stupor (reduced responsiveness, decreased corneal reflex)	•Coma (does not respond to stimulation, *e.g.* pinch), no corneal reflex
Motor coordination and strength	•Mild change to gait or grip strength (falls between 5-10sec) •No falls, normal righting response	•Reduced grip strength (falls in less than 5sec) •Mild ataxia *(e.g.* slow righting response, swaying)	•Highly reduced grip strength (falls in less than 2sec) •Ataxia *(e.g.* staggering, falling impaired walking)	•Severe ataxia *(e.g.* crawling, fails to grip bar) ·No ability to right

Category	Score 1	Score 2	Score 3	Score 4
Posture, appearance, breathing	•Very slight abnormal posture (subtle)	•Slight abnormal posture (*e.g.* hunched, extended, low posture, tail position, straub tail) «Piloerection or ptosis «unkempt coat	•Moderately abnormal posture *(e.g.* ventral recumbency) •Shallow breathing	•Markedly abnormal posture *(e.g.* lateral recumbency) •Facial paralysis *(e.g.* drooling, protruding tongue) •Labored breathing
Tremor, hyper-activity, convulsion	•Detectable tremor	•Hyper-responsive to stimuli *(e.g.* noise) «Marked tremors	•Few or partial seizures, rearing and falling as part of convulsing	•Repeated or continuous seizure (running, bouncing, clonic and/or tonic)

[a] Normal is scored as "0". Animals are scored on an individual basis at successive time points post dosing. Observations are rated at 1 h ± 15 min, then 24 h ± 2 h, then 7 days (if appropriate). Convulsions count for the 1 hr timepoint, even if they occur prior to the observation window. A total tolerability score is calculated based on the sum of the individual category scores, with a maximum possible score of 20.

Tissue Collection: Following final behavioral and health assessments, mice were decapitated on a guillotine and the brains were quickly removed. Each brain was split into two hemispheres and a) hippocampus was dissected for mRNA measurements in the 3-day acute tolerability studies; b) hippocampus, brain stem, and striatum from one hemisphere were dissected for mRNA measurements, whereas the same regions were dissected from the second hemisphere for protein/PK measurements in the dose-response time course PK/PD studies.

In some of the studies, the blood and the cerebrospinal fluid (CSF) were also collected for PK (blood) and PK/protein (CSF) measurements. To collect the blood and the CSF, the mice were deeply anesthetized with Isoflurane (4%). Blood was collected via cardiac puncture using 23G needle. Once removed, the blood was transferred into 2 ml BD Microtainer (K2EDTA BD #365974) tubes and placed on ice until processing. To process the blood, the tubes were centrifuged at 4500xg for 10 min at 4°C. Then, the plasma was removed and placed into 0.5 ml Eppendorf tubes and stored at -80°C until use. To collect the CSF, the thoracic cavity was opened exposing the heart, and as much of the blood was drained to avoid contamination of the CSF. The CSF samples were collected via Cisterna magna using micropipettes and placed into lo-bind protein Eppendorf tubes. Then, the tubes were centrifuged at 4500xg for 15min at 4°C. The CSF was carefully transferred to clean lo-bind 0.5ml Eppendorf tubes and stored at -80°C until further use.

Cyno Data

Subject Male cynomolgous monkeys weighing 3.5-10.0 kg at the start of the study were used. Each was implanted with an intrathecal cerebrospinal fluid (CSF) catheter entering at the L3 or L4 vertebrae. The distal tip of the polyurethane catheter extended within the intrathecal space to approximately the L1 vertebrae. The proximal end was connected to a subcutaneous access port located on the animal's lower back. Animals were allowed to heal for at least two weeks prior to the start of the study. Laboratory animal care was according to Public Health Service Policy on the Humane Care and Use of Laboratory Animals and the Guide for the Care and use of Laboratory Animals NRC (201 1) (National Research Council: Guide for the Care and Use of Laboratory Animals (The National Academies Collection: Reports funded by National Institutes of Health). National Academies Press (US), Washington (DC)). The protocol was approved by the Wallingford Animal Care and Use Committee of the Bristol-Myers Squibb Company.

CSF & Blood Sampling·. The CSF port was accessed subcutaneously using aseptic techniques, and CSF was sampled from awake animals sitting upright in a primate restraint chair. Approximately 0.1 ml of CSF was discarded at the start of collection to clear dead space in the catheter and port. CSF was collected by gravity flow to a maximum of 0.5 ml CSF per sample. CSF was spun at 2,000 g at 4° C for 10 min. The supernatant was frozen on dry ice or in liquid nitrogen and kept at -90° C until analyzed.

Blood was sampled from an available vein, typically the saphenous vein. Blood samples were prepared in a number of procedures depending upon the particular measure in question. For plasma, blood was collected into EDTA-treated tubes. For serum, blood was collected into serum-separator tubes and allowed to clot for at least 30 min prior to centrifugation. For measures of clotting and clotting factors, blood was collected into citrated tubes, and for analysis of RNA, blood was collected into tubes containing RNA later. After processing, samples were frozen on dry ice or in liquid nitrogen and kept frozen until analyzed.

Intrathecal Dosing: Animals were trained to be dosed while awake and using modified commercially-available restraint chairs, animals were maintained in a prone position. *SNCA*-targeted anti-sense oligonucleotides (ASOs) were dissolved in saline, sterilized by filtration, and administered at 0.33 ml/min in a 1.0 ml volume followed by a 0.5 ml sterile water flush. Total infusion time was 4.5 min. Animals remained in the prone position for 30 min post infusion.

Necropsy: Cynomolgus monkeys were administered the appropriate volume of a commercially available euthanasia solution while anesthetized with ketamine and/or isoflurane. Necropsy tissues were obtained immediately thereafter and the brain was transferred to wet ice for dissection. Areas of interest were dissected using 4-6 mm slices in an ASI Cyno Brain Matrix as well as free handed techniques. Samples were placed fresh in RNAlater, or frozen on dry ice for later analysis. CNS

tissue was rapidly dissected form cynomolgus monkeys and pieces no longer than 4 mm on any axis were collected and placed in 5ml_s of RNA later. Samples were stored at 4°C overnight then transferred to -20°C for storage until analyzed.

Brain regions analyzed included medulla, pons, midbrain, cerebellum, caudate-putamen (left and right), hippocampus (left and right), frontal cortex (left and right), temporal cortex (left and right), parietal cortex (left and right), occipital cortex (left and right) and cortical white matter. Additionally, spinal cord was sampled at the cervical, thoracic and lumbar regions. Samples were also collected from liver, kidney and heart. On some occasions, samples of trigeminal nuclei, tibial nerve and the aorta were collected to examine off-target pharmacology in those areas.

ELISA quantitation of ASO concentration in mouse or monkey tissue, plasma, and CSF:

Tissue was homogenized with plasma and water in a 1:1 ratio. Standard curve was generated by 2-fold serial dilution from 5000 to 4.9 nM in plasma (for plasma and CSF) and in plasma:water (for tissues samples) and then further diluted to 5000-fold total with 5xSSCT (750 mM NaCI, and 75 mM sodium citrate, pH 7.0, containing 0.05 % (v/v) Tween-20) alone and in 5x SSCT containing 35 nM capture and 35 nM detection reagents to obtain a standard range of 1-1000 pM. The dilution factor used varied depending on the expected sample concentration range. The capture probe was AAAGGAA with a 3' Biotin (Exiqon) and the detection probe was 5' DigN-isopropyl 18 linker--GTGTGGT (Exiqon).

Experimental samples and standards were added to Clarity lysis buffer (Phenomenex, cat#AL0-8579) in a 1:1 ratio prior to dilution with capture and detection buffer and before transferring to the ELISA plate. CSF samples were diluted with plasma (2-fold) prior to addition of lysis buffer. A streptavidin-coated plate (Thermo 151 19) was washed 3 times with 5X SSCT buffer. 100 pi samples were added and incubated for 60 min at room temperature. The detection probe, 100 pi anti-Dig-AP Fab fragment diluted 1:4000 in PBS containing 0.05% Tween-20 (Roche Applied Science, Cat. No. 11 093 274 910), was added and incubated for 60 min at room temperature. After washing the plate with 2X SSCT buffer, 100 pi Tropix CDP-star Sapphire II substrate (Applied Biosystems) was added for 30 min at room temperature. Antisense oligonucleotide concentrations were measured by luminescence (Enspire-PerkinElmer).

Alpha-synuclein protein measurements:

Brain tissue samples were homogenized at 10 ml/g tissue in RIPA buffer (50 mM Tris HCI, 150 mM NaCI, 1% NP-40, 0.5% sodium deoxycholate, 0.1% sodium dodecyl sulfate) using bead homogenizer Giagen Tissuelyser II for 25 cycles/sec, with a 5 mm stainless steel bead for 2 min total. Homogenized samples were incubated 30 min on ice. 50 pi aliquot of each sample was

retained for PK analysis. The remaining samples were centrifuged 20,800g, for 60 min, 4°C. The supernatant was retained and used for analysis. Total protein was measured using Pierce BCA protein assay kit (23227).

Brain tissue extracts: SNCA protein was measured using the MJFR1+4B12 ELISA. Briefly, ELISA plates (Costar) were coated with 100 pi of the anti-SNCA antibody MJFR1 (Abeam) at a concentration of 0.1 pg/ml diluted in BupH carbonate-bicarbonate buffer, pH 9.4 (Thermo Scientific) overnight (O/N) at 4°C. The next day plates were washed 4-times with Dulbecco's PBS (Life Technologies) and blocked with 3% BSA (bovine serum albumin, protease free, Fraction V, Roche Diagnostic) in PBS for 2~3h at room temperature (RT) or overnight at 4°C. Both the standards and the brain samples were diluted with 1% BSA/0.05% Tween/PBS containing Roche protease inhibitor (Roche 11836145001 , 1 pellet/25 ml) and Phosphatase Inhibitor 2&3 (Sigma, 1:100). SNCA wild-type (rPeptide) was used as a standard. Samples were loaded in duplicate (50 pl/well) and incubated for O/N at 4°C. After plates were equilibrated to RT, 50 pi of the detection antibody 4B12 (Biolegend) (diluted 1:4000 in 1% BSA/0.1% Tween/DPBS) was added to each well and co-incubated with the samples at RT for ~2 hours. Detection antibody was pre-conjugated with alkaline phosphatase (AP kit from Novus Biologicals). Plates were then washed 4-times with 0.05% Tween/PBS and developed with 100 pi of alkaline phosphatase substrate (Tropix CDP Star Ready-to-Use with Sapphire II, T-2214, Life Technologies) for 30 minutes. Luminescence counts were measured with Perkin Elmer EnVision (2102 Multilabel Reader). The plates were kept constant shaking (Titer plate shaker, speed 3) during the assay. Data was analyzed using GraphPad Prism. Total protein in brain tissue was measured using a Micro protein assay kit (Thermofisher #23235) according to manufacturer's instructions.

Cerebral spinal fluid (CSF): SNCA protein was measured using the U-PLEX Human SNCA Kit: (cat# K151WKK-2, Meso Scale Discovery) according to manufacturer's instructions. CSF samples were diluted 10-fold. Hemoglobin was measured in CSF samples using the Abeam mouse Hemoglobin ELISA kit (ab157715). CSF samples were diluted 40-fold for the hemoglobin measurements.

mRNA measurements by qRT-PCR

Brain regions were harvested and placed in 1.5 ml RNA-later Tissue Protect tubes (Qiagen cat#76514) that were prefilled with RNA-later, a RNA stabilization solution. Tissue in RNA-later solution can be stored at 4°C for 1 month, or at -20°C or -80°C indefinitely.

RNA Isolation: *RNeasy Plus Mini Kit:* RNA from mouse hippocampus and cortex and was isolated using the RNeasy Plus Mini Kit (Qiagen cat#74134). Tissue samples were homogenized in a

volume of 600 pL or 1200 µl RLT Plus buffer containing 10 µl/ml of 2-mercaptoethanol and 0.5% Reagent Dx. 600 µl lysis buffer was used if the tissue sample was <20 mg, 1200 µl lysis buffer was used for tissue samples >20 mg. For homogenization, tissue sample was transferred to a 2.0 mL round-bottom Eppendorf Safe-Lock tube (Eppendorf cat#022600044) containing 600 µL RLT Plus Buffer (plus 10ul/ml of 2-mercaptoethanol and 0.5% Reagent Dx), and a 5 mm stainless steel Bead (Qiagen cat#69989) Samples were homogenized, using a Qiagen's TissueLyser II instrument. Samples were processed for 2.0 min at 20 Hz, samples rotated 180° and processed for another 2.0 min at 20Hz. Samples were then processed 2.0 min at 30 Hz, samples rotated 180° and processed for another 2.0 min at 30Hz. Longer and/or at higher frequency homogenization used if processing not complete. A 600 pL of the tissue lysate was then transferred into a gDNA Eliminator spin column in a 2.0 mL collection tube and samples centrifuged for 30 secs at 10,000g. All centrifugation steps were performed at RT. The flow-through was collected and an equal volume of 70% ethanol added and mixed. 600 pL was transferred to RNeasy spin column placed in a 2.0 mL collection tube and samples centrifuged for 15 secs at 10,000g. The flow-through was discarded and the remaining 600 ul sample added to the spin column. The spin columns were centrifuged and the flow-through discarded. Columns were washed with 700 pi of Wash Buffer RW1 , centrifuged for 15 secs at 10,000g, and the flow-through discarded The columns were then washed 2-times with 500 pL of Buffer RPE containing 4 volumes of ethanol as described in kit protocol. Columns were first centrifuged for 15 secs at 10,000g for first wash and then for 2.0 min at 10,000g for the second wash.. After second wash, columns were centrifuged once for 1.0 min at 10,000g to dry the membranes. Columns were then transferred to a new 1.5 mL collection tube and 30 pi of RNase-free water was added directly to the center of the membrane. The membranes were allowed to incubate for 10 min at RT. Then, the columns were centrifuged for 1.0 min at 10,000g to elute the RNA. The elution, containing the RNA, was collected and stored on ice until the RNA concentrations could be determined by UV absorbance using a NanoDrop Spectrophotometer (Thermo). RNA samples were stored at -80°C.

RNA Isolation: RNEASY® Plus Universal Mini Kit: RNA from all other Cyno, Mouse, and Rat tissue samples was isolated using RNEASY® Plus Universal Mini Kit (Qiagen cat#73404). For homogenization, 50 µg or less of tissue sample was transferred to a 2.0 mL round-bottom Eppendorf Safe-Lock tube (Eppendorf cat#022600044) containing 900 pL QIAZOL® Lysis Reagent, and a 5 mm stainless steel Bead (Qiagen cat#69989) Samples were homogenized, using a Qiagen's TissueLyser II instrument. Samples were processed for 2.0 min at 20 Hz, samples rotated 180° and processed for another 2.0 min at 20 Hz. Samples were then processed 2.0 min at 30 Hz, samples rotated 180° and processed for another 2.0 min at 30 Hz. Longer and/or at higher frequency homogenization used if processing not complete. Homogenized tissue lysate was then

transferred into a new 2.0 mL round-bottom Eppendorf Safe-Lock tube and left at RT for 5.0 min. 100 µL of gDNA Eliminator Solution was added to each tube and tubes were vigorously shaken for 30 secs. 180 µL of Chloroform (Sigma cat#496189) was added to each tube and tubes were vigorously shaken for 30 secs. Tubes were left at RT for 3 min. Centrifuge tubes at 12,000g for 15 min at 4°C. After centrifugation the upper aqueous phase was transferred to a new 2.0 mL round-bottom Eppendorf Safe-Lock tube -500 pL. An equal volume of 70% ethanol added and mixed. All future centrifugation steps were performed at RT. 500 pL was transferred to RNeasy spin column placed in a 2.0 mL collection tube and samples centrifuged for 15 secs at 10,000g. The flow-through was discarded and the remaining 500 pi sample added to the spin column. The spin columns were centrifuged and the flow-through discarded and the columns washed with 700 pi of Wash Buffer RWT containing 2 volumes of ethanol. Columns were centrifuged for 15 secs at 10,000g, the flow-through discarded. The columns were then washed twice with 500 pL of Buffer RPE containing 4-volumes of ethanol as described in kit protocol. Columns were first centrifuged for 15 secs at 10,000g for first wash and then for 2.0 min at 10,000g for the second wash.. After second wash, columns were centrifuged once for 1.0 min at 10,000g to dry the membranes. Columns were then transferred to a new 1.5 mL collection tube and 30 pi of RNase-free water added directly to the center of the membrane. Membranes were allowed to incubate for 10 min at RT. Columns were centrifuged for 1.0 min at 10,000g to elute the RNA. The elutions, containing the RNA, were collected and stored on ice until RNA concentration determined by UV absorbance using a NanoDrop Spectrophotometer (Thermo). RNA samples were stored at -80°C.

cDNA Synthesis by Reverse Transcription: 300 ng of RNA was diluted to a final volume of 10.8 pL using nuclease-free water (Invitrogen cat#1 0977-01 5) in a PCR-96-AB-C microplate (Axygen cat#32 1-65-051). Added 6.0 pL to each well of reaction mix 1 containing the following: 2.0 pL of 50 pM random decamers (Ambion cat#AM5722G) and 4.0 pL of a 1X dNTP mix (Invitrogen cat#1 0297-01 8). The plate was sealed with optical sealing tape (Applied Biosystems cat# 4360954) and centrifuged for 1.0 min at 1,000 x g at RT. Next, the plate was heated for 3.0 min at 70°C using a 96-well Thermal Cycler GeneAmp PCR System 9700 (Applied Biosystems). The plate was then cooled completely on ice. Next, 3.25 pL of the reaction mix 2 (containing 2 pL of 10X strand buffer, 1.0 pL of MMLV-RT 200U/pL reverse transcriptase enzyme (Ambion cat#2044), and 0.25 pL of RNase inhibitor 40U/pL (Ambion cat#AM2682)) were added to each of the wells. Plate was sealed with optical sealing tape and centrifuged for 1.0 min at 1,000 x g at RT. Using a 96-well Thermal Cycler, the plate was heated at 42°C for 60 min proceeded by 95°C for 10min. Then, the plates were cooled on ice. The cDNA plates were stored at -20°C until ready to use for PCR analysis.

qPCR for amplification and quantification of alpha synuclein and GAPDH mRNA expression: cDNA was diluted 5-fold in nuclease free water in a PCR-96-AB-C microplate. 16 µL of Master Mix solution consisting of the following: 10 µl_ of 2X Taqman Gene Expression Master Mix (Applied Biosystems cat#4369016), 1.0 µl_ of 20X Taqman primer-probe set (Applied Biosystems), and 5.0 µl_ of nuclease-free water, was added to each well of a 384-well optical PCR plate (Applied Biosystems cat#4483315). 4.0 µl_ of diluted cDNA was added to each well of the 384-well optical PCR plate. Plate was sealed with optical sealing tape and centrifuged for 1.0 min at 1,000 x g at RT. PCR was performed on the Applied Biosystems 700 HT Fast Real-Time PCR System using the following parameters in standard mode: 50°C for 2.0 min, 95°C for 10 min, followed by 40 cycles of 95°C for 15 secs and 60°C for 1.0 min.

qRT-PCR primer-probe sets: Primer-probes sets from Applied Biosystems (Thermo Fisher) included the following:

Fluman alpha synuclein (cat#Hs01 103383_m1) FAM labelled

Human PROS1 (cat#HS00165590_m1) FAM labelled

Cyno alpha synuclein (cat#Mf02793033_m1) FAM labelled

Cyno GAPDH (cat#Mf04392546_g1) FAM labelled

Cyno GAPDH (cat#Mf04392546_g1) VIC labelled Primer Limited

Rat alpha synuclein (cat#Rn01425141_m1) FAM labelled

Rat GAPDH (cat#Rn01775763-g1) FAM labelled

Rat GAPDH (cat#4352338E) VIC labelled Primer Limited

Mouse GAPDH (cat#Mm99999915-g1) FAM labelled

Mouse GAPDH (cat#4352339E) VIC labelled Primer Limited.

The results are shown in Table 6 below.

Table 6 shows the tolerability score ("Tox Score") and the percent reduction (or knockdown, "KD") of both the *SNCA* mRNA and SNCA protein expression in ASO-treated A53T-PAC transgenic or WT (wild-type) mice. The tolerability scores are provided for days 1 (1D) and 28 (28D) post ASO administration. The percent reduction in *SNCA* mRNA and SNCA protein expression is shown for days 3 (3D) and 28 (28D) post ASO administration in the hippocampus (Hippo), brain stem (BS), and striatum (Str).

ASO_NO	Tox Score @1D	3D mRNA %KD	Tox Score @28D	Tox Score WT @28D	28D mRNA %KD Hippo	28D mRNA %KD BS	28D mRNA %KD Str	28D protein %KD Hippo	28D protein %KD BS	28D protein %KD Str
001221	1.17									
001233	4.67									
001268	3.33	40.44	1.11		46.53			6	18	28

ASO_NO	Tox Score @1D	3D mRNA %KD	Tox Score @28D	Tox Score WT @28D	28D mRNA %KD Hippo	28D mRNA %KD BS	28D mRNA %KD Str	28D protein %KD Hippo	28D protein %KD BS	28D protein %KD Str
001281	2									
001282	0.17									
001308	1									
001310	8.67									
001318	2.4									
001328	1.33		3.7		76.07					
001334	6.67									
001344	5.17									
001357	1.83									
001363	1.67									
001365	3									
001367	0.5									
001384	0									
001395	0.33									
001467	7									
001468	2		1		44.52					
001471	0									
001481	0									
001484	0									
001486	9									
001532	2.4									
001537	2.5									
001549	4									
001554	0.67									
001560	0									
001561	3.67									
001582	3.33									
001585	1.83									
001605	2.67		0.9		68.71					
001606	1.17		0.38		35.19					
001638	0.17									
001639	1.8		3.22		45.2					
001665	1.83	48.79	0.85		42.43	37.6	29.78	40	39	23
001669	6									
001671	8.5									
001673	2.33									
001677	14.67									
001694	4.33									
001702	1.2		3.11		40.84					
001730	1.33									
001755	1.83									
001757	3.17									

ASO_NO	Tox Score @1D	3D mRNA %KD	Tox Score @28D	Tox Score WT @28D	28D mRNA %KD Hippo	28D mRNA %KD BS	28D mRNA %KD Str	28D protein %KD Hippo	28D protein %KD BS	28D protein %KD Str
001774	5.83									
002041	10.33									
002686	6									
002690	4.67									
002692	10.17									
002693	4.67									
002694	2.92	68.84	20							
002705	13									
002730	7									
002738	0.5	61.37	0.14		21.86					
002739	2.45	54.89	0		56.01	39.56	31.85			
002761	0.2	56.99	0.78		43.68					
002762	0	66.77	0		56.42	44.29	36.57			
002763	0	30.72								
002765	9.33									
002779	5.33	73.12								
002785	1.06	55.86	20							
002798	5.17									
002801	15.67									
002804	0.75	49.67	20							
002805	11.67									
002817	7.83									
002820	0.17	33.91								
002825	3.67	38.94								
002828	3.83	34.63								
002832	3.33	52.91								
002833	2.95	68.25	0.67		36.09	31.75	34.77	32	33	32
002836	3.5	43.36								
002837	6.72	70.55	0		49.92	40.11	32.79			
002838	1.17	39.98								
002842	8.2	67.24	20							
002843	1.67	61.22								
002844	3.33	36.06								
002847	0.17	49.42								
002848	1.25	55.38	1.78							
002849	3.83	30.6								
002850	4.67	49.15								
002852	1	41.36								
002858	3.67	48.1								
002859	9.33	64.97								
002860	6.83	57.18								
002863	1.67	46.96								

ASO_NO	Tox Score @1D	3D mRNA %KD	Tox Score @28D	Tox Score WT @28D	28D mRNA %KD Hippo	28D mRNA %KD BS	28D mRNA %KD Str	28D protein %KD Hippo	28D protein %KD BS	28D protein %KD Str
002864	1.33	48.12								
002867	10.5									
002901	10									
002904	1.12	59.49	1.25							
002906	4.33									
002908	2.5	32.81								
002909	16.33									
002911	2.33	28.97								
002912	1	48.24								
002935	6.33									
002938	4.43	46.49								
002968	3.05	65.11	20							
002982	4.67									
002983	12									
002989	12.67									
002990	10.67									
002991	9									
002992	14									
002993	7.71									
002994	9.33									
002995	2	42.3								
003058	8.67									
003061	4.33	49.84								
003063	0.67	48.41								
003069	0.6	46.48								
003072	9.6									
003080	15.33									
003092	1.78	60.45	0.13		58.79	41.16	42.86			
003172	4.5	49.72								
003173	0.5	58.71	0.8		57.56	34.34	32.72	43	41	51
003175	0.33	60.31			61.03	40.44	43.33			
003176	0.1	64.56	0.13		45.9	23.89	35.99	42	27	27
003177	0	43.64								
003179	0	63.6	1.3		56.07	36.86	-9.84	54	35	56
003181	0.67	44.36								
003198	0.67	46.33								
003199	1.33	43.74								
003202	0	49.56								
003203	7.5									
003206	4	47								
003226	9.67									
003229	1.17	64.32			48.4	37.47	37.26			

ASO_NO	Tox Score @1D	3D mRNA %KD	Tox Score @28D	Tox Score WT @28D	28D mRNA %KD Hippo	28D mRNA %KD BS	28D mRNA %KD Str	28D protein %KD Hippo	28D protein %KD BS	28D protein %KD Str
003231	10									
003279	8.33									
003323	6.67	65.91								
003330	6.83	54.69								
003345	2.52	68.56	0		53.82	34.6	34.81			
003349	0.83	55.42								
004871	7.00	65.13			51.22	45.50	43.72			
004881	16.00									
004885	6.00	58.31			49.31	41.08	52.78			
004901	4.40	63.12			61.97	43.13	44.91			
004902	0.00	59.68			41.82	24.44	19.42			
004903	4.00	46.00								
004910	0.40	45.27								
004913	4.80	48.56								
004917	1.00	32.38								
004932	8.00	49.21								
004934	6.40	44.30								
004936	4.00	33.89								

Example 5: Analysis of *in vivo* Activity and Tolerability of SA/CA-Targeted Antisense Oligonucleotides (ASOs) in Cynomolgous Monkeys

To evaluate the ASO activity and tolerability *in vivo,* an intrathecal ported Cynomolgus monkey model (Cyno IT) was developed. This model enables the evaluation of ASO-003092- or ASO-003179-mediated knockdown of *SNCA* and alpha-synuclein protein SNCA.

As described above in Example 3, each animal was implanted with an intrathecal cerebrospinal fluid (CSF) catheter entering at the L3 or L4 vertebrae. ASO-003179 and ASO-003092 were dissolved in saline and administered to the animals, infused over 4.5 min using the IT port (2 animals per dose group). Each of the animals received one of the following: (i) ASO-0031 79 (8 or 16 mg total) and (ii) ASO-003092 (4 or 8 mg total). Animals were then euthanized at various time points post dosing, when the tissues were harvested for analysis of the ASO exposure and activity. Brain regions analyzed included medulla (Med), pons (V-Pons), midbrain (V-MB), cerebellum (CBL), caudate-putamen (left and right) (CauP), hippocampus (left and right) (Hip), frontal cortex (left and right) (FrC), temporal cortex (left and right) (TeC), parietal cortex (left and right) (PaC), occipital cortex (left and right) (Occ), and cortical white matter (WM). Additionally, spinal cord was sampled at the cervical (CSC), thoracic (TSC), and lumbar (LSC) regions. Samples were also

collected from liver, kidney, heart, trigeminal nuclei, tibial nerve, and aorta to examine off-target pharmacology in those areas.

The ASOs were well tolerated in cyno with no adverse effects being observed (data not shown). And as shown in Figures. 3 and 4 and Table 7 below, the administration of ASO-003179 resulted in the reduction of *SNCA* mRNA expression in all brain tissues analyzed at 2 weeks post dosing at a dose of both 8 mg and 16 mg. (Figure 3). For ASO-003092, reduction was observed in the frontal cortex and the lumbar spinal cord but not in other tissues at 2 weeks post dosing (Figure 4).

Table 7: Effect of ASOs on brain *SNCA* mRNA levels in cyno brain

ASO No.	Dose (mg)	Time point (weeks)	Med	CBL	FrC	PaC	CauP	TeC	Occ	Hip	V-MB	V-Pons	CSC	TSC	LSC	WM
003092	4	2	87	132	61	78	111	54	90	58	82	105	70	59	29	65
	8	2	93	102	69	95	94	38	71	61	77	86	60	33	23	57
003179	4	2	132	110	66	121	126	56	95	101	143	133	100	119	34	123
	8	2	44	44	24	39	57	18	34	43	46	58	57	35	19	60
	8	2	49	72	45	71	106	46	63	79	107	73	48	42	7	80
	16	2	70	85	38	55	70	29	41	51	61	58	20	21	12	56

The results presented here demonstrate that the SNCA-specific ASOs disclosed herein (e.g., ASO-003092 and ASO-003179) effectively reduce *SNCA* mRNA and are well tolerated in neurons and studies in preclinical species *in vivo.* Moreover, results from the A53T-PAC neurons confirm that ASO-003092- and ASO-003179-mediated reductions of mRNA result in reductions of SNCA protein levels *in vitro* and *in vivo.* Taken together, these findings support the continued development of SNCA-specific ASOs as a disease-modifying therapeutic for the treatment of synucleinopathies.

CLAIMS

1. An antisense oligonucleotide comprising a contiguous nucleotide sequence of 10 to 30 nucleotides in length wherein the contiguous nucleotide sequence is at least 90% complementary to an intron region within an alpha-synuclein (*SNCA)* transcript.

2. The antisense oligonucleotide of claim 1, wherein the intron region is selected from intron 1 corresponding to nucleotides 6336 - 7604 of SEQ ID NO: 1; intron 2 corresponding to nucleotides 7751 - 151 12 of SEQ ID NO: 1; intron 3 corresponding to nucleotides 15155 - 20908 of SEQ ID NO: 1 or intron 4 corresponding to nucleotides 21052 - 114019 of SEQ ID NO: 1.

3. the antisense oligonucleotide of claim 1, wherein the contiguous nucleotide sequence is at least 90% complementary to a nucleic acid sequence within an alpha-synuclein *(SNCA)* transcript, wherein the nucleic acid sequence is selected from the group consisting of

   i) nucleotides 21052 - 29654 of SEQ ID NO: 1;
   ii) nucleotides 30931 - 33938 of SEQ ID NO: 1;
   iii) nucleotides 44640 - 44861 of SEQ ID NO: 1;
   iv) nucleotides 47924 - 58752 of SEQ ID NO: 1;
   v) nucleotides 4942 - 5343 of SEQ ID NO: 1;
   vi) nucleotides 6336 - 7041 of SEQ ID NO: 1;
   vii) nucleotides 7329 - 7600 of SEQ ID NO: 1;
   viii)nucleotides 7751 - 7783 of SEQ ID NO: 1;
   ix) nucleotides 8277 - 8501 of SEQ ID NO: 1;
   x) nucleotides 9034 - 9526 of SEQ ID NO: 1;
   xi) nucleotides 9982 - 14279 of SEQ ID NO: 1;
   xii) nucleotides 15204 - 19041 of SEQ ID NO: 1;
   xiii) nucleotides 20351 - 20908 of SEQ ID NO: 1
   xiv)nucleotides 34932 - 37077 of SEQ ID NO: 1;
   xv) nucleotides 38081 - 42869 of SEQ ID NO: 1;
   xvi) nucleotides 38081 - 38303 of SEQ ID NO: 1
   xvii) nucleotides 40218 - 42869 of SEQ ID NO: 1
   xviii) nucleotides 46173 - 46920 of SEQ ID NO: 1;
   xix)nucleotides 60678 - 60905 of SEQ ID NO: 1;
   xx) nucleotides 62066 - 62397 of SEQ ID NO: 1;
   xxi)nucleotides 67759 - 71625 of SEQ ID NO: 1;
   xxii) nucleotides 72926 - 86991 of SEQ ID NO: 1;
   xxiii) nucleotides 88168 - 93783 of SEQ ID NO: 1;
   xxiv) nucleotides 94976 - 102573 of SEQ ID NO: 1;

xxv) nucleotides 104920 - 107438 of SEQ ID NO: 1;

xxvi) nucleotides 106378 - 106755 of SEQ ID NO: 1;

xxvii) nucleotides 106700 - 106755 of SEQ ID NO: 1;

xxviii) nucleotides 108948 - 114019 of SEQ ID NO: 1; and

xxix) nucleotides 114292 - 116636 of SEQ ID NO: 1.

4. The antisense oligonucleotide of any one of claims 1 to 3, wherein the nucleic acid sequence corresponds to nucleotides 24483 - 28791 of SEQ ID NO: 1; nucleotides 32226 - 32242 of SEQ ID NO: 1; nucleotides 44741 - 44758 of SEQ ID NO: 1or nucleotides 48641 - 48659 of SEQ ID NO: 1.

5. The antisense oligonucleotide of any one of claims 1 to 4, wherein the contiguous nucleotide sequence comprises a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 with no more than 2 mismatches.

6. The antisense oligonucleotide of any one of claims 1 to 5, wherein the contiguous nucleotide sequence consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353.

7. The antisense oligonucleotide of any one of claims 1 to 6, wherein the contiguous nucleotide sequence comprises a sequence selected from the group consisting of SEQ ID NO: 276; 278; 296; 295; 325; 328; 326; 329; 330; 327; 332; 333; 331 ; 339; 341 ; 390; 522 and 559.

8. The antisense oligonucleotide of any one of claims 1 to 7, which is a gapmer with at least two nucleotide analogs.

9. The antisense oligonucleotide of any one of claims 1 to 8, which comprises the formula of 5'-A-B-C-3', wherein

a) region B is a contiguous sequence of at least 6 DNA units, which are capable of recruiting RNase;

b) region A is a first wing sequence of 1 to 10 nucleotides, wherein the first wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 3' end of A; and

c) region C is a second wing sequence of 1 to 10 nucleotides, wherein the second wing sequence comprises one or more nucleotide analogues and optionally one or more DNA units and wherein at least one of the nucleotide analogues is located at the 5' end of C.

10. The antisense oligonucleotide of claim 9, wherein region A comprises 1-4 nucleotide analogues, region B consist of 8 to 15 DNA units and region C comprises 2 to 4 nucleotide analogues.

11. The antisense oligonucleotide of any one of claims 8 to 27, wherein the nucleotide analogues are 2' sugar modified nucleosides independently selected from the group consisting of Locked

Nucleic Acid (LNA); 2'-0-alkyl-RNA; 2'-amino-DNA; 2'-fluoro-DNA; arabino nucleic acid (ANA); 2'-fluoro-ANA, hexitol nucleic acid (HNA), intercalating nucleic acid (INA), 2'-0-methyl nucleic acid (2'-OMe), 2'-0-methoxyethyl nucleic acid (2'-MOE), and any combination thereof.

12. The antisense oligonucleotide of claim 11, wherein the LNA is independently selected from the group consisting of cEt, 2',4'-constrained 2'-0-methoxyethyl (cMOE), oxy-LNA, alpha-L-oxy-LNA, beta-D-oxy LNA, 2'-0,4'-C-ethylene-bridged nucleic acids (ENA), amino-LNA, , or thio-LNA.

13. The antisense oligonucleotide of any one of claims 1 to 12, wherein the contiguous nucleotide sequence comprise one or more beta-D-oxy-LNA units.

14. The antisense oligonucleotide of any one of claims 1 to 13, wherein at least 50% the internucleoside linkages within the contiguous nucleotide sequence are phosphorothioate internucleoside linkages.

15. The antisense oligonucleotide of any one of claims 1 to 40, wherein the antisense oligonucleotide has an *in vivo* tolerability less than or equal to a total score of 4, wherein the total score is the sum of a unit score of five categories, which are 1) hyperactivity; 2) decreased activity and arousal; 3) motor dysfunction and/or ataxia; 4) abnormal posture and breathing; and 5) tremor and/or convulsions, and wherein the unit score for each category is measured on a scale of 0-4.

16. The antisense oligonucleotide of any one of claims 1 to 15, which reduces expression of *SNCA* mRNA in a cell by at least 60%, compared to a cell not exposed to the antisense oligonucleotide.

17. The antisense oligonucleotide of claim 1 to 16, wherein the nucleotide sequence comprises, consists essentially of, or consists of a sequence selected from the group consisting of wherein the contiguous nucleotide sequence consists of a sequence selected from SEQ ID NO: 7 to SEQ ID NO: 1302 or SEQ ID NO: 1309-1353 with a design selected from the group consisting of the designs in Figures 1A to 1C, wherein the upper case letter is a sugar modified nucleoside and the lower case letter is DNA.

18. The antisense oligonucleotide of any one of claims 1 to 50, wherein the contiguous nucleotide sequence comprises a sequence and a design selected from the group consisting of:
TTCtctatataacatCACT (SEQ ID NO: 276)
TTTCtctatataacaTCAC (SEQ ID NO: 278);
AACTtttacataccACAT (SEQ ID NO: 296);
AACTtttacataccaCATT (SEQ ID NO: 295);
ATTAttcatcacaatCCA (SEQ ID NO: 325);

ATTAttcatcacaATCC (SEQ ID NO:328);
CattattcatcacaaTCCA (SEQ ID NO:326);
CATtattcatcacaATCC (SEQ ID NO:329);
ACAttattcatcacaaTCC (SEQ ID NO: 330);
AcattattcatcacaaTCCA (SEQ ID NO: 327);
ACATtattcatcacAAT C (SEQ ID NO: 332);
TACAttattcatcacAAT C (SEQ ID NO: 333);
TAcattattcatcacaaTCC (SEQ ID NO: 331);
TTCaacatttttatttCACA (SEQ ID NO:339);
ATTCaacatttttattTCAC (SEQ ID NO: 341);
ACTAtgatacttcACT C (SEQ ID NO: 390);
ACACattaactactCATA (SEQ ID NO: 522) and
GTCAaaatattcttaCTTC (SEQ ID NO:559),
wherein the upper case letters indicate a 2' sugar modified nucleoside analogue and the lower case letters indicate DNAs.

19. The antisense oligonucleotide of any one of claims 1 to 18, wherein the contiguous nucleotide sequence has a the chemical structure selected from the group consisting of ASO-008387; ASO-008388; ASO-008501 ; ASO-008502; ASO-008529; ASO-008530; ASO-008531 ; ASO-008532; ASO-008533; ASO-008534; ASO-008535; ASO-008536; ASO-008537; ASO-008543; ASO-008545; ASO-008584; ASO-008226 and ASO-008261 .

20. A conjugate comprising the antisense oligonucleotide of any one of claims 1 to 19, wherein the antisense oligonucleotide is covalently attached to at least one non-nucleotide or non-polynucleotide moiety.

21. The conjugate of claim 20, wherein the conjugate is an antibody fragment which has a specific affinity for a transferrin receptor.

22. A pharmaceutical composition comprising the antisense oligonucleotide of any one claims 1 to 19 or the conjugate of claim 20 or 21, and a pharmaceutically acceptable carrier.

23. Use of the antisense oligonucleotide of any one claims 1 to 19, or the conjugate of claim 20 or 21, or the composition of claim 22 for the manufacture of a medicament.

24. Use of the antisense oligonucleotide of any one claims 1 to 19, or the conjugate of claim 20 or 21, or the composition of claim 22 for the manufacture of a medicament for the treatment of a synucleinopathy in a subject in need thereof.

25. The antisense oligonucleotide of any one of claims 1 to 19, or the conjugate of claim 20 or 21, or the composition of claim 22 for use in medicine.

26. The antisense oligonucleotide of any one claims 1 to 19, or the conjugate of claim 20 or 21, or the composition of claim 22 for use in the treatment of a synucleinopathy.

27. The antisense oligonucleotide for use in treatment of claim 26, wherein the synucleinopathy is selected from the group consisting of Parkinson's disease, Parkinson's Disease Dementia (PDD), multiple system atrophy, dementia with Lewy bodies, and any combinations thereof.

Figure 1A

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
7	5042	5059			DES-008593	TAacacattttcacCTCT	ASO-008593	OxyTs OxyAs DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAcs OxyMCs OxyTs OxyMCs OxyT
8	5043	5060			DES-008594	TTaacacattttcaCCTC	ASO-008594	OxyTs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas OxyMCs OxyMCs OxyTs OxyMC
9	5044	5061			DES-008595	CTtaacacattttcACCT	ASO-008595	OxyMCs OxyTs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAcs OxyAs OxyMCs OxyMCs OxyT
10	5044	5062			DES-008596	GcttaacacattttcacCT	ASO-008596	OxyGs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAcs OxyMCs OxyT
11	5045	5062			DES-008597	GCttaacacattttcaCC	ASO-008597	OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs DNAas OxyMCs OxyMC
12	5045	5063			DES-008598	CGcttaacacattttcaCC	ASO-008598	OxyMCs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas OxyMCs OxyMC
13	5046	5063			DES-008600	CGCttaacacattttCAC	ASO-008600	OxyMCs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyMC
14	5047	5063			DES-008599	CGCttaacacatttTCA	ASO-008599	OxyMCs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAts OxyTs OxyMCs OxyA
15	5047	5064			DES-008601	TCGcttaacacattTTCA	ASO-008601	OxyTs OxyMCs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts OxyTs OxyTs OxyMCs OxyA
16	5048	5064			DES-008602	TCGCttaacacattTTC	ASO-008602	OxyTs OxyMCs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts OxyTs OxyTs OxyMC
17	5048	5065			DES-008603	ATCGcttaacacatTTTC	ASO-008603	OxyAs OxyTs OxyMCs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
18	5050	5066			DES-008604	CATCgcttaacacATTT	ASO-008604	OxyMCs OxyAs OxyTs OxyMCs DNAgs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs OxyAs OxyTs OxyTs OxyT
19	5223	5240			DES-008605	CATCatatccaatttCTT	ASO-008605	OxyMCs OxyAs OxyTs OxyMCs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyT
20	5223	5241			DES-008607	CcatcatatccaattTCTT	ASO-008607	OxyMCs DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyT
21	5223	5242			DES-008609	ACcatcatatccaatttCTT	ASO-008609	OxyAs OxyMCs DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyT
22	5224	5241			DES-008606	CCatcatatccaattTCT	ASO-008606	OxyMCs OxyMCs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyT
23	5225	5242			DES-008608	ACCAtcatatccaattTC	ASO-008608	OxyAs OxyMCs OxyMCs OxyAs DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMC
24	5226	5243			DES-008610	GACCatcatatccaatTT	ASO-008610	OxyGs OxyAs OxyMCs OxyMCs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyT
26	6426	6445			DES-001324	AAggagcgcacaggaaggGC	ASO-001324	OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs DNAgs OxyGs OxyMC
25	6426	6441			DES-001465	AGcgcacaggaaggGC	ASO-001465	OxyAs OxyGs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs DNAgs OxyGs OxyMC
27	6426	6443			DES-001762	GGagcgcacaggaaggGC	ASO-001762	OxyGs OxyGs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs DNAgs OxyGs OxyMC
29	6427	6444			DES-001760	AGgagcgcacaggaagGG	ASO-001760	OxyAs OxyGs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs OxyGs OxyG
30	6427	6446			DES-001773	AAaggagcgcacaggaagGG	ASO-001773	OxyAs OxyAs DNAas DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs OxyGs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
30	6427	6446			DES-001776	AAAggagcgcacaggaagGG	ASO-001776	OxyAs OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas DNAgs OxyGs OxyG
32	6428	6445			DES-001712	AAggagcgcacaggaAGG	ASO-001712	OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas OxyAs OxyGs OxyG
32	6428	6445			DES-001752	AAggagcgcacaggaaGG	ASO-001752	OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas OxyGs OxyG
31	6428	6443			DES-001763	GGagcgcacaggaaGG	ASO-001763	OxyGs OxyGs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas DNAas OxyGs OxyG
33	6429	6446			DES-001348	AAAggagcgcacagGAAG	ASO-001348	OxyAs OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs OxyGs OxyAs OxyAs OxyG
34	6429	6444			DES-001414	AGgagcgcacaggaAG	ASO-001414	OxyAs OxyGs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas OxyAs OxyG
34	6429	6444			DES-001482	AGGagcgcacaggaAG	ASO-001482	OxyAs OxyGs OxyGs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs DNAas OxyAs OxyG
33	6429	6446			DES-001690	AAaggagcgcacaggAAG	ASO-001690	OxyAs OxyAs DNAas DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs OxyAs OxyAs OxyG
35	6430	6445			DES-001480	AAGgagcgcacaggAA	ASO-001480	OxyAs OxyAs OxyGs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs DNAgs OxyAs OxyA
36	6431	6446			DES-001279	AAAggagcgcacAGGA	ASO-001279	OxyAs OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs OxyAs OxyGs OxyGs OxyA
36	6431	6446			DES-001442	AAAggagcgcacagGA	ASO-001442	OxyAs OxyAs OxyAs DNAgs DNAgs DNAas DNAgs DNAcs DNAgs DNAcs DNAas DNAcs DNAas DNAgs OxyGs OxyA
38	6466	6485			DES-008402	AACAattcccaaataaTATT	ASO-008402	OxyAs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyT
37	6466	6484			DES-008611	ACAAttcccaaataaTATT	ASO-008611	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
39	6467	6485			DES-008401	AACAattcccaaataATAT	ASO-008401	OxyAs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas OxyAs OxyTs OxyAs OxyT
40	6467	6486			DES-008403	AAACaattcccaaataATAT	ASO-008403	OxyAs OxyAs OxyAs OxyMCs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas OxyAs OxyTs OxyAs OxyT
42	6468	6487			DES-001347	TAAAcaattcccaaatAATA	ASO-001347	OxyTs OxyAs OxyAs OxyAs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAts OxyAs OxyAs OxyTs OxyA
41	6468	6485			DES-001582	AACAattcccaaatAATA	ASO-001582	OxyAs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts OxyAs OxyAs OxyTs OxyA
43	6469	6488			DES-001337	TTAaacaattcccaaaTA	ASO-001337	OxyTs OxyTs OxyAs DNAas DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas OxyTs OxyAs OxyAs OxyT
43	6469	6488			DES-001552	TTAAacaattcccaaaTA	ASO-001552	OxyTs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas OxyTs OxyAs OxyAs OxyT
44	6470	6487			DES-001578	TAAAcaattcccaaATAA	ASO-001578	OxyTs OxyAs OxyAs OxyAs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas OxyAs OxyTs OxyAs OxyA
45	6471	6488			DES-001584	TTAAacaattcccaAATA	ASO-001584	OxyTs OxyTs OxyAs OxyAs DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas OxyAs OxyAs OxyTs OxyA
46	6472	6489			DES-002709	TTTAaacaattcccAAAT	ASO-002709	OxyTs OxyTs OxyTs OxyAs DNAas DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAcs OxyAs OxyAs OxyAs OxyT
47	6473	6490			DES-003225	ATTTaaacaattccCAAA	ASO-003225	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAcs OxyMCs OxyAs OxyAs OxyA
48	6476	6493			DES-003224	AAAAtttaaacaatTCCC	ASO-003224	OxyAs OxyAs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAts OxyTs OxyMCs OxyMCs OxyMC
49	6477	6494			DES-003223	AAAAatttaaacaaTTCC	ASO-003223	OxyAs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
50	6520	6535			DES-002683	CAcaactccgactcCT	ASO-002683	OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAmcs DNAgs DNAas DNAcs DNAts DNAcs OxyMCs OxyT
51	6521	6536			DES-002686	CCacaactccgaCTCC	ASO-002686	OxyMCs OxyMCs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAmcs DNAgs DNAas OxyMCs OxyTs OxyMCs OxyMC
52	6522	6537			DES-002685	TCcacaactccgaCTC	ASO-002685	OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAmcs DNAgs DNAas OxyMCs OxyTs OxyMC
53	6523	6538			DES-002684	CTCcacaactccgaCT	ASO-002684	OxyMCs OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAmcs DNAgs DNAas OxyMCs OxyT
54	6526	6541			DES-002788	CTTCtccacaactccCG	ASO-002788	OxyMCs OxyTs OxyTs OxyMCs DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs OxyMCs OxyG
55	6741	6758			DES-001405	AAGggaatatcagaagCA	ASO-001405	OxyAs OxyAs OxyGs DNAgs DNAgs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAgs DNAas DNAgs DNAgs OxyMCs OxyA
55	6741	6758			DES-001497	AAGggaatatcagaaGCA	ASO-001497	OxyAs OxyAs OxyGs DNAgs DNAgs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAgs DNAas DNAgs OxyGs OxyMCs OxyA
56	6765	6782			DES-002776	CCtaatctctcagcCcTT	ASO-002776	OxyMCs OxyMCs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAgs DNAcs OxyMCs DNAcs OxyTs OxyT
56	6765	6782			DES-002777	CCtaatctctcagcCCTT	ASO-002777	OxyMCs OxyMCs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAgs DNAcs OxyMCs OxyMCs OxyTs OxyT
57	6767	6782			DES-002775	CctaatctctcagcCC	ASO-002775	OxyMCs DNAcs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAgs DNAcs OxyMCs OxyMC
58	6811	6824			DES-002753	ATCctcgcgtttCC	ASO-002753	OxyAs OxyTs OxyMCs DNAcs DNAts DNAmcs DNAgs DNAmcs DNAgs DNAts DNAts DNAts OxyMCs OxyMC
59	6812	6825			DES-002767	CATCctcgcgttTC	ASO-002767	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAmcs DNAgs DNAmcs DNAgs DNAts DNAts OxyTs OxyMC
61	6923	6940			DES-006753	CACTtccatttcattaTT	ASO-006753	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas DNAas DNAts DNAts OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
60	6923	6941			DES-008404	GCacttccatttcattaTT	ASO-008404	OxyGs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAas OxyTs OxyT
62	7429	7445			DES-008405	AtttagcatctccCATC	ASO-008405	OxyAs DNAts DNAts DNAts DNAas DNAgs DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyAs OxyTs OxyMC
63	7481	7498			DES-008406	TACActcatttaacCATT	ASO-008406	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs OxyMCs OxyAs OxyTs OxyT
64	7481	7499			DES-008408	GTACactcatttaaccaTT	ASO-008408	OxyGs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAcs DNAas OxyTs OxyT
65	7482	7499			DES-008407	GTACactcatttaacCAT	ASO-008407	OxyGs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs OxyMCs OxyAs OxyT
66	7483	7499			DES-008409	GTAcactcatttaaCCA	ASO-008409	OxyGs OxyTs OxyAs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyA
67	7483	7500			DES-008410	TGtacactcatttaACCA	ASO-008410	OxyTs OxyGs DNAts DNAas DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas OxyAs OxyMCs OxyMCs OxyA
68	7484	7500			DES-008411	TGTAcactcatttaACC	ASO-008411	OxyTs OxyGs OxyTs OxyAs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas OxyAs OxyMCs OxyMC
69	7640	7655	274	289	DES-000875	GAaagtcctttcATGA	ASO-000875	OxyGs OxyAs DNAas DNAas DNAgs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyGs OxyA
70	7641	7656	275	290	DES-000873	TGaaagtcctttCATG	ASO-000873	OxyTs OxyGs DNAas DNAas DNAas DNAgs DNAts DNAcs DNAcs DNAts DNAts DNAts OxyMCs OxyAs OxyTs OxyG
71	7645	7660	279	294	DES-000871	CCTttgaaagtccTTT	ASO-000871	OxyMCs OxyMCs OxyTs DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs DNAts DNAcs DNAcs OxyTs OxyTs OxyT
71	7645	7660	279	294	DES-000935	CCtttgaaagtcctTT	ASO-000935	OxyMCs OxyMCs DNAts DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs DNAts DNAcs DNAcs DNAts OxyTs OxyT
71	7645	7660	279	294	DES-000936	CCtttgaaagtccTTT	ASO-000936	OxyMCs OxyMCs DNAts DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs DNAts DNAcs DNAcs OxyTs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
71	7645	7660	279	294	DES-000937	CCTttgaaagtcctTT	ASO-000937	OxyMCs OxyMCs OxyTs DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs DNAts DNAcs DNAcs DNAts OxyTs OxyT
71	7645	7660	279	294	DES-000938	CCTttgaaagtcCTTT	ASO-000938	OxyMCs OxyMCs OxyTs DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs DNAts DNAcs OxyMCs OxyTs OxyTs OxyT
71	7645	7660	279	294	DES-000939	CCTTtgaaagtccTTT	ASO-000939	OxyMCs OxyMCs OxyTs OxyTs DNAts DNAgs DNAas DNAas DNAgs DNAts DNAcs DNAcs OxyTs OxyTs OxyT
71	7645	7660	279	294	DES-000940	CCTTtgaaagtcCTTT	ASO-000940	OxyMCs OxyMCs OxyTs OxyTs DNAts DNAgs DNAas DNAas DNAgs DNAts DNAcs OxyMCs OxyTs OxyTs OxyT
72	7646	7661	280	295	DES-001419	GCctttgaaagtcCTT	ASO-001419	OxyGs OxyMCs DNAcs DNAts DNAts DNAgs DNAas DNAas DNAgs DNAts DNAcs OxyMCs OxyTs OxyT
73	7647	7662	281	296	DES-000872	GGCctttgaaagtcCT	ASO-000872	OxyGs OxyGs OxyMCs DNAcs DNAts DNAts DNAgs DNAas DNAas DNAgs DNAts DNAcs OxyMCs OxyT
74	7649	7664	283	298	DES-001432	TTggcctttgaaagTC	ASO-001432	OxyTs OxyTs DNAgs DNAgs DNAcs DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAgs OxyTs OxyMC
75	7668	7683	302	317	DES-000874	AGcagccacaactcCC	ASO-000874	OxyAs OxyGs DNAcs DNAas DNAgs DNAcs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs OxyMCs OxyMC
76	8377	8396			DES-006752	TCAAtttctttattctTTTA	ASO-006752	OxyTs OxyMCs OxyAs OxyAs DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts OxyTs OxyTs OxyTs OxyA
77	8378	8397			DES-006751	ATCAatttctttattcTTTT	ASO-006751	OxyAs OxyTs OxyMCs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs OxyTs OxyTs OxyTs OxyT
78	8380	8398			DES-008418	CATCaatttctttatTCTT	ASO-008418	OxyMCs OxyAs OxyTs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyT
79	8381	8398			DES-006750	CATCaatttctttaTTCT	ASO-006750	OxyMCs OxyAs OxyTs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas OxyTs OxyTs OxyMCs OxyT
80	8382	8399			DES-008419	GCAtcaatttctttATTC	ASO-008419	OxyGs OxyMCs OxyAs DNAts DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAts OxyAs OxyTs OxyTs OxyMC
81	8384	8401			DES-006749	AAGcatcaatttctTTAT	ASO-006749	OxyAs OxyAs OxyGs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAts OxyTs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
82	9134	9153			DES-008420	AATAtttaaaattaacTCAT	ASO-008420	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAas DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
83	9135	9153			DES-008421	AATAtttaaaattaaCTCA	ASO-008421	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyMCs OxyA
84	9145	9164			DES-008422	ACACttcataaaatatTTAA	ASO-008422	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyA
85	9147	9165			DES-008423	CACActtcataaaatATTT	ASO-008423	OxyMCs OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
86	9147	9166			DES-008424	TCACacttcataaaatATT T	ASO-008424	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
87	9148	9166			DES-008425	TCACacttcataaaaTAT T	ASO-008425	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
88	9148	9167			DES-008426	TTCAcacttcataaaaTAT T	ASO-008426	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
89	9149	9167			DES-008427	TTCAcacttcataaaATA T	ASO-008427	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas OxyAs OxyTs OxyAs OxyT
90	9149	9168			DES-008428	ATTCacacttcataaaATA T	ASO-008428	OxyAs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAas OxyAs OxyTs OxyAs OxyT
91	9150	9168			DES-008429	ATTCacacttcataaAAT A	ASO-008429	OxyAs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas DNAas OxyAs OxyAs OxyTs OxyA
92	9151	9170			DES-008430	TAATtcacacttcataAAA T	ASO-008430	OxyTs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyAs OxyT
93	9153	9171			DES-008431	ATAAttcacacttcaTAAA	ASO-008431	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas OxyTs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
94	9153	9172			DES-008432	TATAattcacacttcaTAAA	ASO-008432	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas OxyTs OxyAs OxyAs OxyA
95	9154	9172			DES-008433	TATAattcacacttcATAA	ASO-008433	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyAs OxyA
96	9182	9199			DES-008434	CAGtattccaaattcCAT	ASO-008434	OxyMCs OxyAs OxyGs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAcs OxyMCs OxyAs OxyT
97	9183	9200			DES-008435	TCagtattccaaattCCA	ASO-008435	OxyTs OxyMCs DNAas DNAgs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyMCs OxyMCs OxyA
98	9382	9398			DES-008436	AGTtcaactctcaaTTA	ASO-008436	OxyAs OxyGs OxyTs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyA
99	9382	9399			DES-008437	AAGTtcaactctcaaTTA	ASO-008437	OxyAs OxyAs OxyGs OxyTs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyA
100	9384	9400			DES-008438	TAAGttcaactctCAAT	ASO-008438	OxyTs OxyAs OxyAs OxyGs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts OxyMCs OxyAs OxyAs OxyT
101	9406	9425			DES-008439	CATTttttatcttaaaTTCT	ASO-008439	OxyMCs OxyAs OxyTs OxyTs DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OxyT
102	9407	9426			DES-008440	TCATttttatcttaaATTC	ASO-008440	OxyTs OxyMCs OxyAs OxyTs DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAas DNAas OxyAs OxyTs OxyTs OxyMC
103	10082	10099			DES-008441	CATAttttttactaATCA	ASO-008441	OxyMCs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAts DNAas OxyAs OxyTs OxyMCs OxyA
104	10082	10100			DES-008442	TCATatttttactaATCA	ASO-008442	OxyTs OxyMCs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAts DNAas OxyAs OxyTs OxyMCs OxyA
105	10082	10101			DES-008444	ATCAtatttttactaATCA	ASO-008444	OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAts DNAas OxyAs OxyTs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
106	10083	10100			DES-008443	TCATatttttactAATC	ASO-008443	OxyTs OxyMCs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAts OxyAs OxyAs OxyTs OxyMC
107	10083	10101			DES-008445	ATCAtatttttactAATC	ASO-008445	OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAts OxyAs OxyAs OxyTs OxyMC
108	10083	10102			DES-008447	AATCatatttttactAATC	ASO-008447	OxyAs OxyAs OxyTs OxyMCs DNAas DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAcs DNAts OxyAs OxyAs OxyTs OxyMC
109	10084	10102			DES-008446	AATCatatttttacTAAT	ASO-008446	OxyAs OxyAs OxyTs OxyMCs DNAas DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyAs OxyT
110	10085	10104			DES-008448	TAAAtcatatttttaCTAA	ASO-008448	OxyTs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts DNAas OxyMCs OxyTs OxyAs OxyA
111	10086	10105			DES-008451	CTAAatcatatttttaACTA	ASO-008451	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts DNAts OxyAs OxyMCs OxyTs OxyA
112	10087	10105			DES-008449	CTAAatcatatttttTACT	ASO-008449	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts DNAts OxyAs OxyMCs OxyT
113	10087	10106			DES-008453	TCTAaatcatatttttTACT	ASO-008453	OxyTs OxyMCs OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAts DNAts DNAts DNAts DNAts OxyTs OxyAs OxyMCs OxyT
114	10088	10105			DES-008450	CTAAatcatatttttTTAC	ASO-008450	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts OxyTs OxyTs OxyAs OxyMC
115	10088	10106			DES-008452	TCTAaatcatatttttTTAC	ASO-008452	OxyTs OxyMCs OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAts DNAts DNAts DNAts DNAts OxyTs OxyTs OxyAs OxyMC
116	10088	10107			DES-008454	TTCTaaatcatatttttTTA C	ASO-008454	OxyTs OxyTs OxyMCs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts OxyTs OxyTs OxyAs OxyMC
117	10089	10108			DES-008455	TTTCtaaatcatatttTTT A	ASO-008455	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAts OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
118	10090	10109			DES-008456	TTTTctaaatcatattTTTT	ASO-008456	OxyTs OxyTs OxyTs OxyTs DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyT
119	10095	10112			DES-008457	CAGTtttctaaatcATAT	ASO-008457	OxyMCs OxyAs OxyGs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs OxyAs OxyTs OxyAs OxyT
120	11057	11073			DES-008458	ATGTatcaaaccaATCA	ASO-008458	OxyAs OxyTs OxyGs OxyTs DNAas DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAas OxyAs OxyTs OxyMCs OxyA
121	11057	11074			DES-008459	CATGtatcaaaccaATCA	ASO-008459	OxyMCs OxyAs OxyTs OxyGs DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAas OxyAs OxyTs OxyMCs OxyA
122	11058	11074			DES-008460	CATGtatcaaaccAATC	ASO-008460	OxyMCs OxyAs OxyTs OxyGs DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAcs OxyAs OxyTs OxyMC
123	11058	11075			DES-008461	CCATgtatcaaaccaaTC	ASO-008461	OxyMCs OxyMCs OxyAs OxyTs DNAgs DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAas DNAas OxyTs OxyMC
124	11059	11075			DES-008462	CCATgtatcaaaCCAAT	ASO-008462	OxyMCs OxyMCs OxyAs OxyTs DNAgs DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs OxyMCs OxyAs OxyAs OxyT
125	11060	11076			DES-008463	ACCatgtatcaaaCCAA	ASO-008463	OxyAs OxyMCs OxyMCs DNAas DNAts DNAgs DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyMCs OxyMCs OxyAs OxyA
126	11992	12010			DES-008464	AGatcctaccatttaCAAC	ASO-008464	OxyAs OxyGs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas OxyMCs OxyAs OxyAs OxyMC
127	11994	12011			DES-008465	AAGAtcctaccatttaCA	ASO-008465	OxyAs OxyAs OxyGs OxyAs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas OxyMCs OxyA
128	12726	12743			DES-006748	TATTacatattcacTAAA	ASO-006748	OxyTs OxyAs OxyTs OxyTs DNAas DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs OxyTs OxyAs OxyAs OxyA
129	13227	13244			DES-008466	AAtctctatctctcATCC	ASO-008466	OxyAs OxyAs DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyAs OxyTs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
130	13228	13245			DES-008467	CAatctctatctctCATC	ASO-008467	OxyMCs OxyAs DNAas DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAts DNAcs DNAts OxyMCs OxyAs OxyTs OxyMC
132	13677	13694			DES-006747	ATTCaaatttactTCCA	ASO-006747	OxyAs OxyTs OxyTs OxyMCs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts OxyTs OxyMCs OxyMCs OxyA
131	13677	13695			DES-008468	GAttcaaatttactTCCA	ASO-008468	OxyGs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts OxyTs OxyMCs OxyMCs OxyA
133	13816	13834			DES-008469	Tttatcacaacctctt TCC	ASO-008469	OxyTs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAts OxyTs OxyMCs OxyMC
134	13820	13837			DES-008470	Ctctttatcacaac CTCT	ASO-008470	OxyMCs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAas DNAcs OxyMCs OxyTs OxyMCs OxyT
135	13822	13839			DES-008472	CACtctttatcacaac CT	ASO-008472	OxyMCs OxyAs OxyMCs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAas DNAcs OxyMCs OxyT
136	13823	13839			DES-008471	CACtctttatcacAACC	ASO-008471	OxyMCs OxyAs OxyMCs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs OxyAs OxyAs OxyMCs OxyMC
137	13823	13840			DES-008474	TCActctttatcacaaCC	ASO-008474	OxyTs OxyMCs OxyAs DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAas OxyMCs OxyMC
138	13823	13841			DES-008475	TTCactctttatcacaaCC	ASO-008475	OxyTs OxyTs OxyMCs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyMC
139	13823	13842			DES-008477	Cttcactctttatcacaac CC	ASO-008477	OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyMC
140	13824	13840			DES-008473	TCACtctttatcaCAAC	ASO-008473	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyMC
141	13824	13841			DES-008476	TTCActctttatcaCAAC	ASO-008476	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
142	13824	13843			DES-008479	CcttcactctttatcaCAAC	ASO-008479	OxyMCs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyMC
143	13825	13844			DES-008482	ACcttcactctttatcaCAA	ASO-008482	OxyAs OxyMCs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyA
144	13826	13843			DES-008478	CCttcactctttatcaCA	ASO-008478	OxyMCs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyA
145	13826	13844			DES-008481	ACcttcactctttatcaCA	ASO-008481	OxyAs OxyMCs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyA
146	13826	13845			DES-008483	Caccttcactctttatcaca	ASO-008483	OxyMCs DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas OxyMCs OxyA
147	13827	13844			DES-008480	ACCttcactctttatcAC	ASO-008480	OxyAs OxyMCs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs OxyAs OxyMC
148	13827	13845			DES-008485	CACcttcactctttatcAC	ASO-008485	OxyMCs OxyAs OxyMCs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs OxyAs OxyMC
149	13828	13845			DES-008484	CACcttcactctttatCA	ASO-008484	OxyMCs OxyAs OxyMCs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts OxyMCs OxyA
150	14039	14056			DES-008486	TATtcatatcctctcTAA	ASO-008486	OxyTs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts DNAcs DNAts OxyTs OxyAs OxyA
151	14162	14179			DES-008487	ATAAgcacattcaaaCTA	ASO-008487	OxyAs OxyTs OxyAs OxyAs DNAgs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAas OxyMCs OxyTs OxyA
152	15304	15322			DES-008488	TTACctatttaaaaaTACT	ASO-008488	OxyTs OxyTs OxyAs OxyMCs DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAas OxyTs OxyAs OxyMCs OxyT
153	15304	15323			DES-008489	TTTAcctatttaaaaaTAC T	ASO-008489	OxyTs OxyTs OxyTs OxyAs DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAas OxyTs OxyAs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
154	15384	15402			DES-008490	TTACtataaattaaaCATA	ASO-008490	OxyTs OxyTs OxyAs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAas DNAts DNAts DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyA
155	15620	15639			DES-008494	CTATaccataacaataCAAA	ASO-008494	OxyMCs OxyTs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyA
156	15621	15638			DES-008491	TATAccataacaatACAA	ASO-008491	OxyTs OxyAs OxyTs OxyAs DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs OxyAs OxyA
157	15621	15639			DES-008493	CTATaccataacaatACAA	ASO-008493	OxyMCs OxyTs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs OxyAs OxyA
158	15622	15640			DES-008305	GCtataccataacaaTACA	ASO-008305	OxyGs OxyMCs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyMCs OxyA
159	15622	15639			DES-008492	CTATaccataacaaTACA	ASO-008492	OxyMCs OxyTs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyMCs OxyA
160	15623	15641			DES-008306	AGCtataccataacaaTAC	ASO-008306	OxyAs OxyGs OxyMCs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyMC
161	15623	15639			DES-008495	CTATaccataacaATAC	ASO-008495	OxyMCs OxyTs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas OxyAs OxyTs OxyAs OxyMC
162	15623	15640			DES-008496	GCTAtaccataacaaTAC	ASO-008496	OxyGs OxyMCs OxyTs OxyAs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyMC
163	15624	15641			DES-008307	AGCTataccataacaATA	ASO-008307	OxyAs OxyGs OxyMCs OxyTs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAas OxyAs OxyTs OxyA
164	15625	15642			DES-008308	TAGCtataccataacAAT	ASO-008308	OxyTs OxyAs OxyGs OxyMCs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyT
165	15626	15642			DES-008309	TAGCtataccataACAA	ASO-008309	OxyTs OxyAs OxyGs OxyMCs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas OxyAs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
166	15626	15643			DES-008310	ATAGctataccataACAA	ASO-008310	OxyAs OxyTs OxyAs OxyGs DNAcs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas OxyAs OxyMCs OxyAs OxyA
167	15627	15643			DES-008311	ATAGctataccatAACA	ASO-008311	OxyAs OxyTs OxyAs OxyGs DNAcs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts OxyAs OxyAs OxyMCs OxyA
168	15627	15644			DES-008312	AATAgctataccatAACA	ASO-008312	OxyAs OxyAs OxyTs OxyAs DNAgs DNAcs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts OxyAs OxyAs OxyMCs OxyA
169	15628	15644			DES-008313	AATAgctataccaTAAC	ASO-008313	OxyAs OxyAs OxyTs OxyAs DNAgs DNAcs DNAts DNAas DNAts DNAas DNAcs DNAcs DNAas OxyTs OxyAs OxyAs OxyMC
170	16039	16056			DES-008314	TAAGattcccatatCATT	ASO-008314	OxyTs OxyAs OxyAs OxyGs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAts DNAas DNAts OxyMCs OxyAs OxyTs OxyT
172	16489	16508			DES-006745	TTCAcaatatcatattTAT A	ASO-006745	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyA
173	16489	16506			DES-006746	CACAatatcatattTATA	ASO-006746	OxyMCs OxyAs OxyMCs OxyAs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyAs OxyTs OxyA
171	16489	16507			DES-008315	TCACaatatcatattTATA	ASO-008315	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAts DNAas DNAts OxyTs OxyAs OxyTs OxyA
176	16490	16507			DES-006744	TCACaatatcatatTTAT	ASO-006744	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT
174	16490	16508			DES-008316	TTCAcaatatcatatTTAT	ASO-008316	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT
175	16490	16509			DES-008317	CTTCacaatatcatatTTA T	ASO-008317	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyTs OxyAs OxyT
178	16491	16508			DES-006743	TTCAcaatatcataTTTA	ASO-006743	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAts DNAas DNAts OxyTs OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
177	16491	16509			DES-008318	CTTCacaatatcataTTTA	ASO-008318	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
179	16492	16509			DES-008319	CTTCacaatatcatATTT	ASO-008319	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAcs DNAas DNAts DNAas OxyAs OxyTs OxyTs OxyT
180	16493	16510			DES-008320	GCTtcacaatatcaTATT	ASO-008320	OxyGs OxyMCs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAas OxyTs OxyAs OxyTs OxyT
181	16494	16511			DES-008321	TGCttcacaatatcATAT	ASO-008321	OxyTs OxyGs OxyMCs DNAts DNAts DNAcs DNAas DNAas DNAas DNAts DNAcs OxyAs OxyTs OxyAs OxyT
182	16495	16512			DES-008322	ATGCttcacaatatcATA	ASO-008322	OxyAs OxyTs OxyGs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyAs OxyTs OxyA
183	16591	16608			DES-008323	CTTCcttcaactactAAAT	ASO-008323	OxyMCs OxyTs OxyTs OxyMCs DNAcs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyAs OxyAs OxyAs OxyT
184	16593	16611			DES-008324	GTtcttcctcaactactAA	ASO-008324	OxyGs OxyTs DNAts DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyAs OxyA
185	17057	17074			DES-008325	Actagtttcattcaa CCC	ASO-008325	OxyAs DNAcs DNAts DNAas DNAgs DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas OxyMCs OxyMCs OxyMC
186	17058	17074			DES-008326	ACTAgtttcattcaaCC	ASO-008326	OxyAs OxyMCs OxyTs OxyAs DNAgs DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas OxyMCs OxyMC
187	17059	17075			DES-008327	CACTagtttcattCAAC	ASO-008327	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAgs DNAts DNAts DNAts DNAcs DNAas DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
188	17298	17316			DES-008328	CTTtatattaaataaCCCT	ASO-008328	OxyMCs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAas OxyMCs OxyMCs OxyMCs OxyT
189	17298	17317			DES-008330	ACtttatattaaataaCCCT	ASO-008330	OxyAs OxyMCs DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAas OxyMCs OxyMCs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
190	17299	17317			DES-008329	ACTTtatattaaataACCC	ASO-008329	OxyAs OxyMCs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas OxyAs OxyMCs OxyMCs OxyMC
191	17303	17320			DES-006742	AGCActttatattaAATA	ASO-006742	OxyAs OxyGs OxyMCs OxyAs DNAcs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAts DNAas OxyAs OxyAs OxyTs OxyA
192	17327	17345			DES-008331	TTATttcttctcataATTA	ASO-008331	OxyTs OxyTs OxyAs OxyTs DNAts DNAts DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAas OxyAs OxyTs OxyTs OxyA
193	17655	17671			DES-008332	TTGAtattatctaACTA	ASO-008332	OxyTs OxyTs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAts DNAas OxyAs OxyMCs OxyTs OxyA
194	17657	17673			DES-008333	CATTgatattatcTAAC	ASO-008333	OxyMCs OxyAs OxyTs OxyTs DNAgs DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAcs OxyTs OxyAs OxyAs OxyMC
195	17890	17907			DES-006741	TAAGaatcaaaaccTTCA	ASO-006741	OxyTs OxyAs OxyAs OxyGs DNAas DNAas DNAts DNAcs DNAas DNAas DNAas DNAas DNAcs DNAcs OxyTs OxyTs OxyMCs OxyA
196	17891	17908			DES-006740	ATAAgaatcaaaacCTTC	ASO-006740	OxyAs OxyTs OxyAs OxyAs DNAgs DNAas DNAas DNAts DNAcs DNAas DNAas DNAas DNAas DNAcs OxyMCs OxyTs OxyTs OxyMC
197	18262	18281			DES-006739	TTTCtttatattatttCATA	ASO-006739	OxyTs OxyTs OxyTs OxyMCs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts OxyMCs OxyAs OxyTs OxyA
198	18263	18282			DES-006738	TTTTctttatattattTCAT	ASO-006738	OxyTs OxyTs OxyTs OxyTs DNAcs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyT
199	18500	18518			DES-008334	CACAtttaaaaacatTTCT	ASO-008334	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyMCs OxyT
200	18500	18519			DES-008335	ACACatttaaaaacatTTCT	ASO-008335	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyMCs OxyT
201	18502	18520			DES-008336	GACAcatttaaaaacATTT	ASO-008336	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
202	18503	18521			DES-008337	CGACacatttaaaaaCATT	ASO-008337	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyT
203	18504	18521			DES-008338	CGACacatttaaaaACAT	ASO-008338	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAas OxyAs OxyMCs OxyAs OxyT
204	18505	18522			DES-008339	TCGAcacatttaaaAACA	ASO-008339	OxyTs OxyMCs OxyGs OxyAs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAas OxyAs OxyAs OxyMCs OxyA
205	18569	18586			DES-002733	TATTattataatcaTAAA	ASO-002733	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAcs DNAas OxyTs OxyAs OxyAs OxyA
206	18570	18587			DES-002731	TTATtattataatcATAA	ASO-002731	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAcs OxyAs OxyTs OxyAs OxyA
207	18684	18702			DES-008340	CATAaattttataatATCT	ASO-008340	OxyMCs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAas DNAas DNAts OxyAs OxyTs OxyMCs OxyT
208	18685	18703			DES-008341	CCATaaattttataaTATC	ASO-008341	OxyMCs OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyMC
209	18686	18703			DES-006737	CCATaaattttataATAT	ASO-006737	OxyMCs OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAas OxyAs OxyTs OxyAs OxyT
210	18687	18704			DES-006736	GCCAtaaattttatAATA	ASO-006736	OxyGs OxyMCs OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts OxyAs OxyAs OxyTs OxyA
211	18688	18705			DES-006735	AGCCataaattttaTAAT	ASO-006735	OxyAs OxyGs OxyMCs OxyMCs DNAas DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAas OxyTs OxyAs OxyAs OxyT
212	18689	18706			DES-006734	CAGCcataaattttATAA	ASO-006734	OxyMCs OxyAs OxyGs OxyMCs DNAcs DNAas DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAts OxyAs OxyTs OxyAs OxyA
213	18924	18941			DES-008342	AGCTatttacaattCAAA	ASO-008342	OxyAs OxyGs OxyMCs OxyTs DNAas DNAts DNAts DNAts DNAas DNAcs DNAas DNAas DNAts DNAts OxyMCs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
214	20451	20470			DES-006733	CATActtctatttattTATT	ASO-006733	OxyMCs OxyAs OxyTs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyT
215	20452	20471			DES-006732	ACATacttctatttatTTAT	ASO-006732	OxyAs OxyMCs OxyAs OxyTs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT
216	20453	20472			DES-006731	TACAtacttctattaTTTA	ASO-006731	OxyTs OxyAs OxyMCs OxyAs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAts OxyTs OxyTs OxyA
217	20454	20473			DES-006730	ATACatacttctatttATTT	ASO-006730	OxyAs OxyTs OxyAs OxyMCs DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT
218	20455	20474			DES-006729	AATAcatacttctattTATT	ASO-006729	OxyAs OxyAs OxyTs OxyAs DNAcs DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyT
219	20456	20475			DES-006728	CAATacatacttctatTTA T	ASO-006728	OxyMCs OxyAs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT
220	20457	20474			DES-006727	AATAcatacttctaTTTA	ASO-006727	OxyAs OxyAs OxyTs OxyAs DNAcs DNAas DNAts DNAas DNAcs DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyA
221	20458	20475			DES-006726	CAATacatacttctATTT	ASO-006726	OxyMCs OxyAs OxyAs OxyTs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyTs OxyT
223	20534	20553			DES-006725	TATTtctttatttcaaTTCA	ASO-006725	OxyTs OxyAs OxyTs OxyTs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OxyA
222	20534	20552			DES-008343	ATTTctttatttcaaTTCA	ASO-008343	OxyAs OxyTs OxyTs OxyTs DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMCs OxyA
225	20535	20554			DES-006724	ATATttctttatttcaATTC	ASO-006724	OxyAs OxyTs OxyAs OxyTs DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyTs OxyMC
224	20535	20553			DES-008344	TATTtctttatttcaATTC	ASO-008344	OxyTs OxyAs OxyTs OxyTs DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
226	20536	20555			DES-006723	AATAtttcttatttcAATT	ASO-006723	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs OxyAs OxyAs OxyTs OxyT
227	20538	20555			DES-002732	AATAtttcttattTCAA	ASO-002732	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyA
228	20835	20854			DES-008347	TAaaatcattccacttcCAC	ASO-008347	OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAcs OxyMCs OxyAs OxyMC
229	20836	20853			DES-008345	AAaatcattccactTCCA	ASO-008345	OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyMCs OxyA
230	20836	20854			DES-008346	Taaaatcattccact TCCA	ASO-008346	OxyTs DNAas DNAas DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyMCs OxyA
231	20836	20855			DES-008349	Ttaaaatcattccact TCCA	ASO-008349	OxyTs DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyMCs OxyA
232	20837	20855			DES-008348	TTAAaatcattccact TCC	ASO-008348	OxyTs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyMC
233	20932	20947	450	465	DES-000878	CTCcaacatttgtCAC	ASO-000878	OxyMCs OxyTs OxyMCs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAgs DNAts OxyMCs OxyAs OxyMC
234	20933	20948	451	466	DES-000835	CCtccaacatttgtCA	ASO-000835	OxyMCs OxyMCs DNAts DNAcs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAgs DNAts OxyMCs OxyA
234	20933	20948	451	466	DES-000879	CCtccaacatttgTCA	ASO-000879	OxyMCs OxyMCs DNAts DNAcs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAgs OxyTs OxyMCs OxyA
235	20936	20951	454	469	DES-000876	GCTCctccaacattTG	ASO-000876	OxyGs OxyMCs OxyTs OxyMCs DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyG
236	20971	20986	489	504	DES-001416	TCttctgggctactGC	ASO-001416	OxyTs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAgs DNAgs DNAcs DNAts DNAas DNAcs DNAts OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
237	21017	21032	535	550	DES-000877	TTGacaaagccagTGG	ASO-000877	OxyTs OxyTs OxyGs DNAas DNAcs DNAas DNAas DNAas DNAgs DNAcs DNAcs DNAas DNAgs OxyTs OxyGs OxyG
238	21564	21582			DES-008350	AAAtctacctcaaaaCTAT	ASO-008350	OxyAs OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAcs DNAcs DNAts DNAcs DNAas DNAas DNAas DNAas OxyMCs OxyTs OxyAs OxyT
239	21572	21590			DES-008351	GAATtttaaaatctaCCTC	ASO-008351	OxyGs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAts DNAas OxyMCs OxyMCs OxyTs OxyMC
240	22204	22223			DES-008352	AATAaatatatttcacTCTC	ASO-008352	OxyAs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAas DNAcs OxyTs OxyMCs OxyTs OxyMC
241	22288	22305			DES-006722	CTCCttaatttaatAAAT	ASO-006722	OxyMCs OxyTs OxyMCs OxyMCs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAas DNAas DNAts OxyAs OxyAs OxyAs OxyT
242	22289	22306			DES-006721	CCTCcttaatttaaTAAA	ASO-006721	OxyMCs OxyMCs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAas DNAas OxyTs OxyAs OxyAs OxyA
243	22432	22451			DES-008353	AacttctttctcacaaTTTT	ASO-008353	OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyT
244	22435	22454			DES-008356	TAAAacttctttctcaCAAT	ASO-008356	OxyTs OxyAs OxyAs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyT
245	22436	22454			DES-008354	TAAaacttctttctcACAA	ASO-008354	OxyTs OxyAs OxyAs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
246	22436	22455			DES-008359	ATAAaacttctttctcACAA	ASO-008359	OxyAs OxyTs OxyAs OxyAs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
247	22437	22454			DES-008355	TAAaacttctttctCACA	ASO-008355	OxyTs OxyAs OxyAs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts OxyMCs OxyAs OxyMCs OxyA
248	22437	22455			DES-008357	ATaaaacttctttctCACA	ASO-008357	OxyAs OxyTs DNAas DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts OxyMCs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
249	22437	22456			DES-008361	AATaaaacttctttctCACA	ASO-008361	OxyAs OxyAs OxyTs DNAas DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs DNAts OxyMCs OxyAs OxyMCs OxyA
250	22438	22455			DES-008358	ATAAaacttctttcTCAC	ASO-008358	OxyAs OxyTs OxyAs OxyAs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs OxyTs OxyMCs OxyAs OxyMC
251	22438	22456			DES-008360	AATAaaacttctttcTCAC	ASO-008360	OxyAs OxyAs OxyTs OxyAs DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAcs OxyTs OxyMCs OxyAs OxyMC
252	22439	22457			DES-008362	AAATaaaacttctttCTCA	ASO-008362	OxyAs OxyAs OxyAs OxyTs DNAas DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts OxyMCs OxyTs OxyMCs OxyA
253	22740	22759			DES-008363	TAAtataattattatcCCTA	ASO-008363	OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas DNAts DNAcs OxyMCs OxyMCs OxyTs OxyA
254	22741	22759			DES-008365	TAAtataattattatCCCT	ASO-008365	OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas DNAts OxyMCs OxyMCs OxyMCs OxyT
255	22741	22760			DES-008366	TTAatataattattatCCCT	ASO-008366	OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas DNAts OxyMCs OxyMCs OxyMCs OxyT
256	22742	22759			DES-008364	TAATataattattaTCCC	ASO-008364	OxyTs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas OxyTs OxyMCs OxyMCs OxyMC
257	22742	22760			DES-008367	TTAAtataattattaTCCC	ASO-008367	OxyTs OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas OxyTs OxyMCs OxyMCs OxyMC
258	22742	22761			DES-008368	ATTAatataattattaTCCC	ASO-008368	OxyAs OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAas OxyTs OxyMCs OxyMCs OxyMC
259	22743	22761			DES-008369	ATTAatataattattATCC	ASO-008369	OxyAs OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts OxyAs OxyTs OxyMCs OxyMC
260	23485	23502			DES-008370	GTTtatttccacaaCTAT	ASO-008370	OxyGs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
261	23487	23504			DES-008371	ATGTttatttccacaACT	ASO-008371	OxyAs OxyTs OxyGs OxyTs DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyAs OxyMCs OxyT
262	23488	23505			DES-008372	AATGtttatttccaCAAC	ASO-008372	OxyAs OxyAs OxyTs OxyGs DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAas OxyMCs OxyAs OxyAs OxyMC
263	23741	23760			DES-008374	ACAAattaaatactttCATT	ASO-008374	OxyAs OxyMCs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyAs OxyTs OxyT
264	23742	23760			DES-008373	ACAAattaaatacttTCAT	ASO-008373	OxyAs OxyMCs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyAs OxyT
265	23742	23761			DES-008375	AACAaattaaatacttTCAT	ASO-008375	OxyAs OxyAs OxyMCs OxyAs DNAas DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyAs OxyT
266	23743	23761			DES-008376	AACAaattaaatactTTCA	ASO-008376	OxyAs OxyAs OxyMCs OxyAs DNAas DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAcs DNAts OxyTs OxyTs OxyMCs OxyA
267	23974	23991			DES-008377	ATTAatccacttctaCAA	ASO-008377	OxyAs OxyTs OxyTs OxyAs DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyAs OxyA
268	23974	23992			DES-008379	CATTaatccacttctaCAA	ASO-008379	OxyMCs OxyAs OxyTs OxyTs DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyAs OxyA
269	23974	23993			DES-008382	CcattaatccacttctACAA	ASO-008382	OxyMCs DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts OxyAs OxyMCs OxyAs OxyA
270	23975	23992			DES-008378	CATtaatccacttcTACA	ASO-008378	OxyMCs OxyAs OxyTs DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyAs OxyMCs OxyA
271	23975	23993			DES-008381	CCattaatccacttctaCA	ASO-008381	OxyMCs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyA
272	23976	23992			DES-008380	CATtaatccacttCTAC	ASO-008380	OxyMCs OxyAs OxyTs DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
273	23977	23994			DES-008383	GCcattaatccacttcTA	ASO-008383	OxyGs OxyMCs DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyA
274	23978	23994			DES-008384	GCcattaatccacttCT	ASO-008384	OxyGs OxyMCs DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAts DNAts OxyMCs OxyT
275	24483	24499			DES-008385	CTCTatataacatCACT	ASO-008385	OxyMCs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAts OxyMCs OxyAs OxyMCs OxyT
276	24483	24501			DES-008387	TTCtctatataacatCACT	ASO-008387	OxyTs OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAts OxyMCs OxyAs OxyMCs OxyT
277	24484	24500			DES-008386	TCTCtatataacaTCAC	ASO-008386	OxyTs OxyMCs OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyTs OxyMCs OxyAs OxyMC
278	24484	24502			DES-008388	TTTCtctatataacaTCAC	ASO-008388	OxyTs OxyTs OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyTs OxyMCs OxyAs OxyMC
279	24486	24504			DES-008389	ATTTtctctatataaCATC	ASO-008389	OxyAs OxyTs OxyTs OxyTs DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyMCs OxyAs OxyTs OxyMC
280	24486	24505			DES-008391	AATTttctctatataaCAT C	ASO-008391	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyMCs OxyAs OxyTs OxyMC
281	24487	24505			DES-008390	AATTttctctatataACAT	ASO-008390	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas OxyAs OxyMCs OxyAs OxyT
282	24487	24506			DES-008392	AAATtttctctatataACAT	ASO-008392	OxyAs OxyAs OxyAs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyAs OxyMCs OxyAs OxyT
283	24488	24507			DES-008393	TAAAttttctctatatAACA	ASO-008393	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts OxyAs OxyAs OxyMCs OxyA
284	24489	24507			DES-008394	TAAAttttctctataTAAC	ASO-008394	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
285	24489	24508			DES-008395	ATAAattttctctataTAAC	ASO-008395	OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyMC
286	24490	24508			DES-008396	ATAAattttctctatATAA	ASO-008396	OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts OxyAs OxyTs OxyAs OxyA
287	24490	24509			DES-008397	TATAaattttctctatATAA	ASO-008397	OxyTs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts OxyAs OxyTs OxyAs OxyA
288	24491	24510			DES-008399	ATATaaattttctctaTATA	ASO-008399	OxyAs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyTs OxyA
290	24492	24510			DES-008398	ATATaaattttctctATAT	ASO-008398	OxyAs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyT
289	24492	24511			DES-008400	AATAtaaattttctctATAT	ASO-008400	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyT
291	25483	25502			DES-008497	ATAAattaaaatatttCTCC	ASO-008497	OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyMCs OxyMC
292	25484	25503			DES-008498	TATAaattaaaatattTCTC	ASO-008498	OxyTs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyMC
293	25485	25504			DES-008499	CTATaaattaaaatatTTCT	ASO-008499	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyMCs OxyT
294	25734	25753			DES-008500	AATTtttctttaataaTCAC	ASO-008500	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAas DNAts DNAas DNAas OxyTs OxyMCs OxyAs OxyMC
295	25798	25816			DES-008502	AACTtttacataccaCATT	ASO-008502	OxyAs OxyAs OxyMCs OxyTs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas OxyMCs OxyAs OxyTs OxyT
296	25799	25816			DES-008501	AACTtttacataccACAT	ASO-008501	OxyAs OxyAs OxyMCs OxyTs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs OxyAs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
297	26514	26531			DES-008503	CTTTgacaaacaaaACTA	ASO-008503	OxyMCs OxyTs OxyTs OxyTs DNAgs DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAas DNAas OxyAs OxyMCs OxyTs OxyA
298	26528	26547			DES-008504	ATCCtataatacatttcTTT	ASO-008504	OxyAs OxyTs OxyMCs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAts DNAas DNAcs DNAas DNAs DNAts DNAts DNAcs OxyTs OxyTs OxyT
299	26535	26551			DES-008505	ACTCatcctataaTACA	ASO-008505	OxyAs OxyMCs OxyTs OxyMCs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts DNAas DNAas OxyTs OxyAs OxyMCs OxyA
300	26535	26553			DES-008506	CcactcatcctataaTACA	ASO-008506	OxyMCs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts DNAas DNAas OxyTs OxyAs OxyMCs OxyA
301	26536	26554			DES-008509	CccactcatcctataaTAC	ASO-008509	OxyMCs DNAcs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts DNAas DNAas OxyTs OxyAs OxyMC
302	26537	26554			DES-008507	CCcactcatcctataaTA	ASO-008507	OxyMCs OxyMCs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts DNAas DNAas OxyTs OxyA
303	26538	26554			DES-008508	CCcactcatcctatAAT	ASO-008508	OxyMCs OxyMCs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts OxyAs OxyAs OxyT
304	26539	26557			DES-008510	TAtcccactcatcctatAA	ASO-008510	OxyTs OxyAs DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAcs DNAts DNAas DNAts OxyAs OxyA
305	26864	26881			DES-008511	TAAGtatctcaaaaCATC	ASO-008511	OxyTs OxyAs OxyAs OxyGs DNAts DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyMC
306	27147	27164			DES-006720	GTTTattatcaaatTACA	ASO-006720	OxyGs OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts OxyTs OxyAs OxyMCs OxyA
307	27148	27165			DES-006719	AGTTtattatcaaaTTAC	ASO-006719	OxyAs OxyGs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyAs OxyMC
308	27201	27218			DES-008512	ACAtcttatcctatTTAT	ASO-008512	OxyAs OxyMCs OxyAs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
309	27201	27219			DES-008514	CAcatcttatcctatTTAT	ASO-008514	OxyMCs OxyAs DNAcs DNAas DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyT
310	27201	27220			DES-008517	ACAcatcttatcctattTAT	ASO-008517	OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyT
311	27202	27219			DES-008513	CACAtcttatcctatTTA	ASO-008513	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyA
312	27202	27220			DES-008516	ACAcatcttatcctaTTTA	ASO-008516	OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyA
313	27203	27220			DES-008515	ACAcatcttatcctATTT	ASO-008515	OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts OxyAs OxyTs OxyTs OxyT
314	27211	27230			DES-008519	TAATatataaacacatCTTA	ASO-008519	OxyTs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts OxyMCs OxyTs OxyTs OxyA
315	27212	27230			DES-008518	TAATatataaacacaTCTT	ASO-008518	OxyTs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAas DNAcs DNAas DNAcs DNAas OxyTs OxyMCs OxyTs OxyT
316	27212	27231			DES-008520	ATAAtatataaacacaTCTT	ASO-008520	OxyAs OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAcs DNAas DNAcs DNAas OxyTs OxyMCs OxyTs OxyT
317	27213	27232			DES-008521	AATAatatataaacacATCT	ASO-008521	OxyAs OxyAs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAcs DNAas DNAcs OxyAs OxyTs OxyMCs OxyT
318	27214	27232			DES-008522	AATAatatataaacaCATC	ASO-008522	OxyAs OxyAs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyAs OxyTs OxyMC
319	27805	27823			DES-008523	TAATctatttattcaACAA	ASO-008523	OxyTs OxyAs OxyAs OxyTs DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyAs OxyA
320	27805	27824			DES-008525	ATAAtctatttattcaACAA	ASO-008525	OxyAs OxyTs OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
321	27806	27824			DES-008524	ATAAtctatttattcAACA	ASO-008524	OxyAs OxyTs OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyA
322	27806	27825			DES-008527	AATAatctatttattcAACA	ASO-008527	OxyAs OxyAs OxyTs OxyAs DNAas DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyA
323	27807	27824			DES-008526	ATAAtctatttattCAAC	ASO-008526	OxyAs OxyTs OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
324	27807	27825			DES-008528	AATAatctatttattCAAC	ASO-008528	OxyAs OxyAs OxyTs OxyAs DNAas DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
325	27984	28001			DES-008529	ATTAttcatcacaatCCA	ASO-008529	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAas DNAts OxyMCs OxyMCs OxyA
326	27984	28002			DES-008531	CattattcatcacaaTCCA	ASO-008531	OxyMCs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas OxyTs OxyMCs OxyMCs OxyA
327	27984	28003			DES-008534	AcattattcatcacaaTCCA	ASO-008534	OxyAs DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas OxyTs OxyMCs OxyMCs OxyA
328	27985	28001			DES-008530	ATTAttcatcacaATCC	ASO-008530	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas OxyAs OxyTs OxyMCs OxyMC
329	27985	28002			DES-008532	CATtattcatcacaATCC	ASO-008532	OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas OxyAs OxyTs OxyMCs OxyMC
330	27985	28003			DES-008533	ACAttattcatcacaaTCC	ASO-008533	OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyMCs OxyMC
331	27985	28004			DES-008537	TAcattattcatcacaaTCC	ASO-008537	OxyTs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyMCs OxyMC
332	27986	28003			DES-008535	ACATtattcatcacAATC	ASO-008535	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAts DNAas DNAcs OxyAs OxyAs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
333	27986	28004			DES-008536	TACAttattcatcacAATC	ASO-008536	OxyTs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAcs OxyAs OxyAs OxyTs OxyMC
334	27987	28005			DES-008538	GTACattattcatcaCAAT	ASO-008538	OxyGs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyT
335	27988	28005			DES-008539	GTACattattcatcACAA	ASO-008539	OxyGs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
336	27989	28006			DES-008540	TGTAcattattcatcACA	ASO-008540	OxyTs OxyGs OxyTs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAcs OxyAs OxyMCs OxyA
337	28504	28521			DES-008541	TGTTtcaaactcatAAAT	ASO-008541	OxyTs OxyGs OxyTs OxyTs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAas DNAts OxyAs OxyAs OxyAs OxyT
338	28505	28522			DES-008542	TTGTTtcaaactcaTAAA	ASO-008542	OxyTs OxyTs OxyGs OxyTs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAas OxyTs OxyAs OxyAs OxyA
339	28771	28790			DES-008543	TTCaacattttattttCACA	ASO-008543	OxyTs OxyTs OxyMCs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyMCs OxyA
340	28772	28790			DES-008544	TTCAacattttattTCAC	ASO-008544	OxyTs OxyTs OxyMCs OxyAs DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
341	28772	28791			DES-008545	ATTCaacattttattTCAC	ASO-008545	OxyAs OxyTs OxyTs OxyMCs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
342	28773	28791			DES-008546	ATTCaacattttatTTCA	ASO-008546	OxyAs OxyTs OxyTs OxyMCs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAts OxyTs OxyTs OxyMCs OxyA
343	28773	28792			DES-008547	AATTcaacattttatTTC A	ASO-008547	OxyAs OxyAs OxyTs OxyTs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAas DNAts OxyTs OxyTs OxyMCs OxyA
344	28774	28793			DES-008548	TAATtcaacattttaTTT C	ASO-008548	OxyTs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
345	28775	28794			DES-008549	TTAAttcaacatttttATTT	ASO-008549	OxyTs OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAts OxyAs OxyTs OxyTs OxyT
346	28776	28795			DES-008550	TTTAattcaacattttTATT	ASO-008550	OxyTs OxyTs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts OxyTs OxyAs OxyTs OxyT
347	28777	28796			DES-008551	ATTTaattcaacatttTTAT	ASO-008551	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts OxyTs OxyTs OxyAs OxyT
348	28778	28797			DES-008552	CATTtaattcaacattTTTA	ASO-008552	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyA
349	28779	28797			DES-008553	CATTtaattcaacatTTTT	ASO-008553	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyT
350	28779	28798			DES-008554	TCATttaattcaacatTTTT	ASO-008554	OxyTs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyT
351	28780	28798			DES-008555	TCATttaattcaacaTTTT	ASO-008555	OxyTs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyT
352	28780	28799			DES-008557	CTCAtttaattcaacaTTTT	ASO-008557	OxyMCs OxyTs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyT
353	28781	28799			DES-008556	CTCAtttaattcaacATTT	ASO-008556	OxyMCs OxyTs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
354	28781	28800			DES-008560	ACTCatttaattcaacATTT	ASO-008560	OxyAs OxyMCs OxyTs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
355	28782	28800			DES-008558	ACTCatttaattcaaCATT	ASO-008558	OxyAs OxyMCs OxyTs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
356	28783	28800			DES-008559	ACTCatttaattcaACAT	ASO-008559	OxyAs OxyMCs OxyTs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
357	28784	28802			DES-008561	GAACtcatttaattcAACA	ASO-008561	OxyGs OxyAs OxyAs OxyMCs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyA
358	28787	28804			DES-008562	TTGAactcatttaaTTCA	ASO-008562	OxyTs OxyTs OxyGs OxyAs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas OxyTs OxyTs OxyMCs OxyA
359	29089	29108			DES-006718	TTAAtatcatcaaactACA A	ASO-006718	OxyTs OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAts OxyAs OxyMCs OxyAs OxyA
360	29091	29110			DES-006716	ACTTaatatcatcaaaCT AC	ASO-006716	OxyAs OxyMCs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas OxyMCs OxyTs OxyAs OxyMC
361	29091	29108			DES-006717	TTAATatcatcaaaCTAC	ASO-006717	OxyTs OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas OxyMCs OxyTs OxyAs OxyMC
362	29092	29111			DES-006714	TACTtaatatcatcaaACT A	ASO-006714	OxyTs OxyAs OxyMCs OxyTs DNAts DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyAs OxyMCs OxyTs OxyA
363	29092	29109			DES-006715	CTTAatatcatcaaACTA	ASO-006715	OxyMCs OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyAs OxyMCs OxyTs OxyA
364	29094	29113			DES-006713	CTTActtaatatcatcAAA C	ASO-006713	OxyMCs OxyTs OxyTs OxyAs DNAcs DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs OxyAs OxyAs OxyAs OxyMC
365	29097	29116			DES-006712	TTACttacttaatatcATC A	ASO-006712	OxyTs OxyTs OxyAs OxyMCs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAas DNAts DNAas DNAts DNAcs OxyAs OxyTs OxyMCs OxyA
366	29101	29118			DES-008563	ATTTacttacttaaTATC	ASO-008563	OxyAs OxyTs OxyTs OxyTs DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyMC
367	29101	29119			DES-008564	AATTtacttacttaaTATC	ASO-008564	OxyAs OxyAs OxyTs OxyTs DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyMC
368	29101	29120			DES-008566	CAATttacttacttaaTAT C	ASO-008566	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
369	29102	29120			DES-008567	CAATttacttacttaATAT	ASO-008567	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas OxyAs OxyTs OxyAs OxyT
370	29102	29121			DES-008570	ACAAtttacttacttaATAT	ASO-008570	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas OxyAs OxyTs OxyAs OxyT
371	29103	29120			DES-008565	CAATttacttacttAATA	ASO-008565	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyTs OxyA
372	29103	29121			DES-008568	ACAAtttacttacttAATA	ASO-008568	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyTs OxyA
373	29103	29122			DES-008572	TACAatttacttacttAATA	ASO-008572	OxyTs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyTs OxyA
376	29104	29123			DES-006711	ATACaatttacttactTAA T	ASO-006711	OxyAs OxyTs OxyAs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyT
374	29104	29121			DES-008569	ACAAtttacttactTAAT	ASO-008569	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyTs OxyAs OxyAs OxyT
375	29104	29122			DES-008571	TACAatttacttactTAAT	ASO-008571	OxyTs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyTs OxyAs OxyAs OxyT
377	29105	29124			DES-006710	TATAcaatttacttacTTA A	ASO-006710	OxyTs OxyAs OxyTs OxyAs DNAcs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAcs OxyTs OxyTs OxyAs OxyA
378	29106	29124			DES-008573	TATAcaatttacttaCTTA	ASO-008573	OxyTs OxyAs OxyTs OxyAs DNAcs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas OxyMCs OxyTs OxyTs OxyA
379	29106	29125			DES-008576	TTATacaatttacttaCTT A	ASO-008576	OxyTs OxyTs OxyAs OxyTs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAas OxyMCs OxyTs OxyTs OxyA
380	29107	29125			DES-008575	TTATacaatttacttACTT	ASO-008575	OxyTs OxyTs OxyAs OxyTs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts OxyAs OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
381	29108	29125			DES-008574	TTATacaatttactTACT	ASO-008574	OxyTs OxyTs OxyAs OxyTs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAcs DNAts OxyTs OxyAs OxyMCs OxyT
382	29109	29126			DES-008577	GTTATacaatttacTTAC	ASO-008577	OxyGs OxyTs OxyTs OxyAs DNAts DNAas DNAcs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs OxyTs OxyTs OxyAs OxyMC
383	29244	29261			DES-008578	CCattctaattataCCAT	ASO-008578	OxyMCs OxyMCs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyMCs OxyAs OxyT
384	29245	29261			DES-008579	CCAttctaattataCCA	ASO-008579	OxyMCs OxyMCs OxyAs DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyMCs OxyA
385	29537	29554			DES-008580	CTGAtaatctctctAAAT	ASO-008580	OxyMCs OxyTs OxyGs OxyAs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts OxyAs OxyAs OxyAs OxyT
386	31031	31048			DES-008581	AAtagcatccttccaCAC	ASO-008581	OxyAs OxyAs DNAts DNAas DNAgs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAcs DNAas DNAas OxyMCs OxyAs OxyMC
387	31032	31048			DES-008582	AAtagcatccttcCACA	ASO-008582	OxyAs OxyAs DNAts DNAas DNAgs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAcs OxyMCs OxyAs OxyMCs OxyA
388	31033	31049			DES-008583	CAAtagcatccttcCAC	ASO-008583	OxyMCs OxyAs OxyAs DNAts DNAas DNAgs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAcs OxyMCs OxyAs OxyMC
389	31398	31413			DES-000929	AATaagaaaggaaCGC	ASO-000929	OxyAs OxyAs OxyTs DNAas DNAas DNAgs DNAas DNAas DNAas DNAgs DNAgs DNAas DNAas OxyMCs OxyGs OxyMC
389	31398	31413			DES-000930	AATaagaaaggaACGC	ASO-000930	OxyAs OxyAs OxyTs DNAas DNAas DNAgs DNAas DNAas DNAas DNAgs DNAgs DNAas OxyAs OxyMCs OxyGs OxyMC
389	31398	31413			DES-000931	AATAagaaaggaaCGC	ASO-000931	OxyAs OxyAs OxyTs OxyAs DNAas DNAgs DNAas DNAas DNAas DNAgs DNAgs DNAas DNAas OxyMCs OxyGs OxyMC
389	31398	31413			DES-000932	AATAagaaaggAACGC	ASO-000932	OxyAs OxyAs OxyTs OxyAs DNAas DNAgs DNAas DNAas DNAas DNAgs DNAgs OxyAs OxyAs OxyMCs OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
389	31398	31413			DES-000933	AATAAgaaaggaACGC	ASO-000933	OxyAs OxyAs OxyTs OxyAs OxyAs DNAgs DNAas DNAas DNAas DNAgs DNAgs DNAas OxyAs OxyMCs OxyGs OxyMC
389	31398	31413			DES-000934	AATAAgaaaggAACGC	ASO-000934	OxyAs OxyAs OxyTs OxyAs OxyAs DNAgs DNAas DNAas DNAas DNAgs DNAgs OxyAs OxyAs OxyMCs OxyGs OxyMC
389	31398	31413			DES-000944	AATAagaaaggaACGC	ASO-000944	OxyAs OxyAs OxyTs OxyAs DNAas DNAgs DNAas DNAas DNAas DNAgs DNAgs DNAas OxyAs OxyMCs OxyGs OxyMC
390	32226	32242			DES-008584	ACTAtgatacttcACTC	ASO-008584	OxyAs OxyMCs OxyTs OxyAs DNAts DNAgs DNAas DNAts DNAas DNAcs DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
391	32387	32406			DES-008587	TTACtcctacaaatttTTT T	ASO-008587	OxyTs OxyTs OxyAs OxyMCs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts DNAts DNAts OxyTs OxyTs OxyTs OxyT
392	32388	32406			DES-008586	TTACtcctacaaattTTTT	ASO-008586	OxyTs OxyTs OxyAs OxyMCs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyT
393	32388	32407			DES-008588	ATTActcctacaaattTTT T	ASO-008588	OxyAs OxyTs OxyTs OxyAs DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyT
394	32389	32406			DES-008585	TTACtcctacaaatTTTT	ASO-008585	OxyTs OxyTs OxyAs OxyMCs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyTs OxyT
395	32389	32407			DES-008589	ATTActcctacaaatTTTT	ASO-008589	OxyAs OxyTs OxyTs OxyAs DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyTs OxyT
396	32389	32408			DES-008590	AATTactcctacaaatTTT T	ASO-008590	OxyAs OxyAs OxyTs OxyTs DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyT
397	32390	32409			DES-008591	CAATtactcctacaaaTTT T	ASO-008591	OxyMCs OxyAs OxyAs OxyTs DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyT
398	32391	32409			DES-008113	CAATtactcctacaaATTT	ASO-008113	OxyMCs OxyAs OxyAs OxyTs DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
399	32391	32410			DES-008114	CCAAttactcctacaaatTT	ASO-008114	OxyMCs OxyMCs OxyAs OxyAs DNAts DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas DNAas DNAas OxyTs OxyT
400	32392	32410			DES-008115	CCAAttactcctacaaATT	ASO-008115	OxyMCs OxyMCs OxyAs OxyAs DNAts DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyT
401	32392	32409			DES-008592	CAATtactcctacaAATT	ASO-008592	OxyMCs OxyAs OxyAs OxyTs DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas OxyAs OxyAs OxyTs OxyT
402	33395	33412			DES-008116	TTGTtaccttcaaTAAA	ASO-008116	OxyTs OxyTs OxyGs OxyTs DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyAs OxyA
403	33423	33440			DES-008117	CCAAaaacatacaaCTAT	ASO-008117	OxyMCs OxyMCs OxyAs OxyAs DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyAs OxyT
404	33423	33441			DES-008118	TCCAaaaacatacaaCTA T	ASO-008118	OxyTs OxyMCs OxyMCs OxyAs DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyAs OxyT
405	33423	33442			DES-008119	TTCCaaaacatacaaCT AT	ASO-008119	OxyTs OxyTs OxyMCs OxyMCs DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyAs OxyT
406	33424	33442			DES-008120	TTCCaaaacatacaACT A	ASO-008120	OxyTs OxyTs OxyMCs OxyMCs DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyTs OxyA
407	33424	33443			DES-008123	CTTCcaaaacatacaAC TA	ASO-008123	OxyMCs OxyTs OxyTs OxyMCs DNAcs DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyTs OxyA
408	33425	33443			DES-008121	CTTCcaaaacatacAAC T	ASO-008121	OxyMCs OxyTs OxyTs OxyMCs DNAcs DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyMCs OxyT
409	33426	33443			DES-008122	CTTCcaaaacataCAAC	ASO-008122	OxyMCs OxyTs OxyTs OxyMCs DNAcs DNAas DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyMC
410	33426	33445			DES-008124	TACTtccaaaaacataCA AC	ASO-008124	OxyTs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
412	33427	33445			DES-008125	TACTtccaaaaacatACAA	ASO-008125	OxyTs OxyAs OxyMCs OxyTs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts OxyAs OxyMCs OxyAs OxyA
411	33427	33446			DES-008127	CTACttccaaaaacatACAA	ASO-008127	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts OxyAs OxyMCs OxyAs OxyA
414	33428	33446			DES-008126	CTACttccaaaaacataCA	ASO-008126	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas OxyMCs OxyA
413	33428	33447			DES-008128	TCTActtccaaaaacataCA	ASO-008128	OxyTs OxyMCs OxyTs OxyAs DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAts DNAas OxyMCs OxyA
415	33430	33448			DES-008129	TTCtacttccaaaaaCATA	ASO-008129	OxyTs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyA
416	33430	33449			DES-008132	ATTCtacttccaaaaaCATA	ASO-008132	OxyAs OxyTs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyA
417	33431	33449			DES-008130	ATTCtacttccaaaaACAT	ASO-008130	OxyAs OxyTs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas OxyAs OxyMCs OxyAs OxyT
418	33432	33449			DES-008131	ATTCtacttccaaaAACA	ASO-008131	OxyAs OxyTs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas DNAas DNAas OxyAs OxyAs OxyMCs OxyA
419	33455	33472			DES-008133	AACCaatttctattTACA	ASO-008133	OxyAs OxyAs OxyMCs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyMCs OxyA
420	33455	33473			DES-008134	CAACcaatttctattTACA	ASO-008134	OxyMCs OxyAs OxyAs OxyMCs DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyMCs OxyA
421	33455	33474			DES-008137	ACAaccaatttctattTACA	ASO-008137	OxyAs OxyMCs OxyAs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyMCs OxyA
422	33456	33474			DES-008136	ACAAccaatttctatTTAC	ASO-008136	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
423	33456	33475			DES-008139	AACAaccaatttctatTTA C	ASO-008139	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyMC
424	33457	33474			DES-008135	ACAAccaatttctaTTTA	ASO-008135	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyA
425	33457	33475			DES-008138	AACAaccaatttctaTTTA	ASO-008138	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyA
426	33462	33479			DES-006709	TCTaaacaaccaatTTCT	ASO-006709	OxyTs OxyMCs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyT
427	33819	33838			DES-008141	AACActaccatatattTCA T	ASO-008141	OxyAs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyT
428	33820	33838			DES-008142	AACActaccatatattTTCA	ASO-008142	OxyAs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyA
429	33821	33838			DES-008140	AACActaccatataTTTC	ASO-008140	OxyAs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAas DNAts DNAts OxyTs OxyTs OxyTs OxyMC
430	35032	35049			DES-002735	CCCTcatattctataaTA	ASO-002735	OxyMCs OxyMCs OxyMCs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAas OxyTs OxyA
431	35034	35049			DES-002707	CCCTcatattctATAA	ASO-002707	OxyMCs OxyMCs OxyMCs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
432	35144	35162			DES-008143	AAAAttaatttatttCCCA	ASO-008143	OxyAs OxyAs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAts DNAts OxyMCs OxyMCs OxyMCs OxyA
433	35145	35163			DES-008144	GAAAattaatttatttTCCC	ASO-008144	OxyGs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyMCs OxyMC
434	35248	35266			DES-008145	GAAAatacttaacatTATA	ASO-008145	OxyGs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
435	35361	35378			DES-008146	TGAtattcctaatcTTCT	ASO-008146	OxyTs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAcs OxyTs OxyTs OxyMCs OxyT
436	35362	35379			DES-006708	TTGAtattcctaatCTTC	ASO-006708	OxyTs OxyTs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts OxyMCs OxyTs OxyTs OxyMC
437	35363	35379			DES-008147	TTGAtattcctaaTCTT	ASO-008147	OxyTs OxyTs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas OxyTs OxyMCs OxyTs OxyT
438	36026	36042			DES-008148	CCAGatcaaacatTAAA	ASO-008148	OxyMCs OxyMCs OxyAs OxyGs DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyA
439	36267	36284			DES-008149	TTATtctatcaattATAA	ASO-008149	OxyTs OxyTs OxyAs OxyTs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts DNAts OxyAs OxyTs OxyAs OxyA
440	36267	36285			DES-008151	TTTAttctatcaattATAA	ASO-008151	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts DNAts OxyAs OxyTs OxyAs OxyA
441	36267	36286			DES-008152	TTTTattctatcaattATAA	ASO-008152	OxyTs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts DNAts OxyAs OxyTs OxyAs OxyA
443	36268	36285			DES-008150	TTTAttctatcaatTATA	ASO-008150	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyTs OxyA
444	36268	36286			DES-008153	TTTTattctatcaatTATA	ASO-008153	OxyTs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyTs OxyA
442	36268	36287			DES-008155	ATTTtattctatcaatTATA	ASO-008155	OxyAs OxyTs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyTs OxyA
445	36269	36287			DES-008154	ATTTtattctatcaaTTAT	ASO-008154	OxyAs OxyTs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyAs OxyT
446	36271	36288			DES-008156	GATTttattctatcAATT	ASO-008156	OxyGs OxyAs OxyTs OxyTs DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyAs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
447	36273	36290			DES-008157	CTGAtttattctaTCAA	ASO-008157	OxyMCs OxyTs OxyGs OxyAs DNAts DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAas OxyTs OxyMCs OxyAs OxyA
448	36479	36497			DES-008158	GCAAaaataattccaTAC A	ASO-008158	OxyGs OxyMCs OxyAs OxyAs DNAas DNAas DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAas OxyTs OxyAs OxyMCs OxyA
449	36954	36972			DES-008160	TactaacttctctccCAAT	ASO-008160	OxyTs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyAs OxyAs OxyT
450	36954	36973			DES-008162	AtactaacttctctccCAAT	ASO-008162	OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyAs OxyAs OxyT
451	36955	36971			DES-008159	ActaacttctctccCAA	ASO-008159	OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyA
452	36955	36973			DES-008161	AtactaacttctctccCAA	ASO-008161	OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyA
453	36955	36974			DES-008164	CatactaacttctctccCAA	ASO-008164	OxyMCs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyAs OxyA
454	36956	36974			DES-008165	CAtactaacttctctccCA	ASO-008165	OxyMCs OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyMCs OxyA
456	36957	36974			DES-008163	CAtactaacttctctcCC	ASO-008163	OxyMCs OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyMC
455	36957	36976			DES-008169	AtcatactaacttctctcCC	ASO-008169	OxyAs DNAts DNAcs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyMC
458	36958	36975			DES-008166	TCAtactaacttctctCC	ASO-008166	OxyTs OxyMCs OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyMC
459	36958	36976			DES-008168	ATCatactaacttctctCC	ASO-008168	OxyAs OxyTs OxyMCs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAcs DNAcs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
457	36958	36977			DES-008171	TAtcatactaacttctctCC	ASO-008171	OxyTs OxyAs DNAts DNAcs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAts OxyMCs OxyMC
461	36959	36976			DES-008167	ATCAtactaacttctCTC	ASO-008167	OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyMC
460	36959	36978			DES-008172	ATAtcatactaacttctCTC	ASO-008172	OxyAs OxyTs OxyAs DNAts DNAcs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyMC
462	36960	36978			DES-008173	ATAtcatactaacttCTCT	ASO-008173	OxyAs OxyTs OxyAs DNAts DNAcs DNAas DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyMCs OxyT
463	36961	36977			DES-008170	TATCatactaactTCTC	ASO-008170	OxyTs OxyAs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyMC
464	38181	38198			DES-008174	ATTAtatatccttaACTA	ASO-008174	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAcs DNAts DNAts DNAas OxyAs OxyMCs OxyTs OxyA
465	38181	38199			DES-008177	CATTatatatccttaACTA	ASO-008177	OxyMCs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAas OxyAs OxyMCs OxyTs OxyA
466	38181	38200			DES-008178	ACATTatatatccttaaCT A	ASO-008178	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyA
467	38182	38199			DES-008175	CATTatatatccttAACT	ASO-008175	OxyMCs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyMCs OxyT
468	38182	38200			DES-008179	ACATTatatatccttAACT	ASO-008179	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyMCs OxyT
469	38182	38201			DES-008183	CACAttatatatccttaACT	ASO-008183	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAas OxyAs OxyMCs OxyT
470	38183	38199			DES-008176	CATTatatatcctTAAC	ASO-008176	OxyMCs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
471	38183	38200			DES-008180	ACATtatatatcctTAAC	ASO-008180	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAcs DNAts OxyTs OxyAs OxyAs OxyMC
472	38183	38201			DES-008181	CACAttatatatcctTAAC	ASO-008181	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyAs OxyAs OxyMC
473	38183	38202			DES-008184	CCacattatatatcctTAAC	ASO-008184	OxyMCs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyAs OxyAs OxyMC
474	38184	38201			DES-008182	CACAttatatatccTTAA	ASO-008182	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs OxyTs OxyTs OxyAs OxyA
475	38184	38202			DES-008185	CCACattatatatcctTAA	ASO-008185	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyAs OxyA
476	38185	38202			DES-008186	CCACattatatatcctTA	ASO-008186	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyA
477	38185	38203			DES-008187	GCcacattatatatcctTA	ASO-008187	OxyGs OxyMCs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyA
478	38186	38203			DES-008189	GCcacattatatatcCTT	ASO-008189	OxyGs OxyMCs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs OxyMCs OxyTs OxyT
479	38187	38203			DES-008188	GccacattatataTCCT	ASO-008188	OxyGs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas OxyTs OxyMCs OxyMCs OxyT
480	39399	39416			DES-006707	TCAAttaaataaaccCTCT	ASO-006707	OxyTs OxyMCs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs OxyMCs OxyTs OxyMCs OxyT
481	40318	40334			DES-008190	CatatactccattACCC	ASO-008190	OxyMCs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyMCs OxyMC
482	40318	40335			DES-008191	CcatatactccattacCC	ASO-008191	OxyMCs DNAcs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas DNAcs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
483	40319	40336			DES-008193	CccatatactccattaCC	ASO-008193	OxyMCs DNAcs DNAcs DNAas DNAts DNAas DNAts DNAcs DNAts DNAcs DNAas DNAts DNAas DNAts OxyMC
484	40320	40336			DES-008192	CCcatatactccatTAC	ASO-008192	OxyMCs OxyMCs DNAcs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts OxyTs OxyAs OxyMC
485	40323	40340			DES-008194	CattcccatatactcCAT	ASO-008194	OxyMCs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs OxyMCs OxyAs OxyT
486	40987	41004			DES-006706	ATCTtacattcacaTATT	ASO-006706	OxyAs OxyTs OxyMCs OxyTs DNAts DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyAs OxyTs OxyT
487	40988	41007			DES-006705	TAAAtcttacattcacATA T	ASO-006705	OxyTs OxyAs OxyAs OxyAs DNAts DNAcs DNAts DNAts DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAcs OxyAs OxyTs OxyAs OxyT
488	40990	41007			DES-006704	TAAAtcttacattcACAT	ASO-006704	OxyTs OxyAs OxyAs OxyAs DNAcs DNAts DNAts DNAas DNAcs DNAas DNAts DNAts DNAcs OxyAs OxyMCs OxyAs OxyT
489	41092	41111			DES-008195	TACAttaatctataatTAA A	ASO-008195	OxyTs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyA
490	41093	41111			DES-008196	TACAttaatctataaTTAA	ASO-008196	OxyTs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyA
491	41095	41112			DES-008197	GTACattaatctatAATT	ASO-008197	OxyGs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAas DNAts OxyAs OxyAs OxyTs OxyT
492	41096	41113			DES-008198	TGTAcattaatctaTAAT	ASO-008198	OxyTs OxyGs OxyTs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyAs OxyT
493	41097	41114			DES-008199	ATGTacattaatctATAA	ASO-008199	OxyAs OxyTs OxyGs OxyTs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyAs OxyA
494	41618	41636			DES-008200	TAAAataacattataCTCA	ASO-008200	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
495	41619	41637			DES-008202	GTAAaataacattatACTC	ASO-008202	OxyGs OxyTs OxyAs OxyAs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAts OxyAs OxyMCs OxyTs OxyMC
496	41620	41637			DES-008201	GTAAaataacattaTACT	ASO-008201	OxyGs OxyTs OxyAs OxyAs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas OxyTs OxyAs OxyMCs OxyT
497	41760	41778			DES-008203	TATAttattttcataCTTT	ASO-008203	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAas OxyMCs OxyTs OxyTs OxyT
498	41760	41779			DES-008204	CTATattattttcataCTTT	ASO-008204	OxyMCs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAas OxyMCs OxyTs OxyTs OxyT
499	41761	41779			DES-008206	CTATattattttcatACTT	ASO-008206	OxyMCs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts OxyAs OxyMCs OxyTs OxyT
500	41761	41780			DES-008207	CCTAtattattttcatacTT	ASO-008207	OxyMCs OxyMCs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAcs OxyTs OxyT
501	41762	41779			DES-008205	CTATattattttcaTACT	ASO-008205	OxyMCs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas OxyTs OxyAs OxyMCs OxyT
502	41762	41780			DES-008209	CCTAtattattttcataCT	ASO-008209	OxyMCs OxyMCs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAas OxyMCs OxyT
503	41762	41781			DES-008210	ACCtatattatttcatACT	ASO-008210	OxyAs OxyMCs OxyMCs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAts OxyAs OxyMCs OxyT
504	41763	41780			DES-008208	CCTAtattattttcATAC	ASO-008208	OxyMCs OxyMCs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyAs OxyMC
505	41763	41781			DES-008211	ACCTatattattttcaTAC	ASO-008211	OxyAs OxyMCs OxyMCs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs DNAas OxyTs OxyAs OxyMC
506	41763	41782			DES-008212	CACctatattattttcATAC	ASO-008212	OxyMCs OxyAs OxyMCs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
507	41764	41782			DES-008213	CACctatattattttCATA	ASO-008213	OxyMCs OxyAs OxyMCs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyTs OxyA
508	41764	41783			DES-008215	ACACctatattatttttcATA	ASO-008215	OxyAs OxyMCs OxyAs OxyMCs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyA
509	41765	41782			DES-008214	CACCtatattattttCAT	ASO-008214	OxyMCs OxyAs OxyMCs OxyMCs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyT
510	41765	41783			DES-008216	ACACctatattattttCAT	ASO-008216	OxyAs OxyMCs OxyAs OxyMCs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyT
511	41766	41784			DES-008218	GACacctatattattTTCA	ASO-008218	OxyGs OxyAs OxyMCs DNAas DNAcs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyA
512	41767	41784			DES-008217	GACAcctatattatTTTC	ASO-008217	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyTs OxyTs OxyMC
513	41768	41785			DES-008219	TGACacctatattaTTTT	ASO-008219	OxyTs OxyGs OxyAs OxyMCs DNAas DNAcs DNAcs DNAts DNAas DNAts DNAas DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyT
514	41774	41790			DES-008220	ATCActgacacctaTAT	ASO-008220	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAgs DNAas DNAcs DNAas DNAcs DNAcs DNAts DNAas OxyTs OxyAs OxyT
515	42749	42766			DES-008221	GCTaaatattactcACTC	ASO-008221	OxyGs OxyMCs OxyTs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyMCs OxyTs OxyMC
516	42751	42768			DES-008222	TTGCtaaatattacTCAC	ASO-008222	OxyTs OxyTs OxyGs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyMC
517	42752	42769			DES-008223	CTTGctaaatattaCTCA	ASO-008223	OxyMCs OxyTs OxyTs OxyGs DNAcs DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas OxyMCs OxyTs OxyMCs OxyA
518	44740	44757			DES-008224	CACAttaactactcATAT	ASO-008224	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
519	44740	44758			DES-008227	ACACattaactactcATAT	ASO-008227	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyTs OxyAs OxyT
520	44740	44759			DES-008229	TACAcattaactactcaTAT	ASO-008229	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts DNAcs DNAas OxyTs OxyAs OxyT
521	44741	44757			DES-008225	CACAttaactactCATA	ASO-008225	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyTs OxyA
522	44741	44758			DES-008226	ACACattaactactCATA	ASO-008226	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyTs OxyA
523	44741	44759			DES-008230	TACAcattaactactCATA	ASO-008230	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyTs OxyA
524	44742	44759			DES-008228	TACAcattaactacTCAT	ASO-008228	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
525	44742	44760			DES-008232	GTACacattaactactCAT	ASO-008232	OxyGs OxyTs OxyAs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyT
526	44743	44761			DES-008234	AGTAcacattaactactCA	ASO-008234	OxyAs OxyGs OxyTs OxyAs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAcs DNAts OxyMCs OxyA
527	44744	44760			DES-008231	GTACacattaactACTC	ASO-008231	OxyGs OxyTs OxyAs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts OxyAs OxyMCs OxyTs OxyMC
528	44744	44761			DES-008233	AGTAcacattaactaCTC	ASO-008233	OxyAs OxyGs OxyTs OxyAs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas OxyMCs OxyTs OxyMC
529	46273	46292			DES-008236	TatatcttcattattttCCC	ASO-008236	OxyTs DNAas DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyMCs OxyMC
530	46274	46292			DES-008235	TATAtcttcattattttCC	ASO-008235	OxyTs OxyAs OxyTs OxyAs DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
532	46277	46296			DES-006702	ATCAtatatcttcattATTT	ASO-006702	OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT
531	46277	46294			DES-006703	CATAtatcttcattATTT	ASO-006703	OxyMCs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT
533	46278	46297			DES-006701	AATCatatatcttcatTAT T	ASO-006701	OxyAs OxyAs OxyTs OxyMCs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts OxyTs OxyAs OxyTs OxyT
534	46803	46820			DES-006700	CAATacaacttaatTCCA	ASO-006700	OxyMCs OxyAs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAcs DNAts DNAas DNAas DNAts OxyTs OxyMCs OxyMCs OxyA
535	48024	48040			DES-008237	CAACccactaaatAATA	ASO-008237	OxyMCs OxyAs OxyAs OxyMCs DNAcs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts OxyAs OxyAs OxyTs OxyA
536	48024	48041			DES-008238	GCAAcccactaaatAATA	ASO-008238	OxyGs OxyMCs OxyAs OxyAs DNAcs DNAcs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAts OxyAs OxyAs OxyTs OxyA
537	48025	48041			DES-008239	GCAAcccactaaaTAAT	ASO-008239	OxyGs OxyMCs OxyAs OxyAs DNAcs DNAcs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAas OxyTs OxyAs OxyAs OxyT
538	48026	48042			DES-008240	AGCAacccactaaATAA	ASO-008240	OxyAs OxyGs OxyMCs OxyAs DNAas DNAcs DNAcs DNAcs DNAas DNAcs DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyA
539	48209	48228			DES-008241	TCTTaatttttttctaTTAT	ASO-008241	OxyTs OxyMCs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyAs OxyT
540	48210	48229			DES-008242	CTCTtaatttttttctATTA	ASO-008242	OxyMCs OxyTs OxyMCs OxyTs DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyA
541	48212	48231			DES-008243	ATCtcttaatttttttCTAT	ASO-008243	OxyAs OxyTs OxyMCs DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAts OxyMCs OxyTs OxyAs OxyT
542	48213	48232			DES-008244	AATCtcttaatttttttTCTA	ASO-008244	OxyAs OxyAs OxyTs OxyMCs DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAts OxyTs OxyMCs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
543	48215	48233			DES-008245	CAATctcttaattttTTTC	ASO-008245	OxyMCs OxyAs OxyAs OxyTs DNAcs DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAts OxyTs OxyTs OxyTs OxyMC
544	48215	48234			DES-008246	TCAAtctcttaattttTTTC	ASO-008246	OxyTs OxyMCs OxyAs OxyAs DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAts OxyTs OxyTs OxyTs OxyMC
545	48219	48238			DES-008249	ATACtcaatctcttaaTTTT	ASO-008249	OxyAs OxyTs OxyAs OxyMCs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas DNAas OxyTs OxyTs OxyTs OxyT
546	48220	48238			DES-008247	ATACtcaatctcttaATTT	ASO-008247	OxyAs OxyTs OxyAs OxyMCs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas OxyAs OxyTs OxyTs OxyT
547	48221	48238			DES-008248	ATACtcaatctcttAATT	ASO-008248	OxyAs OxyTs OxyAs OxyMCs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAts OxyAs OxyAs OxyTs OxyT
548	48221	48239			DES-008252	GATActcaatctcttaATT	ASO-008252	OxyGs OxyAs OxyTs OxyAs DNAcs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas OxyAs OxyTs OxyT
549	48222	48239			DES-008251	GATactcaatctctTAAT	ASO-008251	OxyGs OxyAs OxyTs DNAas DNAcs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts OxyTs OxyAs OxyAs OxyT
550	48223	48239			DES-008250	GATActcaatctctTAA	ASO-008250	OxyGs OxyAs OxyTs OxyAs DNAcs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts OxyTs OxyAs OxyA
551	48637	48655			DES-008253	AAATattcttacttcTATT	ASO-008253	OxyAs OxyAs OxyAs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyAs OxyTs OxyT
552	48637	48656			DES-008255	AAAAtattcttacttcTATT	ASO-008255	OxyAs OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyAs OxyTs OxyT
553	48638	48655			DES-008254	AAATattcttacttCTAT	ASO-008254	OxyAs OxyAs OxyAs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyT
554	48638	48656			DES-008256	AAAAtattcttacttCTAT	ASO-008256	OxyAs OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
555	48638	48657			DES-008258	CAAAatattcttacttCTAT	ASO-008258	OxyMCs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyT
556	48639	48657			DES-008257	CAAAatattcttactTCTA	ASO-008257	OxyMCs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyA
557	48639	48658			DES-008259	TCAAaatattcttactTCT A	ASO-008259	OxyTs OxyMCs OxyAs OxyAs DNAas DNAas DNAts DNAas DNAts DNAcs DNAts DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyA
558	48640	48658			DES-008260	TCAAaatattcttacTTCT	ASO-008260	OxyTs OxyMCs OxyAs OxyAs DNAas DNAas DNAts DNAas DNAts DNAcs DNAts DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
559	48641	48659			DES-008261	GTCAaaatattcttaCTTC	ASO-008261	OxyGs OxyTs OxyMCs OxyAs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas OxyMCs OxyTs OxyTs OxyMC
560	48795	48812			DES-008262	TAAAtattccttaaCCTA	ASO-008262	OxyTs OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAas OxyMCs OxyMCs OxyTs OxyA
561	48795	48813			DES-008264	TTAaatattccttaaCCTA	ASO-008264	OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyTs OxyA
562	48795	48814			DES-008265	TTTaaatattccttaaCCT A	ASO-008265	OxyTs OxyTs OxyTs DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyTs OxyA
563	48796	48813			DES-008263	TTAAatattccttaACCT	ASO-008263	OxyTs OxyTs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAas OxyAs OxyMCs OxyMCs OxyT
564	48796	48815			DES-008267	ATTTaaatattccttaaCC T	ASO-008267	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyT
565	48797	48814			DES-008266	TTTAaatattccttAACC	ASO-008266	OxyTs OxyTs OxyTs OxyAs DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts OxyAs OxyAs OxyMCs OxyMC
566	48797	48815			DES-008268	ATTTaaatattccttAACC	ASO-008268	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts OxyAs OxyAs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
567	48797	48816			DES-008269	TATTtaaatattccttAACC	ASO-008269	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts OxyAs OxyAs OxyMCs OxyMC
568	48798	48817			DES-008270	TTATttaaatattcctTAAC	ASO-008270	OxyTs OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts OxyTs OxyAs OxyAs OxyMC
569	48799	48817			DES-008271	TTATttaaatattccTTAA	ASO-008271	OxyTs OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs OxyTs OxyTs OxyAs OxyA
570	48799	48818			DES-008273	TTTAtttaaatattccTTAA	ASO-008273	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs OxyTs OxyTs OxyAs OxyA
571	48800	48818			DES-008272	TTTAtttaaatattcCTTA	ASO-008272	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyTs OxyA
572	48800	48819			DES-008274	TTTTatttaaatattcCTTA	ASO-008274	OxyTs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyTs OxyA
573	48804	48823			DES-008275	ATTAttttatttaaatATTC	ASO-008275	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyMC
574	48806	48825			DES-008276	ACATtattttatttaaATAT	ASO-008276	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyT
575	48807	48826			DES-008277	CACAttattttatttaAATA	ASO-008277	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAas OxyAs OxyAs OxyTs OxyA
576	48808	48827			DES-008278	CCACattattttatttAAAT	ASO-008278	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAts DNAts OxyAs OxyAs OxyAs OxyT
577	48871	48889			DES-008279	TTTCccacataaaatTAAA	ASO-008279	OxyTs OxyTs OxyTs OxyMCs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyA
578	48871	48890			DES-008280	ATTTcccacataaaatTAAA	ASO-008280	OxyAs OxyTs OxyTs OxyTs DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
579	48872	48891			DES-008281	TATTtcccacataaaaTTAA	ASO-008281	OxyTs OxyAs OxyTs OxyTs DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas DNAas OxyTs OxyTs OxyAs OxyA
580	48874	48892			DES-008282	TTATttcccacataaAATT	ASO-008282	OxyTs OxyTs OxyAs OxyTs DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas OxyAs OxyAs OxyTs OxyT
581	48874	48893			DES-008284	TTTAtttcccacataaAAT T	ASO-008284	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas OxyAs OxyAs OxyTs OxyT
582	48875	48893			DES-008283	TTTAtttcccacataAAAT	ASO-008283	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyAs OxyT
583	48875	48894			DES-008286	ATTTatttcccacataAAA T	ASO-008286	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyAs OxyT
584	48876	48894			DES-008285	ATTTatttcccacatAAAA	ASO-008285	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas DNAts OxyAs OxyAs OxyAs OxyA
585	48876	48895			DES-008288	TATTtatttcccacatAAA A	ASO-008288	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAts OxyAs OxyAs OxyAs OxyA
586	48877	48895			DES-008287	TATTtatttcccacaTAAA	ASO-008287	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyAs OxyAs OxyA
587	48877	48896			DES-008289	CTAtttatttcccacaTAAA	ASO-008289	OxyMCs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyAs OxyAs OxyA
588	48878	48896			DES-008290	CTATttatttcccacaTAA	ASO-008290	OxyMCs OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyAs OxyA
589	48878	48897			DES-008292	TCTAtttatttcccacatAA	ASO-008292	OxyTs OxyMCs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyA
590	48879	48896			DES-008291	CTATttatttcccacaTA	ASO-008291	OxyMCs OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAts OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
591	48879	48897			DES-008293	TCTatttatttcccacaTA	ASO-008293	OxyTs OxyMCs OxyTs DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyA
592	48880	48898			DES-008294	CtctatttatttcccaCAT	ASO-008294	OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs DNAcs DNAas OxyMCs OxyAs OxyT
593	48881	48898			DES-008295	Ctctatttatttcc CACA	ASO-008295	OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAts DNAcs DNAcs OxyMCs OxyAs OxyMCs OxyA
594	49014	49031			DES-008296	CTTCaatattatatCCT	ASO-008296	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAas DNAts OxyMCs OxyMCs OxyT
595	49014	49033			DES-008297	AACttcaatattattaTCCT	ASO-008297	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAas OxyTs OxyMCs OxyMCs OxyT
596	49015	49033			DES-008299	AACTtcaatattattATCC	ASO-008299	OxyAs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyAs OxyTs OxyMCs OxyMC
597	49015	49034			DES-008301	TAACttcaatattattATCC	ASO-008301	OxyTs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyAs OxyTs OxyMCs OxyMC
598	49016	49033			DES-008298	AACTtcaatattatTATC	ASO-008298	OxyAs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyAs OxyTs OxyMC
599	49016	49034			DES-008300	TAACttcaatattatTATC	ASO-008300	OxyTs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyMC
600	49016	49035			DES-008302	TTAActtcaatattatTAT C	ASO-008302	OxyTs OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyMC
601	49017	49035			DES-008303	TTAActtcaatattaTTAT	ASO-008303	OxyTs OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyTs OxyTs OxyAs OxyT
602	49017	49036			DES-008304	CTTAacttcaatattaTTA T	ASO-008304	OxyMCs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyTs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
603	49018	49036			DES-008017	CTTAacttcaatattATTA	ASO-008017	OxyMCs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyA
604	49018	49037			DES-008018	CCTTaacttcaatattaTT A	ASO-008018	OxyMCs OxyMCs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAas OxyTs OxyTs OxyA
605	49019	49037			DES-008019	CCTTaacttcaatatTATT	ASO-008019	OxyMCs OxyMCs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT
606	49019	49038			DES-008020	TCCttaacttcaatatTATT	ASO-008020	OxyTs OxyMCs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyT
607	49020	49039			DES-008022	ATCCttaacttcaatatTAT	ASO-008022	OxyAs OxyTs OxyMCs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyT
608	49021	49039			DES-008023	ATCCttaacttcaataTTA	ASO-008023	OxyAs OxyTs OxyMCs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas OxyTs OxyTs OxyA
609	49021	49040			DES-008025	CATCcttaacttcaataTT A	ASO-008025	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts DNAas OxyTs OxyTs OxyA
610	49022	49039			DES-008021	ATCCttaacttcaaTATT	ASO-008021	OxyAs OxyTs OxyMCs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyTs OxyT
611	49022	49040			DES-008027	CATCcttaacttcaaTATT	ASO-008027	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyTs OxyT
612	49022	49041			DES-008031	TCAtccttaacttcaaTAT T	ASO-008031	OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyTs OxyT
613	49023	49040			DES-008026	CATCcttaacttcaATAT	ASO-008026	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyAs OxyT
614	49023	49041			DES-008030	TCAtccttaacttcaATAT	ASO-008030	OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
615	49023	49042			DES-008034	ATCAtccttaacttcaaTAT	ASO-008034	OxyAs OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyT
616	49024	49040			DES-008024	CATCcttaacttcAATA	ASO-008024	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyAs OxyTs OxyA
617	49024	49041			DES-008029	TCAtccttaacttcAATA	ASO-008029	OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyAs OxyTs OxyA
618	49024	49042			DES-008032	ATCAtccttaacttcaATA	ASO-008032	OxyAs OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyA
619	49025	49041			DES-008028	TCAtccttaacttCAAT	ASO-008028	OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyAs OxyAs OxyT
620	49025	49042			DES-008035	ATCAtccttaacttCAAT	ASO-008035	OxyAs OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAcs DNAts DNAts OxyMCs OxyAs OxyAs OxyT
621	49026	49042			DES-008033	ATCAtccttaactTCAA	ASO-008033	OxyAs OxyTs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyAs OxyA
622	49253	49269			DES-008036	CCATtgatttaatACAT	ASO-008036	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAgs DNAas DNAts DNAts DNAts DNAas DNAts OxyAs OxyMCs OxyAs OxyT
623	50041	50058			DES-008037	TGTtcataactatatCCA	ASO-008037	OxyTs OxyGs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAts DNAas DNAts OxyMCs OxyMCs OxyA
624	50585	50602			DES-006699	GTTAtatactctatTAAT	ASO-006699	OxyGs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyT
625	50646	50664			DES-008038	TAAAattaaatttaaTCCA	ASO-008038	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAas OxyTs OxyMCs OxyMCs OxyA
626	50646	50665			DES-008039	TTAAaattaaatttaaTCCA	ASO-008039	OxyTs OxyTs OxyAs OxyAs DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAas OxyTs OxyMCs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
627	50647	50666			DES-008040	TTTAaaattaaatttaaATCC	ASO-008040	OxyTs OxyTs OxyTs OxyAs DNAas DNAas DNAas DNAts DNAts DNAas DNAas DNAs DNAts DNAts DNAts DNAts DNAas OxyAs OxyTs OxyMCs OxyMC
629	51268	51284			DES-008041	CCtaccaacttttcTTTA	ASO-008041	OxyMCs OxyMCs DNAts DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs OxyTs OxyTs OxyTs OxyA
630	51268	51285			DES-008042	ACCtaccaacttttcttTA	ASO-008042	OxyAs OxyMCs OxyMCs DNAts DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAts OxyTs OxyA
628	51268	51286			DES-008043	TACctaccaacttttcttTA	ASO-008043	OxyTs OxyAs OxyMCs DNAcs DNAts DNAas DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts OxyTs OxyA
631	51269	51286			DES-008044	TACctaccaacttttctTT	ASO-008044	OxyTs OxyAs OxyMCs DNAcs DNAts DNAas DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyTs OxyT
632	51593	51610			DES-008045	TAGAatttaaacatTATC	ASO-008045	OxyTs OxyAs OxyGs OxyAs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyTs OxyMC
633	52923	52940			DES-008046	TTGTactctacataTTTA	ASO-008046	OxyTs OxyTs OxyGs OxyTs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAcs DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
634	53066	53085			DES-008047	TACAcacacatatattcATC	ASO-008047	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs OxyAs OxyTs OxyMC
635	53503	53521			DES-008049	CctaaaaatccattccCCAA	ASO-008049	OxyMCs DNAcs DNAts DNAas DNAas DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAts DNAcs OxyMCs OxyMCs OxyAs OxyA
636	53504	53521			DES-008048	CCtaaaaatccattccCA	ASO-008048	OxyMCs OxyMCs DNAts DNAas DNAas DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAts DNAcs DNAcs OxyMCs OxyA
637	53534	53551			DES-008051	GCAttattaatacacCTC	ASO-008051	OxyGs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas DNAcs OxyMCs OxyTs OxyMC
638	53534	53552			DES-008053	TgcattattaatacaCCTC	ASO-008053	OxyTs DNAgs DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAcs DNAas OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
639	53535	53551			DES-008050	GCAttattaatacaCCT	ASO-008050	OxyGs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas OxyMCs OxyMCs OxyT
640	53535	53552			DES-008052	TGCAttattaatacacCT	ASO-008052	OxyTs OxyGs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas DNAcs OxyMCs OxyT
641	53536	53552			DES-008054	TGCAttattaatacACC	ASO-008054	OxyTs OxyGs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAcs OxyAs OxyMCs OxyMC
642	53932	53949			DES-006698	GTTCattattattaaTTAA	ASO-006698	OxyGs OxyTs OxyTs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyTs OxyTs OxyAs OxyA
643	54547	54564			DES-008055	CcaacttacaattctCCT	ASO-008055	OxyMCs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyMCs OxyT
644	54548	54564			DES-008056	CCAActtacaattctCC	ASO-008056	OxyMCs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAas DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyMC
645	54549	54565			DES-008057	CCcaacttacaatTCTC	ASO-008057	OxyMCs OxyMCs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAas DNAcs DNAas DNAas DNAts OxyTs OxyMCs OxyTs OxyMC
646	55421	55438			DES-008058	TAACactatttaatATAC	ASO-008058	OxyTs OxyAs OxyAs OxyMCs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAts OxyAs OxyTs OxyAs OxyMC
647	55421	55439			DES-008059	TTAAcactatttaatATAC	ASO-008059	OxyTs OxyTs OxyAs OxyAs DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAts OxyAs OxyTs OxyAs OxyMC
648	55421	55440			DES-008061	TTTAacactatttaatATA C	ASO-008061	OxyTs OxyTs OxyTs OxyAs DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAts OxyAs OxyTs OxyAs OxyMC
649	55422	55440			DES-008060	TTTAacactatttaaTATA	ASO-008060	OxyTs OxyTs OxyTs OxyAs DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyA
650	55422	55441			DES-008063	ATTTaacactatttaaTAT A	ASO-008063	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
651	55423	55441			DES-008062	ATTTaacactatttaATAT	ASO-008062	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAts DNAas OxyAs OxyTs OxyAs OxyT
652	55423	55442			DES-008065	CATTtaacactatttaATA T	ASO-008065	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAas OxyAs OxyTs OxyAs OxyT
653	55424	55442			DES-008064	CATTtaacactatttAATA	ASO-008064	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAts OxyAs OxyAs OxyTs OxyA
654	55424	55443			DES-008067	TCATTtaacactatttAAT A	ASO-008067	OxyTs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts DNAts OxyAs OxyAs OxyTs OxyA
655	55425	55443			DES-008066	TCATTtaacactattTAAT	ASO-008066	OxyTs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
656	55425	55444			DES-008068	TTCAtttaacactattTAA T	ASO-008068	OxyTs OxyTs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
657	55426	55445			DES-008069	ATTCatttaacactatTTA A	ASO-008069	OxyAs OxyTs OxyTs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyA
658	55427	55446			DES-008070	CATTcatttaacactaTTT A	ASO-008070	OxyMCs OxyAs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyA
659	55428	55446			DES-008071	CATTcatttaacactATTT	ASO-008071	OxyMCs OxyAs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts OxyAs OxyTs OxyTs OxyTs OxyT
660	55428	55447			DES-008073	ACATTcatttaacactATT T	ASO-008073	OxyAs OxyMCs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts OxyAs OxyTs OxyTs OxyT
661	55429	55447			DES-008072	ACATTcatttaacacTATT	ASO-008072	OxyAs OxyMCs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts OxyAs OxyTs OxyTs OxyT
662	55430	55448			DES-008075	GACattcatttaacaCTAT	ASO-008075	OxyGs OxyAs OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAas OxyMCs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
663	55431	55448			DES-008074	GACAttcatttaacACTA	ASO-008074	OxyGs OxyAs OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs OxyAs OxyMCs OxyTs OxyA
664	55432	55449			DES-008076	TGAcattcatttaaCACT	ASO-008076	OxyTs OxyGs OxyAs DNAcs DNAas DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas OxyMCs OxyAs OxyMCs OxyT
665	55871	55888			DES-008077	AAATttctatactccCCAT	ASO-008077	OxyAs OxyAs OxyAs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyT
666	55871	55889			DES-008079	AAAAtttctatactccCCAT	ASO-008079	OxyAs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyT
667	55871	55890			DES-008082	TAaaatttctatactccCCAT	ASO-008082	OxyTs OxyAs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyT
668	55872	55889			DES-008078	AAAAtttctatactcccA	ASO-008078	OxyAs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts OxyMCs OxyMCs OxyMCs OxyA
669	55872	55890			DES-008081	TaaaatttctatactccCA	ASO-008081	OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts OxyMCs OxyMCs OxyMCs OxyA
670	55872	55891			DES-008084	AtaaaatttctatactccCCA	ASO-008084	OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAts OxyMCs OxyMCs OxyMCs OxyA
672	55873	55890			DES-008080	TAAAatttctatacTCCC	ASO-008080	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyMCs OxyMC
673	55873	55891			DES-008083	ATAAaatttctatactCCC	ASO-008083	OxyAs OxyTs OxyAs OxyAs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts OxyMCs OxyMCs OxyMC
671	55873	55892			DES-008087	TAtaaaatttctatacTCCC	ASO-008087	OxyTs OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyMCs OxyMC
674	55874	55891			DES-008085	ATAAaatttctataCTCC	ASO-008085	OxyAs OxyTs OxyAs OxyAs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
675	55874	55892			DES-008086	TATAaaatttctataCTCC	ASO-008086	OxyTs OxyAs OxyTs OxyAs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyTs OxyMCs OxyMC
676	55874	55893			DES-008090	TTATaaaatttctataCTC C	ASO-008090	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyMCs OxyMC
677	55875	55892			DES-008088	TATAaaatttctatACTC	ASO-008088	OxyTs OxyAs OxyTs OxyAs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyAs OxyMCs OxyTs OxyMC
678	55875	55893			DES-008089	TTATaaaatttctatACTC	ASO-008089	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyAs OxyMCs OxyTs OxyMC
679	55875	55894			DES-008092	CTTAtaaaatttctatACT C	ASO-008092	OxyMCs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAts DNAas DNAts OxyAs OxyMCs OxyTs OxyMC
680	55876	55894			DES-008091	CTTAtaaaatttctaTACT	ASO-008091	OxyMCs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyMCs OxyT
681	55876	55895			DES-008094	TCTTataaaatttctaTAC T	ASO-008094	OxyTs OxyMCs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAas DNAts DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyMCs OxyT
682	55877	55894			DES-008093	CTTAtaaaatttctATAC	ASO-008093	OxyMCs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyMC
683	55877	55895			DES-008095	TCTTataaaatttctATAC	ASO-008095	OxyTs OxyMCs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyMC
684	55877	55896			DES-008096	TTCTtataaaatttctATA C	ASO-008096	OxyTs OxyTs OxyMCs OxyTs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyMC
685	55878	55896			DES-008097	TTCTtataaaatttcTATA	ASO-008097	OxyTs OxyTs OxyMCs OxyTs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyTs OxyA
686	55878	55897			DES-008098	CTTCttataaaatttcTAT A	ASO-008098	OxyMCs OxyTs OxyTs OxyMCs DNAts DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAcs OxyTs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
687	55883	55900			DES-008099	TGTCttcttataaaATTT	ASO-008099	OxyTs OxyGs OxyTs OxyMCs DNAts DNAts DNAcs DNAts DNAts DNAas DNAts DNAas DNAas DNAas OxyAs OxyTs OxyTs OxyT
688	56044	56061			DES-008100	ACAAtaacattcaaACAT	ASO-008100	OxyAs OxyMCs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyT
689	56044	56062			DES-008101	CACAataacattcaaACA T	ASO-008101	OxyMCs OxyAs OxyMCs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyT
690	56044	56063			DES-008103	ACACaataacattcaaAC AT	ASO-008103	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyT
691	56045	56062			DES-008102	CACAataacattcaAACA	ASO-008102	OxyMCs OxyAs OxyMCs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas OxyAs OxyAs OxyMCs OxyA
692	56045	56063			DES-008104	ACACaataacattcaAAC A	ASO-008104	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas OxyAs OxyAs OxyMCs OxyA
693	56852	56871			DES-006697	CATAttaaatatcttctCTA	ASO-006697	OxyMCs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAcs DNAts DNAcs DNAts OxyMCs OxyTs OxyA
694	56859	56876			DES-008105	AACTtcatattaaaTATC	ASO-008105	OxyAs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyMC
695	56859	56877			DES-008106	GAACttcatattaaaTATC	ASO-008106	OxyGs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyMC
696	57070	57087			DES-008107	CcaccaaaacacactTCA	ASO-008107	OxyMCs DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAas DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts OxyTs OxyMCs OxyA
697	57198	57215			DES-008108	GTAtttacttttattCACA	ASO-008108	OxyGs OxyTs OxyAs DNAts DNAts DNAas DNAcs DNAts DNAts DNAts DNAas DNAts DNAts OxyMCs OxyAs OxyMCs OxyA
698	57329	57348			DES-008109	TtacttctccaatctttcCA	ASO-008109	OxyTs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts DNAcs DNAts DNAts DNAcs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
699	57330	57349			DES-008110	TttacttctccaatctttCC	ASO-008110	OxyTs DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts DNAcs DNAts DNAts DNAts OxyMCs OxyMC
700	57335	57354			DES-008112	CAAAatttacttctccaATC	ASO-008112	OxyMCs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas OxyAs OxyTs OxyMC
702	57336	57355			DES-007923	CCaaaatttacttctcCAAT	ASO-007923	OxyMCs OxyMCs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs OxyAs OxyAs OxyT
701	57336	57354			DES-008111	CAAAatttacttctcCAAT	ASO-008111	OxyMCs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyAs OxyAs OxyT
703	57337	57354			DES-007921	CAAAatttacttctCCAA	ASO-007921	OxyMCs OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyMCs OxyAs OxyA
704	57337	57355			DES-007922	CCAaaatttacttctcCAA	ASO-007922	OxyMCs OxyMCs OxyAs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs OxyMCs OxyAs OxyA
705	57337	57356			DES-007925	TCCaaaatttacttctcCAA	ASO-007925	OxyTs OxyMCs OxyMCs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAcs OxyMCs OxyAs OxyA
706	57338	57356			DES-007924	TCCaaaatttacttctcCA	ASO-007924	OxyTs OxyMCs OxyMCs DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAcs OxyMCs OxyA
707	57338	57357			DES-007926	CtccaaaatttacttctcCA	ASO-007926	OxyMCs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyA
708	57339	57358			DES-007928	TCtccaaaatttacttctCC	ASO-007928	OxyTs OxyMCs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyMC
709	57340	57357			DES-007927	CTCcaaaatttactTCTC	ASO-007927	OxyMCs OxyTs OxyMCs DNAcs DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyMC
710	57345	57362			DES-007929	TACAtctccaaaatTTAC	ASO-007929	OxyTs OxyAs OxyMCs OxyAs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
711	57345	57364			DES-007930	CATacatctccaaaatTTAC	ASO-007930	OxyMCs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyMC
712	57346	57364			DES-007931	CATAcatctccaaaaTTTA	ASO-007931	OxyMCs OxyAs OxyTs OxyAs DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyA
713	57346	57365			DES-007932	ACATacatctccaaaaTTTA	ASO-007932	OxyAs OxyMCs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyA
714	57347	57365			DES-007933	ACATacatctccaaaATTT	ASO-007933	OxyAs OxyMCs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAas OxyAs OxyTs OxyTs OxyT
715	57348	57366			DES-007934	GACAtacatctccaaAATT	ASO-007934	OxyGs OxyAs OxyMCs OxyAs DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyAs OxyAs OxyTs OxyT
716	57349	57366			DES-007935	GACAtacatctccaAAAT	ASO-007935	OxyGs OxyAs OxyMCs OxyAs DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas OxyAs OxyAs OxyAs OxyT
717	57349	57367			DES-007937	CGACatacatctccaAAAT	ASO-007937	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs DNAas OxyAs OxyAs OxyAs OxyT
718	57350	57367			DES-007938	CGACatacatctccAAAA	ASO-007938	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs OxyAs OxyAs OxyAs OxyA
719	57351	57367			DES-007936	CGACatacatctcCAAA	ASO-007936	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs OxyMCs OxyAs OxyAs OxyA
720	57351	57368			DES-007941	CCGacatacatctccAAA	ASO-007941	OxyMCs OxyMCs OxyGs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs DNAcs OxyAs OxyAs OxyA
721	57352	57367			DES-007939	CGAcatacatctCCAA	ASO-007939	OxyMCs OxyGs OxyAs DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts OxyMCs OxyMCs OxyAs OxyA
722	57352	57368			DES-007940	CcgacatacatctCCAA	ASO-007940	OxyMCs DNAmcs DNAgs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts OxyMCs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
723	57353	57368			DES-007942	CCGacatacatctccCA	ASO-007942	OxyMCs OxyMCs OxyGs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAcs OxyMCs OxyA
724	57354	57369			DES-007943	GCcgacatacatctCC	ASO-007943	OxyGs OxyMCs DNAmcs DNAgs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts OxyMCs OxyMC
725	57593	57610			DES-007944	TCCTacattatttctATA	ASO-007944	OxyTs OxyMCs OxyMCs OxyTs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyA
726	57593	57611			DES-007945	TTCctacattatttcTATA	ASO-007945	OxyTs OxyTs OxyMCs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs OxyTs OxyAs OxyTs OxyA
727	57593	57612			DES-007946	ATTCctacattatttctATA	ASO-007946	OxyAs OxyTs OxyTs OxyMCs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyA
728	57594	57613			DES-007947	AATtcctacattatttcTAT	ASO-007947	OxyAs OxyAs OxyTs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyAs OxyT
729	57595	57613			DES-007948	AATtcctacattatTCTA	ASO-007948	OxyAs OxyAs OxyTs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyA
730	57595	57614			DES-007950	TAAttcctacattatTCTA	ASO-007950	OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyA
733	57597	57614			DES-007949	TAATtcctacattaTTTC	ASO-007949	OxyTs OxyAs OxyAs OxyTs DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyMC
731	57597	57615			DES-007951	ATAAttcctacattaTTTC	ASO-007951	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyMC
732	57597	57616			DES-007953	TATAattcctacattaTTT C	ASO-007953	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyMC
734	57598	57616			DES-007952	TATAattcctacattATTT	ASO-007952	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
735	57598	57617			DES-007954	TTATaattcctacattATTT	ASO-007954	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyT
736	57599	57617			DES-007955	TTATaattcctacatTATT	ASO-007955	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyTs OxyT
737	57599	57618			DES-007956	ATTATaattcctacatTATT	ASO-007956	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyTs OxyT
738	57600	57618			DES-007957	ATTATaattcctacaTTAT	ASO-007957	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyT
739	57601	57619			DES-007959	GATTataattcctacATTA	ASO-007959	OxyGs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAcs OxyAs OxyTs OxyTs OxyA
740	57602	57619			DES-007958	GATTataattcctaCATT	ASO-007958	OxyGs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas OxyMCs OxyAs OxyTs OxyT
741	57783	57800			DES-007960	AAGTactttcacatttCC	ASO-007960	OxyAs OxyAs OxyGs OxyTs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAts OxyMCs OxyMC
742	58029	58047			DES-007961	TCCTtttcatcataaatCA	ASO-007961	OxyTs OxyMCs OxyMCs OxyTs DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas DNAas DNAts OxyMCs OxyA
743	58029	58048			DES-007963	TTCctttcatcataaaTCA	ASO-007963	OxyTs OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas DNAas DNAts OxyMCs OxyA
744	58030	58048			DES-007962	TTCCttttcatcataaATC	ASO-007962	OxyTs OxyTs OxyMCs OxyMCs DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas OxyAs OxyTs OxyMC
745	58030	58049			DES-007964	ATTCctttcatcataAATC	ASO-007964	OxyAs OxyTs OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyTs OxyMC
746	58032	58051			DES-007965	TTATtccttttcatcataAA	ASO-007965	OxyTs OxyTs OxyAs OxyTs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
747	58033	58051			DES-007966	TtattcctttcatcATAA	ASO-007966	OxyTs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
748	58037	58054			DES-007967	ATgttattcctttcATC	ASO-007967	OxyAs OxyTs DNAgs DNAts DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAts DNAts OxyMCs OxyAs OxyTs OxyMC
749	58288	58303			DES-007968	TagtcactatacccCCT	ASO-007968	OxyTs DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAts DNAas DNAcs DNAcs OxyMCs OxyMCs OxyT
750	58289	58304			DES-007969	CtagtcactatacCCC	ASO-007969	OxyMCs DNAts DNAas DNAgs DNAts DNAcs DNAas DNAts DNAas DNAcs OxyMCs OxyMCs OxyMC
751	58290	58306			DES-007970	TtctagtcactatACCC	ASO-007970	OxyTs DNAts DNAcs DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAts OxyAs OxyMCs OxyMCs OxyMC
752	58636	58652			DES-007971	ACACttgactataACAC	ASO-007971	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAgs DNAas DNAcs DNAts DNAas DNAts DNAas OxyAs OxyMCs OxyAs OxyMC
753	60778	60795			DES-007972	ATTTatcttctatcCAAA	ASO-007972	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyMCs OxyAs OxyAs OxyA
754	60778	60796			DES-007973	TATTtatcttctatcCAAA	ASO-007973	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyMCs OxyAs OxyAs OxyA
755	60778	60797			DES-007975	TTATTtatcttctatcCAAA	ASO-007975	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyMCs OxyAs OxyAs OxyA
756	60779	60797			DES-007974	TTAtttatcttctatCCAA	ASO-007974	OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyMCs OxyAs OxyA
757	60779	60798			DES-007976	ATTAtttatcttctatcCAA	ASO-007976	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyMCs OxyAs OxyA
758	60780	60798			DES-007977	ATTatttatcttctatCCA	ASO-007977	OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
759	60780	60799			DES-007978	TATTatttatcttctatccCA	ASO-007978	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyMCs OxyA
760	60781	60800			DES-007979	TTATtatttatcttctatCC	ASO-007979	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyMC
761	60782	60801			DES-007981	ATTAttatttatcttcTATC	ASO-007981	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAts OxyTs OxyAs OxyTs OxyMC
762	60783	60801			DES-007980	ATTAttatttatcttCTAT	ASO-007980	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyT
763	60783	60802			DES-007983	AATTattatttatcttCTAT	ASO-007983	OxyAs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyT
764	60784	60802			DES-007982	AATTattatttatctTCTA	ASO-007982	OxyAs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts OxyTs OxyMCs OxyTs OxyA
765	60784	60803			DES-007984	AAATtattatttatctTCTA	ASO-007984	OxyAs OxyAs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAts OxyTs OxyMCs OxyTs OxyA
766	60785	60804			DES-007985	TAAAttattatttatcTTCT	ASO-007985	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAas DNAts DNAcs OxyTs OxyTs OxyMCs OxyT
767	60786	60805			DES-007986	TTAAattattatttatCTTC	ASO-007986	OxyTs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAas DNAts OxyMCs OxyTs OxyTs OxyMC
768	62166	62184			DES-007987	TAattaattaacctcCCTT	ASO-007987	OxyTs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAcs DNAts OxyMCs OxyMCs OxyMCs OxyTs OxyT
769	62167	62184			DES-007988	TaattaattaacctcCCCT	ASO-007988	OxyTs DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts OxyMCs OxyMCs OxyMCs OxyT
770	62167	62185			DES-007989	TTAattaattaacctcCCT	ASO-007989	OxyTs OxyTs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts DNAcs OxyMCs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
771	62168	62185			DES-007990	TTAAttaattaacctCCC	ASO-007990	OxyTs OxyTs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs DNAcs DNAts OxyMCs OxyMCs OxyMC
772	62168	62186			DES-007991	ATtaattaattaaccTCCC	ASO-007991	OxyAs OxyTs DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs DNAcs OxyTs OxyMCs OxyMCs OxyMC
773	62168	62187			DES-007993	AAttaattaattaaccTCCC	ASO-007993	OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs DNAcs OxyTs OxyMCs OxyMCs OxyMC
774	62169	62186			DES-007992	ATTAattaattaacCTCC	ASO-007992	OxyAs OxyTs OxyTs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs OxyMCs OxyTs OxyMCs OxyMC
775	62169	62187			DES-007994	AATTaattaattaacCTCC	ASO-007994	OxyAs OxyAs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs OxyMCs OxyTs OxyMCs OxyMC
776	62169	62188			DES-007996	TAATtaattaattaacCTC C	ASO-007996	OxyTs OxyAs OxyAs OxyTs DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAcs OxyMCs OxyTs OxyMCs OxyMC
777	62170	62188			DES-007995	TAATtaattaattaaCCTC	ASO-007995	OxyTs OxyAs OxyAs OxyTs DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyTs OxyMC
778	62170	62189			DES-007997	ATAATtaattaattaaCCT C	ASO-007997	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyTs OxyMC
779	62171	62190			DES-007998	TATAattaattaattaACC T	ASO-007998	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas OxyAs OxyMCs OxyMCs OxyT
780	62172	62190			DES-007999	TATAattaattaattAACC	ASO-007999	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts OxyAs OxyAs OxyMCs OxyMC
781	62172	62191			DES-008000	TTATaattaattaattAAC C	ASO-008000	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAts OxyAs OxyAs OxyMCs OxyMC
782	62270	62288			DES-008001	ATAAcaccaatatatTAT T	ASO-008001	OxyAs OxyTs OxyAs OxyAs DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
783	62270	62289			DES-008003	TATAacaccaatatatTAT T	ASO-008003	OxyTs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts OxyTs OxyAs OxyTs OxyT
784	62271	62290			DES-008006	CTATaacaccaatataTT AT	ASO-008006	OxyMCs OxyTs OxyAs OxyTs DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas OxyTs OxyTs OxyAs OxyT
785	62272	62289			DES-008002	TATAacaccaatatATTA	ASO-008002	OxyTs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyA
786	62272	62290			DES-008004	CTATaacaccaatatATT A	ASO-008004	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyA
787	62272	62291			DES-008008	TCTAtaacaccaatatATT A	ASO-008008	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyA
788	62273	62290			DES-008005	CTATaacaccaataTATT	ASO-008005	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas OxyTs OxyAs OxyTs OxyT
789	62273	62291			DES-008010	TCTAtaacaccaataTAT T	ASO-008010	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas OxyTs OxyAs OxyTs OxyT
790	62274	62290			DES-008007	CTATaacaccaatATAT	ASO-008007	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyTs OxyAs OxyT
791	62274	62291			DES-008009	TCTAtaacaccaatATAT	ASO-008009	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts OxyAs OxyTs OxyAs OxyT
792	62274	62292			DES-008013	GTCTataacaccaataTA T	ASO-008013	OxyGs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts DNAas OxyTs OxyAs OxyT
793	62275	62292			DES-008011	GTCTataacaccaaTATA	ASO-008011	OxyGs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAas OxyTs OxyAs OxyTs OxyA
794	62276	62292			DES-008012	GTCTataacaccaATAT	ASO-008012	OxyGs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAcs DNAas DNAcs DNAcs DNAas OxyAs OxyTs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
795	62276	62293			DES-008014	TGTCtataaccaATAT	ASO-008014	OxyTs OxyGs OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAcs DNAas OxyAs OxyTs OxyAs OxyT
796	62278	62294			DES-008015	TTGTctataacacCAAT	ASO-008015	OxyTs OxyTs OxyGs OxyTs DNAcs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAcs OxyMCs OxyAs OxyAs OxyT
797	62281	62297			DES-008016	TTATtgtctataaCACC	ASO-008016	OxyTs OxyTs OxyAs OxyTs DNAts DNAgs DNAts DNAcs DNAts DNAas DNAts DNAas DNAas OxyMCs OxyAs OxyMCs OxyMC
798	67859	67877			DES-007825	CAcaacacatatataaCCC	ASO-007825	OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAas DNAas DNAas OxyMCs OxyMC
799	67859	67878			DES-007826	CcacaaacacatatataaCC C	ASO-007826	OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAas DNAas DNAas OxyMCs OxyMCs OxyMC
800	67860	67878			DES-007828	CCAcaacacatatataaCC	ASO-007828	OxyMCs OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyMCs OxyMC
801	67860	67879			DES-007829	CccacaacacatatataAC C	ASO-007829	OxyMCs DNAcs DNAcs DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyAs OxyMCs OxyMC
803	67861	67878			DES-007827	CCACaacacatataTAAC	ASO-007827	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyMC
804	67861	67879			DES-007830	CCCAcaacacatatataAC	ASO-007830	OxyMCs OxyMCs OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyAs OxyMC
802	67861	67880			DES-007831	TCCcacaacacatatatAA C	ASO-007831	OxyTs OxyMCs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyAs OxyAs OxyMC
805	67862	67880			DES-007832	TCCcacaacacatataTA A	ASO-007832	OxyTs OxyMCs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyTs OxyAs OxyA
806	67862	67881			DES-007834	GTCccacaacacatataTA A	ASO-007834	OxyGs OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyTs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
807	67863	67880			DES-007833	TCCcacaacacatatATA	ASO-007833	OxyTs OxyMCs OxyMCs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts OxyAs OxyTs OxyA
808	67863	67881			DES-007835	GTCccacaacacatataTA	ASO-007835	OxyGs OxyTs OxyMCs DNAcs DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAts DNAas DNAts DNAas OxyTs OxyA
809	68373	68388			DES-000868	GATCgattaagtgGAG	ASO-000868	OxyGs OxyAs OxyTs OxyMCs DNAgs DNAas DNAts DNAts DNAas DNAas DNAgs DNAts DNAgs OxyGs OxyAs OxyG
810	68374	68389			DES-000867	AGatcgattaagtgGA	ASO-000867	OxyAs OxyGs DNAas DNAts DNAmcs DNAgs DNAas DNAts DNAts DNAas DNAas DNAgs DNAts DNAgs OxyGs OxyA
811	69217	69235			DES-007836	AATTtttctaaaccCAAA	ASO-007836	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAcs DNAcs OxyMCs OxyAs OxyAs OxyA
812	69217	69236			DES-007838	CAATttttctaaaccCAAA	ASO-007838	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAcs DNAcs OxyMCs OxyAs OxyAs OxyA
813	69218	69236			DES-007837	CAATttttctaaaccCAA	ASO-007837	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAcs OxyMCs OxyMCs OxyAs OxyAs OxyA
814	69219	69237			DES-007840	GCAattttttctaaaccCA	ASO-007840	OxyGs OxyMCs OxyAs DNAas DNAts DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAcs DNAcs OxyMCs OxyA
815	69220	69237			DES-007839	GCAAttttttctaaacCC	ASO-007839	OxyGs OxyMCs OxyAs OxyAs DNAts DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAcs DNAcs OxyMCs OxyMC
816	69221	69238			DES-007841	TGCAatttttttctaaaCC	ASO-007841	OxyTs OxyGs OxyMCs OxyAs DNAas DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAcs OxyMCs OxyMC
817	69340	69357			DES-007842	TCTattctcacattTATA	ASO-007842	OxyTs OxyMCs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyA
818	69340	69359			DES-007843	TCtctattctcacatttATA	ASO-007843	OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
820	69341	69359			DES-007844	TCTCtattctcacatttAT	ASO-007844	OxyTs OxyMCs OxyTs OxyMCs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts OxyAs OxyT
819	69341	69360			DES-007845	TTCtctattctcacatttTAT	ASO-007845	OxyTs OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyT
821	69343	69360			DES-006696	TTCtctattctcacATTT	ASO-006696	OxyTs OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs OxyAs OxyTs OxyTs OxyT
823	69344	69361			DES-006695	TTTCtctattctcacATT	ASO-006695	OxyTs OxyTs OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs OxyAs OxyTs OxyT
822	69344	69363			DES-007846	TTtttctctattctcaCATT	ASO-007846	OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas OxyMCs OxyAs OxyTs OxyT
824	69345	69364			DES-007847	TTTtttctctattctcaCAT	ASO-007847	OxyTs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas OxyMCs OxyAs OxyT
825	69348	69367			DES-007848	AACttttttctctattcTCA	ASO-007848	OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAcs OxyTs OxyMCs OxyA
826	69349	69368			DES-007849	TAActttttttctctattCTC	ASO-007849	OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts OxyMCs OxyTs OxyMC
827	69351	69369			DES-007850	TTAActtttttctctATTC	ASO-007850	OxyTs OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyMC
828	69353	69370			DES-007851	GTtaacttttttctCTAT	ASO-007851	OxyGs OxyTs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyAs OxyT
829	69400	69417			DES-007852	TtagtcatttcttcaCACC	ASO-007852	OxyTs DNAts DNAas DNAgs DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAts DNAcs DNAas OxyMCs OxyAs OxyMCs OxyMC
830	69427	69446			DES-007854	CCAttcaatccttaaaaACA	ASO-007854	OxyMCs OxyMCs OxyAs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
831	69428	69446			DES-007853	CCATtcaatccttaaAAAC	ASO-007853	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyAs OxyAs OxyMC
832	69428	69447			DES-007855	TCCAttcaatccttaaaAA C	ASO-007855	OxyTs OxyMCs OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyAs OxyAs OxyMC
833	69430	69448			DES-007856	TTCCattcaatccttaAAA	ASO-007856	OxyTs OxyTs OxyMCs OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas OxyAs OxyAs OxyA
834	69430	69449			DES-007857	TTTCcattcaatccttaAA A	ASO-007857	OxyTs OxyTs OxyTs OxyMCs DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas OxyAs OxyAs OxyA
835	69431	69449			DES-007858	TTTCcattcaatccttaAA	ASO-007858	OxyTs OxyTs OxyTs OxyMCs DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas OxyAs OxyA
836	69808	69825			DES-002766	CATAaaatttcaaCTTA	ASO-002766	OxyMCs OxyAs OxyTs OxyAs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyA
837	69809	69826			DES-002734	TCATaaaatttcaACTT	ASO-002734	OxyTs OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyTs OxyT
838	69810	69827			DES-003226	ATCAtaaaatttcAACT	ASO-003226	OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyT
839	70387	70404			DES-007859	TTgtctttaacatTCCA	ASO-007859	OxyTs OxyTs DNAgs DNAts DNAcs DNAts DNAts DNAts DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyMCs OxyMCs OxyA
840	70870	70889			DES-007860	CActttctttactatctCT	ASO-007860	OxyMCs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyT
841	70872	70891			DES-007863	ATCactttctttactatCT	ASO-007863	OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAts DNAas DNAts OxyMCs OxyT
842	70873	70890			DES-007861	TCActttctttacTATC	ASO-007861	OxyTs OxyMCs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
843	70873	70891			DES-007864	ATCactttctttacTATC	ASO-007864	OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyTs OxyMC
844	70873	70892			DES-007866	TAtcactttctttacTATC	ASO-007866	OxyTs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyTs OxyMC
845	70874	70891			DES-007862	ATCactttctttaCTAT	ASO-007862	OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAts DNAts DNAas OxyMCs OxyTs OxyAs OxyT
846	70874	70892			DES-007865	TATCactttctttacTAT	ASO-007865	OxyTs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyT
847	71330	71349			DES-006694	TCTCttatataattta TTAT	ASO-006694	OxyTs OxyMCs OxyTs OxyMCs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAas OxyTs OxyTs OxyAs OxyT
848	71331	71348			DES-006693	CTCTtatataatttATTA	ASO-006693	OxyMCs OxyTs OxyMCs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts OxyAs OxyTs OxyTs OxyA
849	71336	71353			DES-006692	TACTtctcttatatAATT	ASO-006692	OxyTs OxyAs OxyMCs OxyTs DNAts DNAcs DNAts DNAcs DNAts DNAts DNAas DNAts OxyAs OxyAs OxyTs OxyT
850	71337	71354			DES-006691	CTACttctcttataTAAT	ASO-006691	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyT
851	71457	71473			DES-007867	ACtacttgcacctcaCA	ASO-007867	OxyAs OxyMCs DNAts DNAas DNAcs DNAts DNAts DNAgs DNAcs DNAas DNAcs DNAcs DNAts DNAas DNAcs OxyMCs OxyA
852	71467	71484			DES-007868	CACccacatatactaCTT	ASO-007868	OxyMCs OxyAs OxyMCs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAas OxyMCs OxyTs OxyT
853	71506	71522			DES-007869	CTCcttattcatcaCAT	ASO-007869	OxyMCs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyT
854	71506	71523			DES-007870	TCtccttattcatcaCAT	ASO-007870	OxyTs OxyMCs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
855	71506	71524			DES-007871	TtctccttattcatcaCAT	ASO-007871	OxyTs DNAts DNAcs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyT
856	71506	71525			DES-007872	TttctccttattcatcaCAT	ASO-007872	OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyT
857	71507	71525			DES-007873	TTtctccttattcatcaCA	ASO-007873	OxyTs OxyTs DNAts DNAcs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas OxyMCs OxyA
858	73026	73044			DES-007874	AATTatttttacttttcATCT	ASO-007874	OxyAs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyMCs OxyT
859	73331	73348			DES-007875	TGCtaattatcatttcCT	ASO-007875	OxyTs OxyGs OxyMCs DNAts DNAas DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs OxyMCs OxyT
860	73596	73615			DES-006690	TTATattaactctaatAATC	ASO-006690	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAas DNAts OxyAs OxyAs OxyTs OxyMC
861	74037	74054			DES-007876	GCcacttttcttaacTC	ASO-007876	OxyGs OxyMCs DNAcs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs OxyTs OxyMC
862	74147	74164			DES-007877	CATAccaaaaactaATAC	ASO-007877	OxyMCs OxyAs OxyTs OxyAs DNAcs DNAcs DNAas DNAas DNAas DNAas DNAcs DNAts DNAas OxyAs OxyTs OxyAs OxyMC
863	74147	74165			DES-007878	ACATaccaaaaactaATAC	ASO-007878	OxyAs OxyMCs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAas DNAas DNAas DNAcs DNAts DNAas OxyAs OxyTs OxyAs OxyMC
864	74880	74898			DES-007879	ACTTatcaacacttaAAC T	ASO-007879	OxyAs OxyMCs OxyTs OxyTs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAcs DNAas OxyAs OxyAs OxyMCs OxyT
865	74880	74899			DES-007882	CACTtatcaacacttaAAC T	ASO-007882	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts DNAas OxyAs OxyAs OxyMCs OxyT
866	74881	74899			DES-007880	CACTtatcaacacttAAAC	ASO-007880	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
867	74881	74900			DES-007886	ACACCttatcaacacttAAAC	ASO-007886	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyMC
868	74882	74899			DES-007881	CACTtatcaacactTAAA	ASO-007881	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyA
869	74882	74900			DES-007883	ACACttatcaacactTAAA	ASO-007883	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyA
870	74882	74901			DES-007889	CACActtatcaacactTAAA	ASO-007889	OxyMCs OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyA
871	74883	74900			DES-007884	ACACttatcaacacTTAA	ASO-007884	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs OxyTs OxyTs OxyAs OxyA
872	74883	74901			DES-007890	CACActtatcaacacTTAA	ASO-007890	OxyMCs OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAcs OxyTs OxyTs OxyAs OxyA
873	74884	74900			DES-007885	ACACttatcaacaCTTA	ASO-007885	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyTs OxyTs OxyA
874	74884	74901			DES-007887	CACacttatcaacaCTTA	ASO-007887	OxyMCs OxyAs OxyMCs DNAas DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyTs OxyTs OxyA
875	74885	74901			DES-007888	CACActtatcaacACTT	ASO-007888	OxyMCs OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyTs OxyT
876	74925	74943			DES-007891	CTatatttccaccaaCAAT	ASO-007891	OxyMCs OxyTs DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyAs OxyT
877	74925	74944			DES-007893	TCtatatttccaccaaCAAT	ASO-007893	OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyAs OxyT
878	74926	74944			DES-007892	TCTatatttccaccaaCAA	ASO-007892	OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
879	74926	74945			DES-007894	ATCtatatttccaccaaCAA	ASO-007894	OxyAs OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAas DNAcs DNAcs DNAas DNAas OxyMCs OxyAs OxyA
880	75345	75364			DES-006689	TTTAttctaacttatATTT	ASO-006689	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyT
881	76033	76051			DES-007895	ATTCactctatttcACAA	ASO-007895	OxyAs OxyTs OxyTs OxyMCs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
882	76034	76053			DES-007898	TAattcactctatttCACA	ASO-007898	OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts OxyMCs OxyAs OxyMCs OxyA
883	76035	76053			DES-007897	TAATtcactctatttTCAC	ASO-007897	OxyTs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
884	76035	76054			DES-007900	ATAattcactctatttTCAC	ASO-007900	OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
885	76036	76053			DES-007896	TAATtcactctattTTCA	ASO-007896	OxyTs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyA
886	76036	76054			DES-007899	ATAAttcactctattTTCA	ASO-007899	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyA
887	76036	76055			DES-007902	TATaattcactctattTTCA	ASO-007902	OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyA
888	76037	76055			DES-007901	TATAattcactctatTTTC	ASO-007901	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyMC
889	76037	76056			DES-007904	TTATaattcactctatTTT C	ASO-007904	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas DNAts OxyTs OxyTs OxyTs OxyMC
890	76038	76056			DES-007903	TTATaattcactctaTTTT	ASO-007903	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
891	76038	76057			DES-007906	ATTAtaattcactctaTTT T	ASO-007906	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyT
892	76039	76056			DES-007905	TTATaattcactctATTT	ASO-007905	OxyTs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyT
893	76039	76057			DES-007908	ATTAtaattcactctATTT	ASO-007908	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyTs OxyT
894	76039	76058			DES-007909	TATTataattcactctATT T	ASO-007909	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyTs OxyT
895	76040	76057			DES-007907	ATTAtaattcactcTATT	ASO-007907	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs OxyTs OxyAs OxyTs OxyT
896	76040	76058			DES-007910	TATTataattcactcTATT	ASO-007910	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts DNAcs OxyTs OxyAs OxyTs OxyTs OxyT
897	76040	76059			DES-007912	TTATtataattcactcTAT T	ASO-007912	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAcs OxyTs OxyAs OxyTs OxyTs OxyT
898	76041	76058			DES-007911	TATTataattcactCTAT	ASO-007911	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyTs OxyAs OxyTs OxyT
899	76041	76059			DES-007914	TTATtataattcactCTAT	ASO-007914	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyTs OxyTs OxyAs OxyT
900	76041	76060			DES-007916	ATTAttataattcactCTA T	ASO-007916	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyTs OxyAs OxyT
901	76042	76059			DES-007913	TTATtataattcacTCTA	ASO-007913	OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs OxyTs OxyMCs OxyTs OxyA
902	76042	76060			DES-007915	ATTAttataattcacTCTA	ASO-007915	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs OxyTs OxyMCs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
903	76042	76061			DES-007917	AATTattataattcacTCTA	ASO-007917	OxyAs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas DNAcs OxyTs OxyMCs OxyTs OxyA
904	76043	76062			DES-007918	AAATtattataattcaCTCT	ASO-007918	OxyAs OxyAs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAcs DNAas OxyMCs OxyTs OxyMCs OxyT
905	76064	76082			DES-007919	ATAAcattaacttacATTT	ASO-007919	OxyAs OxyTs OxyAs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAcs OxyAs OxyTs OxyTs OxyT
906	76064	76083			DES-008612	AATAacattaacttacATTT	ASO-008612	OxyAs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAcs OxyAs OxyTs OxyTs OxyT
907	76065	76083			DES-007920	AATAacattaacttaCATT	ASO-007920	OxyAs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAas OxyMCs OxyAs OxyTs OxyT
908	76065	76084			DES-008614	TAATaacattaacttaCATT	ASO-008614	OxyTs OxyAs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAas OxyMCs OxyAs OxyTs OxyT
909	76066	76084			DES-008613	TAATaacattaacttACAT	ASO-008613	OxyTs OxyAs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts OxyAs OxyMCs OxyAs OxyT
910	76066	76085			DES-008616	CTAAtaacattaacttACAT	ASO-008616	OxyMCs OxyTs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts OxyAs OxyMCs OxyAs OxyT
911	76067	76085			DES-008615	CTAAtaacattaactTACA	ASO-008615	OxyMCs OxyTs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts OxyTs OxyAs OxyMCs OxyA
912	76067	76086			DES-008618	TCTAataacattaactTACA	ASO-008618	OxyTs OxyMCs OxyTs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts OxyTs OxyAs OxyMCs OxyA
915	76068	76087			DES-006688	TTCTaataacattaacTTAC	ASO-006688	OxyTs OxyTs OxyMCs OxyTs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyAs OxyMC
913	76068	76085			DES-008617	CTAAtaacattaacTTAC	ASO-008617	OxyMCs OxyTs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
914	76068	76086			DES-008619	TCTAataacattaacTTAC	ASO-008619	OxyTs OxyMCs OxyTs OxyAs DNAas DNAts DNAs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyAs OxyMC
917	76069	76088			DES-006686	TTTCtaataacattaaCTTA	ASO-006686	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyA
918	76069	76086			DES-006687	TCTAataacattaaCTTA	ASO-006687	OxyTs OxyMCs OxyTs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyA
916	76069	76087			DES-008620	TTCTaataacattaaCTTA	ASO-008620	OxyTs OxyTs OxyMCs OxyTs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyA
919	76072	76090			DES-008621	CTTTtctaataacatTAAC	ASO-008621	OxyMCs OxyTs OxyTs OxyTs DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyMC
920	76072	76091			DES-008623	TCTTttctaataacatTAAC	ASO-008623	OxyTs OxyMCs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyMC
921	76073	76091			DES-008622	TCTTttctaataacaTTAA	ASO-008622	OxyTs OxyMCs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyA
922	76073	76092			DES-008624	TTCTttctaataacaTTAA	ASO-008624	OxyTs OxyTs OxyMCs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyA
923	76075	76093			DES-008625	TTTCttttctaataaCATT	ASO-008625	OxyTs OxyTs OxyTs OxyMCs DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAas OxyMCs OxyAs OxyTs OxyT
924	76835	76853			DES-008626	CttcaccttaaactCCAA	ASO-008626	OxyMCs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAts OxyMCs OxyMCs OxyAs OxyA
925	76923	76941			DES-008628	CTAAatccatacaatTTCT	ASO-008628	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyMCs OxyT
926	76923	76942			DES-008630	ACTAaatccatacaattTCT	ASO-008630	OxyAs OxyMCs OxyTs OxyAs DNAas DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
927	76924	76941			DES-008627	CTAAatccatacaaTTTC	ASO-008627	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
928	76924	76942			DES-008629	ACTAaatccatacaaTTT C	ASO-008629	OxyAs OxyMCs OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
929	76924	76943			DES-008632	CACTaaatccatacaaTT TC	ASO-008632	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
930	76925	76942			DES-008631	ACTAaatccatacaATTT	ASO-008631	OxyAs OxyMCs OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas OxyAs OxyTs OxyTs OxyT
931	76925	76943			DES-008634	CACTaaatccatacaATT T	ASO-008634	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas OxyAs OxyTs OxyTs OxyT
932	76925	76944			DES-008636	ACACTaaatccatacaATT T	ASO-008636	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs DNAas OxyAs OxyTs OxyTs OxyT
934	76926	76943			DES-008633	CACTaaatccatacAATT	ASO-008633	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyTs OxyT
935	76926	76944			DES-008637	ACACTaaatccatacAAT T	ASO-008637	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyTs OxyT
933	76926	76945			DES-008639	TACActaaatccatacAAT T	ASO-008639	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyTs OxyT
938	76927	76944			DES-008635	ACACtaaatccataCAAT	ASO-008635	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyT
936	76927	76945			DES-008640	TACActaaatccataCAA T	ASO-008640	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyT
937	76927	76946			DES-008644	TTACactaaatccataCAA T	ASO-008644	OxyTs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
939	76928	76945			DES-008638	TACActaaatccatACAA	ASO-008638	OxyTs OxyAs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts OxyAs OxyMCs OxyAs OxyA
940	76928	76946			DES-008643	TTACactaaatccatACA A	ASO-008643	OxyTs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts OxyAs OxyMCs OxyAs OxyA
941	76928	76947			DES-008647	CTTAcactaaatccataCA A	ASO-008647	OxyMCs OxyTs OxyTs OxyAs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas DNAts DNAas OxyMCs OxyAs OxyA
942	76929	76946			DES-008642	TTACactaaatccaTACA	ASO-008642	OxyTs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAas OxyTs OxyAs OxyMCs OxyA
943	76929	76947			DES-008646	CTTacactaaatccaTAC A	ASO-008646	OxyMCs OxyTs OxyTs DNAas DNAcs DNAas DNAcs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAas OxyTs OxyAs OxyMCs OxyA
944	76929	76948			DES-008650	ACttacactaaatccaTAC A	ASO-008650	OxyAs OxyMCs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAts DNAas DNAas DNAts DNAcs DNAcs DNAas OxyTs OxyAs OxyMCs OxyA
945	76930	76946			DES-008641	TTACactaaatccATAC	ASO-008641	OxyTs OxyTs OxyAs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAts DNAcs DNAcs OxyAs OxyTs OxyAs OxyMC
946	76931	76947			DES-008645	CTTAcactaaatcCATA	ASO-008645	OxyMCs OxyTs OxyTs OxyAs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAts DNAcs OxyMCs OxyAs OxyTs OxyA
947	76931	76948			DES-008649	ACTTacactaaatcCATA	ASO-008649	OxyAs OxyMCs OxyTs OxyTs DNAas DNAcs DNAas DNAcs DNAts DNAas DNAas DNAts DNAcs OxyMCs OxyAs OxyTs OxyA
948	76932	76948			DES-008648	ACTTacactaaatCCAT	ASO-008648	OxyAs OxyMCs OxyTs OxyTs DNAas DNAcs DNAas DNAcs DNAts DNAas DNAas DNAts OxyMCs OxyMCs OxyAs OxyT
949	77053	77070			DES-008651	GCCAaataatttttaaCC	ASO-008651	OxyGs OxyMCs OxyMCs OxyAs DNAas DNAas DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAas OxyMCs OxyMC
950	77331	77349			DES-008652	GTAAtcacctaaaaATT A	ASO-008652	OxyGs OxyTs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas DNAas OxyAs OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
951	77644	77662			DES-008653	ACTAttcacaaaaatATTT	ASO-008653	OxyAs OxyMCs OxyTs OxyAs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
952	77644	77663			DES-008655	TACTattcacaaaaatATTT	ASO-008655	OxyTs OxyAs OxyMCs OxyTs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
953	77645	77663			DES-008654	TACTattcacaaaaaTATT	ASO-008654	OxyTs OxyAs OxyMCs OxyTs DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
954	77645	77664			DES-008658	CTACtattcacaaaaaTATT	ASO-008658	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
955	77646	77664			DES-008657	CTACtattcacaaaaATAT	ASO-008657	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas OxyAs OxyTs OxyAs OxyT
956	77646	77665			DES-008660	TCTActattcacaaaaATAT	ASO-008660	OxyTs OxyMCs OxyTs OxyAs DNAcs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas OxyAs OxyTs OxyAs OxyT
957	77647	77664			DES-008656	CTACtattcacaaaAATA	ASO-008656	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas OxyAs OxyAs OxyTs OxyA
958	77647	77665			DES-008661	TCTActattcacaaaAATA	ASO-008661	OxyTs OxyMCs OxyTs OxyAs DNAcs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas OxyAs OxyAs OxyTs OxyA
959	77647	77666			DES-008663	TTCTactattcacaaaAATA	ASO-008663	OxyTs OxyTs OxyMCs OxyTs DNAas DNAcs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas OxyAs OxyAs OxyTs OxyA
960	77648	77665			DES-008659	TCTActattcacaaAAAT	ASO-008659	OxyTs OxyMCs OxyTs OxyAs DNAcs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyAs OxyT
961	77648	77666			DES-008662	TTCTactattcacaaAAAT	ASO-008662	OxyTs OxyTs OxyMCs OxyTs DNAas DNAcs DNAts DNAas DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyAs OxyT
962	77710	77728			DES-008664	CTATaaacatatctaTAAA	ASO-008664	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAts DNAcs DNAts DNAas OxyTs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
963	77710	77729			DES-008666	ACTAtaaacatatctaTAAA	ASO-008666	OxyAs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts DNAas OxyTs OxyAs OxyAs OxyA
964	77711	77729			DES-008665	ACTAtaaacatatctATAA	ASO-008665	OxyAs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts OxyAs OxyTs OxyAs OxyA
965	77711	77730			DES-008667	AACTataaacatatctATAA	ASO-008667	OxyAs OxyAs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts OxyAs OxyTs OxyAs OxyA
966	77712	77731			DES-008669	TAACtataaacatatcTATA	ASO-008669	OxyTs OxyAs OxyAs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts OxyTs OxyAs OxyTs OxyA
967	77713	77731			DES-008668	TAACtataaacatatCTAT	ASO-008668	OxyTs OxyAs OxyAs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas DNAts OxyMCs OxyTs OxyAs OxyT
968	77714	77731			DES-008670	TAACtataaacataTCTA	ASO-008670	OxyTs OxyAs OxyAs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAts DNAas OxyTs OxyMCs OxyTs OxyA
969	78418	78433			DES-000869	GGatgagaatgtaTGG	ASO-000869	OxyGs OxyGs DNAas DNAts DNAgs DNAas DNAgs DNAas DNAts DNAgs DNAts DNAas OxyTs OxyGs OxyG
970	78463	78480			DES-008671	TATTcttctaacaaAATC	ASO-008671	OxyTs OxyAs OxyTs OxyTs DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyTs OxyMC
971	78463	78481			DES-008672	ATATtcttctaacaaAATC	ASO-008672	OxyAs OxyTs OxyAs OxyTs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyTs OxyMC
972	78463	78482			DES-008673	AATAttcttctaacaaAATC	ASO-008673	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyAs OxyAs OxyTs OxyMC
973	78467	78484			DES-008674	TGAAtattcttctaACAA	ASO-008674	OxyTs OxyGs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
974	78468	78485			DES-008675	TTGAatattcttctAACA	ASO-008675	OxyTs OxyTs OxyGs OxyAs DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAcs DNAts OxyAs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
975	78470	78487			DES-001403	TATtgaatattcttCTAA	ASO-001403	OxyTs OxyAs OxyTs DNAts DNAgs DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyA
975	78470	78487			DES-001610	TATTgaatattcttCTAA	ASO-001610	OxyTs OxyAs OxyTs OxyTs DNAgs DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAts OxyMCs OxyTs OxyAs OxyA
976	79062	79079			DES-008676	TGACattaataattTCTT	ASO-008676	OxyTs OxyGs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAts DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyT
977	79419	79436			DES-006685	GTACatattcttatTCAA	ASO-006685	OxyGs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAas DNAts OxyTs OxyMCs OxyAs OxyA
978	79453	79472			DES-008678	TTACatctttttaaaCAAT	ASO-008678	OxyTs OxyTs OxyAs OxyMCs DNAas DNAts DNAcs DNAts DNAts DNAts DNAts DNAas DNAas DNAas DNAas OxyMCs OxyAs OxyAs OxyT
979	79454	79472			DES-008677	TTACatctttttaaACAA	ASO-008677	OxyTs OxyTs OxyAs OxyMCs DNAas DNAts DNAcs DNAts DNAts DNAts DNAts DNAas DNAas OxyAs OxyMCs OxyAs OxyA
980	80379	80397			DES-008680	ATtcttatcattctcCATT	ASO-008680	OxyAs OxyTs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyAs OxyTs OxyT
981	80379	80398			DES-008681	TattcttatcattctcCATT	ASO-008681	OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyAs OxyTs OxyT
982	80380	80397			DES-008679	ATtcttatcattctCCAT	ASO-008679	OxyAs OxyTs DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyMCs OxyAs OxyT
983	80380	80398			DES-008682	TattcttatcattctcCCAT	ASO-008682	OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyMCs OxyAs OxyT
984	80902	80919			DES-008683	GTAATaaaaatccaCCAT	ASO-008683	OxyGs OxyTs OxyAs OxyAs DNAts DNAas DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAcs DNAas OxyMCs OxyMCs OxyAs OxyT
985	80903	80920			DES-008684	TGTAataaaaatccACCA	ASO-008684	OxyTs OxyGs OxyTs OxyAs DNAas DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAcs OxyAs OxyMCs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
986	81956	81973			DES-008685	ATCActatcttcaatCAT	ASO-008685	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAts DNAcs DNAts DNAts DNAcs DNAas DNAas DNAts OxyMCs OxyAs OxyT
987	82603	82622			DES-008687	ACTTtttctaataccaACA	ASO-008687	OxyAs OxyMCs OxyTs OxyTs DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs DNAcs DNAas OxyAs OxyMCs OxyA
988	82604	82621			DES-008686	CTTTtttctaatacCAAC	ASO-008686	OxyMCs OxyTs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs OxyMCs OxyAs OxyAs OxyMC
989	82604	82622			DES-008689	ACTTtttctaatacCAAC	ASO-008689	OxyAs OxyMCs OxyTs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs OxyMCs OxyAs OxyAs OxyMC
990	82604	82623			DES-008690	CACttttttctaatacCAAC	ASO-008690	OxyMCs OxyAs OxyMCs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs OxyMCs OxyAs OxyAs OxyMC
991	82605	82622			DES-008688	ACTTtttctaataCCAA	ASO-008688	OxyAs OxyMCs OxyTs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas OxyMCs OxyMCs OxyAs OxyA
992	82605	82623			DES-008692	CACttttttctaataCCAA	ASO-008692	OxyMCs OxyAs OxyMCs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas OxyMCs OxyMCs OxyAs OxyA
993	82605	82624			DES-008693	TCacttttttctaataCCAA	ASO-008693	OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas OxyMCs OxyMCs OxyAs OxyA
994	82606	82623			DES-008691	CACttttttctaataCCA	ASO-008691	OxyMCs OxyAs OxyMCs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas OxyMCs OxyMCs OxyA
995	82606	82624			DES-008694	TCacttttttctaatACCA	ASO-008694	OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts OxyAs OxyMCs OxyMCs OxyA
996	82607	82626			DES-008696	TTTCacttttttctaataCC	ASO-008696	OxyTs OxyTs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas OxyMCs OxyMC
997	82608	82626			DES-008695	TTTCacttttttctaATAC	ASO-008695	OxyTs OxyTs OxyTs OxyMCs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
998	82609	82628			DES-008697	ATTTtcacttttttctAATA	ASO-008697	OxyAs OxyTs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs DNAts OxyAs OxyAs OxyTs OxyA
999	82611	82630			DES-008699	AAATtttcacttttttcTAA	ASO-008699	OxyAs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAcs OxyTs OxyAs OxyA
1000	82612	82630			DES-008698	AAATtttcacttttttCTA	ASO-008698	OxyAs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts OxyMCs OxyTs OxyA
1001	82612	82631			DES-008700	AAAatttcacttttTCTA	ASO-008700	OxyAs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAts DNAcs DNAas DNAcs DNAts DNAts DNAts DNAts OxyTs OxyMCs OxyTs OxyA
1002	82690	82707			DES-008701	TTATacaaaccttaCTAT	ASO-008701	OxyTs OxyTs OxyAs OxyTs DNAas DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAts DNAts DNAas OxyMCs OxyTs OxyAs OxyT
1003	82690	82708			DES-008702	TTTAtacaaaccttaCTA T	ASO-008702	OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAts DNAts DNAas OxyMCs OxyTs OxyAs OxyT
1004	82694	82711			DES-008703	ATGTttatacaaaccCTTA	ASO-008703	OxyAs OxyTs OxyGs OxyTs DNAts DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyMCs OxyTs OxyTs OxyA
1005	82855	82874			DES-008705	CattcaaccttaacatcCC	ASO-008705	OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas DNAas DNAcs DNAas DNAts DNAcs OxyMCs OxyMC
1006	82856	82874			DES-008704	CAttcaaccttaacaTCC	ASO-008704	OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas DNAas DNAcs DNAas OxyTs OxyMCs OxyMC
1007	82856	82875			DES-008707	ACattcaaccttaacaTCC	ASO-008707	OxyAs OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAas DNAas DNAcs DNAas OxyTs OxyMCs OxyMC
1008	82857	82875			DES-008706	ACAttcaaccttaaCATC	ASO-008706	OxyAs OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas DNAas OxyMCs OxyAs OxyTs OxyMC
1009	82858	82876			DES-008708	GACAttcaaccttaaCAT	ASO-008708	OxyGs OxyAs OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas DNAas OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1010	82859	82877			DES-008709	AGACattcaaccttaaCA	ASO-008709	OxyAs OxyGs OxyAs OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas DNAas OxyMCs OxyA
1011	82860	82877			DES-008710	AGACattcaaccttaAC	ASO-008710	OxyAs OxyGs OxyAs OxyMCs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAts DNAas OxyAs OxyMC
1012	82862	82879			DES-008711	AAAGacattcaaccTTTA	ASO-008711	OxyAs OxyAs OxyAs OxyGs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs OxyTs OxyTs OxyTs OxyA
1013	82863	82880			DES-008712	CAAAgacattcaacCTTT	ASO-008712	OxyMCs OxyAs OxyAs OxyAs DNAgs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAas DNAcs OxyMCs OxyTs OxyTs OxyT
1014	82865	82881			DES-008713	CCaaagacattcaACCT	ASO-008713	OxyMCs OxyMCs DNAas DNAas DNAas DNAgs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyMCs OxyT
1015	82866	82882			DES-008714	ACCAaagacattcaACC	ASO-008714	OxyAs OxyMCs OxyMCs OxyAs DNAas DNAas DNAgs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas OxyAs OxyMCs OxyMC
1016	83095	83114			DES-008715	TAaactctccaacattTAA A	ASO-008715	OxyTs OxyAs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1017	83097	83116			DES-008717	TATaaactctccaacaTTT A	ASO-008717	OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyA
1018	83098	83117			DES-008720	ATAtaaactctccaacATT T	ASO-008720	OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
1019	83099	83116			DES-008718	TAtaaactctccaaCATT	ASO-008718	OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
1020	83099	83117			DES-008719	ATAtaaactctccaaCATT	ASO-008719	OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
1021	83099	83118			DES-008722	AATAtaaactctccaaCAT T	ASO-008722	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1022	83100	83116			DES-008716	TATaaactctccaaCAT	ASO-008716	OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyMCs OxyAs OxyT
1023	83100	83117			DES-008721	ATATaaactctccaACAT	ASO-008721	OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1024	83100	83118			DES-008723	AATATaaactctccaACAT	ASO-008723	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1025	83100	83119			DES-008725	AAATataaactctccaACA T	ASO-008725	OxyAs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1026	83101	83118			DES-008724	AATATaaactctccAACA	ASO-008724	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAcs OxyAs OxyAs OxyMCs OxyA
1027	83102	83121			DES-008726	TAAAatataaactctCAA C	ASO-008726	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAas DNAas DNAcs DNAts DNAcs DNAts DNAcs OxyMCs OxyAs OxyAs OxyMC
1028	83103	83121			DES-008727	TAAAatataaactctCCAA	ASO-008727	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAas DNAas DNAcs DNAts DNAcs DNAts OxyMCs OxyAs OxyA
1029	83215	83234			DES-008729	ATTTcatattattcatTAA A	ASO-008729	OxyAs OxyTs OxyTs OxyTs DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyA
1031	83216	83234			DES-008728	ATTTcatattattcaTTAA	ASO-008728	OxyAs OxyTs OxyTs OxyTs DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyA
1030	83216	83235			DES-008731	AATTtcatattattcaTTA A	ASO-008731	OxyAs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs DNAas OxyTs OxyTs OxyAs OxyA
1032	83217	83235			DES-008730	AATTtcatattattcATTA	ASO-008730	OxyAs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyA
1033	83217	83236			DES-008732	AAATTtcatattattcATTA	ASO-008732	OxyAs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1034	83218	83237			DES-008734	TAAAtttcatattattCATT	ASO-008734	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyMCs OxyAs OxyTs OxyT
1035	83219	83237			DES-008733	TAAAtttcatattatTCAT	ASO-008733	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyMCs OxyAs OxyT
1036	83219	83238			DES-008737	CTAAatttcatattatTCAT	ASO-008737	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAts OxyTs OxyMCs OxyAs OxyT
1037	83220	83238			DES-008735	CTAAatttcatattaTTCA	ASO-008735	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAts DNAas OxyTs OxyTs OxyMCs OxyA
1038	83221	83238			DES-008736	CTAAatttcatattATTC	ASO-008736	OxyMCs OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyMC
1039	84015	84032			DES-008738	TTTAcataccattcATTC	ASO-008738	OxyTs OxyTs OxyTs OxyAs DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyMC
1040	84015	84033			DES-008739	ATTTacataccattcATTC	ASO-008739	OxyAs OxyTs OxyTs OxyTs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyMC
1041	84015	84034			DES-008743	TATTtacataccattcaTTC	ASO-008743	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs DNAas OxyTs OxyTs OxyMC
1042	84016	84033			DES-008740	ATTTacataccattCATT	ASO-008740	OxyAs OxyTs OxyTs OxyTs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts OxyMCs OxyAs OxyTs OxyT
1043	84016	84034			DES-008742	TATTtacataccattCATT	ASO-008742	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts OxyMCs OxyAs OxyTs OxyT
1044	84017	84034			DES-008741	TATTtacataccatTCAT	ASO-008741	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts OxyTs OxyMCs OxyAs OxyT
1045	84017	84035			DES-008746	GTAtttacataccattCAT	ASO-008746	OxyGs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1046	84018	84035			DES-008744	GTAtttacataccaTTCA	ASO-008744	OxyGs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs DNAas OxyTs OxyTs OxyMCs OxyA
1047	84019	84035			DES-008745	GTATttacataccATTC	ASO-008745	OxyGs OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs OxyAs OxyTs OxyTs OxyMC
1048	84019	84036			DES-008747	TGTAtttacataccATTC	ASO-008747	OxyTs OxyGs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAcs OxyAs OxyTs OxyTs OxyMC
1049	84020	84037			DES-008748	CTGtatttacatacCATT	ASO-008748	OxyMCs OxyTs OxyGs DNAts DNAas DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs OxyMCs OxyAs OxyTs OxyT
1050	84695	84712			DES-008749	TGTAaatacaatctATCA	ASO-008749	OxyTs OxyGs OxyTs OxyAs DNAas DNAas DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyMCs OxyA
1051	84696	84713			DES-008750	ATGTaaatacaatcTATC	ASO-008750	OxyAs OxyTs OxyGs OxyTs DNAas DNAas DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs OxyTs OxyAs OxyTs OxyMC
1052	85777	85795			DES-008752	GCAttcatataaatctTCA	ASO-008752	OxyGs OxyMCs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAts OxyTs OxyMCs OxyA
1053	85778	85795			DES-008751	GCATtcatataaatCTTC	ASO-008751	OxyGs OxyMCs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts OxyMCs OxyTs OxyTs OxyMC
1054	85781	85798			DES-008753	TAAGcattcatataAATC	ASO-008753	OxyTs OxyAs OxyAs OxyGs DNAcs DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas OxyAs OxyAs OxyTs OxyMC
1055	86289	86306			DES-008754	CAATgaattctaacCAAA	ASO-008754	OxyMCs OxyAs OxyAs OxyTs DNAgs DNAas DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAcs OxyMCs OxyAs OxyAs OxyA
1056	86434	86451			DES-008755	GTCAtctttacataAAAA	ASO-008755	OxyGs OxyTs OxyMCs OxyAs DNAts DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyAs OxyA
1057	86874	86891			DES-008756	GTCActtatttcttcAAAT	ASO-008756	OxyGs OxyTs OxyMCs OxyAs DNAcs DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs OxyAs OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1058	88268	88286			DES-008757	ATATTatactttcatTTAA	ASO-008757	OxyAs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts OxyTs OxyTs OxyAs OxyA
1059	88268	88287			DES-008758	AATAttatactttcatTTAA	ASO-008758	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAas DNAts OxyTs OxyTs OxyAs OxyA
1060	88269	88288			DES-008760	TAATattatactttcaTTTA	ASO-008760	OxyTs OxyAs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs DNAas OxyTs OxyTs OxyTs OxyA
1061	88270	88288			DES-008759	TAATattatactttcATTT	ASO-008759	OxyTs OxyAs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyT
1062	88270	88289			DES-008761	TTAATattatactttcATTT	ASO-008761	OxyTs OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyTs OxyT
1063	88273	88290			DES-008762	GTTAatattatactTTCA	ASO-008762	OxyGs OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts OxyTs OxyTs OxyMCs OxyA
1064	88318	88337			DES-008763	TTCAaatatattatcACAA	ASO-008763	OxyTs OxyTs OxyMCs OxyAs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
1065	88896	88914			DES-008764	TATTtaaatcacacaACAT	ASO-008764	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyT
1066	89041	89058			DES-006684	TGTTctataactaaTAAT	ASO-006684	OxyTs OxyGs OxyTs OxyTs DNAcs DNAts DNAas DNAts DNAas DNAcs DNAts DNAas DNAas OxyTs OxyAs OxyAs OxyT
1067	89372	89389			DES-008765	TTCAtttaactttcAACC	ASO-008765	OxyTs OxyTs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyMC
1068	89372	89390			DES-008766	TTTCatttaactttcAACC	ASO-008766	OxyTs OxyTs OxyTs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyMC
1069	89372	89391			DES-008768	ATTTcatttaactttcAACC	ASO-008768	OxyAs OxyTs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyAs OxyAs OxyMCs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1070	89373	89391			DES-008767	ATTTcatttaactttCAAC	ASO-008767	OxyAs OxyTs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
1071	89373	89392			DES-008770	CATTtcatttaactttCAAC	ASO-008770	OxyMCs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
1072	89374	89392			DES-008769	CATTtcatttaacttTCAA	ASO-008769	OxyMCs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyAs OxyA
1073	89375	89393			DES-008772	GCatttcatttaactTTCA	ASO-008772	OxyGs OxyMCs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAts OxyTs OxyTs OxyMCs OxyA
1074	89376	89393			DES-008771	GCATttcatttaactTTC	ASO-008771	OxyGs OxyMCs OxyAs OxyTs DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas DNAas DNAcs DNAts OxyTs OxyTs OxyMC
1075	89378	89395			DES-008773	AAGCatttcatttaACTT	ASO-008773	OxyAs OxyAs OxyGs OxyMCs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAts DNAas OxyAs OxyMCs OxyTs OxyT
1076	89412	89428			DES-008774	TAATtgtctttaaCTCC	ASO-008774	OxyTs OxyAs OxyAs OxyTs DNAts DNAgs DNAts DNAcs DNAts DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyMCs OxyMC
1077	90462	90481			DES-006683	CttctcacattcatcataTT	ASO-006683	OxyMCs DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAts DNAas OxyTs OxyT
1078	90492	90510			DES-008775	AtaatttttcctatcTCCA	ASO-008775	OxyAs DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAts DNAcs OxyTs OxyMCs OxyMCs OxyA
1079	90492	90511			DES-008777	AAtaatttttcctatctCCA	ASO-008777	OxyAs OxyAs DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAts DNAcs DNAts OxyMCs OxyMCs OxyA
1080	90493	90510			DES-008776	ATAatttttcctatcTCC	ASO-008776	OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAts DNAcs OxyTs OxyMCs OxyMC
1081	90494	90512			DES-008778	GAATaatttttcctaTCTC	ASO-008778	OxyGs OxyAs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas OxyTs OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1082	90820	90836			DES-008779	TCCccaataaactTCAA	ASO-008779	OxyTs OxyMCs OxyMCs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyAs OxyA
1083	90820	90837			DES-008780	TTCCccaataaacttCAA	ASO-008780	OxyTs OxyTs OxyMCs OxyMCs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts OxyMCs OxyAs OxyA
1084	90820	90839			DES-008782	TAttccccaataaactTCA A	ASO-008782	OxyTs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyAs OxyA
1085	90821	90838			DES-008781	ATTCccaataaactTCA	ASO-008781	OxyAs OxyTs OxyTs OxyMCs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyA
1086	90821	90840			DES-008783	Atattccccaataaac TTC A	ASO-008783	OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyA
1087	90822	90841			DES-008784	AATAttccccaataaac TT C	ASO-008784	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAcs DNAas DNAts DNAas DNAas DNAas DNAcs OxyTs OxyTs OxyMC
1088	90825	90842			DES-008785	CAATattccccaatAAAC	ASO-008785	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAts OxyAs OxyAs OxyAs OxyMC
1089	91089	91107			DES-008786	CTTCacaatttaaatTCAA	ASO-008786	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAas DNAts OxyTs OxyMCs OxyAs OxyA
1090	91089	91108			DES-008787	ACTTcacaatttaaatTCA A	ASO-008787	OxyAs OxyMCs OxyTs OxyTs DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAas DNAts OxyTs OxyMCs OxyAs OxyA
1091	91090	91109			DES-008788	CACTtcacaatttaaaTTC A	ASO-008788	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1092	91091	91109			DES-008789	CACTtcacaatttaaATTC	ASO-008789	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAas OxyAs OxyTs OxyTs OxyMC
1093	91091	91110			DES-008790	ACACttcacaatttaaATT C	ASO-008790	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAas DNAas OxyAs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1094	91092	91110			DES-008792	ACACTtcacaatttaAATT	ASO-008792	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts DNAas OxyAs OxyAs OxyTs OxyT
1095	91093	91110			DES-008791	ACACTtcacaatttAAAT	ASO-008791	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts OxyAs OxyAs OxyAs OxyT
1096	91093	91111			DES-008793	GACActtcacaatttAAAT	ASO-008793	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts OxyAs OxyAs OxyAs OxyT
1097	91094	91112			DES-008794	AGAcacttcacaatttTAAA	ASO-008794	OxyAs OxyGs OxyAs DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1098	91096	91113			DES-008795	TAgacacttcacaaTTTA	ASO-008795	OxyTs OxyAs DNAgs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyA
1099	91097	91114			DES-008796	ATAGacacttcacaaTTT	ASO-008796	OxyAs OxyTs OxyAs OxyGs DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyTs OxyT
1100	91567	91584			DES-008797	TTGAcatacaaaccCAAA	ASO-008797	OxyTs OxyTs OxyGs OxyAs DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAcs OxyMCs OxyAs OxyAs OxyA
1101	91570	91587			DES-008798	CActtgacatacaaaCCC	ASO-008798	OxyMCs OxyAs DNAcs DNAts DNAts DNAgs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyMCs OxyMC
1102	91571	91587			DES-008799	CACTtgacatacaAACC	ASO-008799	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAgs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas OxyAs OxyAs OxyMCs OxyMC
1103	91572	91588			DES-008806	CCACttgacatacAAAC	ASO-008806	OxyMCs OxyMCs OxyAs OxyMCs DNAts DNAts DNAgs DNAas DNAcs DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyAs OxyMC
1104	91630	91645			DES-000864	TATAgagatgaaGTTA	ASO-000864	OxyTs OxyAs OxyTs OxyAs DNAgs DNAas DNAgs DNAas DNAts DNAgs DNAas DNAas OxyGs OxyTs OxyTs OxyA
1105	91631	91646			DES-000863	CTAtagagatgaAGTT	ASO-000863	OxyMCs OxyTs OxyAs DNAts DNAas DNAgs DNAas DNAgs DNAas OxyAs OxyGs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1106	92104	92121			DES-008800	CCTtgaaaacttccaTAA	ASO-008800	OxyMCs OxyMCs OxyTs DNAts DNAgs DNAas DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs DNAcs DNAas OxyTs OxyAs OxyA
1107	92413	92430			DES-008801	CAGAtattcctttaaaCC	ASO-008801	OxyMCs OxyAs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyMCs OxyMC
1108	92414	92431			DES-008802	TCAGatattcctttAAAC	ASO-008802	OxyTs OxyMCs OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyMC
1109	92496	92515			DES-006682	TATTaatcaatatttACTA	ASO-006682	OxyTs OxyAs OxyTs OxyTs DNAas DNAas DNAts DNAcs DNAas DNAas DNAts DNAas DNAts DNAts DNAts OxyAs OxyMCs OxyTs OxyA
1110	92498	92517			DES-006681	ATTAttaatcaaatatTTAC	ASO-006681	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyMC
1111	92499	92518			DES-008803	TATTattaatcaaataTTTA	ASO-008803	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
1112	92500	92519			DES-008804	CTATtattaatcaatATTT	ASO-008804	OxyMCs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
1113	92501	92519			DES-008805	CTATtattaatcaaaTATT	ASO-008805	OxyMCs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
1114	92502	92519			DES-006680	CTATtattaatcaaATAT	ASO-006680	OxyMCs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyAs OxyTs OxyAs OxyT
1115	92503	92520			DES-006679	GCTAttattaatcaAATA	ASO-006679	OxyGs OxyMCs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAas OxyAs OxyAs OxyTs OxyA
1116	92749	92766			DES-008807	TGCCattaacttttttAT	ASO-008807	OxyTs OxyGs OxyMCs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAts OxyAs OxyT
1117	93487	93505			DES-008808	CAtatcacctcctccaAAA	ASO-008808	OxyMCs OxyAs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAts DNAcs DNAcs DNAas OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1118	93493	93510			DES-008809	TacagcatatcacctcCT	ASO-008809	OxyTs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAts DNAcs OxyMCs OxyT
1119	93494	93511			DES-008811	CtacagcatatcacctCC	ASO-008811	OxyMCs DNAts DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyMC
1120	93495	93511			DES-008810	CTacagcatatcacCTC	ASO-008810	OxyMCs OxyTs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs OxyMCs OxyTs OxyMC
1121	93497	93513			DES-008812	CtctacagcatatCACC	ASO-008812	OxyMCs DNAts DNAcs DNAts DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAts DNAas DNAts OxyMCs OxyAs OxyMCs OxyMC
1122	93578	93596			DES-008814	GACTtctattaaaaaTTCA	ASO-008814	OxyGs OxyAs OxyMCs OxyTs DNAts DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1123	93579	93596			DES-008813	GACTtctattaaaaATTC	ASO-008813	OxyGs OxyAs OxyMCs OxyTs DNAts DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAas OxyAs OxyTs OxyTs OxyMC
1124	93665	93683			DES-008815	TTTActtatttactcATAA	ASO-008815	OxyTs OxyTs OxyTs OxyAs DNAcs DNAts DNAts DNAas DNAts DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyTs OxyAs OxyA
1126	95076	95093			DES-008816	CACTaactccatttaATT	ASO-008816	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas OxyAs OxyTs OxyT
1127	95076	95094			DES-008817	CCACtaactccatttaaTT	ASO-008817	OxyMCs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas DNAas OxyTs OxyT
1125	95076	95095			DES-008820	ACCactaactccatttaaTT	ASO-008820	OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas OxyTs OxyT
1130	95077	95094			DES-008818	CCACtaactccatttaAT	ASO-008818	OxyMCs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAas OxyAs OxyT
1128	95077	95095			DES-008821	ACCactaactccatttAAT	ASO-008821	OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAts DNAts DNAts OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1129	95077	95096			DES-008822	AACCactaactccattTAAT	ASO-008822	OxyAs OxyAs OxyMCs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
1133	95078	95095			DES-008819	ACCactaactccatTTAA	ASO-008819	OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyA
1131	95078	95096			DES-008824	AACCactaactccattTAA	ASO-008824	OxyAs OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts OxyTs OxyAs OxyA
1132	95078	95097			DES-008827	AAACcactaactccatTTAA	ASO-008827	OxyAs OxyAs OxyAs OxyMCs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyA
1134	95079	95096			DES-008825	AACCactaactccatTTA	ASO-008825	OxyAs OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyA
1135	95079	95097			DES-008828	AAACcactaactccaTTTA	ASO-008828	OxyAs OxyAs OxyAs OxyMCs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyA
1136	95080	95096			DES-008823	AACCactaactccATTT	ASO-008823	OxyAs OxyAs OxyMCs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs OxyAs OxyTs OxyTs OxyT
1137	95080	95097			DES-008826	AAACcactaactccATTT	ASO-008826	OxyAs OxyAs OxyAs OxyMCs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAts DNAcs DNAcs OxyAs OxyTs OxyTs OxyT
1138	95761	95777			DES-008829	TGCTatacaaatctaCC	ASO-008829	OxyTs OxyGs OxyMCs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAas OxyMCs OxyMC
1139	96217	96234			DES-008830	TCACcacattaatAAAC	ASO-008830	OxyTs OxyMCs OxyAs OxyMCs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAts OxyAs OxyAs OxyAs OxyMC
1140	96217	96235			DES-008832	ATCAccacattaatAAAC	ASO-008832	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAts OxyAs OxyAs OxyAs OxyMC
1142	96218	96235			DES-008831	ATCAccacattaatTAAA	ASO-008831	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1141	96218	96236			DES-008834	GATCaccacattaatTAAA	ASO-008834	OxyGs OxyAs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyA
1143	96219	96236			DES-008833	GATCaccacattaaTTAA	ASO-008833	OxyGs OxyAs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAas OxyTs OxyTs OxyAs OxyA
1144	96220	96236			DES-008835	GATCaccacattaATTA	ASO-008835	OxyGs OxyAs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas OxyAs OxyTs OxyTs OxyA
1145	96222	96238			DES-008836	TAGAtcaccacatTAAT	ASO-008836	OxyTs OxyAs OxyGs OxyAs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyT
1146	96222	96239			DES-008838	ATAGAtcaccacatTAAT	ASO-008838	OxyAs OxyTs OxyAs OxyGs DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyT
1147	96223	96239			DES-008837	ATAGAtcaccacaTTAA	ASO-008837	OxyAs OxyTs OxyAs OxyGs DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAas OxyTs OxyTs OxyAs OxyA
1148	96471	96488			DES-008839	TATTaaaatccttcAACT	ASO-008839	OxyTs OxyAs OxyTs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAts DNAts DNAcs OxyAs OxyAs OxyMCs OxyT
1149	96471	96490			DES-008840	TATAttaaaatccttcAAC T	ASO-008840	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAcs OxyAs OxyAs OxyMCs OxyT
1150	96472	96490			DES-008841	TATAttaaaatccttCAAC	ASO-008841	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
1151	96472	96491			DES-008843	TTATattaaaatccttCAA C	ASO-008843	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts OxyMCs OxyAs OxyAs OxyMC
1152	96473	96491			DES-008842	TTATattaaaatcctTCAA	ASO-008842	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyMCs OxyAs OxyAs OxyA
1153	96473	96492			DES-008844	ATTAtattaaaatcctTCA A	ASO-008844	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1154	96474	96493			DES-008846	TATTatattaaaatccTTCA	ASO-008846	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAcs DNAcs OxyTs OxyTs OxyMCs OxyA
1155	96475	96493			DES-008845	TATTatattaaaatcCTTC	ASO-008845	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAas DNAts DNAcs OxyMCs OxyTs OxyTs OxyMC
1156	96475	96494			DES-008847	ATATtatattaaaatcCTTC	ASO-008847	OxyAs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAts DNAcs OxyMCs OxyTs OxyTs OxyMC
1157	96476	96495			DES-008848	TATAttatattaaaatCCTT	ASO-008848	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas DNAts OxyMCs OxyMCs OxyTs OxyT
1158	96477	96495			DES-008849	TATAttatattaaaaTCCT	ASO-008849	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAas OxyTs OxyMCs OxyMCs OxyT
1159	96558	96577			DES-006678	TtctctatttatttctacCT	ASO-006678	OxyTs DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAas DNAcs OxyMCs OxyT
1160	96559	96576			DES-006677	TCtctatttatttcTACC	ASO-006677	OxyTs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAts DNAcs OxyTs OxyAs OxyMCs OxyMC
1161	96561	96580			DES-006676	AATTtctctatttattTCTA	ASO-006676	OxyAs OxyAs OxyTs OxyTs DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyA
1162	96563	96582			DES-006675	TAAAtttctctatttaTTTC	ASO-006675	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAas OxyTs OxyTs OxyTs OxyMC
1163	96567	96586			DES-006674	TTTCtaaatttctctaTTTA	ASO-006674	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyTs OxyA
1164	96607	96623			DES-008850	CAATgcttaatacTTAT	ASO-008850	OxyMCs OxyAs OxyAs OxyTs DNAgs DNAcs DNAts DNAts DNAas DNAas DNAts DNAas DNAcs OxyTs OxyTs OxyAs OxyT
1165	96608	96624			DES-008851	CCAAtgcttaataCTTA	ASO-008851	OxyMCs OxyMCs OxyAs OxyAs DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAts DNAas OxyMCs OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1166	97494	97513			DES-008852	TTCCataaaatatttaaCCT	ASO-008852	OxyTs OxyTs OxyMCs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyT
1167	97499	97518			DES-008853	ATCAtttccataaaatATTT	ASO-008853	OxyAs OxyTs OxyMCs OxyAs DNAts DNAts DNAts DNAcs DNAcs DNAas DNAts DNAas DNAas DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
1168	97500	97519			DES-008854	AATCatttccataaaaTATT	ASO-008854	OxyAs OxyAs OxyTs OxyMCs DNAas DNAts DNAts DNAcs DNAcs DNAas DNAts DNAas DNAas DNAas DNAas OxyTs OxyAs OxyTs OxyT
1169	98060	98077			DES-008855	CTGAtaaatcattaTAAT	ASO-008855	OxyMCs OxyTs OxyGs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyT
1170	99148	99165			DES-008856	TCAAattcctaaatCATA	ASO-008856	OxyTs OxyMCs OxyAs OxyAs DNAas DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAas DNAts OxyMCs OxyAs OxyTs OxyA
1171	99215	99233			DES-008858	TACAttaactaaaaaCCAA	ASO-008858	OxyTs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas DNAas DNAas OxyMCs OxyMCs OxyAs OxyA
1172	99215	99234			DES-008861	TTACattaactaaaaaCCAA	ASO-008861	OxyTs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas DNAas DNAas OxyMCs OxyMCs OxyAs OxyA
1173	99216	99233			DES-008857	TACAttaactaaaaACCA	ASO-008857	OxyTs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas DNAas DNAas OxyAs OxyMCs OxyMCs OxyA
1174	99216	99234			DES-008860	TTACattaactaaaaACCA	ASO-008860	OxyTs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas DNAas DNAas OxyAs OxyMCs OxyMCs OxyA
1175	99217	99234			DES-008859	TTACattaactaaAACC	ASO-008859	OxyTs OxyTs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas OxyAs OxyAs OxyMCs OxyMC
1176	99217	99235			DES-008862	GTTAcattaactaaaAACC	ASO-008862	OxyGs OxyTs OxyTs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAas DNAas DNAas OxyAs OxyAs OxyMCs OxyMC
1177	99221	99238			DES-008863	CATGttacattaacTAAA	ASO-008863	OxyMCs OxyAs OxyTs OxyGs DNAts DNAts DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs OxyTs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1178	99223	99239			DES-008864	TCATgttacattaACTA	ASO-008864	OxyTs OxyMCs OxyAs OxyTs DNAgs DNAts DNAts DNAas DNAcs DNAas DNAts DNAts DNAas OxyAs OxyMCs OxyTs OxyA
1179	100028	100043			DES-000870	GGGatttgagtagaTT	ASO-000870	OxyGs OxyGs OxyGs DNAas DNAts DNAts DNAts DNAgs DNAas DNAgs DNAts DNAas DNAgs DNAas OxyTs OxyT
1180	101144	101159			DES-001219	CAAagacacaatAGTG	ASO-001219	OxyMCs OxyAs OxyAs DNAas DNAgs DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyGs OxyTs OxyG
1180	101144	101159			DES-001222	CAAAgacacaatAGTG	ASO-001222	OxyMCs OxyAs OxyAs OxyAs DNAgs DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyGs OxyTs OxyG
1181	101145	101160			DES-001243	GCAaagacacaaTAGT	ASO-001243	OxyGs OxyMCs OxyAs DNAas DNAas DNAgs DNAas DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyGs OxyT
1181	101145	101160			DES-001765	GCAaagacacaataGT	ASO-001765	OxyGs OxyMCs OxyAs DNAas DNAas DNAgs DNAas DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas OxyGs OxyT
1182	101983	102002			DES-008865	CATAatatcaaatattTACT	ASO-008865	OxyMCs OxyAs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyMCs OxyT
1183	101984	102002			DES-008866	CATAatatcaaatatTTAC	ASO-008866	OxyMCs OxyAs OxyTs OxyAs DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyMC
1184	101984	102003			DES-008867	TCATaatatcaaatatTTAC	ASO-008867	OxyTs OxyMCs OxyAs OxyTs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyMC
1185	101985	102003			DES-008868	TCATaatatcaaataTTTA	ASO-008868	OxyTs OxyMCs OxyAs OxyTs DNAas DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
1186	102454	102473			DES-008869	AGAAcaaacaaacaacACAC	ASO-008869	OxyAs OxyGs OxyAs OxyAs DNAcs DNAas DNAas DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyMC
1187	105020	105037			DES-006673	ATGTtaaactatatTCAA	ASO-006673	OxyAs OxyTs OxyGs OxyTs DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAas DNAts OxyTs OxyMCs OxyAs OxyA
1188	106478	106497			DES-008870	TTTCtatcaacattttcTAC	ASO-008870	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1189	106481	106499			DES-008871	ATTTtctatcaacatTTTC	ASO-008871	OxyAs OxyTs OxyTs OxyTs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyMC
1190	106481	106500			DES-008872	AATTttctatcaacatTTTC	ASO-008872	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyMC
1191	106482	106500			DES-008873	AATTttctatcaacaTTTT	ASO-008873	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyT
1192	106482	106501			DES-008874	TAATtttctatcaacaTTTT	ASO-008874	OxyTs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyT
1193	106483	106501			DES-008875	TAATtttctatcaacATTT	ASO-008875	OxyTs OxyAs OxyAs OxyTs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
1194	106483	106502			DES-008876	ATAAttttctatcaacATTT	ASO-008876	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
1195	106484	106502			DES-008877	ATAAttttctatcaaCATT	ASO-008877	OxyAs OxyTs OxyAs OxyAs DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
1196	106484	106503			DES-008878	TATAattttctatcaaCATT	ASO-008878	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
1197	106485	106503			DES-008879	TATAattttctatcaACAT	ASO-008879	OxyTs OxyAs OxyTs OxyAs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1198	106485	106504			DES-008882	CTATaattttctatcaACAT	ASO-008882	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1199	106486	106504			DES-008880	CTATaattttctatcAACA	ASO-008880	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyAs OxyAs OxyMCs OxyA
1200	106486	106505			DES-008883	TCTAtaattttctatcAACA	ASO-008883	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAcs OxyAs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1201	106487	106504			DES-008881	CTATaatttctatCAAC	ASO-008881	OxyMCs OxyTs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyAs OxyAs OxyMC
1202	106487	106505			DES-008884	TCTAtaatttctatCAAC	ASO-008884	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyAs OxyAs OxyMC
1203	106487	106506			DES-008886	ATCTataatttctatCAAC	ASO-008886	OxyAs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyMCs OxyAs OxyAs OxyMC
1204	106488	106505			DES-008885	TCTAtaatttctaTCAA	ASO-008885	OxyTs OxyMCs OxyTs OxyAs DNAts DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas OxyTs OxyMCs OxyAs OxyA
1205	106488	106506			DES-008887	ATCTataatttctaTCAA	ASO-008887	OxyAs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas OxyTs OxyMCs OxyAs OxyA
1206	106488	106507			DES-008890	AATCtataatttctaTCAA	ASO-008890	OxyAs OxyAs OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAas OxyTs OxyMCs OxyAs OxyA
1207	106489	106506			DES-008888	ATCTataatttctATCA	ASO-008888	OxyAs OxyTs OxyMCs OxyTs DNAas DNAts DNAas DNAas DNAts DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyMCs OxyA
1208	106489	106507			DES-008889	AATCtataatttctATCA	ASO-008889	OxyAs OxyAs OxyTs OxyMCs DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyMCs OxyA
1209	106638	106655			DES-008891	CTACtaccaaatctATAA	ASO-008891	OxyMCs OxyTs OxyAs OxyMCs DNAts DNAas DNAcs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
1210	107055	107073			DES-008892	TCCttttccaattataTAT	ASO-008892	OxyTs OxyMCs OxyMCs DNAts DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyTs OxyAs OxyT
1211	107055	107074			DES-008895	CtcctttccaattatATAT	ASO-008895	OxyMCs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyAs OxyTs OxyAs OxyT
1212	107056	107074			DES-008893	CTCctttccaattatATA	ASO-008893	OxyMCs OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1213	107056	107075			DES-008896	CctccttttccaattatATA	ASO-008896	OxyMCs DNAcs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts OxyAs OxyTs OxyA
1214	107057	107074			DES-008894	CTCcttttccaattaTAT	ASO-008894	OxyMCs OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas OxyTs OxyAs OxyT
1215	107057	107075			DES-008897	CCtccttttccaattatAT	ASO-008897	OxyMCs OxyMCs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts OxyAs OxyT
1216	107057	107076			DES-008898	AcctccttttccaattatAT	ASO-008898	OxyAs DNAcs DNAcs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAas DNAas DNAts DNAts DNAas DNAts OxyAs OxyT
1217	107205	107220			DES-002706	ATTGtttacataCTCT	ASO-002706	OxyAs OxyTs OxyTs OxyGs DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas OxyMCs OxyTs OxyMCs OxyT
1218	107321	107338			DES-008899	ATGTtatttaatcaTCAA	ASO-008899	OxyAs OxyTs OxyGs OxyTs DNAts DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAas OxyTs OxyMCs OxyAs OxyA
1219	109048	109065			DES-008900	GAATttacataatcTTTT	ASO-008900	OxyGs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAts DNAcs OxyTs OxyTs OxyTs OxyT
1220	109050	109067			DES-008901	CAGAatttacataaTCTT	ASO-008901	OxyMCs OxyAs OxyGs OxyAs DNAas DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas DNAas OxyTs OxyMCs OxyTs OxyT
1221	109051	109068			DES-008902	ACAGaatttacataATCT	ASO-008902	OxyAs OxyMCs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAts DNAas DNAcs DNAas DNAts DNAas OxyAs OxyTs OxyMCs OxyT
1222	109394	109412			DES-008903	GTTAtcaaaaaattaCAA T	ASO-008903	OxyGs OxyTs OxyTs OxyAs DNAts DNAcs DNAas DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyT
1223	109538	109557			DES-008904	AAAAtacctttattcTCTC	ASO-008904	OxyAs OxyAs OxyAs OxyAs DNAts DNAas DNAcs DNAcs DNAts DNAts DNAts DNAts DNAas DNAts DNAcs OxyTs OxyMCs OxyTs OxyMC
1224	109664	109680			DES-008905	GATattatattaaCCCA	ASO-008905	OxyGs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAts DNAts DNAas DNAas OxyMCs OxyMCs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1225	109753	109771			DES-008906	TTATttttaccacaaACAA	ASO-008906	OxyTs OxyTs OxyAs OxyTs DNAts DNAts DNAts DNAts DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyA
1226	109753	109772			DES-008907	TTTAtttttaccacaaACA A	ASO-008907	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAts DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyA
1227	109754	109772			DES-008908	TTTAtttttaccacaAACA	ASO-008908	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAas OxyAs OxyAs OxyMCs OxyA
1228	109754	109773			DES-008909	ATTTattttttaccacaAAC A	ASO-008909	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAas OxyAs OxyAs OxyMCs OxyA
1229	109755	109773			DES-008910	ATTTattttttaccacAAAC	ASO-008910	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAts DNAts DNAas DNAcs DNAcs DNAas DNAcs OxyAs OxyAs OxyAs OxyMC
1230	109755	109774			DES-008911	TATTtatttttaccacAAAC	ASO-008911	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAts DNAts DNAas DNAcs DNAcs DNAas DNAcs OxyAs OxyAs OxyAs OxyMC
1231	109894	109911			DES-008912	AATTtcaactccaaTTTA	ASO-008912	OxyAs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyA
1232	109894	109912			DES-008913	AAATttcaactccaaTTTA	ASO-008913	OxyAs OxyAs OxyAs OxyTs DNAts DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyA
1233	109894	109913			DES-008914	TAAatttcaactccaaTTT A	ASO-008914	OxyTs OxyAs OxyAs DNAas DNAts DNAts DNAts DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyA
1234	109895	109913			DES-008915	TAAAtttcaactccaATTT	ASO-008915	OxyTs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAcs DNAas OxyAs OxyTs OxyTs OxyT
1235	109972	109989			DES-008916	AATttttatcccctataCCT	ASO-008916	OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs DNAts DNAas DNAts DNAas OxyMCs OxyMCs OxyT
1236	109972	109990			DES-008919	CaatttttatcccctataCCT	ASO-008919	OxyMCs DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs DNAts DNAas DNAts DNAas OxyMCs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1237	109973	109989			DES-008917	AATTttatccctaTACC	ASO-008917	OxyAs OxyAs OxyTs OxyTs DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas OxyTs OxyAs OxyMCs OxyMC
1238	109973	109990			DES-008918	CAattttatccctaTACC	ASO-008918	OxyMCs OxyAs DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts DNAas OxyTs OxyAs OxyMCs OxyMC
1239	109973	109991			DES-008920	AcaattttatccctaTACC	ASO-008920	OxyAs DNAcs DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs DNAts DNAas OxyTs OxyAs OxyMCs OxyMC
1240	109973	109992			DES-008923	CacaattttatccctatACC	ASO-008923	OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs DNAts DNAas DNAts OxyAs OxyMCs OxyMC
1241	109974	109991			DES-008921	ACAAttttatccctATAC	ASO-008921	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs DNAts OxyAs OxyTs OxyAs OxyMC
1242	109974	109992			DES-008922	CACaattttatccctATAC	ASO-008922	OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAts OxyAs OxyTs OxyAs OxyMC
1243	109975	109992			DES-008924	CACaattttatcccTATA	ASO-008924	OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAts DNAts DNAas DNAts DNAcs DNAcs DNAcs OxyTs OxyAs OxyTs OxyA
1244	110003	110021			DES-008925	AACAacaaacacttcATA T	ASO-008925	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyAs OxyT
1245	110003	110022			DES-008926	TAACaacaaacacttcAT AT	ASO-008926	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyAs OxyTs OxyAs OxyT
1246	110004	110022			DES-008928	TAACaacaaacacttCAT A	ASO-008928	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts OxyMCs OxyAs OxyTs OxyA
1247	110004	110023			DES-008929	ATAAcaacaaacacttCA TA	ASO-008929	OxyAs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts OxyMCs OxyAs OxyTs OxyA
1248	110005	110022			DES-008927	TAACaacaaacactTCAT	ASO-008927	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1249	110005	110023			DES-008931	ATAAcaacaaacactTCAT	ASO-008931	OxyAs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyAs OxyT
1250	110005	110024			DES-008933	TATAacaacaaacactTCAT	ASO-008933	OxyTs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts OxyTs OxyMCs OxyAs OxyT
1251	110006	110023			DES-008930	ATAAcaacaaacacTTCA	ASO-008930	OxyAs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyTs OxyMCs OxyA
1252	110007	110024			DES-008932	TATAacaacaaacaCTTC	ASO-008932	OxyTs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyTs OxyTs OxyMC
1253	110007	110025			DES-008934	ATATaacaacaaacaCTTC	ASO-008934	OxyAs OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyTs OxyTs OxyMC
1254	110007	110026			DES-008936	AATAtaacaacaaacaCTTC	ASO-008936	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1255	110008	110025			DES-008935	ATATaacaacaaacACTT	ASO-008935	OxyAs OxyTs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyTs OxyT
1256	110009	110027			DES-008937	GAATataacaacaaaCACT	ASO-008937	OxyGs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyT
1257	110010	110028			DES-008938	AGAAtataacaacaaaACAC	ASO-008938	OxyAs OxyGs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1258	110601	110620			DES-008940	CTTAactttacaaatTAAT	ASO-008940	OxyMCs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyT
1259	110602	110620			DES-008939	CTTAactttacaaaTTAA	ASO-008939	OxyMCs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyAs OxyA
1260	110602	110621			DES-008942	TCTTaactttacaaaTTAA	ASO-008942	OxyTs OxyMCs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1261	110603	110621			DES-008941	TCTTaactttacaaATTA	ASO-008941	OxyTs OxyMCs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyTs OxyA
1262	110603	110622			DES-008943	TTCTtaactttacaaATTA	ASO-008943	OxyTs OxyTs OxyMCs OxyTs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyTs OxyA
1263	110604	110622			DES-008944	TTCTtaactttacaAATT	ASO-008944	OxyTs OxyTs OxyMCs OxyTs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAas DNAcs DNAas OxyAs OxyAs OxyTs OxyT
1264	110606	110623			DES-008945	GTTCttaactttaCAAA	ASO-008945	OxyGs OxyTs OxyTs OxyMCs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAts DNAas OxyMCs OxyAs OxyAs OxyA
1265	110608	110625			DES-008946	AAGTtcttaactttTACA	ASO-008946	OxyAs OxyAs OxyGs OxyTs DNAts DNAcs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts OxyTs OxyAs OxyMCs OxyA
1266	110982	110999			DES-006672	TGATtaacatttaaCTAT	ASO-006672	OxyTs OxyGs OxyAs OxyTs DNAts DNAas DNAas DNAcs DNAas DNAts DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyAs OxyT
1267	111508	111526			DES-008947	AAgtacatacacatcaCCA	ASO-008947	OxyAs OxyAs DNAgs DNAts DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyMCs OxyA
1268	111509	111526			DES-008948	AAGTacatacacatcaCC	ASO-008948	OxyAs OxyAs OxyGs OxyTs DNAas DNAcs DNAas DNAts DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyMC
1269	112229	112247			DES-008949	ACTTtctcattaataTTTA	ASO-008949	OxyAs OxyMCs OxyTs OxyTs DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
1270	112229	112248			DES-008950	AACTttctcattaataTTT A	ASO-008950	OxyAs OxyAs OxyMCs OxyTs DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyA
1271	112230	112249			DES-008951	TAACtttctcattaatATTT	ASO-008951	OxyTs OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAts OxyAs OxyTs OxyTs OxyT
1272	112231	112249			DES-008952	TAACtttctcattaaTATT	ASO-008952	OxyTs OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAts OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1273	112231	112250			DES-008953	TTAActttctcattaaTATT	ASO-008953	OxyTs OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyTs OxyT
1274	112232	112250			DES-008954	TTAActttctcattaATAT	ASO-008954	OxyTs OxyTs OxyAs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAcs DNAas DNAts DNAts DNAas OxyAs OxyTs OxyAs OxyT
1275	112232	112251			DES-008957	ATTAactttctcattaATAT	ASO-008957	OxyAs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAas DNAts DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyT
1276	112233	112251			DES-008956	ATTAactttctcattAATA	ASO-008956	OxyAs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyAs OxyAs OxyTs OxyA
1277	112233	112252			DES-008958	CATTaactttctcattAATA	ASO-008958	OxyMCs OxyAs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyAs OxyAs OxyTs OxyA
1278	112234	112251			DES-008955	ATTAactttctcatTAAT	ASO-008955	OxyAs OxyTs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
1279	112234	112252			DES-008959	CATTaactttctcatTAAT	ASO-008959	OxyMCs OxyAs OxyTs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
1280	112234	112253			DES-008960	TCATtaactttctcatTAAT	ASO-008960	OxyTs OxyMCs OxyAs OxyTs DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyT
1281	112235	112254			DES-008961	ATCAttaactttctcaTTAA	ASO-008961	OxyAs OxyTs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs DNAas OxyTs OxyTs OxyAs OxyA
1282	112236	112254			DES-008962	ATCAttaactttctcATTA	ASO-008962	OxyAs OxyTs OxyMCs OxyAs DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs OxyAs OxyTs OxyTs OxyA
1283	112237	112256			DES-008965	ACAtcattaactttctCATT	ASO-008965	OxyAs OxyMCs OxyAs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyAs OxyTs OxyT
1284	112238	112255			DES-008963	CATCattaactttcTCAT	ASO-008963	OxyMCs OxyAs OxyTs OxyMCs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1285	112238	112256			DES-008964	ACAtcattaactttcTCAT	ASO-008964	OxyAs OxyMCs OxyAs DNAts DNAcs DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts DNAcs OxyTs OxyMCs OxyAs OxyT
1286	112239	112257			DES-008966	GACAtcattaactttctCA	ASO-008966	OxyGs OxyAs OxyMCs OxyAs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyA
1287	112240	112257			DES-008967	GACAtcattaactttCTC	ASO-008967	OxyGs OxyAs OxyMCs OxyAs DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyTs OxyMC
1288	112240	112258			DES-008968	CGAcatcattaactttCTC	ASO-008968	OxyMCs OxyGs OxyAs DNAcs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyTs OxyMC
1289	112241	112258			DES-008969	CGACatcattaacttTCT	ASO-008969	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyT
1290	112242	112258			DES-008970	CGACatcattaacTTTC	ASO-008970	OxyMCs OxyGs OxyAs OxyMCs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyTs OxyMC
1291	112243	112259			DES-008971	ACGAcatcattaacCTTT	ASO-008971	OxyAs OxyMCs OxyGs OxyAs DNAcs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyT
1292	112243	112260			DES-008972	AACGacatcattaacCTTT	ASO-008972	OxyAs OxyAs OxyMCs OxyGs DNAas DNAcs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyT
1293	112244	112260			DES-008973	AACGacatcattaACTT	ASO-008973	OxyAs OxyAs OxyMCs OxyGs DNAas DNAcs DNAas DNAts DNAcs DNAas DNAts DNAts DNAas OxyAs OxyMCs OxyTs OxyT
1294	113074	113091			DES-008974	GCAtacatatttaaCACA	ASO-008974	OxyGs OxyMCs OxyAs DNAts DNAas DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1295	113074	113092			DES-008975	AGCAtacatatttaacACA	ASO-008975	OxyAs OxyGs OxyMCs OxyAs DNAts DNAas DNAcs DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1296	113075	113092			DES-008976	AGCAtacatatttaACAC	ASO-008976	OxyAs OxyGs OxyMCs OxyAs DNAts DNAas DNAcs DNAas DNAts DNAas DNAts DNAts DNAas OxyAs OxyMCs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1297	114008	114026			DES-008977	CTTCattctaatattTAAA	ASO-008977	OxyMCs OxyTs OxyTs OxyMCs DNAas DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1298	114008	114027			DES-008978	TCTTcattctaatattTAA A	ASO-008978	OxyTs OxyMCs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1299	114009	114027			DES-008979	TCTTcattctaatatTTAA	ASO-008979	OxyTs OxyMCs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAts DNAas DNAts OxyTs OxyTs OxyAs OxyA
1300	114012	114030			DES-008980	CCttcttcattctaaTATT	ASO-008980	OxyMCs OxyMCs DNAts DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyT
1301	114013	114030			DES-008981	CCTtcttcattctaaTAT	ASO-008981	OxyMCs OxyMCs OxyTs DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas OxyTs OxyAs OxyT
1302	114013	114031			DES-008982	TCCttcttcattctaatAT	ASO-008982	OxyTs OxyMCs OxyMCs DNAts DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAas DNAas DNAts OxyAs OxyT
1303	114059	114074	609	624	DES-000881	CAggatccacaggCAT	ASO-000881	OxyMCs OxyAs DNAgs DNAgs DNAas DNAts DNAcs DNAcs DNAas DNAgs DNAgs OxyMCs OxyAs OxyT
1304	114079	114094	629	644	DES-000885	CATttcataagccTCA	ASO-000885	OxyMCs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAas DNAgs DNAcs DNAcs OxyTs OxyMCs OxyA
1305	114080	114095	630	645	DES-000882	GCAtttcataagccTC	ASO-000882	OxyGs OxyMCs OxyAs DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAgs DNAcs DNAcs OxyTs OxyMC
1306	114081	114096	631	646	DES-000880	GGcatttcataagcCT	ASO-000880	OxyGs OxyGs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAgs DNAcs OxyMCs OxyT
1307	114082	114097	632	647	DES-000884	AGgcatttcataagCC	ASO-000884	OxyAs OxyGs DNAgs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAas DNAts DNAas DNAas DNAgs OxyMCs OxyMC
1308	114083	114098	633	648	DES-000883	AAGgcatttcataaGC	ASO-000883	OxyAs OxyAs OxyGs DNAgs DNAcs DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAas OxyGs OxyMC
1309	114392	114411			DES-008984	CTAAaaatatattctcTAA T	ASO-008984	OxyMCs OxyTs OxyAs OxyAs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts DNAcs OxyTs OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1310	114393	114411			DES-008983	CTAAaaatatattctCTAA	ASO-008983	OxyMCs OxyTs OxyAs OxyAs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyAs OxyA
1311	114393	114412			DES-008986	TCTAaaaatatattctCTA A	ASO-008986	OxyTs OxyMCs OxyTs OxyAs DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyAs OxyA
1312	114394	114412			DES-008985	TCTAaaaatatattcTCTA	ASO-008985	OxyTs OxyMCs OxyTs OxyAs DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs OxyTs OxyMCs OxyTs OxyA
1313	114394	114413			DES-008987	TTCTaaaaatatattcTCT A	ASO-008987	OxyTs OxyTs OxyMCs OxyTs DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAcs OxyTs OxyA
1314	114438	114454			DES-008988	CCctaactttccatTTA	ASO-008988	OxyMCs OxyMCs DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAas DNAts OxyTs OxyTs OxyA
1315	114440	114458			DES-008989	AtttccctaactttcCATT	ASO-008989	OxyAs DNAts DNAts DNAts DNAcs DNAcs DNAcs DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs OxyMCs OxyAs OxyTs OxyT
1316	114442	114459			DES-008990	GAtttccctaactttcCA	ASO-008990	OxyGs OxyAs DNAts DNAts DNAcs DNAcs DNAcs DNAts DNAas DNAcs DNAts DNAts DNAcs DNAts OxyMCs OxyA
1317	114442	114460			DES-008991	TgatttccctaactttcCA	ASO-008991	OxyTs DNAgs DNAas DNAts DNAts DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyMCs OxyA
1318	114659	114676			DES-006671	GATAcatttctatTAAA	ASO-006671	OxyGs OxyAs OxyTs OxyAs DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyA
1319	114660	114677			DES-006670	TGATacatttctaTTAA	ASO-006670	OxyTs OxyGs OxyAs OxyTs DNAas DNAcs DNAas DNAts DNAts DNAts DNAcs DNAts DNAas OxyTs OxyTs OxyAs OxyA
1320	114698	114715			DES-006669	AGTTttattcatctAACA	ASO-006669	OxyAs OxyGs OxyTs OxyTs DNAts DNAts DNAas DNAts DNAts DNAcs DNAas DNAts DNAts OxyAs OxyAs OxyMCs OxyA
1321	114851	114868			DES-006668	AGTAttaattcctctTTA	ASO-006668	OxyAs OxyGs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAts OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1322	115397	115415			DES-008992	TTAAtctcaatttctATAA	ASO-008992	OxyTs OxyTs OxyAs OxyAs DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
1323	115397	115416			DES-008993	TTTAatctcaatttctATAA	ASO-008993	OxyTs OxyTs OxyTs OxyAs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
1324	115399	115418			DES-008995	AATTtaatctcaatttCTA T	ASO-008995	OxyAs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyAs OxyT
1325	115400	115418			DES-008994	AATTtaatctcaattTCTA	ASO-008994	OxyAs OxyAs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyA
1326	115400	115419			DES-008998	CAATttaatctcaattTCT A	ASO-008998	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyTs OxyA
1327	115401	115419			DES-008997	CAATttaatctcaatTTCT	ASO-008997	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyT
1328	115401	115420			DES-009000	ACAAtttaatctcaatTTC T	ASO-009000	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAts DNAts OxyTs OxyTs OxyMCs OxyT
1329	115402	115419			DES-008996	CAATttaatctcaaTTTC	ASO-008996	OxyMCs OxyAs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
1330	115402	115420			DES-008999	ACAAtttaatctcaaTTTC	ASO-008999	OxyAs OxyMCs OxyAs OxyAs DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
1331	115402	115421			DES-009001	AACAatttaatctcaaTTT C	ASO-009001	OxyAs OxyAs OxyMCs OxyAs DNAas DNAts DNAts DNAts DNAas DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyTs OxyTs OxyTs OxyMC
1332	115538	115555			DES-009002	TTTtcatcaaacctaCCA	ASO-009002	OxyTs OxyTs OxyTs DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyMCs OxyA
1333	115538	115556			DES-009003	TTtttcatcaaacctaCCA	ASO-009003	OxyTs OxyTs DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAts DNAcs DNAts DNAas OxyMCs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1334	115538	115557			DES-009004	TtttttcatcaaacctaCCA	ASO-009004	OxyTs DNAts DNAts DNAts DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAts DNAas OxyMCs OxyMCs OxyA
1335	115539	115557			DES-009005	TTTTttcatcaaacctaCC	ASO-009005	OxyTs OxyTs OxyTs OxyTs DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAts DNAas OxyMCs OxyMC
1336	115539	115558			DES-009006	TTTTttcatcaaacctaCC	ASO-009006	OxyTs OxyTs OxyTs OxyTs DNAts DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAts DNAas OxyMCs OxyMC
1337	115721	115738			DES-009007	CCagatcaacattacCTC	ASO-009007	OxyMCs OxyMCs DNAas DNAgs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAts DNAas DNAts DNAas DNAcs OxyMCs OxyTs OxyMC
1338	115723	115740			DES-009008	ACccagatcaacattaCC	ASO-009008	OxyAs OxyMCs DNAcs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAas OxyMCs OxyMC
1339	115724	115740			DES-009009	ACCcagatcaacaTTAC	ASO-009009	OxyAs OxyMCs OxyMCs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyMC
1340	115725	115741			DES-009010	CACCcagatcaacatTA	ASO-009010	OxyMCs OxyAs OxyMCs OxyMCs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyA
1341	115726	115742			DES-009011	CCacccagatcaacATT	ASO-009011	OxyMCs OxyMCs DNAas DNAcs DNAcs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyT
1342	115885	115904			DES-006666	AAtctatcaccatttccCTT	ASO-006666	OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs OxyMCs OxyTs OxyT
1343	115885	115902			DES-006667	TCtatcaccatttccCTT	ASO-006667	OxyTs OxyMCs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyTs OxyT
1345	115886	115903			DES-006665	Atctatcaccatttcct	ASO-006665	OxyAs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAts OxyMCs OxyMCs OxyT
1344	115886	115904			DES-009012	AatctatcaccatttcCT	ASO-009012	OxyAs DNAas DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAts OxyMCs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1347	115888	115907			DES-006663	TTCAatctatcaccatttTC	ASO-006663	OxyTs OxyTs OxyMCs OxyAs DNAas DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts OxyTs OxyMC
1348	115888	115905			DES-006664	CAATctatcaccatTTTC	ASO-006664	OxyMCs OxyAs OxyAs OxyTs DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts OxyTs OxyTs OxyTs OxyMC
1346	115888	115906			DES-009013	TCAAtctatcaccattTTC	ASO-009013	OxyTs OxyMCs OxyAs OxyAs DNAts DNAcs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts OxyTs OxyTs OxyMC
1349	115930	115947			DES-006662	CCTAatactctataacTT	ASO-006662	OxyMCs OxyMCs OxyTs OxyAs DNAas DNAts DNAas DNAcs DNAts DNAcs DNAts DNAas DNAas DNAcs OxyTs OxyT
1350	115933	115952			DES-006660	ATTAtcctaatactctATA A	ASO-006660	OxyAs OxyTs OxyTs OxyAs DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAcs DNAcs DNAts DNAcs DNAts OxyAs OxyTs OxyAs OxyA
1351	115933	115950			DES-006661	TATCctaatactctATAA	ASO-006661	OxyTs OxyAs OxyTs OxyMCs DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs DNAts DNAcs OxyAs OxyTs OxyAs OxyA
1352	115934	115951			DES-006659	TTAtcctaatactcTATA	ASO-006659	OxyTs OxyTs OxyAs DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs DNAts DNAcs OxyTs OxyAs OxyTs OxyA
1353	115935	115952			DES-006658	ATTAtcctaatactCTAT	ASO-006658	OxyAs OxyTs OxyTs OxyAs DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAas DNAcs DNAts OxyMCs OxyTs OxyAs OxyT
1354	116659	116676	676	693	DES-001707	ATatttcttaggcttCAG	ASO-001707	OxyAs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts DNAts OxyMCs OxyAs OxyG
1354	116659	116676	676	693	DES-001732	ATatttcttaggcttcAG	ASO-001732	OxyAs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts DNAcs DNAts OxyAs OxyG
1355	116660	116677	677	694	DES-001375	GATatttcttaggcttCA	ASO-001375	OxyGs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts DNAts OxyMCs OxyA
1355	116660	116677	677	694	DES-001750	GAtatttcttaggcttCA	ASO-001750	OxyGs OxyAs DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts DNAts OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1356	116661	116678	678	695	DES-001391	AGAtatttcttaggctTC	ASO-001391	OxyAs OxyGs OxyAs DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts OxyTs OxyMC
1356	116661	116678	678	695	DES-001747	AGatatttcttaggctTC	ASO-001747	OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs DNAts OxyTs OxyMC
1357	116662	116679	679	696	DES-001307	AAGatatttcttaggcTT	ASO-001307	OxyAs OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAgs DNAcs OxyTs OxyT
1357	116662	116679	679	696	DES-001317	AAGatatttcttagGCTT	ASO-001317	OxyAs OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs OxyGs OxyMCs OxyTs OxyT
1358	116663	116680	680	697	DES-001350	AAAgatatttcttaGGCT	ASO-001350	OxyAs OxyAs OxyAs DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas OxyGs OxyGs OxyMCs OxyT
1358	116663	116680	680	697	DES-001705	AAagatatttcttagGCT	ASO-001705	OxyAs OxyAs DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs OxyGs OxyMCs OxyT
1359	116664	116679	681	696	DES-001217	AAGatatttcttaGGC	ASO-001217	OxyAs OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas OxyGs OxyGs OxyMC
1359	116664	116679	681	696	DES-001647	AAGatatttcttagGC	ASO-001647	OxyAs OxyAs OxyGs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs OxyGs OxyMC
1360	116665	116682	682	699	DES-001509	GCAaagatatttcttAGG	ASO-001509	OxyGs OxyMCs OxyAs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts OxyAs OxyGs OxyG
1360	116665	116682	682	699	DES-001739	GCaaagatatttcttaGG	ASO-001739	OxyGs OxyMCs DNAas DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas OxyGs OxyG
1361	116666	116683	683	700	DES-001503	AGCaaagatatttctTAG	ASO-001503	OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts OxyTs OxyAs OxyG
1361	116666	116683	683	700	DES-001704	AGcaaagatatttctTAG	ASO-001704	OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs DNAts OxyTs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1362	116667	116684	684	701	DES-001333	GAGcaaagatatttCTTA	ASO-001333	OxyGs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyTs OxyA
1362	116667	116684	684	701	DES-001697	GAgcaaagatatttcTTA	ASO-001697	OxyGs OxyAs DNAgs DNAcs DNAas DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs OxyTs OxyTs OxyA
1363	116668	116685	685	702	DES-001500	GGAgcaaagatatttCTT	ASO-001500	OxyGs OxyGs OxyAs DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts OxyMCs OxyTs OxyT
1363	116668	116685	685	702	DES-001713	GGagcaaagatatttcTT	ASO-001713	OxyGs OxyGs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts DNAts DNAcs OxyTs OxyT
1364	116669	116688	686	705	DES-001345	CTgggagcaaagatattT CT	ASO-001345	OxyMCs OxyTs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts OxyTs OxyMCs OxyT
1364	116669	116688	686	705	DES-001526	CTgggagcaaagatatttC T	ASO-001526	OxyMCs OxyTs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts OxyMCs OxyT
1365	116670	116687	687	704	DES-001507	TGGgagcaaagatatTTC	ASO-001507	OxyTs OxyGs OxyGs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts OxyTs OxyTs OxyMC
1365	116670	116687	687	704	DES-001725	TGgagcaaagatattTC	ASO-001725	OxyTs OxyGs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAts OxyTs OxyMC
1366	116671	116688	688	705	DES-001410	CTGggagcaaagatATT T	ASO-001410	OxyMCs OxyTs OxyGs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts OxyAs OxyTs OxyTs OxyT
1366	116671	116688	688	705	DES-001692	CTgggagcaaagataTTT	ASO-001692	OxyMCs OxyTs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAas OxyTs OxyTs OxyT
1367	116672	116687	689	704	DES-001651	TGGgagcaaagaTATT	ASO-001651	OxyTs OxyGs OxyGs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas DNAgs DNAas OxyTs OxyAs OxyTs OxyT
1367	116672	116687	689	704	DES-001766	TGGgagcaaagataTT	ASO-001766	OxyTs OxyGs OxyGs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAas OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1368	116673	116688	690	705	DES-001231	CTGggagcaaagATAT	ASO-001231	OxyMCs OxyTs OxyGs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas DNAgs OxyAs OxyTs OxyAs OxyT
1368	116673	116688	690	705	DES-001457	CTgggagcaaagaTAT	ASO-001457	OxyMCs OxyTs DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas DNAgs DNAas OxyTs OxyAs OxyT
1369	116674	116689	691	706	DES-001254	ACTgggagcaaaGATA	ASO-001254	OxyAs OxyMCs OxyTs DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas OxyGs OxyAs OxyTs OxyA
1369	116674	116689	691	706	DES-001644	ACTgggagcaaagaTA	ASO-001644	OxyAs OxyMCs OxyTs DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas DNAgs DNAas OxyTs OxyA
1370	116675	116692	692	709	DES-001621	GAAActgggagcaaAGAT	ASO-001621	OxyGs OxyAs OxyAs OxyAs DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas OxyAs OxyGs OxyAs OxyT
1370	116675	116692	692	709	DES-001698	GAaactgggagcaaaGAT	ASO-001698	OxyGs OxyAs DNAas DNAas DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas OxyGs OxyAs OxyT
1371	116676	116693	693	710	DES-001332	AGAaactgggagcaAAGA	ASO-001332	OxyAs OxyGs OxyAs DNAas DNAas DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas OxyAs OxyAs OxyGs OxyA
1371	116676	116693	693	710	DES-001718	AGaaactgggagcaaaGA	ASO-001718	OxyAs OxyGs DNAas DNAas DNAas DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs DNAas DNAas DNAas OxyGs OxyA
1372	116677	116694	694	711	DES-001356	AAGaaactgggagcAAAG	ASO-001356	OxyAs OxyAs OxyGs DNAas DNAas DNAas DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs OxyAs OxyAs OxyAs OxyG
1372	116677	116694	694	711	DES-001598	AAGAaactgggagcAAAG	ASO-001598	OxyAs OxyAs OxyGs OxyAs DNAas DNAas DNAcs DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAcs OxyAs OxyAs OxyAs OxyG
1373	116684	116701	701	718	DES-001731	AGatctcaagaaactgGG	ASO-001731	OxyAs OxyGs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas DNAas DNAcs DNAts DNAgs OxyGs OxyG
1374	116685	116700	702	717	DES-001301	GATctcaagaaaCTGG	ASO-001301	OxyGs OxyAs OxyTs DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas DNAas OxyMCs OxyTs OxyGs OxyG
1374	116685	116700	702	717	DES-001466	GAtctcaagaaacTGG	ASO-001466	OxyGs OxyAs DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas DNAas DNAcs OxyTs OxyGs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1375	116686	116703	703	720	DES-001653	GCAgatctcaagaaacTG	ASO-001653	OxyGs OxyMCs OxyAs DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAgs DNAas DNAas DNAas DNAcs OxyTs OxyG
1375	116686	116703	703	720	DES-001735	GCagatctcaagaaacTG	ASO-001735	OxyGs OxyMCs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas DNAas DNAcs OxyTs OxyG
1376	116687	116704	704	721	DES-001501	AGCagatctcaagaaACT	ASO-001501	OxyAs OxyGs OxyMCs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas OxyAs OxyMCs OxyT
1376	116687	116704	704	721	DES-001721	AGcagatctcaagaaaCT	ASO-001721	OxyAs OxyGs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas DNAas OxyMCs OxyT
1377	116688	116703	705	720	DES-001259	GCAGatctcaagAAAC	ASO-001259	OxyGs OxyMCs OxyAs OxyGs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs OxyAs OxyAs OxyAs OxyMC
1377	116688	116703	705	720	DES-001450	GCAgatctcaagaaAC	ASO-001450	OxyGs OxyMCs OxyAs DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas DNAas OxyAs OxyMC
1378	116689	116706	706	723	DES-001315	TCAgcagatctcaaGAAA	ASO-001315	OxyTs OxyMCs OxyAs DNAgs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyGs OxyAs OxyAs OxyA
1378	116689	116706	706	723	DES-001390	TCAgcagatctcaagaAA	ASO-001390	OxyTs OxyMCs OxyAs DNAgs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas DNAgs DNAas OxyAs OxyA
1379	116690	116707	707	724	DES-001513	GTCagcagatctcaaGAA	ASO-001513	OxyGs OxyTs OxyMCs DNAas DNAgs DNAcs DNAas DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyGs OxyAs OxyA
1380	116691	116706	708	723	DES-001462	TCagcagatctcaaGA	ASO-001462	OxyTs OxyMCs DNAas DNAgs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyGs OxyA
1380	116691	116706	708	723	DES-001650	TCAgcagatctcaaGA	ASO-001650	OxyTs OxyMCs OxyAs DNAgs DNAcs DNAas DNAgs DNAas DNAts DNAcs DNAts DNAcs DNAas DNAas OxyGs OxyA
1381	116721	116738	738	755	DES-001749	GAactgagcacttgtaCA	ASO-001749	OxyGs OxyAs DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAts DNAgs DNAts DNAas OxyMCs OxyA
1382	116722	116739	739	756	DES-001746	GGaactgagcacttgtAC	ASO-001746	OxyGs OxyGs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAts DNAgs DNAts OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1383	116723	116740	740	757	DES-001756	TGgaactgagcacttgTA	ASO-001756	OxyTs OxyGs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAts DNAgs OxyTs OxyA
1384	116724	116739	741	756	DES-001440	GGaactgagcactTGT	ASO-001440	OxyGs OxyGs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas DNAcs DNAts OxyTs OxyGs OxyT
1385	116725	116742	742	759	DES-001312	ATTggaactgagcaCTTG	ASO-001312	OxyAs OxyTs OxyTs DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas OxyMCs OxyTs OxyTs OxyG
1385	116725	116742	742	759	DES-001723	ATtggaactgagcactTG	ASO-001723	OxyAs OxyTs DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas DNAcs DNAts OxyTs OxyG
1386	116726	116741	743	758	DES-001300	TTGgaactgagcACTT	ASO-001300	OxyTs OxyTs OxyGs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs OxyAs OxyMCs OxyTs OxyT
1386	116726	116741	743	758	DES-001458	TTggaactgagcaCTT	ASO-001458	OxyTs OxyTs DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas OxyMCs OxyTs OxyT
1387	116727	116744	744	761	DES-001491	ACAttggaactgagcACT	ASO-001491	OxyAs OxyMCs OxyAs DNAts DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs OxyAs OxyMCs OxyT
1387	116727	116744	744	761	DES-001734	ACattggaactgagcaCT	ASO-001734	OxyAs OxyMCs DNAas DNAts DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs DNAas OxyMCs OxyT
1388	116728	116743	745	760	DES-000941	CATtggaactgagCAC	ASO-000941	OxyMCs OxyAs OxyTs DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs OxyMCs OxyAs OxyMC
1389	116728	116745	745	762	DES-001502	CACattggaactgagCAC	ASO-001502	OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs OxyMCs OxyAs OxyMC
1389	116728	116745	745	762	DES-001720	CAcattggaactgagcAC	ASO-001720	OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAgs DNAgs DNAas DNAas DNAcs DNAts DNAgs DNAas DNAgs DNAcs OxyAs OxyMC
1390	116753	116770	770	787	DES-001407	AACtttgagaaatgtCAT	ASO-001407	OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAgs DNAas DNAgs DNAas DNAas DNAas DNAts DNAgs DNAts OxyMCs OxyAs OxyT
1390	116753	116770	770	787	DES-001607	AACTttgagaaatgTCAT	ASO-001607	OxyAs OxyAs OxyMCs OxyTs DNAts DNAts DNAgs DNAas DNAgs DNAas DNAas DNAas DNAts DNAgs OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1391	116754	116771	771	788	DES-001401	AAActttgagaaatGTCA	ASO-001401	OxyAs OxyAs OxyAs DNAcs DNAts DNAts DNAts DNAgs DNAas DNAgs DNAas DNAas DNAas DNAts OxyGs OxyTs OxyMCs OxyA
1391	116754	116771	771	788	DES-001596	AAACtttgagaaatGTCA	ASO-001596	OxyAs OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAgs DNAas DNAgs DNAas DNAas DNAas DNAts OxyGs OxyTs OxyMCs OxyA
1392	116787	116802	804	819	DES-000837	TGCtgatggaagacTT	ASO-000837	OxyTs OxyGs OxyMCs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs DNAas DNAcs OxyTs OxyT
1392	116787	116802	804	819	DES-001298	TGCtgatggaagaCTT	ASO-001298	OxyTs OxyGs OxyMCs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs DNAas OxyMCs OxyTs OxyT
1392	116787	116802	804	819	DES-001640	TGctgatggaagaCTT	ASO-001640	OxyTs OxyGs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs DNAas OxyMCs OxyTs OxyT
1393	116788	116803	805	820	DES-000836	CTGctgatggaagaCT	ASO-000836	OxyMCs OxyTs OxyGs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs DNAas OxyMCs OxyT
1393	116788	116803	805	820	DES-001297	CTGctgatggaagACT	ASO-001297	OxyMCs OxyTs OxyGs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs OxyAs OxyMCs OxyT
1393	116788	116803	805	820	DES-001433	CTgctgatggaagaCT	ASO-001433	OxyMCs OxyTs DNAgs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs DNAas OxyMCs OxyT
1394	116789	116804	806	821	DES-001470	ACTgctgatggaagAC	ASO-001470	OxyAs OxyMCs OxyTs DNAgs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas DNAas DNAgs OxyAs OxyMC
1395	116790	116807	807	824	DES-001770	ATCactgctgatggaAGA	ASO-001770	OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAgs DNAcs DNAts DNAgs DNAas DNAts DNAgs DNAgs DNAas OxyAs OxyGs OxyA
1396	116811	116826	828	843	DES-001418	GGcaggtacagatACT	ASO-001418	OxyGs OxyGs DNAcs DNAas DNAgs DNAgs DNAts DNAas DNAcs DNAas DNAgs DNAgs DNAts OxyAs OxyMCs OxyT
1396	116811	116826	828	843	DES-001455	GGcaggtacagataCT	ASO-001455	OxyGs OxyGs DNAcs DNAas DNAgs DNAgs DNAts DNAas DNAcs DNAas DNAgs DNAas DNAts DNAas OxyMCs OxyT
1397	116881	116900	898	917	DES-001521	AAtccacagcacacaaagA C	ASO-001521	OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAas DNAgs OxyAs OxyMC
1397	116881	116900	898	917	DES-001548	AATccacagcacacaaAG AC	ASO-001548	OxyAs OxyAs OxyTs DNAcs DNAcs DNAas DNAas DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyGs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1398	116882	116899	899	916	DES-001510	ATCcacagcacacaaAGA	ASO-001510	OxyAs OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyGs OxyA
1398	116882	116899	899	916	DES-001729	ATccacagcacacaaaGA	ASO-001729	OxyAs OxyTs DNAcs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs DNAas DNAcs DNAas DNAas OxyGs OxyA
1399	116883	116900	900	917	DES-001362	AATccacagcacacaAAG	ASO-001362	OxyAs OxyAs OxyTs DNAcs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs DNAas DNAcs DNAas OxyAs OxyAs OxyG
1399	116883	116900	900	917	DES-001609	AATCcacagcacacAAA G	ASO-001609	OxyAs OxyAs OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs OxyAs OxyAs OxyAs OxyG
1400	116884	116901	901	918	DES-001363	AAAtccacagcacaCAAA	ASO-001363	OxyAs OxyAs OxyAs DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs DNAas OxyMCs OxyAs OxyAs OxyA
1400	116884	116901	901	918	DES-001593	AAATccacagcacaCAA A	ASO-001593	OxyAs OxyAs OxyAs OxyTs DNAcs DNAcs DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAcs DNAas OxyMCs OxyAs OxyAs OxyA
1401	116946	116963	963	980	DES-001628	GAAAtaagtggtagTCAC	ASO-001628	OxyGs OxyAs OxyAs OxyAs DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas DNAgs OxyTs OxyMCs OxyAs OxyMC
1401	116946	116963	963	980	DES-001700	GAaataagtggtagtCAC	ASO-001700	OxyGs OxyAs DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas DNAgs DNAts OxyMCs OxyAs OxyMC
1402	116947	116964	964	981	DES-001495	AGAaataagtggtagTCA	ASO-001495	OxyAs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas DNAgs OxyTs OxyMCs OxyA
1402	116947	116964	964	981	DES-001716	AGaaataagtggtagtCA	ASO-001716	OxyAs OxyGs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas DNAgs DNAts OxyMCs OxyA
1403	116948	116963	965	980	DES-001273	GAAataagtggtaGTC	ASO-001273	OxyGs OxyAs OxyAs DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas OxyGs OxyTs OxyMC
1403	116948	116963	965	980	DES-001304	GAAAtaagtggtAGTC	ASO-001304	OxyGs OxyAs OxyAs OxyAs DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts OxyAs OxyGs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1404	116949	116964	966	981	DES-000838	AGAaataagtggtAGT	ASO-000838	OxyAs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts OxyAs OxyGs OxyT
1404	116949	116964	966	981	DES-000917	AGaaataagtggtaGT	ASO-000917	OxyAs OxyGs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas OxyGs OxyT
1404	116949	116964	966	981	DES-000918	AGaaataagtggtAGT	ASO-000918	OxyAs OxyGs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts OxyAs OxyGs OxyT
1404	116949	116964	966	981	DES-000919	AGAaataagtggtaGT	ASO-000919	OxyAs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas OxyGs OxyT
1404	116949	116964	966	981	DES-000920	AGAaataagtggTAGT	ASO-000920	OxyAs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs OxyTs OxyAs OxyGs OxyT
1404	116949	116964	966	981	DES-000921	AGAAataagtggtAGT	ASO-000921	OxyAs OxyGs OxyAs OxyAs DNAas DNAts DNAas DNAgs DNAts DNAgs DNAgs DNAts OxyAs OxyGs OxyT
1404	116949	116964	966	981	DES-000922	AGAAataagtggTAGT	ASO-000922	OxyAs OxyGs OxyAs OxyAs DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs OxyTs OxyAs OxyGs OxyT
1405	116949	116966	966	983	DES-001284	TTAgaaataagtggtaGT	ASO-001284	OxyTs OxyTs OxyAs DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs DNAts DNAas OxyGs OxyT
1405	116949	116966	966	983	DES-001323	TTAgaaataagtggTAGT	ASO-001323	OxyTs OxyTs OxyAs DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs OxyTs OxyAs OxyGs OxyT
1406	116950	116965	967	982	DES-000839	TAGaaataagtgGTAG	ASO-000839	OxyTs OxyAs OxyGs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs OxyGs OxyTs OxyAs OxyG
1407	116950	116967	967	984	DES-001355	TTTagaaataagtggTAG	ASO-001355	OxyTs OxyTs OxyTs DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAgs OxyTs OxyAs OxyG
1407	116950	116967	967	984	DES-001678	TTTAgaaataagtgGTA G	ASO-001678	OxyTs OxyTs OxyTs OxyAs DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs OxyGs OxyTs OxyAs OxyG
1408	116951	116970	968	987	DES-001525	GGatttagaaataagtggT A	ASO-001525	OxyGs OxyGs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAts OxyTs OxyA
1408	116951	116970	968	987	DES-001541	GGAtttagaaataagtgGT A	ASO-001541	OxyGs OxyGs OxyAs DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts DNAgs DNAts OxyGs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1409	116952	116969	969	986	DES-001685	GAtttagaaataagtGGT	ASO-001685	OxyGs OxyAs DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts OxyGs OxyGs OxyT
1410	116953	116970	970	987	DES-001493	GGAtttagaaataagTGG	ASO-001493	OxyGs OxyGs OxyAs DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs OxyTs OxyGs OxyG
1410	116953	116970	970	987	DES-001769	GGAtttagaaataagtGG	ASO-001769	OxyGs OxyGs OxyAs DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs DNAts OxyGs OxyG
1411	116954	116973	971	990	DES-001772	TGaggatttagaaataagTG	ASO-001772	OxyTs OxyGs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas DNAgs OxyTs OxyG
1411	116954	116973	971	990	DES-001777	TGAggatttagaaataaGTG	ASO-001777	OxyTs OxyGs OxyAs DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas OxyGs OxyTs OxyG
1412	116955	116974	972	991	DES-001520	GTgaggatttagaaataaGT	ASO-001520	OxyGs OxyTs DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts DNAas DNAas OxyGs OxyT
1412	116955	116974	972	991	DES-001544	GTGaggatttagaaatAAGT	ASO-001544	OxyGs OxyTs OxyGs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts OxyAs OxyAs OxyGs OxyT
1413	116956	116973	973	990	DES-001399	TGAggatttagaaatAAG	ASO-001399	OxyTs OxyGs OxyAs DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas DNAts OxyAs OxyAs OxyG
1413	116956	116973	973	990	DES-001676	TGAGgatttagaaaTAAG	ASO-001676	OxyTs OxyGs OxyAs OxyGs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas OxyTs OxyAs OxyAs OxyG
1414	116957	116974	974	991	DES-001400	GTGaggatttagaaaTAA	ASO-001400	OxyGs OxyTs OxyGs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas OxyTs OxyAs OxyA
1414	116957	116974	974	991	DES-001623	GTGAggatttagaaATAA	ASO-001623	OxyGs OxyTs OxyGs OxyAs DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas OxyAs OxyTs OxyAs OxyA
1415	116958	116975	975	992	DES-001374	AGTgaggatttagaaaTA	ASO-001374	OxyAs OxyGs OxyTs DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas DNAas DNAas OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1415	116958	116975	975	992	DES-001631	AGTGaggatttagaAATA	ASO-001631	OxyAs OxyGs OxyTs OxyGs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas OxyAs OxyAs OxyTs OxyA
1416	116959	116976	976	993	DES-001385	TAGtgaggatttagaAAT	ASO-001385	OxyTs OxyAs OxyGs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs DNAas OxyAs OxyAs OxyT
1416	116959	116976	976	993	DES-001615	TAGTgaggatttagAAAT	ASO-001615	OxyTs OxyAs OxyGs OxyTs DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs OxyAs OxyAs OxyAs OxyT
1417	116960	116977	977	994	DES-001392	ATAgtgaggatttagAAA	ASO-001392	OxyAs OxyTs OxyAs DNAgs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas DNAgs OxyAs OxyAs OxyA
1417	116960	116977	977	994	DES-001617	ATAGtgaggatttaGAAA	ASO-001617	OxyAs OxyTs OxyAs OxyGs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts DNAas OxyGs OxyAs OxyAs OxyA
1418	116961	116978	978	995	DES-001380	AATagtgaggatttAGAA	ASO-001380	OxyAs OxyAs OxyTs DNAas DNAgs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts OxyAs OxyGs OxyAs OxyA
1418	116961	116978	978	995	DES-001616	AATAgtgaggatttAGAA	ASO-001616	OxyAs OxyAs OxyTs OxyAs DNAgs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts DNAts DNAts OxyAs OxyGs OxyAs OxyA
1419	116963	116978	980	995	DES-000854	AATagtgaggatTTAG	ASO-000854	OxyAs OxyAs OxyTs DNAas DNAgs DNAts DNAgs DNAas DNAgs DNAgs DNAas DNAts OxyTs OxyAs OxyG
1420	116981	117000	998	1017	DES-001535	TTCtgaacaacagcaacA AA	ASO-001535	OxyTs OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAas DNAcs OxyAs OxyAs OxyA
1420	116981	117000	998	1017	DES-001561	TTCTgaacaacagcaaCA AA	ASO-001561	OxyTs OxyTs OxyMCs OxyTs DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs DNAcs DNAas DNAas OxyMCs OxyAs OxyAs OxyA
1421	116984	117003	1001	1020	DES-001537	AACttctgaacaacagcAA C	ASO-001537	OxyAs OxyAs OxyMCs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs DNAcs OxyAs OxyAs OxyMC
1421	116984	117003	1001	1020	DES-001562	AACTtctgaacaacagCA AC	ASO-001562	OxyAs OxyAs OxyMCs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1422	116985	117004	1002	1021	DES-001532	CAACttctgaacaacagcA A	ASO-001532	OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs DNAcs OxyAs OxyA
1422	116985	117004	1002	1021	DES-001549	CAACttctgaacaacaGCA A	ASO-001549	OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyAs OxyA
1423	116986	117003	1003	1020	DES-001328	AACttctgaacaacAGCA	ASO-001328	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-001365	AACttctgaacaacagCA	ASO-001365	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002873	AaCttctgaacaaCAgCA	ASO-002873	OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002874	AACttctgaacaAcAGCA	ASO-002874	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002875	AaCttctgaacaAcAGCA	ASO-002875	OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002876	AacTtctgaacaacAGCA	ASO-002876	OxyAs DNAas DNAcs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002877	AActtctgaacaacaGCA	ASO-002877	OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002878	AaCTtctgaacaaCAgCA	ASO-002878	OxyAs DNAas OxyMCs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002879	AacTtctgaacaaCAgCA	ASO-002879	OxyAs DNAas DNAcs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002880	AacttctgaacaaCAgCA	ASO-002880	OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1423	116986	117003	1003	1020	DES-002881	AACttctgaacaacaGCA	ASO-002881	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002882	AactttctgaacaaCaGCA	ASO-002882	OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002883	AActTCtgaacaacAGCA	ASO-002883	OxyAs OxyAs DNAcs DNAts OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002884	AACttCtgaacaacAgCA	ASO-002884	OxyAs OxyAs OxyMCs DNAts DNAts OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002885	AAcTtCtgaacaacAgCA	ASO-002885	OxyAs OxyAs DNAcs OxyTs DNAts OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002886	AactTCtgaacaacAGCA	ASO-002886	OxyAs DNAas DNAcs DNAts OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002887	AaCttctgaacaacAGCA	ASO-002887	OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002888	AACTtctgaacaacagCA	ASO-002888	OxyAs OxyAs OxyMCs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002889	AaCTTctgaacaacAgCA	ASO-002889	OxyAs DNAas OxyMCs OxyTs OxyTs DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-002890	AaCTtCtgaacaacagCA	ASO-002890	OxyAs DNAas OxyMCs OxyTs DNAts OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1424	116986	117004	1003	1021	DES-002973	CaaCttctgaacAAcAgC A	ASO-002973	OxyMCs DNAas DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs DNAgs OxyMCs OxyA
1424	116986	117004	1003	1021	DES-002974	CaacttctgaacaacaGCA	ASO-002974	OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1424	116986	117004	1003	1021	DES-002975	CaacttctgaacAaCAgCA	ASO-002975	OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1424	116986	117004	1003	1021	DES-002976	CAACttctgaacaacagCA	ASO-002976	OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1424	116986	117004	1003	1021	DES-002977	CAacttctgaacaacAgCA	ASO-002977	OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs DNAgs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-003072	AcAaCttctgaacaacAgC A	ASO-003072	OxyAs DNAcs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs DNAgs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-003227	AcaaCttctgaacAacagC A	ASO-003227	OxyAs DNAcs DNAas DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003276	AaCtTCtgaacaacagCA	ASO-003276	OxyAs DNAas OxyMCs DNAts OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003277	AacTTCtgaacaacagCA	ASO-003277	OxyAs DNAas DNAcs OxyTs OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003278	AACtTCtgaacaacagCA	ASO-003278	OxyAs OxyAs OxyMCs DNAts OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003279	AAcTTCtgaacaacagCA	ASO-003279	OxyAs OxyAs DNAcs OxyTs OxyTs OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003280	AacTtCtgaacaacaGCA	ASO-003280	OxyAs DNAas DNAcs OxyTs DNAts OxyMCs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1423	116986	117003	1003	1020	DES-003281	AaCttctgaacaacaGCA	ASO-003281	OxyAs DNAas OxyMCs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004842	ACaacttctgaacaacagC A	ASO-004842	OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1425	116986	117005	1003	1022	DES-004847	ACaacttctgaacaacaGCA	ASO-004847	OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004852	ACAacttctgaacaacagCA	ASO-004852	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas DNAgs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004856	ACAacttctgaacaacaGCA	ASO-004856	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004861	ACAacttctgaacaacAGCA	ASO-004861	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004866	ACAActtctgaacaacaGCA	ASO-004866	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004871	ACaacttctgaacaacAGCA	ASO-004871	OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004876	ACAActtctgaacaacagCA	ASO-004876	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004881	ACAActtctgaacaacAGCA	ASO-004881	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004886	AcAACttctgaacaaCAgCA	ASO-004886	OxyAs DNAcs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004891	ACaACttctgaacaaCAgCA	ASO-004891	OxyAs OxyMCs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs DNAgs OxyMCs OxyA
1425	116986	117005	1003	1022	DES-004896	ACAaCttctgaacaAcAgCA	ASO-004896	OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs DNAgs OxyMCs OxyA
1426	116987	117004	1004	1021	DES-001660	CAActtctgaacaacAGC	ASO-001660	OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1426	116987	117004	1004	1021	DES-001730	CAacttctgaacaacaGC	ASO-001730	OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002903	AaCttctgaacaAcAGC	ASO-002903	OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002904	AACttctgaacaaCAGC	ASO-002904	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyMCs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002905	AacttctgaacAaCAGC	ASO-002905	OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002906	AACttctgaacaacAGC	ASO-002906	OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002907	AacTtctgaacaaCAGC	ASO-002907	OxyAs DNAas DNAcs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002908	AaCttctgaacaaCAGC	ASO-002908	OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002909	AaCTtctgaacaaCaGC	ASO-002909	OxyAs DNAas OxyMCs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyGs OxyMC
1427	116987	117003	1004	1020	DES-002910	AaCTtctgaacaacAGC	ASO-002910	OxyAs DNAas OxyMCs OxyTs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1427	116987	117004	1004	1021	DES-002929	CAActtctgaacaaCaGC	ASO-002929	OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyGs OxyMC
1426	116987	117004	1004	1021	DES-002930	Caacttctgaacaa CAGC	ASO-002930	OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1426	116987	117004	1004	1021	DES-002931	CAACttctgaacAacaGC	ASO-002931	OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAas OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1426	116987	117004	1004	1021	DES-002932	CAaCttctgaacaacAGC	ASO-002932	OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002978	AcaacttctgaaCAAcaGC	ASO-002978	OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs DNAcs DNAas OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002979	AcAActtctgaaCaaCaG C	ASO-002979	OxyAs DNAcs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs DNAas OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002980	AcAActtctgaacaacAGC	ASO-002980	OxyAs DNAcs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002981	AcaacttctgaacAacAGC	ASO-002981	OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas DNAcs OxyAs OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002982	ACaaCttctgaacAAcAG C	ASO-002982	OxyAs OxyMCs DNAas DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyGs OxyMC
1428	116987	117005	1004	1022	DES-002983	AcAaCttctgaacaacaGC	ASO-002983	OxyAs DNAcs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-003073	AaCAActtctgaacaacaG C	ASO-003073	OxyAs DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-003074	AAcaacttctgaaCAaCa GC	ASO-003074	OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-003075	Aacaacttctgaa CaAcAG C	ASO-003075	OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs DNAcs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-003076	AaCaaCttctgaacAAca GC	ASO-003076	OxyAs DNAas OxyMCs DNAas DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-003077	AacaActtctgaacaacAG C	ASO-003077	OxyAs DNAas DNAcs DNAas OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1429	116987	117006	1004	1023	DES-003078	AAcAaCttctgaacaacaG C	ASO-003078	OxyAs OxyAs DNAcs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAas OxyGs OxyMC
1426	116987	117004	1004	1021	DES-003233	CAacttctgaacaacAGC	ASO-003233	OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1426	116987	117004	1004	1021	DES-003316	CAaCttctgaacAaCaGC	ASO-003316	OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs DNAas OxyGs OxyMC
1426	116987	117004	1004	1021	DES-003317	CaaCttctgaacAAcaGC	ASO-003317	OxyMCs DNAas DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004843	AAcaacttctgaacaacaG C	ASO-004843	OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004848	AAcaacttctgaacaacAG C	ASO-004848	OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004853	AACaacttctgaacaacaG C	ASO-004853	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004857	AACaacttctgaacaacAG C	ASO-004857	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004862	AACaacttctgaacaaCA GC	ASO-004862	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004867	AACAacttctgaacaacAG C	ASO-004867	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004872	AAcaacttctgaacaaCAG C	ASO-004872	OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004877	AACAacttctgaacaacaG C	ASO-004877	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyGs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1429	116987	117006	1004	1023	DES-004882	AACAActtctgaacaaCAGC	ASO-004882	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004887	AaCAActtctgaacaACaGC	ASO-004887	OxyAs DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004892	AAcAActtctgaacaACaGC	ASO-004892	OxyAs OxyAs DNAcs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAas OxyGs OxyMC
1429	116987	117006	1004	1023	DES-004897	AACaActtctgaacAaCaGC	ASO-004897	OxyAs OxyAs OxyMCs DNAas OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs DNAas OxyGs OxyMC
1430	116988	117005	1005	1022	DES-001620	ACAActtctgaacaACAG	ASO-001620	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-001689	ACaacttctgaacaaCAG	ASO-001689	OxyAs OxyMCs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-002933	ACAActtctgaaCAaCAG	ASO-002933	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-002934	ACAActtctgaaCaaCAG	ASO-002934	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-002935	ACAaCttctgaacACAG	ASO-002935	OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-002936	ACAaCttctgaacaaCAG	ASO-002936	OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-002937	AcaACttctgaacaaCAG	ASO-002937	OxyAs DNAcs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002984	AaCAacttctgaaCAAcAG	ASO-002984	OxyAs DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs DNAcs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1431	116988	117006	1005	1023	DES-002985	AACcaActtctgaaCAaCA G	ASO-002985	OxyAs OxyAs DNAcs DNAas OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002986	AaCaacttctgaaCAaCA G	ASO-002986	OxyAs DNAas OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002987	AACaacttctgaaCaACA G	ASO-002987	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002988	AaCAacttctgaacaaCA G	ASO-002988	OxyAs DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002989	AaCAACttctgaacaACA G	ASO-002989	OxyAs DNAas OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002990	AACAaCttctgaacaACA G	ASO-002990	OxyAs OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-002991	AAcaACttctgaacAaCA G	ASO-002991	OxyAs OxyAs DNAcs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003079	TAacaacttctgaacAaCA G	ASO-003079	OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003080	TAACaACttctgaacaaC AG	ASO-003080	OxyTs OxyAs OxyAs OxyMCs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003081	TaaCAacttctgaaCAacA G	ASO-003081	OxyTs DNAas DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003082	TAAcaacttctgaaCaaCA G	ASO-003082	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003083	TaaCaacttctgaaCaaCA G	ASO-003083	OxyTs DNAas DNAas OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1432	116988	117007	1005	1024	DES-003084	TAaCAaCttctgaacAAcAG	ASO-003084	OxyTs OxyAs DNAas OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003085	TaaCAActtctgaacaaCAG	ASO-003085	OxyTs DNAas DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003086	TaAcAaCttctgaacaACAG	ASO-003086	OxyTs DNAas OxyAs DNAcs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003087	TAaCAActtctgaacaAcAG	ASO-003087	OxyTs OxyAs DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-003228	TAAcaacttctgaaCAAcAG	ASO-003228	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004844	TAacaacttctgaacaacAG	ASO-004844	OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004849	TAacaacttctgaacaaCAG	ASO-004849	OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004854	TAAcaacttctgaacaacAG	ASO-004854	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004858	TAAcaacttctgaacaaCAG	ASO-004858	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004863	TAAcaacttctgaacaACAG	ASO-004863	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004868	TAACaacttctgaacaaCAG	ASO-004868	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004873	TAacaacttctgaacaACAG	ASO-004873	OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1432	116988	117007	1005	1024	DES-004878	TAACaacttctgaacaacA G	ASO-004878	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004883	TAACaacttctgaacaAC AG	ASO-004883	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004888	TaACAacttctgaacAAcA G	ASO-004888	OxyTs DNAas OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004893	TAaCAacttctgaacAAcA G	ASO-004893	OxyTs OxyAs DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1432	116988	117007	1005	1024	DES-004898	TAAcAacttctgaaCaAcA G	ASO-004898	OxyTs OxyAs OxyAs DNAcs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs DNAcs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004908	ACAacttctgaacaaCAG	ASO-004908	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004909	ACAActtctgaacaaCAG	ASO-004909	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004911	ACaacttctgaacaACAG	ASO-004911	OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004912	ACAActtctgaacaacAG	ASO-004912	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004914	AcAACttctgaacAAcAG	ASO-004914	OxyAs DNAcs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1430	116988	117005	1005	1022	DES-004916	ACaACttctgaacAAcAG	ASO-004916	OxyAs OxyMCs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004919	AACaacttctgaacaaCA G	ASO-004919	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1431	116988	117006	1005	1023	DES-004921	AACaacttctgaacaACAG	ASO-004921	OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004924	AACAacttctgaacaaCA G	ASO-004924	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004927	AAcaacttctgaacACAG	ASO-004927	OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004931	AACAacttctgaacaACA G	ASO-004931	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004933	AaCAActtctgaacAAcA G	ASO-004933	OxyAs DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyAs OxyG
1431	116988	117006	1005	1023	DES-004935	AACaActttctgaaCaAcA G	ASO-004935	OxyAs OxyAs OxyMCs DNAas OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs DNAcs OxyAs OxyG
1433	116989	117006	1006	1023	DES-001588	AACAacttctgaacAACA	ASO-001588	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1434	116989	117005	1006	1022	DES-002911	ACAActttctgaaCAaCA	ASO-002911	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1434	116989	117005	1006	1022	DES-002912	ACAaCttctgaacAACA	ASO-002912	OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1433	116989	117006	1006	1023	DES-002938	AaCAACttctgaacaACA	ASO-002938	OxyAs DNAas OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1435	116989	117007	1006	1024	DES-002992	TAAcaActttctgaaCAaC A	ASO-002992	OxyTs OxyAs OxyAs DNAcs DNAas OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1435	116989	117007	1006	1024	DES-002993	TAaCaacttctgaaCAaC A	ASO-002993	OxyTs OxyAs DNAas OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1435	116989	117007	1006	1024	DES-002994	TaACAActtctgaaCaaC A	ASO-002994	OxyTs DNAas OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyA
1435	116989	117007	1006	1024	DES-002995	TAaCAacttctgaacAC A	ASO-002995	OxyTs OxyAs DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003088	CTaAcAActtctgaaCaa CA	ASO-003088	OxyMCs OxyTs DNAas OxyAs DNAcs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003089	CtaACaacttctgAACaaC A	ASO-003089	OxyMCs DNAts DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs OxyAs OxyAs OxyMCs DNAas DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003090	CtaacaacttctgaaCAaC A	ASO-003090	OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003091	CTAacaacttctgaacaaC A	ASO-003091	OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003092	CtaACaacttctgaaCaAC A	ASO-003092	OxyMCs DNAts DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-003093	CtaaCAacttctgaacAaC A	ASO-003093	OxyMCs DNAts DNAas DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004845	CTaacaacttctgaacaaC A	ASO-004845	OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004850	CTaacaacttctgaacAC A	ASO-004850	OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004859	CTAacaacttctgaacAC A	ASO-004859	OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004864	CTAacaacttctgaacAAC A	ASO-004864	OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1436	116989	117008	1006	1025	DES-004869	CTAAcaacttctgaacaAC A	ASO-004869	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004874	CTaacaacttctgaacAAC A	ASO-004874	OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004879	CTAAcaacttctgaacaaC A	ASO-004879	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004884	CTAAcaacttctgaacAAC A	ASO-004884	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004889	CtAACaacttctgaaCAaC A	ASO-004889	OxyMCs DNAts OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004894	CTaACaacttctgaaCAa CA	ASO-004894	OxyMCs OxyTs DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1436	116989	117008	1006	1025	DES-004899	CTAaCaacttctgaAcAa CA	ASO-004899	OxyMCs OxyTs OxyAs DNAas OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs DNAcs OxyAs DNAas OxyMCs OxyA
1434	116989	117005	1006	1022	DES-004901	ACAacttctgaacAACA	ASO-004901	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1434	116989	117005	1006	1022	DES-004902	ACAActtctgaacACA	ASO-004902	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1434	116989	117005	1006	1022	DES-004903	ACAActtctgaacAACA	ASO-004903	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1434	116989	117005	1006	1022	DES-004905	AcAACttctgaaCAaCA	ASO-004905	OxyAs DNAcs OxyAs OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyMCs OxyAs DNAas OxyMCs OxyA
1434	116989	117005	1006	1022	DES-004906	ACaACttctgaaCAaCA	ASO-004906	OxyAs OxyMCs DNAas OxyAs OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyMCs OxyAs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1434	116989	117005	1006	1022	DES-004907	ACAaCttctgaAcAaCA	ASO-004907	OxyAs OxyMCs OxyAs DNAas OxyMCs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs DNAcs OxyAs DNAas OxyMCs OxyA
1433	116989	117006	1006	1023	DES-004910	AACAacttctgaacaACA	ASO-004910	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1433	116989	117006	1006	1023	DES-004915	AaCAActtctgaaCAaCA	ASO-004915	OxyAs DNAas OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1433	116989	117006	1006	1023	DES-004917	AAcAActtctgaaCAaCA	ASO-004917	OxyAs OxyAs DNAcs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004920	TAAcaacttctgaacaACA	ASO-004920	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004922	TAAcaacttctgaacAACA	ASO-004922	OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004925	TAACaacttctgaacAC A	ASO-004925	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004929	TAACaacttctgaacaaCA	ASO-004929	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004932	TAACaacttctgaacAAC A	ASO-004932	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1435	116989	117007	1006	1024	DES-004936	TAAcAacttctgaAcAaC A	ASO-004936	OxyTs OxyAs OxyAs DNAcs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs DNAcs OxyAs DNAas OxyMCs OxyA
1437	116990	117005	1007	1022	DES-001264	ACAacttctgaaCAAC	ASO-001264	OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1437	116990	117005	1007	1022	DES-001268	ACAActtctgaaCAAC	ASO-001268	OxyAs OxyMCs OxyAs OxyAs DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1438	116990	117008	1007	1025	DES-002996	CtaaCaacttctgAaCAAC	ASO-002996	OxyMCs DNAts DNAas DNAas OxyMCs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs OxyAs DNAas OxyMCs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-003096	ACtaACAacttctgaaCAA C	ASO-003096	OxyAs OxyMCs DNAts DNAas OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004846	ACtaacaacttctgaacaA C	ASO-004846	OxyAs OxyMCs DNAts DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAAas OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004851	ACtaacaacttctgaacAA C	ASO-004851	OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004855	ACTaacaacttctgaacaA C	ASO-004855	OxyAs OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004860	ACTaacaacttctgaacAA C	ASO-004860	OxyAs OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004865	ACTaacaacttctgaaCAA C	ASO-004865	OxyAs OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004870	ACTAacaacttctgaacAA C	ASO-004870	OxyAs OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004875	ACtaacaacttctgaaCAA C	ASO-004875	OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004880	ACTAacaacttctgaacaA C	ASO-004880	OxyAs OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAAas OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004885	ACTAacaacttctgaaCA AC	ASO-004885	OxyAs OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004890	AcTAAcaacttctgaACaA C	ASO-004890	OxyAs DNAcs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAas OxyAs OxyMCs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1439	116990	117009	1007	1026	DES-004895	ACtAAcaacttctgaACaAC	ASO-004895	OxyAs OxyMCs DNAts OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs OxyMCs DNAas OxyAs OxyMC
1439	116990	117009	1007	1026	DES-004900	ACTaAcaacttctgAaCa AC	ASO-004900	OxyAs OxyMCs OxyTs DNAas OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs OxyAs DNAas OxyMCs DNAas OxyAs OxyMC
1440	116990	117006	1007	1023	DES-004904	AACAacttctgaaCAAC	ASO-004904	OxyAs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1441	116990	117007	1007	1024	DES-004913	TAACaacttctgaaCAAC	ASO-004913	OxyTs OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1441	116990	117007	1007	1024	DES-004918	TAaCAacttctgaACaAC	ASO-004918	OxyTs OxyAs DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs OxyMCs DNAas OxyAs OxyMC
1438	116990	117008	1007	1025	DES-004923	CTAacaacttctgaaCAA C	ASO-004923	OxyMCs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1438	116990	117008	1007	1025	DES-004926	CTAAcaacttctgaacAAC	ASO-004926	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs OxyAs OxyAs OxyMC
1438	116990	117008	1007	1025	DES-004928	CTaacaacttctgaaCAAC	ASO-004928	OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1438	116990	117008	1007	1025	DES-004930	CTAAcaacttctgaacaAC	ASO-004930	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas DNAcs DNAas OxyAs OxyMC
1438	116990	117008	1007	1025	DES-004934	CtAACaacttctgaACaAC	ASO-004934	OxyMCs DNAts OxyAs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs OxyMCs DNAas OxyAs OxyMC
1442	116991	117008	1008	1025	DES-002939	CTaaCAacttctgaaCAA	ASO-002939	OxyMCs OxyTs DNAas DNAas OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyA
1443	116991	117009	1008	1026	DES-002997	ACtaacaacttcTGaaCA A	ASO-002997	OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs DNAas DNAas OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1444	116991	117010	1008	1027	DES-003094	CACtaacaacttcTGAAcAA	ASO-003094	OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs OxyAs DNAcs OxyAs OxyA
1444	116991	117010	1008	1027	DES-003095	CACtaAcaacttctGAaCAA	ASO-003095	OxyMCs OxyAs OxyMCs DNAts DNAas OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts OxyGs OxyAs DNAas OxyMCs OxyAs OxyA
1444	116991	117010	1008	1027	DES-003097	CACtaacaacttctgaaCAA	ASO-003097	OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyAs OxyA
1445	116992	117008	1009	1025	DES-002913	CtaacaacttcTGAaCA	ASO-002913	OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs DNAas OxyMCs OxyA
1446	116992	117009	1009	1026	DES-002940	ACtaacaacttcTGAaCA	ASO-002940	OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs DNAas OxyMCs OxyA
1446	116992	117009	1009	1026	DES-002941	ACtaACaacttctgAACA	ASO-002941	OxyAs OxyMCs DNAts DNAas OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs OxyAs OxyAs OxyMCs OxyA
1447	116992	117010	1009	1027	DES-002998	CACtaAcaacttctgaaCA	ASO-002998	OxyMCs OxyAs OxyMCs DNAts DNAas OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyA
1447	116992	117010	1009	1027	DES-002999	CaCtaacaacttcTGAaCA	ASO-002999	OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs DNAas OxyMCs OxyA
1447	116992	117010	1009	1027	DES-003000	CActaacaacttCTGaACA	ASO-003000	OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs DNAas OxyAs OxyMCs OxyA
1447	116992	117010	1009	1027	DES-003001	CACtaacaacttCtgaACA	ASO-003001	OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs DNAas OxyAs OxyMCs OxyA
1447	116992	117010	1009	1027	DES-003002	CActaacaacttCtgAaCA	ASO-003002	OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs OxyAs DNAas OxyMCs OxyA
1447	116992	117010	1009	1027	DES-003003	CaCTaacaacttCtgaaCA	ASO-003003	OxyMCs DNAas OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs DNAas DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1448	116992	117011	1009	1028	DES-003098	TcaCtaacaacttCtgaAC A	ASO-003098	OxyTs DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs DNAas OxyAs OxyMCs OxyA
1448	116992	117011	1009	1028	DES-003099	TCaCtaacaacttctgaaC A	ASO-003099	OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas DNAas OxyMCs OxyA
1448	116992	117011	1009	1028	DES-003100	TCActaacaacttctgAaC A	ASO-003100	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs OxyAs DNAas OxyMCs OxyA
1449	116993	117008	1010	1025	DES-002782	CTAAcaacttctgaAC	ASO-002782	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs DNAts DNAgs DNAas OxyAs OxyMC
1449	116993	117008	1010	1025	DES-002783	CTAAcaacttcTGaAC	ASO-002783	OxyMCs OxyTs OxyAs OxyAs DNAcs DNAas DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs DNAas OxyAs OxyMC
1450	116993	117010	1010	1027	DES-002942	CACtaacaacttCTGaAC	ASO-002942	OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs DNAas OxyAs OxyMC
1450	116993	117010	1010	1027	DES-002943	CACtaacaacttCtgAAC	ASO-002943	OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs OxyAs OxyAs OxyMC
1451	116993	117011	1010	1028	DES-003004	TCaCtaacaactTCtgAA C	ASO-003004	OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts DNAgs OxyAs OxyAs OxyMC
1451	116993	117011	1010	1028	DES-003005	TCACtaacaacttCtgaAC	ASO-003005	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs DNAas OxyAs OxyMC
1451	116993	117011	1010	1028	DES-003006	TCActaacaacttCtGAAC	ASO-003006	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyAs OxyAs OxyMC
1451	116993	117011	1010	1028	DES-003007	TCACtaacaacttcTGaA C	ASO-003007	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs DNAas OxyAs OxyMC
1452	116993	117012	1010	1029	DES-003101	ATCActaacaacttCtgaA C	ASO-003101	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs DNAas OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1452	116993	117012	1010	1029	DES-003102	AtCACtaacaacttCTgaAC	ASO-003102	OxyAs DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs DNAgs DNAas OxyAs OxyMC
1452	116993	117012	1010	1029	DES-003103	AtcaCtaacaactTCtGaAC	ASO-003103	OxyAs DNAts DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs DNAas OxyAs OxyMC
1452	116993	117012	1010	1029	DES-003104	ATCaCtaacaacttCtgAAC	ASO-003104	OxyAs OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts DNAgs OxyAs OxyAs OxyMC
1453	116994	117011	1011	1028	DES-002944	TCACtaacaacttCTgAA	ASO-002944	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts DNAgs OxyAs OxyA
1453	116994	117011	1011	1028	DES-002945	TCaCtaacaacttCtGAA	ASO-002945	OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyAs OxyA
1453	116994	117011	1011	1028	DES-002946	TCACtaacaacttcTGAA	ASO-002946	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003008	ATCActaacaacTtCtgAA	ASO-003008	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs DNAts DNAgs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003009	AtCActaacaactTCTgAA	ASO-003009	OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs DNAgs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003010	AtCActaacaacTTCtGAA	ASO-003010	OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs DNAts OxyGs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003011	ATcaCtaacaactTCtgAA	ASO-003011	OxyAs OxyTs DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts DNAgs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003012	ATCActaacaacTtcTGAA	ASO-003012	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyAs OxyA
1454	116994	117012	1011	1029	DES-003013	AtCACtaacaacttCtGAA	ASO-003013	OxyAs DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1454	116994	117012	1011	1029	DES-003014	ATCaCtaacaacttcTGAA	ASO-003014	OxyAs OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyAs OxyA
1455	116994	117013	1011	1030	DES-003105	AatCACtaacaactTCtGAA	ASO-003105	OxyAs DNAas DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs OxyAs OxyA
1455	116994	117013	1011	1030	DES-003106	AaTCActaacaacTtCTgAA	ASO-003106	OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyTs DNAgs OxyAs OxyA
1455	116994	117013	1011	1030	DES-003108	AATcaCtaacaactTCtGAA	ASO-003108	OxyAs OxyAs OxyTs DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs OxyAs OxyA
1455	116994	117013	1011	1030	DES-003111	AatCACtaacaacttCTgAA	ASO-003111	OxyAs DNAas DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs DNAgs OxyAs OxyA
1456	116995	117010	1012	1027	DES-002765	CACTaacaacttCTGA	ASO-002765	OxyMCs OxyAs OxyMCs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs OxyA
1457	116995	117011	1012	1028	DES-002914	TCActaacaactTCtGA	ASO-002914	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs OxyA
1457	116995	117011	1012	1028	DES-002915	TCActaacaacTtcTGA	ASO-002915	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyA
1457	116995	117011	1012	1028	DES-002916	TCactaacaacTtcTGA	ASO-002916	OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyA
1457	116995	117011	1012	1028	DES-002917	TCActaacaacTtctGA	ASO-002917	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs DNAts OxyGs OxyA
1457	116995	117011	1012	1028	DES-002918	TCaCtaacaacttCtGA	ASO-002918	OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyA
1457	116995	117011	1012	1028	DES-002919	TCActaacaacttCTGA	ASO-002919	OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1457	116995	117011	1012	1028	DES-002920	TCACtaacaacttcTGA	ASO-002920	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyA
1458	116995	117012	1012	1029	DES-002947	ATCActaacaacttCtGA	ASO-002947	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyA
1458	116995	117012	1012	1029	DES-002948	AtCActaacaacTtCTGA	ASO-002948	OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyTs OxyGs OxyA
1458	116995	117012	1012	1029	DES-002949	AtcaCtaacaacttcTGA	ASO-002949	OxyAs DNAts DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyA
1458	116995	117012	1012	1029	DES-002950	ATCaCtaacaacttCTGA	ASO-002950	OxyAs OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003015	AaTCactaacaaCtTCtGA	ASO-003015	OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs DNAts OxyGs OxyA
1459	116995	117013	1012	1030	DES-003016	AATcactaacaaCTTcTGA	ASO-003016	OxyAs OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs DNAcs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003017	AatCactaacaaCTtCtGA	ASO-003017	OxyAs DNAas DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs DNAts OxyGs OxyA
1459	116995	117013	1012	1030	DES-003018	AAtCactaacaacTtCTGA	ASO-003018	OxyAs OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003019	AAtcactaacaaCttCTGA	ASO-003019	OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts DNAts OxyMCs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003020	AATCactaacaaCttcTGA	ASO-003020	OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts DNAts DNAcs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003021	AAtCActaacaacTTCtGA	ASO-003021	OxyAs OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs DNAts OxyGs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1459	116995	117013	1012	1030	DES-003022	AaTCACtaacaacTtcTG A	ASO-003022	OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyA
1459	116995	117013	1012	1030	DES-003023	AATcaCtaacaactTCtG A	ASO-003023	OxyAs OxyAs OxyTs DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs OxyA
1459	116995	117013	1012	1030	DES-003024	AatCACtaacaacttCtGA	ASO-003024	OxyAs DNAas DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyA
1459	116995	117013	1012	1030	DES-003025	AaTCaCtaacaacttcTG A	ASO-003025	OxyAs DNAas OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyA
1460	116995	117014	1012	1031	DES-003107	AAatCActaacaacTTCt GA	ASO-003107	OxyAs OxyAs DNAas DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs DNAts OxyGs OxyA
1460	116995	117014	1012	1031	DES-003109	AaatCActaacaacTtcTG A	ASO-003109	OxyAs DNAas DNAas DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyA
1460	116995	117014	1012	1031	DES-003110	AaAtcactaacaaCTtCT GA	ASO-003110	OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyTs OxyGs OxyA
1460	116995	117014	1012	1031	DES-003112	AaaTCactaacaaCttCtG A	ASO-003112	OxyAs DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts DNAts OxyMCs DNAts OxyGs OxyA
1460	116995	117014	1012	1031	DES-003113	AAaTCaCtaacaacttcT GA	ASO-003113	OxyAs OxyAs DNAas OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyGs OxyA
1460	116995	117014	1012	1031	DES-003114	AAatcaCtaacaacttCTG A	ASO-003114	OxyAs OxyAs DNAas DNAts DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyGs OxyA
1460	116995	117014	1012	1031	DES-003115	AAAtcactaacaaCtTCtG A	ASO-003115	OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs DNAts OxyGs OxyA
1460	116995	117014	1012	1031	DES-003118	AaAtCACtaacaacttCtG A	ASO-003118	OxyAs DNAas OxyAs DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs DNAts OxyGs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1458	116995	117012	1012	1029	DES-003241	ATCActaacaacTtcTGA	ASO-003241	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyGs OxyA
1458	116995	117012	1012	1029	DES-003242	AtCaCtaacaactTCtGA	ASO-003242	OxyAs DNAts OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs DNAts OxyGs OxyA
1461	116996	117011	1013	1028	DES-002801	TCACtaacaactTCTG	ASO-002801	OxyTs OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002921	ATcactaacaaCTTcTG	ASO-002921	OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs DNAcs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002922	ATCactaacaaCTtCTG	ASO-002922	OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002923	AtcactaacaaCTtCTG	ASO-002923	OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002924	ATcactaacaaCtTCTG	ASO-002924	OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002925	AtCactaacaaCtTCTG	ASO-002925	OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002926	ATCActaacaacTtcTG	ASO-002926	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002927	AtCActaacaacttCTG	ASO-002927	OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAts OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-002928	ATCActaacaacttCTG	ASO-002928	OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAts OxyMCs OxyTs OxyG
1463	116996	117013	1013	1030	DES-002951	AATcactaacaaCtTCTG	ASO-002951	OxyAs OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyTs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1463	116996	117013	1013	1030	DES-002952	AaTCactaacaaCTtCTG	ASO-002952	OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyTs OxyG
1463	116996	117013	1013	1030	DES-002953	AATCactaacaacttCTG	ASO-002953	OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyG
1463	116996	117013	1013	1030	DES-002954	AAtcaCtaacaactTCTG	ASO-002954	OxyAs OxyAs DNAts DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1463	116996	117013	1013	1030	DES-002955	AatCACtaacaactTCTG	ASO-002955	OxyAs DNAas DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1464	116996	117014	1013	1031	DES-003026	AAAtcactaacaaCTtCT G	ASO-003026	OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyTs OxyG
1464	116996	117014	1013	1031	DES-003027	AAatcactaacaaCtTCT G	ASO-003027	OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyTs OxyG
1464	116996	117014	1013	1031	DES-003028	AAaTCActaacaaCTtCT G	ASO-003028	OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyTs OxyG
1464	116996	117014	1013	1031	DES-003029	AaATCactaacaaCttCT G	ASO-003029	OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts DNAts OxyMCs OxyTs OxyG
1464	116996	117014	1013	1031	DES-003030	AaAtCActaacaactTCT G	ASO-003030	OxyAs DNAas OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003116	CAAatCactaacaaCTtcT G	ASO-003116	OxyMCs OxyAs OxyAs DNAas DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts DNAcs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003117	CAaaTcactaacaaCTc TG	ASO-003117	OxyMCs OxyAs DNAas DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs DNAcs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003119	CAaATCactaacaacTtc TG	ASO-003119	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1465	116996	117015	1013	1032	DES-003120	CAaAtcactaacaACttCTG	ASO-003120	OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAts DNAts OxyMCs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003121	CAAatcactaacaactTCTG	ASO-003121	OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003122	CAaAtcactaacaacTtCTG	ASO-003122	OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003123	CAAaTCActaacaacTtcTG	ASO-003123	OxyMCs OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts DNAcs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003124	CaAATCactaacaaCttCTG	ASO-003124	OxyMCs DNAas OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts DNAts OxyMCs OxyTs OxyG
1465	116996	117015	1013	1032	DES-003125	CaaatCActaacaacttCTG	ASO-003125	OxyMCs DNAas DNAas DNAas DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-003293	ATCaCtaacaactTCTG	ASO-003293	OxyAs OxyTs OxyMCs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-003294	AtCACtaacaactTCTG	ASO-003294	OxyAs DNAts OxyMCs OxyAs OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyTs OxyG
1462	116996	117012	1013	1029	DES-003295	ATcaCtaacaacttCTG	ASO-003295	OxyAs OxyTs DNAcs DNAas OxyMCs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyTs OxyG
1466	116997	117014	1014	1031	DES-002739	AAATcactaacaacTTCT	ASO-002739	OxyAs OxyAs OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002824	CAAAtcactaacAaCTtC T	ASO-002824	OxyMCs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002825	CAaAtcactaacaACTtC T	ASO-002825	OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyTs DNAts OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1467	116997	117015	1014	1032	DES-002826	CaAAtcactaacAACtTC T	ASO-002826	OxyMCs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002827	CAAatcactaacaACtTC T	ASO-002827	OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002828	CAAAtcactaacAAcTTC T	ASO-002828	OxyMCs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002829	CAaatcactaacaAcTTC T	ASO-002829	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002830	CAaAtcactaacaaCtTCT	ASO-002830	OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002831	CAaaTcactaacaaCTtC T	ASO-002831	OxyMCs OxyAs DNAas DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002832	CAAatCactaacaaCTtC T	ASO-002832	OxyMCs OxyAs OxyAs DNAas DNAts OxyMCs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002833	CaaATCactaacaaCTtC T	ASO-002833	OxyMCs DNAas DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002834	CaAaTCactaacaaCttC T	ASO-002834	OxyMCs DNAas OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002835	CaAAtCactaacaaCtTC T	ASO-002835	OxyMCs DNAas OxyAs OxyAs DNAts OxyMCs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002836	CAaaTCactaacaaCtTC T	ASO-002836	OxyMCs OxyAs DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-002837	CAAatCactaacaacTTC T	ASO-002837	OxyMCs OxyAs OxyAs DNAas DNAts OxyMCs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1467	116997	117015	1014	1032	DES-002838	CAaATCactaacaacTTCT	ASO-002838	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1468	116997	117013	1014	1030	DES-002839	AATCactaacaaCTtCT	ASO-002839	OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1468	116997	117013	1014	1030	DES-002840	AATCactaacaaCtTCT	ASO-002840	OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1468	116997	117013	1014	1030	DES-002841	AATCactaacaacTTCT	ASO-002841	OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1468	116997	117013	1014	1030	DES-002842	AAtCActaacaacTTCT	ASO-002842	OxyAs OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1468	116997	117013	1014	1030	DES-002843	AaTCActaacaacTTCT	ASO-002843	OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002844	AAaTCactaacaaCTtCT	ASO-002844	OxyAs OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002845	AaATCactaacaaCTtCT	ASO-002845	OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002846	AAaTCactaacaaCtTCT	ASO-002846	OxyAs OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002847	AaATCactaacaaCtTCT	ASO-002847	OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002848	AAAtCActaacaacTTCT	ASO-002848	OxyAs OxyAs OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002849	AAaTCActaacaacTTCT	ASO-002849	OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1466	116997	117014	1014	1031	DES-002850	AAatCActaacaacTTCT	ASO-002850	OxyAs OxyAs DNAas DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002851	AaATCActaacaacTTCT	ASO-002851	OxyAs DNAas OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002852	AaATCactaacaacTTCT	ASO-002852	OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002853	AaAtCActaacaacTTCT	ASO-002853	OxyAs DNAas OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002854	AaaTCActaacaacTTCT	ASO-002854	OxyAs DNAas DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002855	AAaTCActaacaacTtCT	ASO-002855	OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002856	AaATCActaacaacTtCT	ASO-002856	OxyAs DNAas OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002857	AAaTCActaacaactTCT	ASO-002857	OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002858	AaATCActaacaactTCT	ASO-002858	OxyAs DNAas OxyAs OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyT
1466	116997	117014	1014	1031	DES-002859	AaaTCActaacaactTCT	ASO-002859	OxyAs DNAas DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts OxyTs OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003126	GCaaatcactaacAaCTtCT	ASO-003126	OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003127	GcAAAtcactaacaaCTtCT	ASO-003127	OxyGs DNAcs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1469	116997	117016	1014	1033	DES-003128	GcAAatcactaacAAcTTCT	ASO-003128	OxyGs DNAcs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyTs OxyTs OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003129	GcaaAtcactaacAACtTCT	ASO-003129	OxyGs DNAcs DNAas DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs DNAts OxyTs OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003130	GCaAatcactaacaaCtTCT	ASO-003130	OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003131	GCAaatcactaacaActtCT	ASO-003131	OxyGs OxyMCs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs DNAts OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003132	GcAaatCactaacaaCtTCT	ASO-003132	OxyGs DNAcs OxyAs DNAas DNAas DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003135	GCaaatCactaacaacTtCT	ASO-003135	OxyGs OxyMCs DNAas DNAas DNAas DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT
1469	116997	117016	1014	1033	DES-003136	GcaaATCactaacaaCttCT	ASO-003136	OxyGs DNAcs DNAas DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005171	CaaATCActaacaacttCT	ASO-005171	OxyMCs DNAas DNAas OxyAs OxyTs OxyMCs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005172	CaaaTCActaacaacttCT	ASO-005172	OxyMCs DNAas DNAas DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005173	CaAATcactaacaaCTtC T	ASO-005173	OxyMCs DNAas OxyAs OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005174	CAAaTcactaacaAcTtC T	ASO-005174	OxyMCs OxyAs OxyAs DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005249	CAaatcactaacAACTtC T	ASO-005249	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyTs DNAts OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1467	116997	117015	1014	1032	DES-005250	CAaatcactaacAACtTC T	ASO-005250	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005251	CAaatcactaacAAcTTC T	ASO-005251	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005252	CAaatcactaacAaCTtCT	ASO-005252	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005253	CAaatcactaacAaCtTCT	ASO-005253	OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs DNAts OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005254	CAAaTCactaacAacttC T	ASO-005254	OxyMCs OxyAs OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005255	CAaATCactaacAacttC T	ASO-005255	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005256	CAaaTCactaacAacttCT	ASO-005256	OxyMCs OxyAs DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005257	CaAATCactaacAacttC T	ASO-005257	OxyMCs DNAas OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005258	CaAAtCactaacaacTTC T	ASO-005258	OxyMCs DNAas OxyAs OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005259	CaaaTCactaacaacTTC T	ASO-005259	OxyMCs DNAas DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005260	CAAAtCactaacaacTtC T	ASO-005260	OxyMCs OxyAs OxyAs OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005261	CAaaTCactaacaacTtC T	ASO-005261	OxyMCs OxyAs DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1467	116997	117015	1014	1032	DES-005262	CaAATCactaacaacTtC T	ASO-005262	OxyMCs DNAas OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005263	CAAAtCActaacaacttCT	ASO-005263	OxyMCs OxyAs OxyAs OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005264	CAAaTCActaacaacttC T	ASO-005264	OxyMCs OxyAs OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005265	CAAaTCactaacaacttCT	ASO-005265	OxyMCs OxyAs OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005266	CAAatCActaacaacttCT	ASO-005266	OxyMCs OxyAs OxyAs DNAas DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005267	CAaATCactaacaacttCT	ASO-005267	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005268	CAaAtCActaacaacttCT	ASO-005268	OxyMCs OxyAs DNAas OxyAs DNAts OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005269	CAaaTCACtaacaacttCT	ASO-005269	OxyMCs OxyAs DNAas DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-005270	CaAaTCACtaacaacttCT	ASO-005270	OxyMCs DNAas OxyAs DNAas OxyTs OxyMCs OxyAs DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs DNAts DNAts OxyMCs OxyT
1467	116997	117015	1014	1032	DES-287033	caaatCactaacaaCTtCt	ASO-287033	OMecs DNAas DNAas OMeas OMets OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1467	116997	117015	1014	1032	DES-287041	caaATcactaacaacTtCt	ASO-287041	OMecs DNAas DNAas OxyAs OxyTs OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OMecs OxyTs DNAts OxyMCs OMet
1467	116997	117015	1014	1032	DES-287053	cAaatcactaacaacTct	ASO-287053	OMecs OxyAs OMeas DNAas DNAts OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OMets OxyTs DNAcs OMet

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1467	116997	117015	1014	1032	DES-287965	caaATcactaacaacTTct	ASO-287965	OMecs OMeas OMeas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OMecs OMet
1467	116997	117015	1014	1032	DES-288902	cAAatcactaacaactTCt	ASO-288902	OMecs OxyAs OxyAs DNAas DNAts OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OMets OxyTs OxyMCs OMet
1467	116997	117015	1014	1032	DES-288903	caaaTCactaacaacTTct	ASO-288903	OMecs OMeas OMeas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OMecs OMet
1467	116997	117015	1014	1032	DES-288905	caaATcactaacaactTCt	ASO-288905	OMecs OMeas OMeas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OMecs OMets OxyTs OxyMCs OMet
1467	116997	117015	1014	1032	DES-290315	caaATCactaacaaCTtCt	ASO-290315	OMecs DNAas DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1467	116997	117015	1014	1032	DES-292378	caaaTCactaacaaCTtCt	ASO-292378	OMecs DNAas DNAas OMeas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1470	116998	117015	1015	1032	DES-002682	CAaATCactaacaaCTT C	ASO-002682	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002761	CAAAtcactaacaaCTTC	ASO-002761	OxyMCs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002860	CAAAtcactaacAaCTTC	ASO-002860	OxyMCs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002861	CAaATcactaacaACtTC	ASO-002861	OxyMCs OxyAs DNAas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAts OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002862	CAAAtCactaacaaCTTC	ASO-002862	OxyMCs OxyAs OxyAs OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002863	CAAaTCactaacaaCTT C	ASO-002863	OxyMCs OxyAs OxyAs DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1470	116998	117015	1015	1032	DES-002864	CAAaTcactaacaaCTTC	ASO-002864	OxyMCs OxyAs OxyAs DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002865	CAAatCactaacaaCTTC	ASO-002865	OxyMCs OxyAs OxyAs DNAas DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002866	CAaATcactaacaaCTTC	ASO-002866	OxyMCs OxyAs DNAas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002867	CAaAtCactaacaaCTTC	ASO-002867	OxyMCs OxyAs DNAas OxyAs DNAts OxyMCs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002868	CAaaTCactaacaaCTTC	ASO-002868	OxyMCs OxyAs DNAas DNAas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002869	CaAATCactaacaaCTT C	ASO-002869	OxyMCs DNAas OxyAs OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002870	CaaATCactaacaaCTTC	ASO-002870	OxyMCs DNAas DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002871	CAaATCactaacaaCtTC	ASO-002871	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1470	116998	117015	1015	1032	DES-002872	CAaATCactaacaacTTC	ASO-002872	OxyMCs OxyAs DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003031	GCaAatcactaaCAActT C	ASO-003031	OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003032	GCaaatcactaaCAaCtT C	ASO-003032	OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003033	GcAAatcactaaCAaCTT C	ASO-003033	OxyGs DNAcs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1471	116998	117016	1015	1033	DES-003034	GCAaatcactaaCAacTTC	ASO-003034	OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas DNAcs OxyTs OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003035	GCAaatcactaacaACtT C	ASO-003035	OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003036	GCAAatcactaacaacTTC	ASO-003036	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003037	GCaAatcactaacaaCtTC	ASO-003037	OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003038	GCaaAtcactaacAACtT C	ASO-003038	OxyGs OxyMCs DNAas DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003039	GCaaAtcactaacAacTTC	ASO-003039	OxyGs OxyMCs DNAas DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs OxyTs OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003041	GCAaATcactaacaaCtT C	ASO-003041	OxyGs OxyMCs OxyAs DNAas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1471	116998	117016	1015	1033	DES-003043	GcAAATcactaacaaCTT C	ASO-003043	OxyGs DNAcs OxyAs OxyAs OxyTs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003133	AGCaaAtcactaacAacT TC	ASO-003133	OxyAs OxyGs OxyMCs DNAas DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas DNAcs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003134	AGCaaatcactaacaAcT TC	ASO-003134	OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003137	AGcAaatcactaaCAAct TC	ASO-003137	OxyAs OxyGs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003138	AgCaAatcactaaCAAct TC	ASO-003138	OxyAs DNAgs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs DNAts OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1472	116998	117017	1015	1034	DES-003139	AgCAaatcactaacAaCtTC	ASO-003139	OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003140	AgcAAatcactaaCaacTTC	ASO-003140	OxyAs DNAgs DNAcs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAcs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003141	AGcaAatcactaacAaCTTC	ASO-003141	OxyAs OxyGs DNAcs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003142	AgCaaatcactaaCaaCtTC	ASO-003142	OxyAs DNAgs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003144	AGcaAAtcactaacaaCtTC	ASO-003144	OxyAs OxyGs DNAcs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003145	AgcAAAtcactaacaACtTC	ASO-003145	OxyAs DNAgs DNAcs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003146	AgCAaAtcactaacaActTC	ASO-003146	OxyAs DNAgs OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs DNAts OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003148	AgcAaATcactaacaaCTTC	ASO-003148	OxyAs DNAgs DNAcs OxyAs DNAas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyMC
1472	116998	117017	1015	1034	DES-003149	AGCAaaTcactaacaaCtTC	ASO-003149	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAts OxyTs OxyMC
1473	116999	117016	1016	1033	DES-001618	GCAAatcactaacaACTTC	ASO-001618	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyTs OxyTs OxyT
1473	116999	117016	1016	1033	DES-001694	GCaaatcactaacaaCTTC	ASO-001694	OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyTs OxyT
1473	116999	117016	1016	1033	DES-002956	GCAAatcactaaCAAcTTC	ASO-002956	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1473	116999	117016	1016	1033	DES-002957	GCaaatcactaaCaaCTT	ASO-002957	OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyTs OxyT
1473	116999	117016	1016	1033	DES-002958	GCAAatcactaacaaCTT	ASO-002958	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyT
1473	116999	117016	1016	1033	DES-002959	GCAaAtcactaacaACTT	ASO-002959	OxyGs OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyTs OxyT
1473	116999	117016	1016	1033	DES-002960	GCaAAtcactaacaaCTT	ASO-002960	OxyGs OxyMCs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyT
1473	116999	117016	1016	1033	DES-002961	GCAaaTcactaacaAcTT	ASO-002961	OxyGs OxyMCs OxyAs DNAas DNAas OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003040	AGcaAAtcactaacAaCT T	ASO-003040	OxyAs OxyGs DNAcs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003042	AGCAaAtcactaacaAcT T	ASO-003042	OxyAs OxyGs OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003044	AGCAaatcactaaCAAcT T	ASO-003044	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003045	AGCaaatcactaACAacT T	ASO-003045	OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs DNAas DNAcs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003046	AgCAaatcactaACaACT T	ASO-003046	OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas OxyAs OxyMCs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003047	AgCAaatcactaaCAaCT T	ASO-003047	OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003048	AGCaaatcactaaCaACT T	ASO-003048	OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1474	116999	117017	1016	1034	DES-003049	AGcaAatcactaaCaaCT T	ASO-003049	OxyAs OxyGs DNAcs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003050	AGCAaatcactaacaaCT T	ASO-003050	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003052	AGCaAatcactaaCAacT T	ASO-003052	OxyAs OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas DNAcs OxyTs OxyT
1474	116999	117017	1016	1034	DES-003053	AGCaAAtcactaacaACT T	ASO-003053	OxyAs OxyGs OxyMCs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003143	TAgcAaatcactaaCAaC TT	ASO-003143	OxyTs OxyAs DNAgs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003147	TAgCaAAtcactaacAaC TT	ASO-003147	OxyTs OxyAs DNAgs OxyMCs DNAas OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003150	TaGCaaatcactaACAac TT	ASO-003150	OxyTs DNAas OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs DNAas DNAcs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003151	TagCAAatcactaaCAAc TT	ASO-003151	OxyTs DNAas DNAgs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs DNAcs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003152	TAgCaaatcactaaCaAc TT	ASO-003152	OxyTs OxyAs DNAgs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs DNAcs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003153	TagcAaatcactaACaAC TT	ASO-003153	OxyTs DNAas DNAgs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas OxyAs OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003154	TAGcaaatcactaAcaaC TT	ASO-003154	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs DNAas DNAas OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003155	TaGCAaatcactaacaaC TT	ASO-003155	OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1475	116999	117018	1016	1035	DES-003156	TAGcaAatcactaacAAc TT	ASO-003156	OxyTs OxyAs OxyGs DNAcs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs DNAcs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003157	TAgCAaAtcactaacAc TT	ASO-003157	OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs DNAcs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003158	TaGCaAatcactaaCaaC TT	ASO-003158	OxyTs DNAas OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyTs OxyT
1475	116999	117018	1016	1035	DES-003159	TAGcAAatcactaacaAC TT	ASO-003159	OxyTs OxyAs OxyGs DNAcs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyTs OxyT
1476	117000	117017	1017	1034	DES-001625	AGCAaatcactaacAACT	ASO-001625	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyT
1476	117000	117017	1017	1034	DES-001680	AGcaaatcactaacaACT	ASO-001680	OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002962	AGCAaatcactaaCAaCT	ASO-002962	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002963	AGCaaatcactaACaaCT	ASO-002963	OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas DNAas OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002964	AGCAaatcactaAcaACT	ASO-002964	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyAs DNAcs DNAas OxyAs OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002965	AGCaAatcactaacAaCT	ASO-002965	OxyAs OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs DNAas OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002966	AGCAaatcactaacaACT	ASO-002966	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002967	AgCAAatcactaaCaACT	ASO-002967	OxyAs DNAgs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1476	117000	117017	1017	1034	DES-002968	AGCaaAtcactaacAACT	ASO-002968	OxyAs OxyGs OxyMCs DNAas DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyT
1476	117000	117017	1017	1034	DES-002969	AgCAAAtcactaacAACT	ASO-002969	OxyAs DNAgs OxyMCs OxyAs OxyAs OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003051	TAGcaaatcactaAcaAC T	ASO-003051	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAts DNAcs DNAas OxyAs DNAcs DNAas OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003054	TAGcAAatcactaacAC T	ASO-003054	OxyTs OxyAs OxyGs DNAcs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003055	TAgCaaatcactAACAaC T	ASO-003055	OxyTs OxyAs DNAgs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs OxyMCs OxyAs DNAas OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003056	TaGCaaatcactaacAaC T	ASO-003056	OxyTs DNAas OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs OxyAs DNAas OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003057	TAGcaaatcactaaCAaC T	ASO-003057	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAts DNAcs DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003058	TAGCaaatcactaaCaAC T	ASO-003058	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003059	TaGCAaatcactaaCaaC T	ASO-003059	OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas DNAas OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003060	TAGCaAatcactaacAAC T	ASO-003060	OxyTs OxyAs OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003061	TAgCAaatcactaAcaAC T	ASO-003061	OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs DNAas OxyAs OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003062	TagCAaatcactaACAaC T	ASO-003062	OxyTs DNAas DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs DNAas OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1477	117000	117018	1017	1035	DES-003063	TAgCaAatcactaaCAaCT	ASO-003063	OxyTs OxyAs DNAgs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1477	117000	117018	1017	1035	DES-003064	TAgCAAatcactaaCaACT	ASO-003064	OxyTs OxyAs DNAgs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003160	ATAGcaaatcactaaCaACT	ASO-003160	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003161	ATAgcaaatcactaAcAa CT	ASO-003161	OxyAs OxyTs OxyAs DNAgs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs OxyAs DNAas OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003162	ATagCaaatcactAACaa CT	ASO-003162	OxyAs OxyTs DNAas DNAgs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs OxyAs OxyMCs DNAas DNAas OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003163	AtAGCaaatcactAacAa CT	ASO-003163	OxyAs DNAts OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas DNAcs OxyAs DNAas OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003164	AtaGCaaatcactaACaa CT	ASO-003164	OxyAs DNAts DNAas OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas DNAas OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003165	AtaGCAaatcactaAcAA CT	ASO-003165	OxyAs DNAts DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs OxyAs OxyAs OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003166	ATaGcAaatcactaaCAa CT	ASO-003166	OxyAs OxyTs DNAas OxyGs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003167	ATAgCAaatcactaacaA CT	ASO-003167	OxyAs OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003168	AtaGCaAatcactaacaA CT	ASO-003168	OxyAs DNAts DNAas OxyGs OxyMCs DNAas OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1478	117000	117019	1017	1036	DES-003169	AtAgCAAatcactaaCAa CT	ASO-003169	OxyAs DNAts OxyAs DNAgs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1477	117000	117018	1017	1035	DES-003220	TAGcaaatcactAACaaCT	ASO-003220	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs OxyAs OxyMCs DNAas DNAas OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003296	GCAaatcactaaCAaCT	ASO-003296	OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003297	GCaaatcactaaCAaCT	ASO-003297	OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003298	GCAaatcactaACaACT	ASO-003298	OxyGs OxyMCs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas OxyAs OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003299	GCAaatcactaAcAACT	ASO-003299	OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs OxyAs OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003300	GCAAatcactaaCaACT	ASO-003300	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003301	GCAaatcactaaCaACT	ASO-003301	OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003302	GCAAatcactaacaACT	ASO-003302	OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyT
1479	117000	117016	1017	1033	DES-003303	GCAaAtcactaacAACT	ASO-003303	OxyGs OxyMCs OxyAs DNAas OxyAs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMCs OxyT
1480	117001	117018	1018	1035	DES-001384	TAGcaaatcactaacAAC	ASO-001384	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyMC
1480	117001	117018	1018	1035	DES-001637	TAGCaaatcactaaCAAC	ASO-001637	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1480	117001	117018	1018	1035	DES-002970	TAGCaaatcactaAcaAC	ASO-002970	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs DNAas OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1480	117001	117018	1018	1035	DES-002971	TaGCAaatcactaACaAC	ASO-002971	OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs DNAas OxyAs OxyMC
1480	117001	117018	1018	1035	DES-002972	TaGCAAatcactaaCAAC	ASO-002972	OxyTs DNAas OxyGs OxyMCs OxyAs OxyAs DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyMCs OxyAs OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003065	ATAGcaaatcacTAACa AC	ASO-003065	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs OxyAs OxyAs OxyMCs DNAas OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003066	ATAgcaaatcacTAaCAA C	ASO-003066	OxyAs OxyTs OxyAs DNAgs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs OxyAs DNAas OxyMCs OxyAs OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003067	AtaGCaaatcactAaCAA C	ASO-003067	OxyAs DNAts DNAas OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003068	ATAGcaaatcacTaacAA C	ASO-003068	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs DNAas DNAcs DNAts OxyAs OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003069	AtAGCaaatcactaaCaA C	ASO-003069	OxyAs DNAts OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003070	ATaGCAaatcactaAcaA C	ASO-003070	OxyAs OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs DNAas OxyAs OxyMC
1481	117001	117019	1018	1036	DES-003071	ATAgCAaatcactaaCAA C	ASO-003071	OxyAs OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1482	117001	117017	1018	1034	DES-003304	AGCaaatcactAACaAC	ASO-003304	OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs OxyAs OxyMCs DNAas OxyAs OxyMC
1482	117001	117017	1018	1034	DES-003305	AGCaaatcactaaCAAC	ASO-003305	OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1482	117001	117017	1018	1034	DES-003306	AGCAaatcactaAcaAC	ASO-003306	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs DNAas OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1482	117001	117017	1018	1034	DES-003307	AGCAaatcactaaCAAC	ASO-003307	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyMC
1482	117001	117017	1018	1034	DES-003308	AGCAaatcactaaCaAC	ASO-003308	OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs DNAas OxyAs OxyMC
1483	117002	117019	1019	1036	DES-001357	ATAgcaaatcactaACAA	ASO-001357	OxyAs OxyTs OxyAs DNAgs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-001605	ATAGcaaatcactaACAA	ASO-001605	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002891	AtAGCaaatcactAaCAA	ASO-002891	OxyAs DNAts OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002892	ATAGcAaatcactaACAA	ASO-002892	OxyAs OxyTs OxyAs OxyGs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002893	ATAgCAaatcactaACAA	ASO-002893	OxyAs OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002894	ATAgCaaatcactaACAA	ASO-002894	OxyAs OxyTs OxyAs DNAgs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002895	ATaGCAaatcactaACAA	ASO-002895	OxyAs OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002896	ATAGcaaatcactaaCAA	ASO-002896	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002897	ATAgCAaatcactaaCAA	ASO-002897	OxyAs OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002898	ATaGCAaatcactaaCAA	ASO-002898	OxyAs OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1483	117002	117019	1019	1036	DES-002899	ATaGCaaatcactaaCAA	ASO-002899	OxyAs OxyTs DNAas OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002900	AtAGCAaatcactaaCAA	ASO-002900	OxyAs DNAts OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002901	AtAGCaaatcactaaCAA	ASO-002901	OxyAs DNAts OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-002902	AtaGCAaatcactaaCAA	ASO-002902	OxyAs DNAts DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003229	ATAgCaaatcactAaCAA	ASO-003229	OxyAs OxyTs OxyAs DNAgs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003230	ATagCAaatcactaACAA	ASO-003230	OxyAs OxyTs DNAas DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003231	ATAGcAaatcactaaCAA	ASO-003231	OxyAs OxyTs OxyAs OxyGs DNAcs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003232	TAGCaaatcactAaCAA	ASO-003232	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003282	ATAGcaaatcacTAacAA	ASO-003282	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs OxyAs DNAas DNAcs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003283	ATAGcaaatcacTAaCA A	ASO-003283	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs OxyAs DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003284	ATAgcaaatcacTaACAA	ASO-003284	OxyAs OxyTs OxyAs DNAgs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003285	ATAGcaaatcactAaCAA	ASO-003285	OxyAs OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1483	117002	117019	1019	1036	DES-003286	ATaGCaaatcactAaCAA	ASO-003286	OxyAs OxyTs DNAas OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts OxyAs DNAas OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003287	ATaGCaaatcactaACAA	ASO-003287	OxyAs OxyTs DNAas OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003288	AtAGCAaatcactaACAA	ASO-003288	OxyAs DNAts OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003289	AtAGCaaatcactaACAA	ASO-003289	OxyAs DNAts OxyAs OxyGs OxyMCs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003290	AtaGCAaatcactaACAA	ASO-003290	OxyAs DNAts DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003291	ATaGCAaatcactaAcAA	ASO-003291	OxyAs OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs OxyAs OxyA
1483	117002	117019	1019	1036	DES-003292	AtAGCAaatcactaAcAA	ASO-003292	OxyAs DNAts OxyAs OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs DNAcs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003309	TAGcaaatcacTAaCAA	ASO-003309	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs OxyAs DNAas OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003310	TAGcaaatcacTaACAA	ASO-003310	OxyTs OxyAs OxyGs DNAcs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs OxyTs DNAas OxyAs OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003311	TAGCaaatcactaACAA	ASO-003311	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003312	TAgCAaatcactaACAA	ASO-003312	OxyTs OxyAs DNAgs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003313	TaGCAaatcactaACAA	ASO-003313	OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNAcs DNAas DNAcs DNAts DNAas OxyAs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1484	117002	117018	1019	1035	DES-003314	TAGCaaatcactaaCAA	ASO-003314	OxyTs OxyAs OxyGs OxyMCs DNAas DNAas DNAas DNAts DNACs DNAas DNACs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1484	117002	117018	1019	1035	DES-003315	TaGCAaatcactaaCAA	ASO-003315	OxyTs DNAas OxyGs OxyMCs OxyAs DNAas DNAas DNAts DNACs DNAas DNACs DNAts DNAas DNAas OxyMCs OxyAs OxyA
1485	117021	117038	1038	1055	DES-002708	AAAAatcttataatATAT	ASO-002708	OxyAs OxyAs OxyAs OxyAs DNAas DNAts DNAcs DNAts DNAts DNAas DNAts DNAas DNAts OxyAs OxyTs OxyAs OxyT
1486	117022	117039	1039	1056	DES-002792	TAAAaatcttataTATA	ASO-002792	OxyTs OxyAs OxyAs OxyAs DNAas DNAts DNAcs DNAts DNAts DNAas DNAas DNAts OxyTs OxyAs OxyTs OxyA
1487	117022	117040	1039	1057	DES-009014	CTAAaaatcttataaTATA	ASO-009014	OxyMCs OxyTs OxyAs OxyAs DNAas DNAas DNAas DNAts DNACs DNAts DNAts DNAas DNAas DNAts OxyTs OxyAs OxyTs OxyA
1488	117022	117041	1039	1058	DES-009015	CCTAaaaatcttataTATA	ASO-009015	OxyMCs OxyMCs OxyTs OxyAs DNAas DNAas DNAas DNAas DNAts DNACs DNAts DNAts DNAas DNAas DNAts DNAas OxyTs OxyAs OxyTs OxyA
1489	117023	117040	1040	1057	DES-002781	CTAAaaatcttataATAT	ASO-002781	OxyMCs OxyTs OxyAs OxyAs DNAas DNAas DNAas DNAts DNACs DNAts DNAas DNAts DNAas OxyAs OxyTs OxyAs OxyT
1490	117024	117041	1041	1058	DES-002774	CCTAaaaatcttatAATA	ASO-002774	OxyMCs OxyMCs OxyTs OxyAs DNAas DNAas DNAas DNAas DNACs DNAts DNAts DNAas DNAs OxyAs OxyAs OxyTs OxyA
1491	117024	117042	1041	1059	DES-009016	ACCTaaaaatcttatAATA	ASO-009016	OxyAs OxyMCs OxyMCs OxyTs DNAas DNAas DNAas DNAas DNAas DNAts DNACs DNAts DNAts DNAas DNAts OxyAs OxyAs OxyTs OxyA
1492	117025	117044	1042	1061	DES-009017	ACACctaaaaatcttaTAA T	ASO-009017	OxyAs OxyMCs OxyAs OxyMCs DNACs DNAts DNAas DNAas DNAas DNAas DNAas DNAts DNACs DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyT
1493	117026	117043	1043	1060	DES-002764	CACCtaaaaatcttATAA	ASO-002764	OxyMCs OxyAs OxyMCs OxyMCs DNAts DNAas DNAas DNAas DNAas DNAas DNAts DNACs DNAts DNAts OxyAs OxyTs OxyAs OxyA
1494	117027	117044	1044	1061	DES-002743	ACACctaaaaatctTATA	ASO-002743	OxyAs OxyMCs OxyAs OxyMCs DNACs DNAts DNAas DNAas DNAas DNAas DNAts DNACs DNAts DNAts OxyTs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1495	117027	117045	1044	1062	DES-009018	GACAcctaaaaatctTATA	ASO-009018	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAcs DNAts OxyTs OxyAs OxyTs OxyA
1496	117028	117045	1045	1062	DES-009020	GACAcctaaaaatcTTAT	ASO-009020	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAcs OxyTs OxyTs OxyAs OxyT
1497	117028	117046	1045	1063	DES-009021	AGACacctaaaaatcTTAT	ASO-009021	OxyAs OxyGs OxyAs OxyMCs DNAas DNAcs DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAcs OxyTs OxyTs OxyAs OxyT
1498	117029	117045	1046	1062	DES-009019	GACAcctaaaaatCTTA	ASO-009019	OxyGs OxyAs OxyMCs OxyAs DNAcs DNAcs DNAts DNAas DNAas DNAas DNAas DNAts OxyMCs OxyTs OxyTs OxyA
1499	117047	117064	1064	1081	DES-001364	TTAgacagtatcatTAAA	ASO-001364	OxyTs OxyTs OxyAs DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyA
1499	117047	117064	1064	1081	DES-001608	TTAGacagtatcatTAAA	ASO-001608	OxyTs OxyTs OxyAs OxyGs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs DNAas DNAts OxyTs OxyAs OxyAs OxyA
1500	117048	117063	1065	1080	DES-001247	TAGAcagtatcaTTAA	ASO-001247	OxyTs OxyAs OxyGs OxyAs DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs DNAas OxyTs OxyTs OxyAs OxyA
1500	117048	117063	1065	1080	DES-001285	TAGacagtatcatTAA	ASO-001285	OxyTs OxyAs OxyGs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs DNAas DNAts OxyTs OxyAs OxyA
1501	117049	117064	1066	1081	DES-001235	TTAGacagtatcATTA	ASO-001235	OxyTs OxyTs OxyAs OxyGs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs OxyAs OxyTs OxyTs OxyA
1501	117049	117064	1066	1081	DES-001764	TTAgacagtatcatTA	ASO-001764	OxyTs OxyTs OxyAs DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs DNAas DNAts OxyTs OxyA
1502	117050	117065	1067	1082	DES-001226	CTTagacagtatcATT	ASO-001226	OxyMCs OxyTs OxyTs DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts DNAcs OxyAs OxyTs OxyT
1502	117050	117065	1067	1082	DES-001306	CTTAgacagtatCATT	ASO-001306	OxyMCs OxyTs OxyTs OxyAs DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts OxyMCs OxyAs OxyTs OxyT
1503	117051	117068	1068	1085	DES-001339	ATTcttagacagtaTCAT	ASO-001339	OxyAs OxyTs OxyTs DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1503	117051	117068	1068	1085	DES-001701	ATtcttagacagtatCAT	ASO-001701	OxyAs OxyTs DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAas DNAts OxyMCs OxyAs OxyT
1504	117052	117069	1069	1086	DES-001498	TATtcttagacagtaTCA	ASO-001498	OxyTs OxyAs OxyTs DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas OxyTs OxyMCs OxyA
1504	117052	117069	1069	1086	DES-001727	TAttcttagacagtatCA	ASO-001727	OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts DNAas DNAts OxyMCs OxyA
1505	117053	117068	1070	1085	DES-001215	ATTcttagacagtATC	ASO-001215	OxyAs OxyTs OxyTs DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs DNAts OxyAs OxyTs OxyMC
1505	117053	117068	1070	1085	DES-001265	ATTcttagacagTATC	ASO-001265	OxyAs OxyTs OxyTs DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs OxyTs OxyAs OxyTs OxyMC
1506	117054	117071	1071	1088	DES-001326	ATTattcttagacaGTAT	ASO-001326	OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas OxyGs OxyTs OxyAs OxyT
1506	117054	117071	1071	1088	DES-001686	ATtattcttagacagTAT	ASO-001686	OxyAs OxyTs DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAas DNAgs OxyTs OxyAs OxyT
1507	117055	117070	1072	1087	DES-001266	TTAttcttagacAGTA	ASO-001266	OxyTs OxyTs OxyAs DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs DNAcs OxyAs OxyGs OxyTs OxyA
1507	117055	117070	1072	1087	DES-001447	TTattcttagacaGTA	ASO-001447	OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAgs DNAas DNAcs DNAas OxyGs OxyTs OxyA
1582	117056	117071	1073	1088	DES-001238	ATTattcttagacAGT	ASO-001238	OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas DNAcs OxyAs OxyGs OxyT
1582	117056	117071	1073	1088	DES-001278	ATTattcttagaCAGT	ASO-001278	OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas OxyMCs OxyAs OxyGs OxyT
1508	117057	117072	1074	1089	DES-001271	CATTattcttagACAG	ASO-001271	OxyMCs OxyAs OxyTs OxyTs DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs OxyAs OxyMCs OxyAs OxyG
1508	117057	117072	1074	1089	DES-001438	CAttattcttagaCAG	ASO-001438	OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAts DNAcs DNAts DNAts DNAas DNAgs DNAas OxyMCs OxyAs OxyG
1509	117065	117080	1082	1097	DES-002691	CAATacgtcattATTC	ASO-002691	OxyMCs OxyAs OxyAs OxyTs DNAas DNAmcs DNAgs DNAts DNAcs DNAas DNAts DNAts OxyAs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1510	117067	117082	1084	1099	DES-002688	CACAatacgtcaTTAT	ASO-002688	OxyMCs OxyAs OxyMCs OxyAs DNAas DNAts DNAas DNAmcs DNAgs DNAts DNAcs DNAas OxyTs OxyTs OxyAs OxyT
1511	117068	117083	1085	1100	DES-002693	TCACaatacgtcATTA	ASO-002693	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAas DNAts DNAas DNAmcs DNAgs DNAts DNAcs OxyAs OxyTs OxyTs OxyA
1512	117069	117084	1086	1101	DES-002687	TTCAcaatacgtCATT	ASO-002687	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAmcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005200	ATTtcacaatacGTCaTT	ASO-005200	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAas DNAcs OxyGs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005201	ATttcacaatacGTCaTT	ASO-005201	OxyAs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005202	AtTtcacaatacGTCaTT	ASO-005202	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005203	AtttcAcaatacGTCaTT	ASO-005203	OxyAs DNAts DNAts DNAts DNAcs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005204	ATTtcacaatacGTcATT	ASO-005204	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs DNAcs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005205	ATTtcacaatacGTcaTT	ASO-005205	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs DNAcs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005206	ATTtcacaatacGtCATT	ASO-005206	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005207	ATttcacaatacGtCATT	ASO-005207	OxyAs OxyTs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005208	AtTtcacaatacGtCATT	ASO-005208	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs DNAts OxyMCs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1513	117069	117086	1086	1103	DES-005209	ATTtCacaatacgTCaTT	ASO-005209	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005210	ATTtcacaatacgTCaTT	ASO-005210	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005211	ATtTCacaatacgTCaTT	ASO-005211	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005212	ATttCacaatacgTCaTT	ASO-005212	OxyAs OxyTs DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005213	AtTTCacaatacgTCaTT	ASO-005213	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005214	AttTCacaatacgTCaTT	ASO-005214	OxyAs DNAts DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005215	ATTtCacaatacgTcATT	ASO-005215	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005216	ATtTCacaatacgTcATT	ASO-005216	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005217	AtTTCacaatacgTcATT	ASO-005217	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005218	AttTCacaatacgTcATT	ASO-005218	OxyAs DNAts DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005219	ATTtCacaatacgTcaTT	ASO-005219	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005220	ATtTCacaatacgTcaTT	ASO-005220	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs DNAas OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1513	117069	117086	1086	1103	DES-005221	AtTTCacaatacgTcaTT	ASO-005221	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs DNAcs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005222	ATTtCacaatacgtCATT	ASO-005222	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005223	ATTtcacaatacgtCATT	ASO-005223	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005224	ATtTCacaatacgtCATT	ASO-005224	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005225	ATttCacaatacgtCATT	ASO-005225	OxyAs OxyTs DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005226	AtTTCacaatacgtCATT	ASO-005226	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005227	AtTtCacaatacgtCATT	ASO-005227	OxyAs DNAts OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005228	AttTCacaatacgtCATT	ASO-005228	OxyAs DNAts DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005229	AtttCacaatacgtCATT	ASO-005229	OxyAs DNAts DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyTs OxyT
1513	117069	117086	1086	1103	DES-005230	ATTtCacaatacgtCaTT	ASO-005230	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs DNAas OxyTs OxyT
1513	117069	117086	1086	1103	DES-005231	ATtTCacaatacgtCaTT	ASO-005231	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs DNAas OxyTs OxyT
1514	117070	117085	1087	1102	DES-002689	TTTCacaatacgTCAT	ASO-002689	OxyTs OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAmcs DNAgs OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1515	117070	117086	1087	1103	DES-005184	ATTtcacaatacGtCAT	ASO-005184	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs DNAts OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005185	ATTtcacaatacgTCAT	ASO-005185	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005186	ATttCacaatacgTCAT	ASO-005186	OxyAs OxyTs DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005187	ATttcacaatacgTCAT	ASO-005187	OxyAs OxyTs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAgs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005188	AtTtCacaatacgTCAT	ASO-005188	OxyAs DNAts OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005189	AtTtcacaatacgTCAT	ASO-005189	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005190	AttTCacaatacgTCAT	ASO-005190	OxyAs DNAts DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005191	AtttCacaatacgTCAT	ASO-005191	OxyAs DNAts DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005192	AtttcAcaatacgTCAT	ASO-005192	OxyAs DNAts DNAts DNAts DNAcs OxyAs DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs OxyTs OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005193	ATtTCacaatacgTcAT	ASO-005193	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs DNAcs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005194	AtTTCacaatacgTcAT	ASO-005194	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyTs DNAcs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005195	ATTtCacaatacgtCAT	ASO-005195	OxyAs OxyTs OxyTs DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1515	117070	117086	1087	1103	DES-005196	ATtTCacaatacgtCAT	ASO-005196	OxyAs OxyTs DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005197	ATttCacaatacgtCAT	ASO-005197	OxyAs OxyTs DNAts DNAts OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005198	AtTTCacaatacgtCAT	ASO-005198	OxyAs DNAts OxyTs OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyT
1515	117070	117086	1087	1103	DES-005199	AttTCacaatacgtCAT	ASO-005199	OxyAs DNAts DNAts OxyTs OxyMCs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs DNAgs DNAts OxyMCs OxyAs OxyT
1516	117071	117086	1088	1103	DES-002694	ATTTcacaatacGTCA	ASO-002694	OxyAs OxyTs OxyTs OxyTs DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas DNAcs OxyGs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005175	AtTtcacaatACGtCA	ASO-005175	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs OxyGs DNAts OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005176	AtttcacaatACGtCA	ASO-005176	OxyAs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs OxyGs DNAts OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005177	ATTtcacaatACgTCA	ASO-005177	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs DNAgs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005178	AtTtcacaatACgTCA	ASO-005178	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs DNAgs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005179	AtttcacaatACgTCA	ASO-005179	OxyAs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs OxyMCs DNAgs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005180	AtTtcacaatAcGTCA	ASO-005180	OxyAs DNAts OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs DNAcs OxyGs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005181	AtttcacaatAcGTCA	ASO-005181	OxyAs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs DNAcs OxyGs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005182	ATTtcacaatAcgTCA	ASO-005182	OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs DNAcs DNAgs OxyTs OxyMCs OxyA
1516	117071	117086	1088	1103	DES-005183	ATttcacaatAcgTCA	ASO-005183	OxyAs OxyTs DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts OxyAs DNAcs DNAgs OxyTs OxyMCs OxyA
1517	117072	117087	1089	1104	DES-002692	AATTtcacaataCGTC	ASO-002692	OxyAs OxyAs OxyTs OxyTs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAts DNAas OxyMCs OxyGs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1518	117074	117089	1091	1106	DES-002690	CAAAtttcacaaTACG	ASO-002690	OxyMCs OxyAs OxyAs OxyAs DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyMCs OxyG
1519	117075	117094	1092	1111	DES-001330	ATTaacaaatttcacaATAC	ASO-001330	OxyAs OxyTs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas OxyAs OxyTs OxyAs OxyMC
1519	117075	117094	1092	1111	DES-001554	ATTAacaaatttcacaATAC	ASO-001554	OxyAs OxyTs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAas DNAcs DNAas OxyAs OxyTs OxyAs OxyMC
1520	117079	117098	1096	1115	DES-001351	ATAtattaacaaatttcACA	ASO-001351	OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts DNAts DNAcs OxyAs OxyMCs OxyA
1520	117079	117098	1096	1115	DES-001560	ATATattaacaaatttCACA	ASO-001560	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts DNAts OxyMCs OxyAs OxyMCs OxyA
1521	117080	117099	1097	1116	DES-001536	TATatattaacaaatttCAC	ASO-001536	OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts DNAts OxyMCs OxyAs OxyMC
1521	117080	117099	1097	1116	DES-001557	TATAtattaacaaattTCAC	ASO-001557	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
1522	117080	117098	1097	1115	DES-009022	ATATattaacaaattTCAC	ASO-009022	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts DNAts OxyTs OxyMCs OxyAs OxyMC
1523	117081	117098	1098	1115	DES-001669	ATATattaacaaatTTCA	ASO-001669	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyA
1524	117081	117099	1098	1116	DES-009023	TATAtattaacaaatTTCA	ASO-009023	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyA
1525	117081	117100	1098	1117	DES-009024	ATATatattaacaaatTTCA	ASO-009024	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas DNAts OxyTs OxyTs OxyMCs OxyA
1526	117082	117099	1099	1116	DES-001667	TATAtattaacaaaTTTC	ASO-001667	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1527	117082	117100	1099	1117	DES-009025	ATATatattaacaaaTTTC	ASO-009025	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyMC
1528	117082	117101	1099	1118	DES-009026	TATAtatattaacaaaTTTC	ASO-009026	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas DNAas DNAas OxyTs OxyTs OxyTs OxyMC
1529	117083	117100	1100	1117	DES-001664	ATATatattaacaaATTT	ASO-001664	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyTs OxyT
1530	117084	117101	1101	1118	DES-001571	TATAtatattaacaAATT	ASO-001571	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAcs DNAas OxyAs OxyAs OxyTs OxyT
1531	117085	117102	1102	1119	DES-001567	TTATatattaacAAAT	ASO-001567	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAcs OxyAs OxyAs OxyAs OxyT
1531	117085	117102	1102	1119	DES-002812	TTATatattaaCAaAT	ASO-002812	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyMCs OxyAs DNAas OxyAs OxyT
1532	117086	117103	1103	1120	DES-001570	ATTAtatattaaCAAA	ASO-001570	OxyAs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyA
1532	117086	117103	1103	1120	DES-002754	AtTATAtatattaaCAAA	ASO-002754	OxyAs DNAts OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAas DNAas OxyMCs OxyAs OxyAs OxyA
1533	117087	117104	1104	1121	DES-001580	TATTatatatattaACAA	ASO-001580	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAts DNAts DNAas OxyAs OxyMCs OxyAs OxyA
1534	117088	117105	1105	1122	DES-001590	GTATtatatatattAACA	ASO-001590	OxyGs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAas DNAts DNAts OxyAs OxyAs OxyMCs OxyA
1535	117089	117106	1106	1123	DES-001379	AGTattatatatatTAAC	ASO-001379	OxyAs OxyGs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyMC
1535	117089	117106	1106	1123	DES-001600	AGTAttatatatatTAAC	ASO-001600	OxyAs OxyGs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAts OxyTs OxyAs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1536	117090	117107	1107	1124	DES-001668	AAGTattatatataTTAA	ASO-001668	OxyAs OxyAs OxyGs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAas OxyTs OxyTs OxyAs OxyA
1537	117091	117110	1108	1127	DES-001542	TTTaagtattatatatATTA	ASO-001542	OxyTs OxyTs OxyTs DNAas DNAas DNAgs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyA
1537	117091	117110	1108	1127	DES-001553	TTTAagtattatatatATTA	ASO-001553	OxyTs OxyTs OxyTs OxyAs DNAas DNAgs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyA
1538	117117	117132	1134	1149	DES-001251	CATagtttcatgcTCA	ASO-001251	OxyMCs OxyAs OxyTs DNAas DNAgs DNAts DNAts DNAts DNAcs DNAas DNAts DNAgs DNAcs OxyTs OxyMCs OxyA
1538	117117	117132	1134	1149	DES-001484	CAtagtttcatgctCA	ASO-001484	OxyMCs OxyAs DNAts DNAas DNAgs DNAts DNAts DNAts DNAcs DNAas DNAts DNAgs DNAcs DNAts OxyMCs OxyA
1539	117127	117142	1144	1159	DES-000943	TTtataggtgcaTAGT	ASO-000943	OxyTs OxyTs DNAts DNAas DNAts DNAas DNAgs DNAgs DNAts DNAgs DNAcs DNAas OxyTs OxyAs OxyGs OxyT
1540	117129	117144	1146	1161	DES-000942	TATttataggtgCATA	ASO-000942	OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAgs DNAgs DNAts DNAgs OxyMCs OxyAs OxyTs OxyA
1541	117185	117202	1202	1219	DES-001515	TTAtatacaaacacAAGT	ASO-001515	OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs OxyAs OxyAs OxyGs OxyT
1541	117185	117202	1202	1219	DES-001671	TTATatacaaacacAAGT	ASO-001671	OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAcs OxyAs OxyAs OxyGs OxyT
1542	117186	117203	1203	1220	DES-001589	TTTAtatacaaacaCAAG	ASO-001589	OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyAs OxyAs OxyG
1543	117187	117204	1204	1221	DES-001665	ATTTatatacaaacACAA	ASO-001665	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003182	ATTTatatacaaACaCAA	ASO-003182	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003183	ATTTatatacaaaCaCAA	ASO-003183	OxyAs OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1543	117187	117204	1204	1221	DES-003184	ATTTaTatacaaacACA A	ASO-003184	OxyAs OxyTs OxyTs OxyTs DNAas OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003185	ATTtATatacaaacACAA	ASO-003185	OxyAs OxyTs OxyTs DNAts OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003186	ATtTATatacaaacACAA	ASO-003186	OxyAs OxyTs DNAts OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003187	AtTTATatacaaacACAA	ASO-003187	OxyAs DNAts OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003188	AttTATatacaaacACAA	ASO-003188	OxyAs DNAts DNAts OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003189	ATTTaTatacaaacaCAA	ASO-003189	OxyAs OxyTs OxyTs OxyTs DNAas OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003190	ATTtATatacaaacaCAA	ASO-003190	OxyAs OxyTs OxyTs DNAts OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003191	ATtTATatacaaacaCAA	ASO-003191	OxyAs OxyTs DNAts OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1543	117187	117204	1204	1221	DES-003192	AtTTATatacaaacaCAA	ASO-003192	OxyAs DNAts OxyTs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003235	CAtTTAtatacaaacACA A	ASO-003235	OxyMCs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003331	CATTtatatacaaaCAcA A	ASO-003331	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAas OxyMCs OxyAs DNAcs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003332	CATTtatatacaaacACA A	ASO-003332	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1544	117187	117205	1204	1222	DES-003334	CATttatatacaaAcaCAA	ASO-003334	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003335	CAtTtatatacaaaCaCAA	ASO-003335	OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003336	CATTtatatacaaACAcA A	ASO-003336	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs DNAcs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003337	CATttatatacaaACaCA A	ASO-003337	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003338	CaTTTAtatacaaaCaCA A	ASO-003338	OxyMCs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003339	CATtTAtatacaaaCAcA A	ASO-003339	OxyMCs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs DNAcs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003340	CATTtAtatacaaaCaCA A	ASO-003340	OxyMCs OxyAs OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003341	CAttTAtatacaaaCaCA A	ASO-003341	OxyMCs OxyAs DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA
1544	117187	117205	1204	1222	DES-003342	CAtTtATatacaaacaCA A	ASO-003342	OxyMCs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyAs OxyA
1545	117187	117206	1204	1223	DES-009027	CCATttatatacaaacACA A	ASO-009027	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyAs OxyA
1546	117188	117205	1205	1222	DES-001395	CATttatatacaaaCACA	ASO-001395	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-001606	CATTtatatacaaaCACA	ASO-001606	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-003172	CCATttatatacAAAcAC A	ASO-003172	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003173	CCAtttatatacAAaCACA	ASO-003173	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyAs OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003174	CCATttatatacAAaCaC A	ASO-003174	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyAs DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003175	CCAtTtatatacaaaCAC A	ASO-003175	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003176	CCATttatatacaaACaC A	ASO-003176	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003177	CCAtTtatatacaaACaC A	ASO-003177	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003178	CCaTTTatatacaaACaC A	ASO-003178	OxyMCs OxyMCs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003179	CCAtttatatacaaaCACA	ASO-003179	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003180	CCaTTtatatacaaaCAC A	ASO-003180	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003181	CCATtTatatacaaaCaC A	ASO-003181	OxyMCs OxyMCs OxyAs OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003193	CATttatatacaAAcACA	ASO-003193	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs OxyAs DNAcs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003194	CATTtatatacaaAcaCA	ASO-003194	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1546	117188	117205	1205	1222	DES-003195	CATttatacaAacACA	ASO-003195	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003196	CAtttatatacaaaCACA	ASO-003196	OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003197	CATTtatatacaaacaCA	ASO-003197	OxyMCs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003198	CaTtTAtatacaaaCACA	ASO-003198	OxyMCs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003199	CAtTTAtatacaaaCACA	ASO-003199	OxyMCs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003200	CatTtATatacaaaCACA	ASO-003200	OxyMCs DNAas DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003201	CATttAtatacaaaCaCA	ASO-003201	OxyMCs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003202	CAtTTAtatacaaaCaCA	ASO-003202	OxyMCs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003203	CaTTTAtatacaaacaCA	ASO-003203	OxyMCs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003204	CATtTAtatacaaacaCA	ASO-003204	OxyMCs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003205	CATttatatacaaacACA	ASO-003205	OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003206	CAtTTAtatacaaacACA	ASO-003206	OxyMCs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1546	117188	117205	1205	1222	DES-003207	CAtTTatatacaaacaCA	ASO-003207	OxyMCs OxyAs DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1546	117188	117205	1205	1222	DES-003219	CAtttatatacaaACaCA	ASO-003219	OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003236	CCatttatatacAaacaCA	ASO-003236	OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003237	CCAtttatatacaaAcaCA	ASO-003237	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003238	CCaTttatatacaaacACA	ASO-003238	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003239	CCaTttatatacaaaCaCA	ASO-003239	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003240	CCaTTtatatacaAacaC A	ASO-003240	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003274	CcAtTTatatacaaacACA	ASO-003274	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003275	CcATtTatatacaaacaCA	ASO-003275	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003333	CCAtttatatacaAacACA	ASO-003333	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003343	CcaTttatatacAAacACA	ASO-003343	OxyMCs DNAcs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs OxyAs DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003344	CCATttatatacAAacaCA	ASO-003344	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAcs OxyAs OxyAs DNAas DNAcs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-003345	CcAtttatatacAAaCACA	ASO-003345	OxyMCs DNAcs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyAs DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003346	CcaTttatatacAaaCaCA	ASO-003346	OxyMCs DNAcs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003347	CCATttatatacaaAcaCA	ASO-003347	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003348	CcATttatatacaaAcaCA	ASO-003348	OxyMCs DNAcs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003349	CcATttatatacaaaCACA	ASO-003349	OxyMCs DNAcs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003350	CcaTTtatatacaaacACA	ASO-003350	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003351	CcaTTtatatacaaACaC A	ASO-003351	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003352	CCatttatatacaaaCaCA	ASO-003352	OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003353	CcAtTtatatacaaaCaCA	ASO-003353	OxyMCs DNAcs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003354	CCAtTtatatacaaAcaCA	ASO-003354	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003355	CcatttatatacaaAcACA	ASO-003355	OxyMCs DNAcs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-003356	CcattTatatacaaaCACA	ASO-003356	OxyMCs DNAcs DNAas DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-003357	CCatTTatatacaaacaCA	ASO-003357	OxyMCs OxyMCs DNAas DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005163	CCAtttatatacaAAcACA	ASO-005163	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005164	CCaTttatatacaAACaC A	ASO-005164	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005165	CCAtTtatatacaaAcACA	ASO-005165	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005166	CcATttatatacaAaCACA	ASO-005166	OxyMCs DNAcs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005167	CCAtttatatacaaaCaCA	ASO-005167	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005168	CCAtttatatacaAacaCA	ASO-005168	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005169	CcATTtatatacaaACaC A	ASO-005169	OxyMCs DNAcs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005170	CCAtTtatatacaAaCaC A	ASO-005170	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005271	CCatTtAtatacaaaCAC A	ASO-005271	OxyMCs OxyMCs DNAas DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005272	CCaTtTAtatacaaaCaC A	ASO-005272	OxyMCs OxyMCs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005273	CcatTTAtatacaaaCAC A	ASO-005273	OxyMCs DNAcs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005274	CCaTttAtatacaaaCAC A	ASO-005274	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005275	CcAtTTAtatacaaaCAC A	ASO-005275	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005276	CcaTtTAtatacaaaCAC A	ASO-005276	OxyMCs DNAcs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005277	CCatTTAtatacaaaCaC A	ASO-005277	OxyMCs OxyMCs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005278	CcATTtAtatacaaaCAC A	ASO-005278	OxyMCs DNAcs OxyAs OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005279	CCATttAtatacaaaCaC A	ASO-005279	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005280	CCAtTtAtatacaaaCaC A	ASO-005280	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005281	CCattTAtatacaaaCaCA	ASO-005281	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005282	CcATtTAtatacaaaCAC A	ASO-005282	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005283	CcAttTAtatacaaaCACA	ASO-005283	OxyMCs DNAcs OxyAs DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005284	CCAtttAtatacaaaCaCA	ASO-005284	OxyMCs OxyMCs OxyAs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005285	CcaTTTAtatacaaaCaC A	ASO-005285	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005286	CCaTTtAtatacaaaCaC A	ASO-005286	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005287	CcaTTTAtatacaaaCAC A	ASO-005287	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005288	CcATttAtatacaaaCACA	ASO-005288	OxyMCs DNAcs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005289	CcaTTtAtatacaaaCAC A	ASO-005289	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005290	CcATtTAtatacaaaCaC A	ASO-005290	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005291	CCattTAtatacaaaCAC A	ASO-005291	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005292	CcaTTTatatacaaaCAC A	ASO-005292	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005293	CCaTTTatatacaaaCaC A	ASO-005293	OxyMCs OxyMCs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005294	CCAtttAtatacaaACaCA	ASO-005294	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005295	CCAttTatatacaaaCaCA	ASO-005295	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005296	CcaTTTAtatacaaACaC A	ASO-005296	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005297	CcAtTTAtatacaaaCaC A	ASO-005297	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005298	CCaTttAtatacaaaCaCA	ASO-005298	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005299	CcatTTAtatacaaaCaC A	ASO-005299	OxyMCs DNAcs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005300	CCaTTtAtatacaaACaC A	ASO-005300	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005301	CCaTtTAtatacaaAcAC A	ASO-005301	OxyMCs OxyMCs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005302	CCAtTtAtatacaaAcAC A	ASO-005302	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005303	CCatTtAtatacaaaCaCA	ASO-005303	OxyMCs OxyMCs DNAas DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005304	CCattTAtatacaACaC A	ASO-005304	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005305	CcATtTatatacaaaCAC A	ASO-005305	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005306	CCAtttAtatacaaAcACA	ASO-005306	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005307	CcATtTAtatacaaACaC A	ASO-005307	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005308	CCatTTAtatacaaacAC A	ASO-005308	OxyMCs OxyMCs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005309	CcaTTTAtatacaaAcAC A	ASO-005309	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005310	CCaTtTAtatacaaacACA	ASO-005310	OxyMCs OxyMCs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005311	CCATttAtatacaaAcAC A	ASO-005311	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005312	CCaTTtAtatacaaAcAC A	ASO-005312	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005313	CCATttAtatacaaacACA	ASO-005313	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005314	CcatTTatatacaaaCAC A	ASO-005314	OxyMCs DNAcs DNAas DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005315	CcAtTTAtatacaaACaC A	ASO-005315	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005316	CCaTttAtatacaaACaC A	ASO-005316	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005317	CcatTTAtatacaaACaC A	ASO-005317	OxyMCs DNAcs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005318	CcATtTAtatacaaAcAC A	ASO-005318	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005319	CCAtTtAtatacaaacACA	ASO-005319	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005320	CCatTTAtatacaaACaC A	ASO-005320	OxyMCs OxyMCs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005321	CCattTAtatacaaacACA	ASO-005321	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005322	CCatTtAtatacaaACaCA	ASO-005322	OxyMCs OxyMCs DNAas DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005323	CcaTtTatatacaaaCAC A	ASO-005323	OxyMCs DNAcs DNAas OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005324	CCAttTAtatacaaacACA	ASO-005324	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005325	CCAtttAtatacaaacACA	ASO-005325	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005326	CcaTtTAtatacaaACaC A	ASO-005326	OxyMCs DNAcs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005327	CCAtTtatatacaAacACA	ASO-005327	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005328	CCatTatatacaaaCaCA	ASO-005328	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005329	CcATTtAtatacaaACaC A	ASO-005329	OxyMCs DNAcs OxyAs OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005330	CcaTTTAtatacaaacAC A	ASO-005330	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005331	CcAtTTAtatacaaAcAC A	ASO-005331	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005332	CCaTttAtatacaaAcACA	ASO-005332	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005333	CCaTTTAtatacaaacAC A	ASO-005333	OxyMCs OxyMCs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005334	CCAtTtatatacAaacaCA	ASO-005334	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005335	CCaTTtAtatacaaacAC A	ASO-005335	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005336	CcAttTatatacaaaCACA	ASO-005336	OxyMCs DNAcs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005337	CcATtTAtatacaaAcaC A	ASO-005337	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005338	CcATTtatatacaaaCAC A	ASO-005338	OxyMCs DNAcs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005339	CcAttTAtatacaaACaCA	ASO-005339	OxyMCs DNAcs OxyAs DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005340	CCAtTtatatacaaaCaCA	ASO-005340	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005341	CcaTtTAtatacaaAcAC A	ASO-005341	OxyMCs DNAcs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005342	CCAttTatatacaaAcaCA	ASO-005342	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005343	CcATtTAtatacaaacAC A	ASO-005343	OxyMCs DNAcs OxyAs OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005344	CCAtTtatatacaAacaCA	ASO-005344	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005345	CCATttAtatacaaacaCA	ASO-005345	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005346	CCAttTAtatacaaacaCA	ASO-005346	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005347	CCATttatatacAaacaCA	ASO-005347	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005348	CCatTTAtatacaaacaC A	ASO-005348	OxyMCs OxyMCs DNAas DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005349	CCAttTatatacaaacACA	ASO-005349	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005350	CCaTTTAtatacaaacaC A	ASO-005350	OxyMCs OxyMCs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005351	CcAtTTAtatacaaacAC A	ASO-005351	OxyMCs DNAcs OxyAs DNAts OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005352	CCaTttAtatacaaacACA	ASO-005352	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005353	CCAtTTatatacaaacAC A	ASO-005353	OxyMCs OxyMCs OxyAs DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005354	CcaTTtatatacaaaCAC A	ASO-005354	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005355	CCaTtTAtatacaaacaC A	ASO-005355	OxyMCs OxyMCs DNAas OxyTs DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005356	CCAtTtAtatacaaacaCA	ASO-005356	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005357	CCattTAtatacaaacaCA	ASO-005357	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1547	117188	117206	1205	1223	DES-005358	CCatttAtatacaaaCACA	ASO-005358	OxyMCs OxyMCs DNAas DNAts DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005359	CCAtttAtatacaaacaCA	ASO-005359	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005360	CCaTtTatatacaaacAC A	ASO-005360	OxyMCs OxyMCs DNAas OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005361	CCAtTTatatacaaacaC A	ASO-005361	OxyMCs OxyMCs OxyAs DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005362	CcaTTTAtatacaaacaC A	ASO-005362	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005363	CCAtttatatacAaacaCA	ASO-005363	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005364	CCaTTtAtatacaaacaC A	ASO-005364	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts OxyAs DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005365	CCattTatatacaaacACA	ASO-005365	OxyMCs OxyMCs DNAas DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyAs OxyMCs OxyA
1547	117188	117206	1205	1223	DES-005366	CCaTTTatatacaaacaC A	ASO-005366	OxyMCs OxyMCs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyA
1548	117188	117207	1205	1224	DES-009028	ACCatttatatacaaaCAC A	ASO-009028	OxyAs OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs DNAas OxyMCs OxyAs OxyMCs OxyA
1549	117189	117208	1206	1225	DES-002763	CACCatttatatacaaaCA C	ASO-002763	OxyMCs OxyAs OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003170	CCATtTatatacaaACAC	ASO-003170	OxyMCs OxyMCs OxyAs OxyTs DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1550	117189	117206	1206	1223	DES-003171	CCAtTTatatacaaACAC	ASO-003171	OxyMCs OxyMCs OxyAs DNAts OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003208	CCATttatatacAaAcAC	ASO-003208	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas OxyAs DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003209	CCAtttatatacAaAcAC	ASO-003209	OxyMCs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas OxyAs DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003210	CCAtttatatacAAaCAC	ASO-003210	OxyMCs OxyMCs OxyAs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003211	CcaTttatatacAAaCAC	ASO-003211	OxyMCs DNAcs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003212	CCATttatatacAacAC	ASO-003212	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003213	CCaTttatatacAacAC	ASO-003213	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003214	CcaTttatatacAaACAC	ASO-003214	OxyMCs DNAcs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs OxyAs DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003215	CCATttatatacaaaCAC	ASO-003215	OxyMCs OxyMCs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003216	CCaTttatatacaaaCAC	ASO-003216	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003217	CCatttatatacaaaCAC	ASO-003217	OxyMCs OxyMCs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003234	CCaTTtatatacaaacAC	ASO-003234	OxyMCs OxyMCs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAcs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1550	117189	117206	1206	1223	DES-003318	CcATttatatacaaaCAC	ASO-003318	OxyMCs DNAcs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003319	CCAtttatatacaAacAC	ASO-003319	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003320	CCAtTtatatacaaaCAC	ASO-003320	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003321	CcaTTtatatacaAaCAC	ASO-003321	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas OxyAs DNAas OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003322	CCAtttatatacaaACAC	ASO-003322	OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003323	CcaTTTatatacaaACAC	ASO-003323	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003324	CcaTTtatatacaACAC	ASO-003324	OxyMCs DNAcs DNAas OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003325	CCaTttatatacaaAcAC	ASO-003325	OxyMCs OxyMCs DNAas OxyTs DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003326	CcatTtatatacaaACAC	ASO-003326	OxyMCs DNAcs DNAas DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003327	CcAttTatatacaaACAC	ASO-003327	OxyMCs DNAcs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003328	CCAtTtatatacaaacAC	ASO-003328	OxyMCs OxyMCs OxyAs DNAts OxyTs DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMC
1550	117189	117206	1206	1223	DES-003329	CCAttTatatacaaacAC	ASO-003329	OxyMCs OxyMCs OxyAs DNAts DNAts OxyTs DNAas DNAts DNAas DNAts DNAcs DNAas DNAas DNAas DNAcs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1550	117189	117206	1206	1223	DES-003330	CcaTTTatatacaaaCAC	ASO-003330	OxyMCs DNAcs DNAas OxyTs OxyTs OxyTs DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas DNAas OxyMCs OxyAs OxyMC
1551	117189	117207	1206	1224	DES-009029	ACCAtttatatacaaACAC	ASO-009029	OxyAs OxyMCs OxyMCs OxyAs DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAas DNAcs DNAas DNAas OxyAs OxyMCs OxyAs OxyMC
1552	117191	117210	1208	1227	DES-002785	CTCAccatttatatacAAA C	ASO-002785	OxyMCs OxyTs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAts DNAcs OxyAs OxyAs OxyAs OxyMC
1553	117192	117211	1209	1228	DES-002808	TCTCaccatttatataCAA A	ASO-002808	OxyTs OxyMCs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas OxyMCs OxyAs OxyAs OxyA
1554	117193	117212	1210	1229	DES-002820	TTCTcaccatttatataCA A	ASO-002820	OxyTs OxyTs OxyMCs OxyTs DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas OxyMCs OxyAs OxyA
1555	117194	117213	1211	1230	DES-002758	ATTCtcaccatttatataCA	ASO-002758	OxyAs OxyTs OxyTs OxyMCs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas DNAts DNAas DNAas OxyMCs OxyA
1556	117194	117211	1211	1228	DES-002807	TCTCaccatttatatACA	ASO-002807	OxyTs OxyMCs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAas DNAts DNAas DNAts OxyAs OxyMCs OxyA
1557	117195	117212	1212	1229	DES-002819	TTCTcaccatttatATAC	ASO-002819	OxyTs OxyTs OxyMCs OxyTs DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAas DNAts OxyAs OxyTs OxyAs OxyMC
1558	117196	117213	1213	1230	DES-002757	ATTCtcaccatttaTATA	ASO-002757	OxyAs OxyTs OxyTs OxyMCs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas OxyTs OxyAs OxyTs OxyA
1559	117196	117215	1213	1232	DES-002794	TAAttctcaccatttaTATA	ASO-002794	OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas OxyTs OxyAs OxyTs OxyA
1560	117197	117216	1214	1233	DES-002810	TTAAttctcaccatttaTAT	ASO-002810	OxyTs OxyTs OxyAs OxyAs DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAas OxyTs OxyAs OxyT
1561	117198	117217	1215	1234	DES-002822	TTTaattctcaccattTAT A	ASO-002822	OxyTs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAas DNAcs DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1562	117199	117218	1216	1235	DES-002823	TTTTaattctcaccatTTAT	ASO-002823	OxyTs OxyTs OxyTs OxyTs DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAcs DNAas DNAts OxyTs OxyTs OxyAs OxyT
1563	117200	117219	1217	1236	DES-002760	ATTTtaattctcaccaTTTA	ASO-002760	OxyAs OxyTs OxyTs OxyTs DNAts DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAcs DNAas OxyTs OxyTs OxyTs OxyA
1564	117201	117220	1218	1237	DES-002799	TATTttaattctcaccATTT	ASO-002799	OxyTs OxyAs OxyTs OxyTs DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs DNAcs OxyAs OxyTs OxyTs OxyT
1565	117202	117221	1219	1238	DES-002813	TTAtttaattctcacCATT	ASO-002813	OxyTs OxyTs OxyAs DNAts DNAts DNAts DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAas DNAcs OxyMCs OxyAs OxyTs OxyT
1566	117254	117269	1271	1286	DES-000855	AAAgtgagatggGATA	ASO-000855	OxyAs OxyAs OxyAs DNAgs DNAts DNAgs DNAas DNAgs DNAas DNAts DNAgs DNAgs OxyGs OxyAs OxyTs OxyA
1567	117297	117312	1314	1329	DES-000856	CAGttcttaattcATG	ASO-000856	OxyMCs OxyAs OxyGs DNAts DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts DNAts DNAcs OxyAs OxyTs OxyG
1568	117355	117372	1372	1389	DES-002818	TTCtaaaattcctcCTTC	ASO-002818	OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAcs OxyMCs OxyTs OxyTs OxyMC
1569	117356	117373	1373	1390	DES-002787	CTTCtaaaattcctcCTT	ASO-002787	OxyMCs OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAcs DNAts DNAcs OxyMCs OxyTs OxyT
1570	117357	117374	1374	1391	DES-002809	TCTtctaaaattcctCCT	ASO-002809	OxyTs OxyMCs OxyTs DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAts DNAcs DNAts DNAcs OxyMCs OxyMCs OxyT
1571	117358	117375	1375	1392	DES-002786	CTCTtctaaaattcctCC	ASO-002786	OxyMCs OxyTs OxyMCs OxyTs DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs DNAts DNAcs DNAcs DNAts OxyMCs OxyMC
1572	117359	117378	1376	1395	DES-002796	TAcctcttctaaaattcCTC	ASO-002796	OxyTs OxyAs DNAcs DNAcs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyMC
1573	117359	117376	1376	1393	DES-003221	CCtcttctaaaattcCTC	ASO-003221	OxyMCs OxyMCs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1574	117360	117377	1377	1394	DES-002747	ACctcttctaaaatTCCT	ASO-002747	OxyAs OxyMCs DNAcs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts OxyTs OxyMCs OxyMCs OxyT
1575	117361	117378	1378	1395	DES-002795	TACctcttctaaaatTCC	ASO-002795	OxyTs OxyAs OxyMCs DNAcs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts OxyTs OxyMCs OxyMC
1576	117361	117380	1378	1397	DES-002806	TCtacctcttctaaaattCC	ASO-002806	OxyTs OxyMCs DNAts DNAas DNAcs DNAcs DNAts DNAcs DNAts DNAcs DNAts DNAas DNAas DNAas DNAts DNAts OxyMCs OxyMC
1577	117362	117379	1379	1396	DES-002784	CTACctcttctaaaATTC	ASO-002784	OxyMCs OxyTs OxyAs OxyMCs DNAcs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas OxyAs OxyTs OxyTs OxyMC
1578	117362	117381	1379	1398	DES-009030	CtctacctcttctaaaatTC	ASO-009030	OxyMCs DNAts DNAcs DNAts DNAas DNAcs DNAcs DNAts DNAcs DNAts DNAts DNAcs DNAts DNAas DNAas DNAas DNAas DNAts OxyTs OxyMC
1579	117372	117389	1389	1406	DES-002802	TCcatttctctacCtCT	ASO-002802	OxyTs OxyMCs DNAcs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAcs OxyMCs DNAts OxyMCs OxyT
1579	117372	117389	1389	1406	DES-002803	TCCatttctctacCTCT	ASO-002803	OxyTs OxyMCs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs OxyMCs OxyTs OxyMCs OxyT
1580	117373	117390	1390	1407	DES-002815	TTCCatttctctacCTC	ASO-002815	OxyTs OxyTs OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs OxyMCs OxyTs OxyMC
1580	117373	117390	1390	1407	DES-003218	TtCCatttctctacCTC	ASO-003218	OxyTs DNAts OxyMCs OxyMCs DNAas DNAts DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts DNAas DNAcs OxyMCs OxyTs OxyMC
1581	117383	117400	1400	1417	DES-001354	AGGgttaatgttccatTT	ASO-001354	OxyAs OxyGs OxyGs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs DNAcs DNAas DNAts OxyTs OxyT
1581	117383	117400	1400	1417	DES-001744	AGggttaatgttccatTT	ASO-001744	OxyAs OxyGs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs DNAcs DNAas DNAts OxyTs OxyT
1583	117384	117401	1401	1418	DES-001506	TAGggttaatgttccATT	ASO-001506	OxyTs OxyAs OxyGs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs DNAcs DNAcs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1583	117384	117401	1401	1418	DES-001743	TAgggttaatgttccaTT	ASO-001743	OxyTs OxyAs DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs DNAcs DNAas OxyTs OxyT
1584	117385	117400	1402	1417	DES-001218	AGGgttaatgttcCAT	ASO-001218	OxyAs OxyGs OxyGs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs OxyMCs OxyAs OxyT
1584	117385	117400	1402	1417	DES-001452	AGggttaatgttccAT	ASO-001452	OxyAs OxyGs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs DNAcs OxyAs OxyT
1585	117386	117401	1403	1418	DES-001445	TAgggttaatgttcCA	ASO-001445	OxyTs OxyAs DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs OxyMCs OxyA
1585	117386	117401	1403	1418	DES-001451	TAGggttaatgttcCA	ASO-001451	OxyTs OxyAs OxyGs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts DNAcs OxyMCs OxyA
1586	117387	117402	1404	1419	DES-001446	GTagggttaatgttCC	ASO-001446	OxyGs OxyTs DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts DNAts OxyMCs OxyMC
1586	117387	117402	1404	1419	DES-001469	GTagggttaatgtTCC	ASO-001469	OxyGs OxyTs DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts OxyTs OxyMCs OxyMC
1587	117388	117403	1405	1420	DES-001239	TGTagggttaatgTTC	ASO-001239	OxyTs OxyGs OxyTs DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs OxyTs OxyTs OxyMC
1587	117388	117403	1405	1420	DES-001443	TGtagggttaatgtTC	ASO-001443	OxyTs OxyGs DNAts DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts DNAgs DNAts OxyTs OxyMC
1588	117389	117404	1406	1421	DES-001286	GTGtagggttaatGTT	ASO-001286	OxyGs OxyTs OxyGs DNAts DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts OxyGs OxyTs OxyT
1588	117389	117404	1406	1421	DES-001478	GTgtagggttaatGTT	ASO-001478	OxyGs OxyTs DNAgs DNAts DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts OxyGs OxyTs OxyT
1589	117390	117405	1407	1422	DES-001429	AGtgtagggttaaTGT	ASO-001429	OxyAs OxyGs DNAts DNAgs DNAts DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas OxyTs OxyGs OxyT
1589	117390	117405	1407	1422	DES-001472	AGtgtagggttaatGT	ASO-001472	OxyAs OxyGs DNAts DNAgs DNAts DNAas DNAgs DNAgs DNAgs DNAts DNAts DNAas DNAas DNAts OxyGs OxyT
1590	117468	117483	1485	1500	DES-000857	CAATaattaatcaCAG	ASO-000857	OxyMCs OxyAs OxyAs OxyTs DNAas DNAas DNAts DNAts DNAas DNAas DNAts DNAcs DNAas OxyMCs OxyAs OxyG
1591	117528	117543	1545	1560	DES-000858	GATTgaagggagAAAT	ASO-000858	OxyGs OxyAs OxyTs OxyTs DNAgs DNAas DNAas DNAgs DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyAs OxyT
1592	117779	117794	1796	1811	DES-002695	ATCTtctacactgCTT	ASO-002695	OxyAs OxyTs OxyMCs OxyTs DNAts DNAcs DNAts DNAas DNAcs DNAas DNAcs DNAts DNAgs OxyMCs OxyTs OxyT
1593	117820	117835	1837	1852	DES-000859	AATgtgtcttatgGCT	ASO-000859	OxyAs OxyAs OxyTs DNAgs DNAts DNAgs DNAts DNAcs DNAts DNAts DNAas DNAts DNAgs OxyGs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1594	117823	117838	1840	1855	DES-000860	GCtaatgtgtcttATG	ASO-000860	OxyGs OxyMCs DNAts DNAas DNAas DNAts DNAgs DNAts DNAgs DNAts DNAcs DNAts DNAts OxyAs OxyTs OxyG
1595	117830	117845	1847	1862	DES-000861	AATatgtgctaaTGTG	ASO-000861	OxyAs OxyAs OxyTs DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas OxyTs OxyGs OxyTs OxyG
1596	117831	117846	1848	1863	DES-000862	TAAtatgtgctaaTGT	ASO-000862	OxyTs OxyAs OxyAs DNAts DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas OxyTs OxyGs OxyT
1597	117837	117852	1854	1869	DES-001275	ATGtgctaatatgTGC	ASO-001275	OxyAs OxyTs OxyGs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAgs OxyTs OxyGs OxyMC
1597	117837	117852	1854	1869	DES-001422	ATgtgctaatatgtGC	ASO-001422	OxyAs OxyTs DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAgs DNAts OxyGs OxyMC
1598	117838	117855	1855	1872	DES-001661	TGAatgtgctaatatGTG	ASO-001661	OxyTs OxyGs OxyAs DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAas DNAts OxyGs OxyTs OxyG
1598	117838	117855	1855	1872	DES-001715	TGaatgtgctaatatgTG	ASO-001715	OxyTs OxyGs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAas DNAts DNAgs OxyTs OxyG
1599	117839	117854	1856	1871	DES-001216	GAAtgtgctaataTGT	ASO-001216	OxyGs OxyAs OxyAs DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAas OxyTs OxyGs OxyT
1599	117839	117854	1856	1871	DES-001223	GAATgtgctaatATGT	ASO-001223	OxyGs OxyAs OxyAs OxyTs DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts OxyAs OxyTs OxyGs OxyT
1600	117840	117857	1857	1874	DES-001320	CTTgaatgtgctaaTATG	ASO-001320	OxyMCs OxyTs OxyTs DNAgs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas OxyTs OxyAs OxyTs OxyG
1600	117840	117857	1857	1874	DES-001352	CTTgaatgtgctaataTG	ASO-001352	OxyMCs OxyTs OxyTs DNAgs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts DNAas OxyTs OxyG
1601	117841	117858	1858	1875	DES-001343	CCTtgaatgtgctaATAT	ASO-001343	OxyMCs OxyMCs OxyTs DNAts DNAgs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas OxyAs OxyTs OxyAs OxyT
1601	117841	117858	1858	1875	DES-001719	CCttgaatgtgctaatAT	ASO-001719	OxyMCs OxyMCs DNAts DNAgs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts DNAas DNAas DNAts OxyAs OxyT
1602	117842	117857	1859	1874	DES-001292	CTTGaatgtgctAATA	ASO-001292	OxyMCs OxyTs OxyTs OxyGs DNAas DNAas DNAts DNAgs DNAts DNAgs DNAcs DNAts OxyAs OxyAs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1603	117863	117878	1880	1895	DES-002699	TTAAccacattcTCTC	ASO-002699	OxyTs OxyTs OxyAs OxyAs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAcs OxyTs OxyMCs OxyTs OxyMC
1604	117980	117997	1997	2014	DES-001504	GTTtaaaggcatttccCTG	ASO-001504	OxyGs OxyTs OxyTs DNAts DNAas DNAas DNAas DNAgs DNAgs DNAcs DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyG
1604	117980	117997	1997	2014	DES-001738	GTttaaaggcatttccTG	ASO-001738	OxyGs OxyTs DNAts DNAts DNAas DNAas DNAas DNAgs DNAgs DNAcs DNAas DNAts DNAts DNAcs DNAcs OxyTs OxyG
1605	117981	117998	1998	2015	DES-001711	TGtttaaaggcatttCCT	ASO-001711	OxyTs OxyGs DNAts DNAts DNAas DNAas DNAas DNAas DNAgs DNAgs DNAcs DNAas DNAts DNAts DNAts OxyMCs OxyMCs OxyT
1605	117981	117998	1998	2015	DES-001740	TGtttaaaggcatttccT	ASO-001740	OxyTs OxyGs DNAts DNAts DNAas DNAas DNAas DNAas DNAgs DNAgs DNAcs DNAas DNAts DNAts DNAcs DNAcs OxyMCs OxyT
1606	118033	118041	2050	2058	DES-005847	AGAGAATTG	ASO-005847	DIGC12-S1 OxyA OxyG OxyA OxyG OxyA OxyA OxyT OxyT OxyG
1607	118068	118087	2085	2104	DES-001346	TATatttggcaacatttAAA	ASO-001346	OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts DNAts OxyAs OxyAs OxyA
1607	118068	118087	2085	2104	DES-001558	TATAtttggcaacattTAA A	ASO-001558	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1608	118069	118086	2086	2103	DES-001369	ATAtttggcaacattTAA	ASO-001369	OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyA
1608	118069	118086	2086	2103	DES-001602	ATATttggcaacatTTAA	ASO-001602	OxyAs OxyTs OxyAs OxyTs DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAts OxyTs OxyTs OxyAs OxyA
1609	118070	118087	2087	2104	DES-001389	TATatttggcaacattTA	ASO-001389	OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas DNAts DNAts OxyTs OxyA
1609	118070	118087	2087	2104	DES-001633	TATAtttggcaacaTTTA	ASO-001633	OxyTs OxyAs OxyTs OxyAs DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1610	118071	118088	2088	2105	DES-001393	ATAtatttggcaacaTTT	ASO-001393	OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs DNAas OxyTs OxyTs OxyT
1610	118071	118088	2088	2105	DES-001604	ATATatttggcaacATTT	ASO-001604	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyTs OxyT
1611	118072	118089	2089	2106	DES-001408	CATatatttggcaacATT	ASO-001408	OxyMCs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs OxyAs OxyTs OxyT
1611	118072	118089	2089	2106	DES-001635	CATAtatttggcaaCATT	ASO-001635	OxyMCs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas OxyMCs OxyAs OxyTs OxyT
1612	118073	118090	2090	2107	DES-001236	TCAtatatttggcaacAT	ASO-001236	OxyTs OxyMCs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas DNAcs OxyAs OxyT
1612	118073	118090	2090	2107	DES-001338	TCAtatatttggcaACAT	ASO-001338	OxyTs OxyMCs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas OxyAs OxyMCs OxyAs OxyT
1613	118074	118093	2091	2110	DES-001533	AATtcatatatttggcaaCA	ASO-001533	OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs DNAas DNAas OxyMCs OxyA
1613	118074	118093	2091	2110	DES-001556	AATTcatatatttggcAACA	ASO-001556	OxyAs OxyAs OxyTs OxyTs DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs OxyAs OxyAs OxyMCs OxyA
1614	118075	118094	2092	2111	DES-001336	GAAttcatatatttggcAAC	ASO-001336	OxyGs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs DNAcs OxyAs OxyAs OxyMC
1614	118075	118094	2092	2111	DES-001563	GAATtcatatatttggCAAC	ASO-001563	OxyGs OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs OxyMCs OxyAs OxyAs OxyMC
1615	118076	118093	2093	2110	DES-001376	AATtcatatatttggCAA	ASO-001376	OxyAs OxyAs OxyTs DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs OxyMCs OxyAs OxyA
1615	118076	118093	2093	2110	DES-001614	AATTcatatatttgGCAA	ASO-001614	OxyAs OxyAs OxyTs OxyTs DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs OxyGs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1616	118077	118094	2094	2111	DES-001381	GAAttcatatatttggCA	ASO-001381	OxyGs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs DNAgs OxyMCs OxyA
1616	118077	118094	2094	2111	DES-001494	GAAttcatatatttgGCA	ASO-001494	OxyGs OxyAs OxyAs DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs OxyGs OxyMCs OxyA
1617	118078	118095	2095	2112	DES-001511	AGAattcatatatttGGC	ASO-001511	OxyAs OxyGs OxyAs DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts OxyGs OxyGs OxyMC
1617	118078	118095	2095	2112	DES-001728	AGaattcatatatttgGC	ASO-001728	OxyAs OxyGs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts DNAgs OxyGs OxyMC
1618	118079	118096	2096	2113	DES-001358	TAGaattcatatatttGG	ASO-001358	OxyTs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAts OxyGs OxyG
1618	118079	118096	2096	2113	DES-001771	TAGaattcatatatTTGG	ASO-001771	OxyTs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts OxyTs OxyTs OxyGs OxyG
1619	118080	118097	2097	2114	DES-001260	CTAgaattcatatattTG	ASO-001260	OxyMCs OxyTs OxyAs DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas DNAts DNAts OxyTs OxyG
1619	118080	118097	2097	2114	DES-001674	CTAGaattcatataTTTG	ASO-001674	OxyMCs OxyTs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas OxyTs OxyTs OxyTs OxyG
1620	118081	118098	2098	2115	DES-001677	CCTAgaattcatatATTT	ASO-001677	OxyMCs OxyMCs OxyTs OxyAs DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts OxyAs OxyTs OxyTs OxyT
1620	118081	118098	2098	2115	DES-001687	CCtagaattcatataTTT	ASO-001687	OxyMCs OxyMCs DNAts DNAas DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas OxyTs OxyTs OxyT
1621	118082	118099	2099	2116	DES-001341	TCCtagaattcataTATT	ASO-001341	OxyTs OxyMCs OxyMCs DNAts DNAas DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas OxyTs OxyAs OxyTs OxyT
1621	118082	118099	2099	2116	DES-001353	TCCtagaattcataTT	ASO-001353	OxyTs OxyMCs OxyMCs DNAts DNAas DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas DNAts DNAas OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1622	118083	118100	2100	2117	DES-001639	ATCCtagaattcatATAT	ASO-001639	OxyAs OxyTs OxyMCs OxyMCs DNAts DNAas DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts OxyAs OxyTs OxyAs OxyT
1622	118083	118100	2100	2117	DES-001681	ATcctagaattcataTAT	ASO-001681	OxyAs OxyTs DNAcs DNAcs DNAts DNAas DNAgs DNAas DNAas DNAts DNAts DNAcs DNAas DNAts DNAas OxyTs OxyAs OxyT
1623	118126	118143	2143	2160	DES-001310	TAAtagatcttcccTGAA	ASO-001310	OxyTs OxyAs OxyAs DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs DNAcs OxyTs OxyGs OxyAs OxyA
1624	118127	118144	2144	2161	DES-001512	TTAatagatcttcccTGA	ASO-001512	OxyTs OxyTs OxyAs DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs DNAcs OxyTs OxyGs OxyA
1625	118128	118145	2145	2162	DES-001709	GTtaatagatcttccCTG	ASO-001709	OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs OxyMCs OxyTs OxyG
1625	118128	118145	2145	2162	DES-001742	GTtaatagatcttcccTG	ASO-001742	OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs DNAcs OxyTs OxyG
1626	118129	118146	2146	2163	DES-001367	AGTtaatagatcttccCT	ASO-001367	OxyAs OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs OxyMCs OxyT
1626	118129	118146	2146	2163	DES-001748	AGttaatagatcttccCT	ASO-001748	OxyAs OxyGs DNAts DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs DNAcs OxyMCs OxyT
1627	118130	118145	2147	2162	DES-001444	GTtaatagatcttcCC	ASO-001444	OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts DNAcs OxyMCs OxyMC
1627	118130	118145	2147	2162	DES-001459	GTtaatagatcttCCC	ASO-001459	OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts OxyMCs OxyMCs OxyMC
1628	118131	118146	2148	2163	DES-001228	AGTtaatagatctTCC	ASO-001228	OxyAs OxyGs OxyTs DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts OxyTs OxyMCs OxyMC
1628	118131	118146	2148	2163	DES-001461	AGttaatagatcttCC	ASO-001461	OxyAs OxyGs DNAts DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts DNAts OxyMCs OxyMC
1629	118132	118147	2149	2164	DES-001220	GAGttaatagatCTTC	ASO-001220	OxyGs OxyAs OxyGs DNAts DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts OxyMCs OxyTs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1629	118132	118147	2149	2164	DES-001431	GAGttaatagatctTC	ASO-001431	OxyGs OxyAs OxyGs DNAts DNAts DNAas DNAas DNAts DNAas DNAgs DNAas DNAts DNAcs DNAts OxyTs OxyMC
1630	118162	118179	2179	2196	DES-001308	TCAccatcaagtttATTT	ASO-001308	OxyTs OxyMCs OxyAs DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts DNAts OxyAs OxyTs OxyTs OxyT
1630	118162	118179	2179	2196	DES-001702	TCaccatcaagtttaTTT	ASO-001702	OxyTs OxyMCs DNAas DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts DNAts DNAas OxyTs OxyTs OxyT
1631	118163	118180	2180	2197	DES-001322	TTCaccatcaagttTATT	ASO-001322	OxyTs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts OxyTs OxyAs OxyTs OxyT
1631	118163	118180	2180	2197	DES-001382	TTCaccatcaagtttaTT	ASO-001382	OxyTs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts DNAts DNAas OxyTs OxyT
1632	118164	118179	2181	2196	DES-001242	TCAccatcaagtTTAT	ASO-001242	OxyTs OxyMCs OxyAs DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts OxyTs OxyTs OxyAs OxyT
1632	118164	118179	2181	2196	DES-001428	TCaccatcaagttTAT	ASO-001428	OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts OxyTs OxyAs OxyT
1632	118164	118179	2181	2196	DES-002800	TCACcatcaagtTTAT	ASO-002800	OxyTs OxyMCs OxyAs OxyMCs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts OxyTs OxyTs OxyAs OxyT
1633	118165	118180	2182	2197	DES-001277	TTCaccatcaagTTTA	ASO-001277	OxyTs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs OxyTs OxyTs OxyTs OxyA
1633	118165	118180	2182	2197	DES-001645	TTCaccatcaagttTA	ASO-001645	OxyTs OxyTs OxyMCs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs DNAts DNAts OxyTs OxyA
1633	118165	118180	2182	2197	DES-002814	TTCAccatcaagTTTA	ASO-002814	OxyTs OxyTs OxyMCs OxyAs DNAcs DNAcs DNAas DNAts DNAcs DNAas DNAas DNAgs OxyTs OxyTs OxyTs OxyA
1634	118253	118270	2270	2287	DES-001344	CTTtctactagtgaCTTT	ASO-001344	OxyMCs OxyTs OxyTs DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts DNAts DNAgs DNAas OxyMCs OxyTs OxyTs OxyT
1634	118253	118270	2270	2287	DES-001722	CTttctactagtgactTT	ASO-001722	OxyMCs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts DNAts DNAgs DNAas DNAcs DNAts OxyTs OxyT
1635	118254	118269	2271	2286	DES-001294	TTTCtactagtgACTT	ASO-001294	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts DNAgs OxyAs OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1635	118254	118269	2271	2286	DES-001427	TTtctactagtgaCTT	ASO-001427	OxyTs OxyTs DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts DNAgs DNAas OxyMCs OxyTs OxyT
1636	118255	118270	2272	2287	DES-001232	CTTtctactagtGACT	ASO-001232	OxyMCs OxyTs OxyTs DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts OxyGs OxyAs OxyMCs OxyT
1636	118255	118270	2272	2287	DES-001483	CTttctactagtgaCT	ASO-001483	OxyMCs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts DNAgs DNAas OxyMCs OxyT
1637	118256	118271	2273	2288	DES-001233	ACTttctactagTGAC	ASO-001233	OxyAs OxyMCs OxyTs DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs OxyTs OxyGs OxyAs OxyMC
1637	118256	118271	2273	2288	DES-001467	ACtttctactagtGAC	ASO-001467	OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts OxyGs OxyAs OxyMC
1638	118257	118272	2274	2289	DES-001287	TACtttctactagTGA	ASO-001287	OxyTs OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs OxyTs OxyGs OxyA
1638	118257	118272	2274	2289	DES-001411	TActttctactagtGA	ASO-001411	OxyTs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs DNAts OxyGs OxyA
1639	118258	118273	2275	2290	DES-001267	ATActttctactAGTG	ASO-001267	OxyAs OxyTs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts OxyAs OxyGs OxyTs OxyG
1639	118258	118273	2275	2290	DES-001646	ATActttctactagTG	ASO-001646	OxyAs OxyTs OxyAs DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts DNAas DNAgs OxyTs OxyG
1640	118259	118274	2276	2291	DES-001290	TATactttctacTAGT	ASO-001290	OxyTs OxyAs OxyTs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs OxyTs OxyAs OxyGs OxyT
1640	118259	118274	2276	2291	DES-001488	TAtactttctactAGT	ASO-001488	OxyTs OxyAs DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs DNAts OxyAs OxyGs OxyT
1641	118260	118275	2277	2292	DES-001262	TTAtactttctacTAG	ASO-001262	OxyTs OxyTs OxyAs DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas DNAcs OxyTs OxyAs OxyG
1641	118260	118275	2277	2292	DES-001768	TTAtactttctaCTAG	ASO-001768	OxyTs OxyTs OxyAs DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyTs OxyAs OxyG
1641	118260	118275	2277	2292	DES-002811	TTATactttctaCTAG	ASO-002811	OxyTs OxyTs OxyAs OxyTs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyTs OxyAs OxyG
1642	118261	118278	2278	2295	DES-001587	AAATtatactttctACTA	ASO-001587	OxyAs OxyAs OxyAs OxyTs DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts OxyAs OxyMCs OxyTs OxyA
1643	118262	118281	2279	2298	DES-001329	TTGaaattatactttctaCT	ASO-001329	OxyTs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs DNAts DNAas OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1643	118262	118281	2279	2298	DES-001543	TTGaaattatacttttcTAC T	ASO-001543	OxyTs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAts DNAcs OxyTs OxyAs OxyMCs OxyT
1644	118263	118280	2280	2297	DES-001619	TGAAattatacttttCTAC	ASO-001619	OxyTs OxyGs OxyAs OxyAs DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAts OxyMCs OxyTs OxyAs OxyMC
1644	118263	118280	2280	2297	DES-001656	TGAaattatacttttcTAC	ASO-001656	OxyTs OxyGs OxyAs DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAcs OxyTs OxyAs OxyMC
1645	118264	118281	2281	2298	DES-001378	TTGaaattatacttttCTA	ASO-001378	OxyTs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAcs DNAts DNAts DNAts OxyMCs OxyTs OxyA
1645	118264	118281	2281	2298	DES-001627	TTGAaattatacttTCTA	ASO-001627	OxyTs OxyTs OxyGs OxyAs DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyTs OxyA
1646	118265	118282	2282	2299	DES-001622	CTTGaaattatactTTCT	ASO-001622	OxyMCs OxyTs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts OxyTs OxyTs OxyMCs OxyT
1646	118265	118282	2282	2299	DES-001657	CTTgaaattatactTCT	ASO-001657	OxyMCs OxyTs OxyTs DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyMCs OxyT
1647	118266	118285	2283	2302	DES-001522	TGtcttgaaattatacttTC	ASO-001522	OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs DNAts DNAts OxyTs OxyMC
1647	118266	118285	2283	2302	DES-001545	TGTcttgaaattatacTTT C	ASO-001545	OxyTs OxyGs OxyTs DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs OxyTs OxyTs OxyMC
1648	118267	118286	2284	2303	DES-001530	CTgtcttgaaattatacTTT	ASO-001530	OxyMCs OxyTs DNAgs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAcs OxyTs OxyTs OxyT
1648	118267	118286	2284	2303	DES-001547	CTGtcttgaaattataCTT T	ASO-001547	OxyMCs OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyTs OxyT
1649	118268	118285	2285	2302	DES-001630	TGTCttgaaattatACTT	ASO-001630	OxyTs OxyGs OxyTs OxyMCs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts OxyAs OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1649	118268	118285	2285	2302	DES-001682	TGtcttgaaattataCTT	ASO-001682	OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyT
1650	118269	118286	2286	2303	DES-001327	CTGtcttgaaattaTACT	ASO-001327	OxyMCs OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas OxyTs OxyAs OxyMCs OxyT
1650	118269	118286	2286	2303	DES-001397	CTGtcttgaaattataCT	ASO-001397	OxyMCs OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas DNAts DNAas OxyMCs OxyT
1651	118270	118287	2287	2304	DES-001636	TCTGtcttgaaattATAC	ASO-001636	OxyTs OxyMCs OxyTs OxyGs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts OxyAs OxyTs OxyAs OxyMC
1651	118270	118287	2287	2304	DES-001693	TCtgtcttgaaattaTAC	ASO-001693	OxyTs OxyMCs DNAts DNAgs DNAts DNAcs DNAts DNAts DNAgs DNAas DNAas DNAas DNAts DNAts DNAas OxyTs OxyAs OxyMC
1652	118289	118304	2306	2321	DES-001289	TAGcatgtctagAATA	ASO-001289	OxyTs OxyAs OxyGs DNAcs DNAas DNAts DNAgs DNAts DNAcs DNAts DNAas DNAgs OxyAs OxyAs OxyTs OxyA
1652	118289	118304	2306	2321	DES-001417	TAgcatgtctagaATA	ASO-001417	OxyTs OxyAs DNAgs DNAcs DNAas DNAts DNAgs DNAts DNAcs DNAts DNAas DNAgs DNAas OxyAs OxyTs OxyA
1653	118316	118331	2333	2348	DES-001230	CATtactcatgaATAC	ASO-001230	OxyMCs OxyAs OxyTs DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts DNAgs DNAas OxyAs OxyTs OxyAs OxyMC
1653	118316	118331	2333	2348	DES-001257	CATTactcatgaATAC	ASO-001257	OxyMCs OxyAs OxyTs OxyTs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAgs DNAas OxyAs OxyTs OxyAs OxyMC
1654	118317	118332	2334	2349	DES-001276	ACAttactcatgAATA	ASO-001276	OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts DNAgs OxyAs OxyAs OxyTs OxyA
1654	118317	118332	2334	2349	DES-001280	ACATtactcatgAATA	ASO-001280	OxyAs OxyMCs OxyAs OxyTs DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts DNAgs OxyAs OxyAs OxyTs OxyA
1655	118318	118333	2335	2350	DES-001241	CACattactcatGAAT	ASO-001241	OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts OxyGs OxyAs OxyAs OxyT
1655	118318	118333	2335	2350	DES-001281	CACAttactcatGAAT	ASO-001281	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAts DNAas DNAcs DNAts DNAcs DNAas DNAts OxyGs OxyAs OxyAs OxyT
1656	118322	118337	2339	2354	DES-001227	ATAtcacattactCAT	ASO-001227	OxyAs OxyTs OxyAs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyT
1656	118322	118337	2339	2354	DES-001270	ATATcacattacTCAT	ASO-001270	OxyAs OxyTs OxyAs OxyTs DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1657	118322	118339	2339	2356	DES-002752	ATATatcacattacTCAT	ASO-002752	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1658	118322	118340	2339	2357	DES-009031	TATAtatcacattacTCAT	ASO-009031	OxyTs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs OxyTs OxyMCs OxyAs OxyT
1659	118322	118341	2339	2358	DES-009032	ATATatatcacattactCAT	ASO-009032	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas DNAcs DNAts OxyMCs OxyAs OxyT
1660	118323	118338	2340	2355	DES-002798	TATAtcacattaCTCA	ASO-002798	OxyTs OxyAs OxyTs OxyAs DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas OxyMCs OxyTs OxyMCs OxyA
1661	118323	118341	2340	2358	DES-009033	ATAtatatcacattaCTCA	ASO-009033	OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas OxyMCs OxyTs OxyMCs OxyA
1662	118323	118342	2340	2359	DES-009034	AATAtatatcacattaCTCA	ASO-009034	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts DNAas OxyMCs OxyTs OxyMCs OxyA
1663	118324	118341	2341	2358	DES-002751	ATATatatcacattACTC	ASO-002751	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-002762	CAATatatatcacattACTC	ASO-002762	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005008	CAATatatatcacattACTC	ASO-005008	OxyMC OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005009	CAATatatatcacattACTC	ASO-005009	OxyMC OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005010	CAATatatatcacattACTC	ASO-005010	OxyMC OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005011	CAATatatatcacattACTC	ASO-005011	OxyMC OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005012	CAATatatatcacattACTC	ASO-005012	OxyMC OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005013	CAATatatatcacattACTC	ASO-005013	OxyMC OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005014	CAATatatatcacattACTC	ASO-005014	OxyMC OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005015	CAATatatatcacattACTC	ASO-005015	OxyMC OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005016	CAATatatatcacattACTC	ASO-005016	OxyMC OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005017	CAATatatatcacattACTC	ASO-005017	OxyMC OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005018	CAATatatatcacattACTC	ASO-005018	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005019	CAATatatatcacattACTC	ASO-005019	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005020	CAATatatatcacattACTC	ASO-005020	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005021	CAATatatatcacattACTC	ASO-005021	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005022	CAATatatatcacattACTC	ASO-005022	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005023	CAATatatatcacattACTC	ASO-005023	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005024	CAATatatatcacattACTC	ASO-005024	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005025	CAATatatatcacattACTC	ASO-005025	OxyMC OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005026	CAATatatatcacattACTC	ASO-005026	OxyMCs OxyA OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005027	CAATatatatcacattACTC	ASO-005027	OxyMCs OxyA OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005028	CAATatatatcacattACTC	ASO-005028	OxyMCs OxyA OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005029	CAATatatatcacattACTC	ASO-005029	OxyMCs OxyA OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005030	CAATatatatcacattACTC	ASO-005030	OxyMCs OxyA OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005031	CAATatatatcacattACTC	ASO-005031	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005032	CAATatatatcacattACTC	ASO-005032	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005033	CAATatatatcacattACTC	ASO-005033	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005034	CAATatatatcacattACTC	ASO-005034	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005035	CAATatatatcacattACTC	ASO-005035	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005036	CAATatatatcacattACTC	ASO-005036	OxyMCs OxyA OxyAs OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs DNAas OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005037	CAATatatatcacattACTC	ASO-005037	OxyMCs OxyA OxyAs OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs DNAas OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005038	CAATatatatcacattACTC	ASO-005038	OxyMCs OxyA OxyAs OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs DNAas OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005039	CAATatatatcacattACTC	ASO-005039	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNAt OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005040	CAATatatatcacattACTC	ASO-005040	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNAt OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005041	CAATatatatcacattACTC	ASO-005041	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005042	CAATatatatcacattACTC	ASO-005042	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs OxyA OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005043	CAATatatatcacattACTC	ASO-005043	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005044	CAATatatatcacattACTC	ASO-005044	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005045	CAATatatatcacattACTC	ASO-005045	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005046	CAATatatatcacattACTC	ASO-005046	OxyMCs OxyAs OxyA OxyTs DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNATs OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005047	CAATatatatcacattACTC	ASO-005047	OxyMCs OxyAs OxyAs OxyT DNAas DNATs DNAas DNATs DNAas DNATs DNAcs DNAas DNAs DNAas DNAt OxyAs OxyMC OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005048	CAATatatatcacattACTC	ASO-005048	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005049	CAATatatatcacattACTC	ASO-005049	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005050	CAATatatatcacattACTC	ASO-005050	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005051	CAATatatatcacattACTC	ASO-005051	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005052	CAATatatatcacattACTC	ASO-005052	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005053	CAATatatatcacattACTC	ASO-005053	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005054	CAATatatatcacattACTC	ASO-005054	OxyMCs OxyAs OxyAs OxyT DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005055	CAATatatatcacattACTC	ASO-005055	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005056	CAATatatatcacattACTC	ASO-005056	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005057	CAATatatatcacattACTC	ASO-005057	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAt OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005058	CAATatatatcacattACTC	ASO-005058	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005059	CAATatatatcacattACTC	ASO-005059	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyA OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005060	CAATatatatcacattACTC	ASO-005060	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005061	CAATatatatcacattACTC	ASO-005061	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005062	CAATatatatcacattACTC	ASO-005062	OxyMCs OxyA OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyT OxyMC
1664	118324	118343	2341	2360	DES-005063	CAATatatatcacattACTC	ASO-005063	OxyMCs OxyA OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005064	CAATatatatcacattACTC	ASO-005064	OxyMCs OxyA OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyT OxyMC
1664	118324	118343	2341	2360	DES-005065	CAATatatatcacattACTC	ASO-005065	OxyMCs OxyA OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005066	CAATatatatcacattACTC	ASO-005066	OxyMCs OxyA OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyT OxyMC
1664	118324	118343	2341	2360	DES-005067	CAATatatatcacattACTC	ASO-005067	OxyMCs OxyAs OxyA OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyT OxyMC
1664	118324	118343	2341	2360	DES-005068	CAATatatatcacattACTC	ASO-005068	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMC OxyT OxyMC
1664	118324	118343	2341	2360	DES-005069	CAATatatatcacattACTC	ASO-005069	OxyMCs OxyAs OxyAs OxyTs DNAa DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005070	CAATatatatcacattACTC	ASO-005070	OxyMCs OxyAs OxyAs OxyTs DNAas DNAt DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005071	CAATatatatcacattACTC	ASO-005071	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAa DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1664	118324	118343	2341	2360	DES-005072	CAATatatatcacattACTC	ASO-005072	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAt DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005073	CAATatatatcacattACTC	ASO-005073	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAa DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005074	CAATatatatcacattACTC	ASO-005074	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAt DNAcs DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005075	CAATatatatcacattACTC	ASO-005075	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAc DNAas DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005076	CAATatatatcacattACTC	ASO-005076	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAa DNAcs DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005077	CAATatatatcacattACTC	ASO-005077	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAc DNAas DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1664	118324	118343	2341	2360	DES-005078	CAATatatatcacattACTC	ASO-005078	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAs DNAt DNAts OxyAs OxyMCs OxyTs OxyMC
1665	118324	118342	2341	2359	DES-009035	AATAtatatcacattACTC	ASO-009035	OxyAs OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAs DNAts DNAts OxyAs OxyMCs OxyTs OxyMC
1666	118325	118344	2342	2361	DES-002770	CCaatatatatcacatTAC T	ASO-002770	OxyMCs OxyMCs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts DNAts OxyTs OxyAs OxyMCs OxyT
1667	118325	118343	2342	2360	DES-009036	CAATatatatcacatTACT	ASO-009036	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyMCs OxyT
1668	118326	118345	2343	2362	DES-002773	CCcaatatatatcacaTTA C	ASO-002773	OxyMCs OxyMCs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas DNAts OxyTs OxyAs OxyMC
1669	118326	118343	2343	2360	DES-009037	CAATatatatcacaTTAC	ASO-009037	OxyMCs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1670	118326	118344	2343	2361	DES-009038	CCAAtatatatcacaTTAC	ASO-009038	OxyMCs OxyMCs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyTs OxyAs OxyMC
1671	118327	118344	2344	2361	DES-002769	CCAAtatatatcacATTA	ASO-002769	OxyMCs OxyMCs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyTs OxyA
1672	118327	118345	2344	2362	DES-009039	CCCaatatatatcacaTTA	ASO-009039	OxyMCs OxyMCs OxyMCs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyTs OxyA
1673	118328	118345	2345	2362	DES-002772	CCCAatatatatcacaTT	ASO-002772	OxyMCs OxyMCs OxyMCs OxyAs DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs DNAas OxyTs OxyT
1674	118328	118346	2345	2363	DES-009041	GCccaatatatatcacATT	ASO-009041	OxyGs OxyMCs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs OxyAs OxyTs OxyT
1675	118329	118346	2346	2363	DES-009040	GCccaatatatatcaCAT	ASO-009040	OxyGs OxyMCs DNAcs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs OxyAs OxyT
1676	118330	118345	2347	2362	DES-001221	CCCaatatatatCACA	ASO-001221	OxyMCs OxyMCs OxyMCs DNAas DNAas DNAts DNAas DNAts DNAas DNAts OxyMCs OxyAs OxyMCs OxyA
1676	118330	118345	2347	2362	DES-001437	CCcaatatatatcACA	ASO-001437	OxyMCs OxyMCs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas OxyAs OxyMCs OxyA
1677	118330	118346	2347	2363	DES-009042	GCCcaatatatatcaCA	ASO-009042	OxyGs OxyMCs OxyMCs DNAcs DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs DNAas DNAcs OxyMCs OxyA
1678	118363	118380	2380	2397	DES-002749	ATagtcactcattcCTCC	ASO-002749	OxyAs OxyTs DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyMCs OxyMC
1678	118363	118380	2380	2397	DES-002750	AtagtcactcattcCtCC	ASO-002750	OxyAs DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAcs OxyMCs DNAts OxyMCs OxyMC
1679	118364	118381	2381	2398	DES-002797	TAtagtcactcattcCTC	ASO-002797	OxyTs OxyAs DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAcs DNAas DNAts DNAts DNAcs OxyMCs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1680	118367	118384	2384	2401	DES-003222	CCTtatagtcactcatTC	ASO-003222	OxyMCs OxyMCs OxyTs DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAas DNAts OxyTs OxyMC
1681	118369	118384	2386	2401	DES-001453	CCttatagtcactcAT	ASO-001453	OxyMCs OxyMCs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts DNAcs OxyAs OxyT
1681	118369	118384	2386	2401	DES-001468	CCttatagtcactCAT	ASO-001468	OxyMCs OxyMCs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyAs OxyT
1681	118369	118384	2386	2401	DES-002778	CCTtatagtcactCAT	ASO-002778	OxyMCs OxyMCs OxyTs DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyAs OxyT
1682	118370	118387	2387	2404	DES-001398	CATccttatagtcactCA	ASO-001398	OxyMCs OxyAs OxyTs DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyA
1682	118370	118387	2387	2404	DES-001755	CAtccttatagtcactCA	ASO-001755	OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAts OxyMCs OxyA
1683	118371	118388	2388	2405	DES-001758	CCatccttatagtcacTC	ASO-001758	OxyMCs OxyMCs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs OxyTs OxyMC
1684	118372	118387	2389	2404	DES-001256	CATccttatagtCACT	ASO-001256	OxyMCs OxyAs OxyTs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyAs OxyMCs OxyT
1684	118372	118387	2389	2404	DES-001473	CAtccttatagtcaCT	ASO-001473	OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs DNAas OxyMCs OxyT
1684	118372	118387	2389	2404	DES-002768	CATCcttatagtcACT	ASO-002768	OxyMCs OxyAs OxyTs OxyMCs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs OxyAs OxyMCs OxyT
1685	118373	118388	2390	2405	DES-001424	CCatccttatagtcAC	ASO-001424	OxyMCs OxyMCs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts DNAcs OxyAs OxyMC
1685	118373	118388	2390	2405	DES-001430	CCatccttatagtCAC	ASO-001430	OxyMCs OxyMCs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyAs OxyMC
1685	118373	118388	2390	2405	DES-002771	CCAtccttatagtCAC	ASO-002771	OxyMCs OxyMCs OxyAs DNAts DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyAs OxyMC
1686	118374	118389	2391	2406	DES-001434	ACcatccttatagtCA	ASO-001434	OxyAs OxyMCs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyA
1686	118374	118389	2391	2406	DES-001471	ACCatccttatagtCA	ASO-001471	OxyAs OxyMCs OxyMCs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1686	118374	118389	2391	2406	DES-002746	ACCAtcctatagtCA	ASO-002746	OxyAs OxyMCs OxyMCs OxyAs DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs DNAts OxyMCs OxyA
1687	118375	118390	2392	2407	DES-002740	AaccatcctatagTC	ASO-002740	OxyAs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts DNAas DNAgs OxyTs OxyMC
1688	118377	118392	2394	2409	DES-001481	GTAaccatccttatAG	ASO-001481	OxyGs OxyTs OxyAs DNAas DNAcs DNAcs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAts OxyAs OxyG
1689	118427	118442	2444	2459	DES-001476	GCactctgtagtagTC	ASO-001476	OxyGs OxyMCs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts DNAas DNAgs OxyTs OxyMC
1690	118428	118443	2445	2460	DES-001475	AGcactctgtagtaGT	ASO-001475	OxyAs OxyGs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts DNAas OxyGs OxyT
1690	118428	118443	2445	2460	DES-001479	AGcactctgtagtAGT	ASO-001479	OxyAs OxyGs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts OxyAs OxyGs OxyT
1691	118429	118446	2446	2463	DES-001406	CTTagcactctgtagtAG	ASO-001406	OxyMCs OxyTs OxyTs DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts OxyAs OxyG
1691	118429	118446	2446	2463	DES-001753	CTtagcactctgtagtAG	ASO-001753	OxyMCs OxyTs DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts OxyAs OxyG
1692	118430	118447	2447	2464	DES-001761	GCttagcactctgtagTA	ASO-001761	OxyGs OxyMCs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas DNAgs DNAts OxyTs OxyA
1693	118431	118446	2448	2463	DES-001439	CTtagcactctgtAGT	ASO-001439	OxyMCs OxyTs DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts OxyAs OxyGs OxyT
1693	118431	118446	2448	2463	DES-001454	CTtagcactctgtaGT	ASO-001454	OxyMCs OxyTs DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts DNAas OxyGs OxyT
1694	118432	118447	2449	2464	DES-001456	GCttagcactctgtAG	ASO-001456	OxyGs OxyMCs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs DNAts OxyAs OxyG
1695	118433	118448	2450	2465	DES-001415	AGcttagcactctgTA	ASO-001415	OxyAs OxyGs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAgs OxyTs OxyA
1696	118434	118449	2451	2466	DES-001486	CAgcttagcactctGT	ASO-001486	OxyMCs OxyAs DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs DNAts OxyGs OxyT
1697	118435	118450	2452	2467	DES-001487	GCagcttagcactcTG	ASO-001487	OxyGs OxyMCs DNAas DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts DNAcs OxyTs OxyG
1698	118436	118451	2453	2468	DES-001436	TGcagcttagcactCT	ASO-001436	OxyTs OxyGs DNAcs DNAas DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs DNAts OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1699	118437	118452	2454	2469	DES-001463	ATgcagcttagcacTC	ASO-001463	OxyAs OxyTs DNAgs DNAcs DNAas DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs OxyTs OxyMC
1699	118437	118452	2454	2469	DES-001767	ATGcagcttagcacTC	ASO-001767	OxyAs OxyTs OxyGs DNAcs DNAas DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAcs DNAas DNAcs OxyTs OxyMC
1700	118466	118483	2483	2500	DES-002719	CTtaccatttctctcTAG	ASO-002719	OxyMCs OxyTs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAts DNAcs DNAts OxyTs OxyAs OxyG
1701	118467	118484	2484	2501	DES-002724	ACTtaccatttctcTCTA	ASO-002724	OxyAs OxyMCs OxyTs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAts DNAcs DNAts DNAcs OxyTs OxyMCs OxyTs OxyA
1702	118468	118485	2485	2502	DES-002713	AACTtaccatttctCTCT	ASO-002713	OxyAs OxyAs OxyMCs OxyTs DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyMCs OxyT
1703	118469	118486	2486	2503	DES-001638	AAACttaccatttcTCTC	ASO-001638	OxyAs OxyAs OxyAs OxyMCs DNAts DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs OxyTs OxyMCs OxyTs OxyMC
1703	118469	118486	2486	2503	DES-001699	AAacttaccatttctCTC	ASO-001699	OxyAs OxyAs DNAas DNAcs DNAts DNAts DNAas DNAcs DNAcs DNAas DNAts DNAts DNAcs DNAts OxyMCs OxyTs OxyMC
1704	118490	118507	2507	2524	DES-002744	ACATaacttaaataAAAC	ASO-002744	OxyAs OxyMCs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAas DNAas DNAas DNAts DNAas OxyAs OxyAs OxyAs OxyMC
1704	118490	118507	2507	2524	DES-002745	ACATaacttaaaTAaAAC	ASO-002745	OxyAs OxyMCs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyAs DNAas OxyAs OxyAs OxyMC
1705	118492	118511	2509	2528	DES-001550	TTAAacataacttaaaTA AA	ASO-001550	OxyTs OxyTs OxyAs OxyAs DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyAs OxyAs OxyA
1706	118493	118510	2510	2527	DES-001566	TAAAcataacttaaATAA	ASO-001566	OxyTs OxyAs OxyAs OxyAs DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyA
1706	118493	118510	2510	2527	DES-002793	TAAaCATaacttaaATAA	ASO-002793	OxyTs OxyAs OxyAs DNAas OxyMCs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1707	118494	118511	2511	2528	DES-001568	TTAAacataacttaAATA	ASO-001568	OxyTs OxyTs OxyAs OxyAs DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAts DNAas OxyAs OxyAs OxyTs OxyA
1708	118495	118514	2512	2531	DES-001538	TGCttaaacataacttaAA T	ASO-001538	OxyTs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAas OxyAs OxyAs OxyT
1708	118495	118514	2512	2531	DES-001555	TGCTtaaacataacttAAA T	ASO-001555	OxyTs OxyGs OxyMCs OxyTs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyT
1709	118495	118513	2512	2530	DES-009043	GCTTaaacataacttAAA T	ASO-009043	OxyGs OxyMCs OxyTs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyT
1710	118496	118513	2513	2530	DES-001516	GCTtaaacataactTAAA	ASO-001516	OxyGs OxyMCs OxyTs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyA
1710	118496	118513	2513	2530	DES-001670	GCTTaaacataactTAAA	ASO-001670	OxyGs OxyMCs OxyTs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyAs OxyAs OxyA
1711	118497	118514	2514	2531	DES-001612	TGCTtaaacataacTTAA	ASO-001612	OxyTs OxyGs OxyMCs OxyTs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyAs OxyA
1711	118497	118514	2514	2531	DES-001658	TGCttaaacataactTAA	ASO-001658	OxyTs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyAs OxyA
1712	118498	118513	2515	2530	DES-001237	GCTtaaacataacTTA	ASO-001237	OxyGs OxyMCs OxyTs DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas DNAcs OxyTs OxyTs OxyA
1712	118498	118513	2515	2530	DES-001282	GCTTaaacataaCTTA	ASO-001282	OxyGs OxyMCs OxyTs OxyTs DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyA
1713	118498	118515	2515	2532	DES-009044	TTGCttaaacataaCTTA	ASO-009044	OxyTs OxyTs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyA
1714	118499	118516	2516	2533	DES-001370	CTTgcttaaacataaCTT	ASO-001370	OxyMCs OxyTs OxyTs DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1714	118499	118516	2516	2533	DES-001613	CTTGcttaaacataACTT	ASO-001613	OxyMCs OxyTs OxyTs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts DNAas OxyAs OxyMCs OxyTs OxyT
1715	118500	118515	2517	2532	DES-001229	TTGcttaaacatAACT	ASO-001229	OxyTs OxyTs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts OxyAs OxyAs OxyMCs OxyT
1715	118500	118515	2517	2532	DES-001269	TTGCttaaacatAACT	ASO-001269	OxyTs OxyTs OxyGs OxyMCs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts OxyAs OxyAs OxyMCs OxyT
1716	118500	118516	2517	2533	DES-009045	CTTGcttaaacatAACT	ASO-009045	OxyMCs OxyTs OxyTs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas DNAts OxyAs OxyAs OxyMCs OxyT
1717	118501	118516	2518	2533	DES-001252	CTTgcttaaacaTAAC	ASO-001252	OxyMCs OxyTs OxyTs DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas OxyTs OxyAs OxyAs OxyMC
1717	118501	118516	2518	2533	DES-001291	CTTGcttaaacaTAAC	ASO-001291	OxyMCs OxyTs OxyTs OxyGs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas OxyTs OxyAs OxyAs OxyMC
1718	118502	118519	2519	2536	DES-001632	TTCCttgcttaaacATAA	ASO-001632	OxyTs OxyTs OxyMCs OxyMCs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs OxyAs OxyTs OxyAs OxyA
1718	118502	118519	2519	2536	DES-001659	TTCcttgcttaaacaTAA	ASO-001659	OxyTs OxyTs OxyMCs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas OxyTs OxyAs OxyA
1719	118503	118520	2520	2537	DES-001314	TTTccttgcttaaaCATA	ASO-001314	OxyTs OxyTs OxyTs DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas OxyMCs OxyAs OxyTs OxyA
1719	118503	118520	2520	2537	DES-001373	TTTccttgcttaaacaTA	ASO-001373	OxyTs OxyTs OxyTs DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs DNAas OxyTs OxyA
1720	118504	118523	2521	2540	DES-001527	TCctttccttgcttaaacAT	ASO-001527	OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs OxyAs OxyT
1720	118504	118523	2521	2540	DES-001534	TCCtttccttgcttaaacAT	ASO-001534	OxyTs OxyMCs OxyMCs DNAts DNAts DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas DNAcs OxyAs OxyT
1721	118505	118522	2522	2539	DES-001757	CCtttccttgcttaaaCA	ASO-001757	OxyMCs OxyMCs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas DNAas OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1722	118506	118523	2523	2540	DES-001360	TCCtttccttgcttaaAC	ASO-001360	OxyTs OxyMCs OxyMCs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyMC
1722	118506	118523	2523	2540	DES-001745	TCctttccttgcttaaAC	ASO-001745	OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAts DNAgs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyMC
1723	118514	118531	2531	2548	DES-002712	ATAacaaatccttttCCTT	ASO-002712	OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAts OxyMCs OxyMCs OxyTs OxyT
1724	118515	118532	2532	2549	DES-002715	AATAacaaatccttTCCT	ASO-002715	OxyAs OxyAs OxyTs OxyAs DNAas DNAcs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts OxyTs OxyMCs OxyMCs OxyT
1725	118516	118533	2533	2550	DES-002721	CAATaacaaatcctTTCC	ASO-002721	OxyMCs OxyAs OxyAs OxyTs DNAas DNAas DNAcs DNAas DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyTs OxyMCs OxyMC
1726	118517	118534	2534	2551	DES-002720	TCAATaacaaatccTTTC	ASO-002720	OxyTs OxyMCs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAas DNAas DNAts DNAcs DNAcs OxyTs OxyTs OxyTs OxyMC
1727	118518	118535	2535	2552	DES-002710	TTCAataacaaatcCTTT	ASO-002710	OxyTs OxyTs OxyMCs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAas DNAas DNAts DNAcs OxyMCs OxyTs OxyTs OxyT
1728	118521	118536	2538	2553	DES-002702	GTTCaataacaaATCC	ASO-002702	OxyGs OxyTs OxyTs OxyMCs DNAas DNAas DNAts DNAas DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyMCs OxyMC
1729	118527	118542	2544	2559	DES-002703	TATActgttcaaTAAC	ASO-002703	OxyTs OxyAs OxyTs OxyAs DNAcs DNAts DNAgs DNAts DNAts DNAcs DNAas DNAas OxyTs OxyAs OxyAs OxyMC
1730	118528	118545	2545	2562	DES-001575	AAATatactgttcaATAA	ASO-001575	OxyAs OxyAs OxyAs OxyTs DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts DNAts DNAcs DNAas OxyAs OxyTs OxyAs OxyA
1731	118529	118546	2546	2563	DES-001583	GAAAtatactgttcAATA	ASO-001583	OxyGs OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts DNAts DNAcs OxyAs OxyAs OxyTs OxyA
1732	118530	118547	2547	2564	DES-001388	TGAaatatactgttCAAT	ASO-001388	OxyTs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAts DNAgs DNAts DNAts OxyMCs OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1732	118530	118547	2547	2564	DES-001599	TGAAatatactgttCAAT	ASO-001599	OxyTs OxyGs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts DNAts OxyMCs OxyAs OxyAs OxyT
1733	118531	118548	2548	2565	DES-001386	CTGaaatatactgttCAA	ASO-001386	OxyMCs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts DNAts OxyMCs OxyAs OxyA
1733	118531	118548	2548	2565	DES-001626	CTGAaatatactgtTCAA	ASO-001626	OxyMCs OxyTs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts OxyTs OxyMCs OxyAs OxyA
1734	118532	118549	2549	2566	DES-001505	CCTgaaatatactgtTCA	ASO-001505	OxyMCs OxyMCs OxyTs DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts OxyTs OxyMCs OxyA
1734	118532	118549	2549	2566	DES-001737	CCtgaaatatactgttCA	ASO-001737	OxyMCs OxyMCs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs DNAts DNAts OxyMCs OxyA
1735	118533	118548	2550	2565	DES-001246	CTGAaatatactGTTC	ASO-001246	OxyMCs OxyTs OxyGs OxyAs DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts OxyGs OxyTs OxyTs OxyMC
1735	118533	118548	2550	2565	DES-001249	CTGaaatatactgTTC	ASO-001249	OxyMCs OxyTs OxyGs DNAas DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAgs OxyTs OxyTs OxyMC
1736	118534	118551	2551	2568	DES-001225	TTCctgaaatatactgTT	ASO-001225	OxyTs OxyTs OxyMCs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs DNAts DNAgs OxyTs OxyT
1736	118534	118551	2551	2568	DES-001331	TTCctgaaatatacTGTT	ASO-001331	OxyTs OxyTs OxyMCs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs OxyTs OxyGs OxyTs OxyT
1737	118535	118552	2552	2569	DES-001334	CTTcctgaaatatacTGT	ASO-001334	OxyMCs OxyTs OxyTs DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyGs OxyT
1738	118536	118553	2553	2570	DES-001710	CCttcctgaaatataCTG	ASO-001710	OxyMCs OxyMCs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas OxyMCs OxyTs OxyG
1738	118536	118553	2553	2570	DES-001741	CCttcctgaaatatacTG	ASO-001741	OxyMCs OxyMCs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAcs OxyTs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1739	118537	118554	2554	2571	DES-001492	ACCttcctgaaatatACT	ASO-001492	OxyAs OxyMCs OxyMCs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts OxyAs OxyMCs OxyT
1739	118537	118554	2554	2571	DES-001696	ACcttcctgaaatatACT	ASO-001696	OxyAs OxyMCs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts OxyAs OxyMCs OxyT
1740	118538	118557	2555	2574	DES-001519	CTaaccttcctgaaatatAC	ASO-001519	OxyMCs OxyTs DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts DNAas DNAts OxyAs OxyMC
1741	118540	118559	2557	2576	DES-001518	TTctaaccttcctgaaatAT	ASO-001518	OxyTs OxyTs DNAcs DNAts DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas DNAts OxyAs OxyT
1741	118540	118559	2557	2576	DES-001539	TTCtaaccttcctgaaaTA T	ASO-001539	OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas OxyTs OxyAs OxyT
1742	118541	118558	2558	2575	DES-001726	TCtaaccttcctgaaaTA	ASO-001726	OxyTs OxyMCs DNAts DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas DNAas OxyTs OxyA
1743	118542	118559	2559	2576	DES-001404	TTCtaaccttcctgaaAT	ASO-001404	OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAgs DNAas DNAas OxyAs OxyT
1744	118543	118560	2560	2577	DES-001624	TTTCtaaccttcctGAAA	ASO-001624	OxyTs OxyTs OxyTs OxyMCs DNAts DNAas DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts OxyGs OxyAs OxyAs OxyA
1745	118568	118585	2585	2602	DES-002759	ATTTaaaatatatcCTAA	ASO-002759	OxyAs OxyTs OxyTs OxyTs DNAas DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAts DNAcs OxyMCs OxyTs OxyAs OxyA
1746	118579	118596	2596	2613	DES-001359	GCTttaggtagatttaAA	ASO-001359	OxyGs OxyMCs OxyTs DNAts DNAts DNAas DNAgs DNAgs DNAts DNAas DNAgs DNAas DNAts DNAts DNAts DNAas OxyAs OxyA
1746	118579	118596	2596	2613	DES-001634	GCTTtaggtagattTAAA	ASO-001634	OxyGs OxyMCs OxyTs OxyTs DNAts DNAas DNAgs DNAgs DNAts DNAas DNAgs DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyA
1747	118580	118595	2597	2612	DES-001245	CTTTaggtagatTTAA	ASO-001245	OxyMCs OxyTs OxyTs OxyTs DNAas DNAgs DNAgs DNAts DNAas DNAgs DNAas DNAts OxyTs OxyTs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1747	118580	118595	2597	2612	DES-001288	CTTtaggtagatTTAA	ASO-001288	OxyMCs OxyTs OxyTs DNAts DNAas DNAgs DNAgs DNAts DNAas DNAgs DNAas DNAts OxyTs OxyTs OxyAs OxyA
1748	118587	118604	2604	2621	DES-001496	AATatgctgctttagGTA	ASO-001496	OxyAs OxyAs OxyTs DNAas DNAts DNAgs DNAcs DNAts DNAgs DNAcs DNAts DNAts DNAts DNAas DNAgs OxyGs OxyTs OxyA
1748	118587	118604	2604	2621	DES-001724	AAtatgctgctttaggTA	ASO-001724	OxyAs OxyAs DNAts DNAas DNAts DNAgs DNAcs DNAts DNAgs DNAcs DNAts DNAts DNAas DNAgs DNAgs OxyTs OxyA
1749	118588	118605	2605	2622	DES-001248	AAAtatgctgctttagGT	ASO-001248	OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAgs DNAcs DNAts DNAgs DNAcs DNAts DNAts DNAas DNAgs OxyGs OxyT
1749	118588	118605	2605	2622	DES-001349	AAAtatgctgctttAGGT	ASO-001349	OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAgs DNAcs DNAts DNAgs DNAcs DNAts DNAts OxyAs OxyGs OxyGs OxyT
1750	118589	118604	2606	2621	DES-001643	AATatgctgctttaGG	ASO-001643	OxyAs OxyAs OxyTs DNAas DNAts DNAgs DNAcs DNAts DNAgs DNAcs DNAts DNAts DNAas OxyGs OxyG
1751	118627	118644	2644	2661	DES-002717	TCTAtttcttaattTAAT	ASO-002717	OxyTs OxyMCs OxyTs OxyAs DNAts DNAts DNAcs DNAts DNAts DNAas DNAas DNAts DNAts OxyTs OxyAs OxyAs OxyT
1752	118628	118645	2645	2662	DES-002726	CTCTatttcttaatTTAA	ASO-002726	OxyMCs OxyTs OxyMCs OxyTs DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAas DNAts OxyTs OxyTs OxyAs OxyA
1753	118629	118646	2646	2663	DES-002722	CCTctatttcttaaTTTA	ASO-002722	OxyMCs OxyMCs OxyTs DNAcs DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas DNAas OxyTs OxyTs OxyTs OxyA
1754	118630	118647	2647	2664	DES-002711	TCCtctatttcttaATTT	ASO-002711	OxyTs OxyMCs OxyMCs DNAts DNAcs DNAts DNAas DNAts DNAts DNAts DNAcs DNAts DNAts DNAas OxyAs OxyTs OxyTs OxyT
1755	118681	118698	2698	2715	DES-002729	AACTtcctaatctCAAA	ASO-002729	OxyAs OxyAs OxyMCs OxyTs DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAcs DNAts OxyMCs OxyAs OxyAs OxyA
1756	118682	118699	2699	2716	DES-002727	CAACtttcctaatcTCAA	ASO-002727	OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts DNAcs OxyTs OxyMCs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1757	118683	118700	2700	2717	DES-002725	ACaacttttcctaatCTCA	ASO-002725	OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas DNAts OxyMCs OxyTs OxyMCs OxyA
1758	118684	118699	2701	2716	DES-002700	CAACtttcctaaTCTC	ASO-002700	OxyMCs OxyAs OxyAs OxyMCs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas OxyTs OxyMCs OxyTs OxyMC
1759	118685	118702	2702	2719	DES-002714	TCAcaacttttcctaaTCT	ASO-002714	OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas OxyTs OxyMCs OxyT
1760	118686	118701	2703	2718	DES-002701	CACAacttttcctaaTC	ASO-002701	OxyMCs OxyAs OxyMCs OxyAs DNAas DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas DNAas OxyTs OxyMC
1761	118687	118702	2704	2719	DES-002698	TCACaacttttcctaAT	ASO-002698	OxyTs OxyMCs OxyAs OxyMCs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs DNAcs DNAts DNAas OxyAs OxyT
1762	118688	118703	2705	2720	DES-002704	GTCAcaacttttcCTAA	ASO-002704	OxyGs OxyTs OxyMCs OxyAs DNAcs DNAas DNAas DNAcs DNAts DNAts DNAts DNAcs OxyMCs OxyTs OxyAs OxyA
1763	118705	118722	2722	2739	DES-002716	ATAAatcctttaaatTCAT	ASO-002716	OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas DNAts OxyTs OxyMCs OxyAs OxyT
1764	118706	118725	2723	2742	DES-002738	CACAtaaatcctttaaaTTCA	ASO-002738	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005232	CACAtAAatcctttaaATtCA	ASO-005232	OxyMCs OxyAs OxyMCs OxyAs DNAts OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs DNAts OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005233	CACAtaAatcctttaaATtCA	ASO-005233	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAas OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs DNAts OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005234	CACAtAAatcctttaaAtTCA	ASO-005234	OxyMCs OxyAs OxyMCs OxyAs DNAts OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005235	CACAtAaatcctttaaAtTCA	ASO-005235	OxyMCs OxyAs OxyMCs OxyAs DNAts OxyAs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005236	CACAtaAatcctttaaAtTCA	ASO-005236	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAas OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1764	118706	118725	2723	2742	DES-005237	CACaTAAatccttaaAtT CA	ASO-005237	OxyMCs OxyAs OxyMCs DNAas OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005238	CACaTaAatccttaaAtTC A	ASO-005238	OxyMCs OxyAs OxyMCs DNAas OxyTs DNAas OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005239	CAcATAAatccttaaAtTC A	ASO-005239	OxyMCs OxyAs DNAcs OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005240	CAcATAaatccttaaAtTC A	ASO-005240	OxyMCs OxyAs DNAcs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005241	CAcaTAAatccttaaAtTC A	ASO-005241	OxyMCs OxyAs DNAcs DNAas OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005242	CaCATaAatccttaaAtTC A	ASO-005242	OxyMCs DNAas OxyMCs OxyAs OxyTs DNAas OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005243	CACaTAAatccttaaAttC A	ASO-005243	OxyMCs OxyAs OxyMCs DNAas OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs DNAts OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005244	CACAtAAatccttaaaTT CA	ASO-005244	OxyMCs OxyAs OxyMCs OxyAs DNAts OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005245	CACAtaAatccttaaaTTC A	ASO-005245	OxyMCs OxyAs OxyMCs OxyAs DNAts DNAas OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005246	CaCaTAAatccttaaaTT CA	ASO-005246	OxyMCs DNAas OxyMCs DNAas OxyTs OxyAs OxyAs DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyTs OxyTs OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005247	CaCATaaatccttaaATtC A	ASO-005247	OxyMCs DNAas OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs DNAts OxyMCs OxyA
1764	118706	118725	2723	2742	DES-005248	CACaTaaatccttaAaTtC A	ASO-005248	OxyMCs OxyAs OxyMCs DNAas OxyTs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas OxyAs DNAas OxyTs DNAts OxyMCs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1764	118706	118725	2723	2742	DES-286762	cACAtaaatccttaaaTTCa	ASO-286762	OMecs OxyAs OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OMea
1764	118706	118725	2723	2742	DES-286783	caCAtaaatccttaaaTTca	ASO-286783	OMecs OMeas OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OMecs OMea
1764	118706	118725	2723	2742	DES-286785	caCATaaatccttaaATTca	ASO-286785	OMecs OMeas OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs OxyTs OMecs OMea
1765	118707	118726	2724	2743	DES-002737	CCACataaatccttaaaTTC	ASO-002737	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMC
1766	118708	118727	2725	2744	DES-002736	TCCAcataaatccttaaATT	ASO-002736	OxyTs OxyMCs OxyMCs OxyAs DNAcs DNAas DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs OxyT
1767	118709	118726	2726	2743	DES-002718	CCACataaatccttAAAT	ASO-002718	OxyMCs OxyMCs OxyAs OxyMCs DNAas DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts OxyAs OxyAs OxyAs OxyT
1768	118710	118727	2727	2744	DES-002728	TCCAcataaatcctTAAA	ASO-002728	OxyTs OxyMCs OxyMCs OxyAs DNAcs DNAas DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts OxyTs OxyAs OxyAs OxyA
1769	118712	118729	2729	2746	DES-002723	TATccacataaatcCTTA	ASO-002723	OxyTs OxyAs OxyTs DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas DNAas DNAts DNAcs OxyMCs OxyTs OxyTs OxyA
1770	118714	118729	2731	2746	DES-002696	TATCcacataaatCCT	ASO-002696	OxyTs OxyAs OxyTs OxyMCs DNAcs DNAas DNAcs DNAas DNAts DNAas DNAas DNAas DNAts OxyMCs OxyMCs OxyT
1771	118716	118733	2733	2750	DES-009046	TTTGtatccacataATC	ASO-009046	OxyTs OxyTs OxyTs OxyGs DNAts DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAas DNAts DNAas OxyAs OxyAs OxyTs OxyMC
1772	118718	118735	2735	2752	DES-001585	AATTtgtatccacaTAAA	ASO-001585	OxyAs OxyAs OxyTs OxyTs DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyAs OxyAs OxyA
1773	118720	118739	2737	2756	DES-001528	GGagaatttgtatccacaTA	ASO-001528	OxyGs OxyGs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas DNAcs DNAas OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1773	118720	118739	2737	2756	DES-001531	GGagaatttgtatccacATA	ASO-001531	OxyGs OxyGs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas DNAcs OxyAs OxyTs OxyA
1774	118721	118738	2738	2755	DES-001508	GAGaatttgtatccaCAT	ASO-001508	OxyGs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas OxyMCs OxyAs OxyT
1774	118721	118738	2738	2755	DES-001714	GAgaatttgtatccacAT	ASO-001714	OxyGs OxyAs DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas DNAcs OxyAs OxyT
1775	118722	118739	2739	2756	DES-001368	GGAgaatttgtatccaCA	ASO-001368	OxyGs OxyGs OxyAs DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas OxyMCs OxyA
1775	118722	118739	2739	2756	DES-001751	GGagaatttgtatccaCA	ASO-001751	OxyGs OxyGs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs DNAas OxyMCs OxyA
1776	118723	118738	2740	2755	DES-001274	GAGaatttgtatcCAC	ASO-001274	OxyGs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs OxyMCs OxyAs OxyMC
1776	118723	118738	2740	2755	DES-001420	GAGaatttgtatccAC	ASO-001420	OxyGs OxyAs OxyGs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs DNAcs OxyAs OxyMC
1777	118724	118739	2741	2756	DES-001423	GGagaatttgtatcCA	ASO-001423	OxyGs OxyGs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts DNAcs OxyMCs OxyA
1777	118724	118739	2741	2756	DES-001449	GGagaatttgtatCCA	ASO-001449	OxyGs OxyGs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts OxyMCs OxyMCs OxyA
1778	118725	118744	2742	2761	DES-001524	TTaaaggagaatttgtatCC	ASO-001524	OxyTs OxyTs DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts DNAas DNAts OxyMCs OxyMC
1778	118725	118744	2742	2761	DES-001546	TTAaaggagaatttgtATCC	ASO-001546	OxyTs OxyTs OxyAs DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts OxyAs OxyTs OxyMCs OxyMC
1779	118726	118745	2743	2762	DES-001325	TTTaaaggagaatttgtATC	ASO-001325	OxyTs OxyTs OxyTs DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs DNAts OxyAs OxyTs OxyMC
1779	118726	118745	2743	2762	DES-001565	TTTAaaggagaatttgTATC	ASO-001565	OxyTs OxyTs OxyTs OxyAs DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAgs OxyTs OxyAs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1780	118727	118744	2744	2761	DES-001372	TTAaaggagaatttGTAT	ASO-001372	OxyTs OxyTs OxyAs DNAas DNAas DNAgs DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAts OxyGs OxyTs OxyAs OxyT
1780	118727	118744	2744	2761	DES-001594	TTAAaggagaatttGTAT	ASO-001594	OxyTs OxyTs OxyAs OxyAs DNAas DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts DNAts DNAts DNAts OxyGs OxyTs OxyAs OxyT
1781	118731	118748	2748	2765	DES-001394	CACtttaaaggagaATTT	ASO-001394	OxyMCs OxyAs OxyMCs DNAts DNAts DNAts DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas OxyAs OxyTs OxyTs OxyT
1781	118731	118748	2748	2765	DES-001597	CACTttaaaggagaATTT	ASO-001597	OxyMCs OxyAs OxyMCs OxyTs DNAts DNAts DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs DNAas OxyAs OxyTs OxyTs OxyT
1782	118732	118749	2749	2766	DES-001514	ACActttaaaggagAATT	ASO-001514	OxyAs OxyMCs OxyAs DNAcs DNAts DNAts DNAts DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyTs OxyT
1782	118732	118749	2749	2766	DES-001595	ACACtttaaaggagAATT	ASO-001595	OxyAs OxyMCs OxyAs OxyMCs DNAts DNAts DNAts DNAas DNAas DNAas DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyTs OxyT
1783	118748	118765	2765	2782	DES-001569	AATAttaaggaagAAA C	ASO-001569	OxyAs OxyAs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAgs DNAgs DNAas DNAas DNAgs OxyAs OxyAs OxyAs OxyMC
1784	118749	118768	2766	2785	DES-001551	ATAAatattaaggaaGA AA	ASO-001551	OxyAs OxyTs OxyAs OxyAs DNAas DNAts DNAas DNAts DNAas DNAgs DNAgs DNAgs DNAas DNAas OxyGs OxyAs OxyAs OxyA
1785	118750	118767	2767	2784	DES-001579	TAAAtattaaggaAGAA	ASO-001579	OxyTs OxyAs OxyAs OxyAs DNAts DNAas DNAts DNAts DNAas DNAas DNAgs DNAgs DNAgs DNAas OxyAs OxyGs OxyAs OxyA
1786	118751	118770	2768	2787	DES-001319	AGAtaaatattaagggaa GA	ASO-001319	OxyAs OxyGs OxyAs DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAgs DNAgs DNAgs DNAas DNAas OxyGs OxyA
1786	118751	118770	2768	2787	DES-001564	AGATaaatattaagggAA GA	ASO-001564	OxyAs OxyGs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAgs DNAgs DNAgs DNAas OxyAs OxyAs OxyGs OxyA
1787	118752	118769	2769	2786	DES-001402	GATaaatattaaggGAAG	ASO-001402	OxyGs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAas DNAts DNAts DNAas DNAas DNAgs DNAgs OxyGs OxyAs OxyAs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1787	118752	118769	2769	2786	DES-001601	GATAaatattaaggGAAG	ASO-001601	OxyGs OxyAs OxyTs OxyAs DNAas DNAas DNAts DNAts DNAas DNAts DNAas DNAas DNAgs DNAgs OxyGs OxyAs OxyAs OxyG
1788	118754	118771	2771	2788	DES-001517	CAGataaatattaaGGGA	ASO-001517	OxyMCs OxyAs OxyGs DNAas DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAas OxyGs OxyGs OxyGs OxyA
1788	118754	118771	2771	2788	DES-001691	CAgataaatattaagGGA	ASO-001691	OxyMCs OxyAs DNAgs DNAas DNAts DNAas DNAas DNAas DNAts DNAas DNAts DNAas DNAas DNAgs OxyGs OxyGs OxyA
1789	118798	118815	2815	2832	DES-001666	ACTAttaagatataTAAA	ASO-001666	OxyAs OxyMCs OxyTs OxyAs DNAts DNAts DNAas DNAas DNAgs DNAas DNAts DNAas DNAts DNAas OxyTs OxyAs OxyAs OxyA
1790	118799	118816	2816	2833	DES-001574	AACTattaagatatATAA	ASO-001574	OxyAs OxyAs OxyMCs OxyTs DNAas DNAts DNAts DNAas DNAas DNAgs DNAas DNAts DNAas DNAts OxyAs OxyTs OxyAs OxyA
1791	118800	118817	2817	2834	DES-001581	AAACtattaagataTATA	ASO-001581	OxyAs OxyAs OxyAs OxyMCs DNAts DNAas DNAts DNAts DNAas DNAas DNAgs DNAas DNAts DNAas OxyTs OxyAs OxyTs OxyA
1792	118801	118818	2818	2835	DES-001572	TAAActattaagatATAT	ASO-001572	OxyTs OxyAs OxyAs OxyAs DNAcs DNAts DNAas DNAts DNAas DNAgs DNAas DNAts OxyAs OxyTs OxyAs OxyT
1793	118802	118819	2819	2836	DES-001586	ATAAactattaagaTATA	ASO-001586	OxyAs OxyTs OxyAs OxyAs DNAas DNAcs DNAts DNAas DNAts DNAas DNAas DNAgs DNAas OxyTs OxyAs OxyTs OxyA
1794	118803	118820	2820	2837	DES-001577	AATAaactattaagATAT	ASO-001577	OxyAs OxyAs OxyTs OxyAs DNAas DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas DNAgs OxyAs OxyTs OxyAs OxyT
1795	118804	118821	2821	2838	DES-001573	AAATaaactattaaGATA	ASO-001573	OxyAs OxyAs OxyAs OxyTs DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAts DNAas DNAas OxyGs OxyAs OxyTs OxyA
1796	118805	118822	2822	2839	DES-001576	CAAAtaaactattaAGAT	ASO-001576	OxyMCs OxyAs OxyAs OxyAs DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAts DNAas OxyAs OxyGs OxyAs OxyT
1797	118806	118823	2823	2840	DES-001387	CCAaataaactattAAGA	ASO-001387	OxyMCs OxyMCs OxyAs DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAts DNAts OxyAs OxyAs OxyGs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1797	118806	118823	2823	2840	DES-001591	CCAAataaactattAAGA	ASO-001591	OxyMCs OxyMCs OxyAs OxyAs DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAts OxyAs OxyAs OxyGs OxyA
1798	118807	118824	2824	2841	DES-001377	CCCaaataaactattAAG	ASO-001377	OxyMCs OxyMCs OxyMCs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts DNAts OxyAs OxyAs OxyG
1798	118807	118824	2824	2841	DES-001673	CCCAaataaactatTAAG	ASO-001673	OxyMCs OxyMCs OxyMCs OxyAs DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts OxyTs OxyAs OxyAs OxyG
1799	118808	118825	2825	2842	DES-001654	TCCcaaataaactatTAA	ASO-001654	OxyTs OxyMCs OxyMCs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts OxyTs OxyAs OxyA
1799	118808	118825	2825	2842	DES-001672	TCCCaaataaactaTTAA	ASO-001672	OxyTs OxyMCs OxyMCs OxyMCs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas OxyTs OxyTs OxyAs OxyA
1800	118809	118826	2826	2843	DES-001295	GTCccaaataaactatTA	ASO-001295	OxyGs OxyTs OxyMCs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas DNAts OxyTs OxyA
1800	118809	118826	2826	2843	DES-001675	GTCCcaaataaactATTA	ASO-001675	OxyGs OxyTs OxyMCs OxyMCs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts OxyAs OxyTs OxyTs OxyA
1801	118810	118827	2827	2844	DES-001313	GGTcccaaataaacTATT	ASO-001313	OxyGs OxyGs OxyTs DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs OxyTs OxyAs OxyTs OxyT
1801	118810	118827	2827	2844	DES-001366	GGTcccaaataaactaTT	ASO-001366	OxyGs OxyGs OxyTs DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs DNAts DNAas OxyTs OxyT
1802	118811	118826	2828	2843	DES-001261	GTCccaaataaacTAT	ASO-001261	OxyGs OxyTs OxyMCs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas DNAcs OxyTs OxyAs OxyT
1802	118811	118826	2828	2843	DES-001283	GTCCcaaataaaCTAT	ASO-001283	OxyGs OxyTs OxyMCs OxyMCs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas OxyMCs OxyTs OxyAs OxyT
1803	118812	118829	2829	2846	DES-001321	TTGgtcccaaataaACTA	ASO-001321	OxyTs OxyTs OxyGs DNAgs DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas OxyAs OxyMCs OxyTs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1803	118812	118829	2829	2846	DES-001703	TTggtcccaaataaaCTA	ASO-001703	OxyTs OxyTs DNAgs DNAgs DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas OxyMCs OxyTs OxyA
1804	118813	118828	2830	2845	DES-001224	TGGTcccaaataAACT	ASO-001224	OxyTs OxyGs OxyGs OxyTs DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas OxyAs OxyAs OxyMCs OxyT
1804	118813	118828	2830	2845	DES-001648	TGGtcccaaataaaCT	ASO-001648	OxyTs OxyGs OxyGs DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts DNAas DNAas DNAas OxyMCs OxyT
1805	118814	118829	2831	2846	DES-001240	TTGgtcccaaatAAAC	ASO-001240	OxyTs OxyTs OxyGs DNAgs DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts OxyAs OxyAs OxyAs OxyMC
1805	118814	118829	2831	2846	DES-001303	TTGGtcccaaatAAAC	ASO-001303	OxyTs OxyTs OxyGs OxyGs DNAts DNAcs DNAcs DNAcs DNAas DNAas DNAas DNAts OxyAs OxyAs OxyAs OxyMC
1806	118958	118975	2975	2992	DES-001311	ATAacttgggagaaTGTA	ASO-001311	OxyAs OxyTs OxyAs DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAas DNAas OxyTs OxyGs OxyTs OxyA
1806	118958	118975	2975	2992	DES-001688	ATaacttgggagaatGTA	ASO-001688	OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts OxyGs OxyTs OxyA
1807	118959	118978	2976	2995	DES-001523	TGaataacttgggagaatGT	ASO-001523	OxyTs OxyGs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAas DNAas DNAts OxyGs OxyT
1807	118959	118978	2976	2995	DES-001540	TGAataacttgggagaaTGT	ASO-001540	OxyTs OxyGs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs DNAas DNAas OxyTs OxyGs OxyT
1808	118960	118977	2977	2994	DES-001409	GAAtaacttgggagAATG	ASO-001409	OxyGs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyTs OxyG
1808	118960	118977	2977	2994	DES-001603	GAATaacttgggagAATG	ASO-001603	OxyGs OxyAs OxyAs OxyTs DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyTs OxyG
1809	118961	118978	2978	2995	DES-001361	TGAataacttgggagAAT	ASO-001361	OxyTs OxyGs OxyAs DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas DNAgs OxyAs OxyAs OxyT
1809	118961	118978	2978	2995	DES-001611	TGAAtaacttgggaGAAT	ASO-001611	OxyTs OxyGs OxyAs OxyAs DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas OxyGs OxyAs OxyAs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1810	118962	118979	2979	2996	DES-001342	CTGaataacttgggAGAA	ASO-001342	OxyMCs OxyTs OxyGs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs OxyAs OxyGs OxyAs OxyA
1810	118962	118979	2979	2996	DES-001683	CTgaataacttgggaGAA	ASO-001683	OxyMCs OxyTs DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas OxyGs OxyAs OxyA
1811	118963	118980	2980	2997	DES-001383	GCTgaataacttgggaGA	ASO-001383	OxyGs OxyMCs OxyTs DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas OxyGs OxyA
1811	118963	118980	2980	2997	DES-001754	GCtgaataacttgggaGA	ASO-001754	OxyGs OxyMCs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs DNAgs DNAas OxyGs OxyA
1812	118964	118979	2981	2996	DES-001244	CTGaataacttgGGAG	ASO-001244	OxyMCs OxyTs OxyGs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs OxyGs OxyGs OxyAs OxyG
1812	118964	118979	2981	2996	DES-001448	CTgaataacttggGAG	ASO-001448	OxyMCs OxyTs DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs OxyGs OxyAs OxyG
1813	118965	118980	2982	2997	DES-001413	GCtgaataacttggGA	ASO-001413	OxyGs OxyMCs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs DNAgs OxyGs OxyA
1813	118965	118980	2982	2997	DES-001489	GCtgaataacttgGGA	ASO-001489	OxyGs OxyMCs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs OxyGs OxyGs OxyA
1814	118966	118985	2983	3002	DES-001335	ATgaggctgaataacttgGG	ASO-001335	OxyAs OxyTs DNAgs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts DNAgs OxyGs OxyG
1814	118966	118985	2983	3002	DES-001775	ATgaggctgaataacttGGG	ASO-001775	OxyAs OxyTs DNAgs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts OxyGs OxyGs OxyG
1815	118967	118984	2984	3001	DES-001708	TGaggctgaataactTGG	ASO-001708	OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts OxyTs OxyGs OxyG
1815	118967	118984	2984	3001	DES-001733	TGaggctgaataacttGG	ASO-001733	OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas DNAcs DNAts DNAts OxyGs OxyG
1816	118968	118985	2985	3002	DES-001340	ATGaggctgaataaCTTG	ASO-001340	OxyAs OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNAts DNAas DNAas OxyMCs OxyTs OxyTs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1816	118968	118985	2985	3002	DES-001684	ATgaggctgaataacTTG	ASO-001684	OxyAs OxyTs DNAgs DNAas DNAgs DNAgs DNAcs DNAts DNAgs DNAas DNAas DNATs DNAas DNAas DNAcs OxyTs OxyTs OxyG
1817	118969	118986	2986	3003	DES-001679	TATGaggctgaataACTT	ASO-001679	OxyTs OxyAs OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas DNATs DNAas OxyAs OxyMCs OxyTs OxyT
1817	118969	118986	2986	3003	DES-001695	TAtgaggctgaataaCTT	ASO-001695	OxyTs OxyAs DNATs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas DNATs DNAas DNAas OxyMCs OxyTs OxyT
1818	118970	118985	2987	3002	DES-001258	ATGAggctgaatAACT	ASO-001258	OxyAs OxyTs OxyGs OxyAs DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas DNATs OxyAs OxyAs OxyMCs OxyT
1818	118970	118985	2987	3002	DES-001296	ATGaggctgaataACT	ASO-001296	OxyAs OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas DNATs DNAas OxyAs OxyMCs OxyT
1819	118971	118986	2988	3003	DES-001253	TATgaggctgaaTAAC	ASO-001253	OxyTs OxyAs OxyTs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas OxyTs OxyAs OxyAs OxyMC
1819	118971	118986	2988	3003	DES-001652	TATGaggctgaaTAAC	ASO-001652	OxyTs OxyAs OxyTs OxyGs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas OxyTs OxyAs OxyAs OxyMC
1820	118972	118987	2989	3004	DES-001234	ATATgaggctgaATAA	ASO-001234	OxyAs OxyTs OxyAs OxyTs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas OxyAs OxyTs OxyAs OxyA
1820	118972	118987	2989	3004	DES-001299	ATAtgaggctgaATAA	ASO-001299	OxyAs OxyTs OxyAs DNATs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas OxyAs OxyTs OxyAs OxyA
1821	118973	118988	2990	3005	DES-001293	CATAtgaggctgAATA	ASO-001293	OxyMCs OxyAs OxyTs OxyAs DNATs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs OxyAs OxyAs OxyTs OxyA
1821	118973	118988	2990	3005	DES-001441	CATatgaggctgaaTA	ASO-001441	OxyMCs OxyAs OxyTs DNAas DNATs DNAgs DNAas DNAgs DNAgs DNAcs DNATs DNAgs DNAas DNAas OxyTs OxyA
1822	118975	118990	2992	3007	DES-001302	GTCatatgaggcTGAA	ASO-001302	OxyGs OxyTs OxyMCs DNAas DNATs DNAas DNATs DNAgs DNAas DNAgs DNAgs DNAcs OxyTs OxyGs OxyAs OxyA
1822	118975	118990	2992	3007	DES-001477	GTcatatgaggctGAA	ASO-001477	OxyGs OxyTs DNAcs DNAas DNATs DNAas DNATs DNAgs DNAas DNAgs DNAgs DNAcs DNATs OxyGs OxyAs OxyA
1823	118979	118994	2996	3011	DES-001426	TGgagtcatatgagGC	ASO-001426	OxyTs OxyGs DNAgs DNAas DNAgs DNATs DNAcs DNAas DNATs DNAas DNATs DNAgs DNAas DNAgs OxyGs OxyMC
1824	118980	118995	2997	3012	DES-001474	GTggagtcatatgaGG	ASO-001474	OxyGs OxyTs DNAgs DNAgs DNAas DNAgs DNATs DNAcs DNAas DNATs DNAas DNATs DNAgs DNAas OxyGs OxyG
1824	118980	118995	2997	3012	DES-001642	GTggagtcatatgAGG	ASO-001642	OxyGs OxyTs DNAgs DNAgs DNAas DNAgs DNATs DNAcs DNAas DNATs DNAas DNATs DNAgs OxyAs OxyGs OxyG

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1825	119047	119064	3064	3081	DES-001499	ACAcattagattgttCTG	ASO-001499	OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAgs DNAas DNAts DNAts DNAgs DNAts DNAts OxyMCs OxyTs OxyG
1825	119047	119064	3064	3081	DES-001717	ACacattagattgttcTG	ASO-001717	OxyAs OxyMCs DNAas DNAcs DNAas DNAts DNAts DNAas DNAgs DNAas DNAts DNAts DNAgs DNAts DNAts DNAcs OxyTs OxyG
1826	119049	119064	3066	3081	DES-001250	ACAcattagattgTTC	ASO-001250	OxyAs OxyMCs OxyAs DNAcs DNAas DNAts DNAts DNAas DNAgs DNAas DNAts DNAts DNAgs OxyTs OxyTs OxyMC
1826	119049	119064	3066	3081	DES-001305	ACACattagattGTTC	ASO-001305	OxyAs OxyMCs OxyAs OxyMCs DNAas DNAts DNAts DNAas DNAgs DNAas DNAts DNAts OxyGs OxyTs OxyTs OxyMC
1827	119057	119074	3074	3091	DES-002748	ATACcaaaccacacATTA	ASO-002748	OxyAs OxyTs OxyAs OxyMCs DNAcs DNAas DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAas DNAcs OxyAs OxyTs OxyTs OxyA
1828	119058	119075	3075	3092	DES-002741	AATAccaaaccacaCATT	ASO-002741	OxyAs OxyAs OxyTs OxyAs DNAcs DNAcs DNAas DNAas DNAas DNAcs DNAcs DNAas DNAcs DNAas OxyMCs OxyAs OxyTs OxyT
1829	119061	119076	3078	3093	DES-002791	GAATaccaaaccACAC	ASO-002791	OxyGs OxyAs OxyAs OxyTs DNAas DNAcs DNAcs DNAas DNAas DNAcs DNAcs OxyAs OxyMCs OxyAs OxyMC
1830	119151	119166	3168	3183	DES-002697	CAAAtagctacaTACT	ASO-002697	OxyMCs OxyAs OxyAs OxyAs DNAts DNAas DNAgs DNAcs DNAts DNAas DNAcs DNAas OxyTs OxyAs OxyMCs OxyT
1831	119156	119175	3173	3192	DES-002502	AtTATgtcacaaataGCtAC	ASO-002502	OxyAs DNAts OxyTs OxyAs OxyTs DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAts DNAas OxyGs OxyMCs DNAts OxyAs OxyMC
1832	119157	119176	3174	3193	DES-002510	TATTatgtcacaaatAGCTA	ASO-002510	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAts OxyAs OxyGs OxyMCs OxyTs OxyA
1832	119157	119176	3174	3193	DES-002513	TATTatgtcacaaatagCTA	ASO-002513	OxyTs OxyAs OxyTs OxyTs DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas DNAts DNAas DNAgs OxyMCs OxyTs OxyA
1833	119158	119175	3175	3192	DES-002505	ATTatgtcacaaatAGCT	ASO-002505	OxyAs OxyTs OxyTs DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAts OxyAs OxyGs OxyMCs OxyT
1834	119158	119177	3175	3194	DES-002516	TTaTTatgtcacaaaTAgCT	ASO-002516	OxyTs OxyTs DNAas OxyTs OxyTs DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas DNAas OxyTs OxyAs DNAgs OxyMCs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1835	119159	119176	3176	3193	DES-002515	TATtatgtcacaaaTAGC	ASO-002515	OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas OxyTs OxyAs OxyGs OxyMC
1836	119159	119178	3176	3195	DES-002519	TTTAttatgtcacaaATAG C	ASO-002519	OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyAs OxyGs OxyMC
1836	119159	119178	3176	3195	DES-002522	TTTattatgtcacaaaTAG C	ASO-002522	OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas DNAas OxyTs OxyAs OxyGs OxyMC
1837	119160	119175	3177	3192	DES-002497	ATTatgtcacaaaTAG	ASO-002497	OxyAs OxyTs OxyTs DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas OxyTs OxyAs OxyG
1838	119160	119179	3177	3196	DES-002506	ATTTATattatgtcacaAAT AG	ASO-002506	OxyAs OxyTs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas OxyAs OxyAs OxyTs OxyAs OxyG
1839	119160	119177	3177	3194	DES-002518	TTAttatgtcacaaATAG	ASO-002518	OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas DNAas OxyAs OxyTs OxyAs OxyG
1840	119161	119178	3178	3195	DES-002498	TTTATTatgtcacAAATA	ASO-002498	OxyTs OxyTs OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs OxyAs OxyAs OxyAs OxyTs OxyA
1841	119161	119176	3178	3193	DES-002501	TATtatgtcacaaATA	ASO-002501	OxyTs OxyAs OxyTs DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs DNAas OxyAs OxyTs OxyA
1840	119161	119178	3178	3195	DES-002521	TTTattatgtcacaAATA	ASO-002521	OxyTs OxyTs OxyTs DNAas DNAts DNAts DNAas DNAgs DNAts DNAcs DNAas DNAcs DNAas OxyAs OxyAs OxyTs OxyA
1842	119162	119179	3179	3196	DES-002509	ATTtattatgtcacAAAT	ASO-002509	OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas DNAcs OxyAs OxyAs OxyAs OxyT
1842	119162	119179	3179	3196	DES-002512	ATTTAttatgtcaCAAAT	ASO-002512	OxyAs OxyTs OxyTs OxyAs DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyAs OxyT
1843	119163	119180	3180	3197	DES-001371	TATttattatgtcaCAAA	ASO-001371	OxyTs OxyAs OxyTs DNAts DNAts DNAas DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyA

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1843	119163	119180	3180	3197	DES-001592	TATTtattatgtcaCAAA	ASO-001592	OxyTs OxyAs OxyTs OxyTs DNAts DNAas DNAts DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas OxyMCs OxyAs OxyAs OxyA
1844	119164	119183	3181	3200	DES-001529	ATatatttattatgtcaCAA	ASO-001529	OxyAs OxyTs DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas OxyMCs OxyAs OxyA
1844	119164	119183	3181	3200	DES-001559	ATATatttattatgtcACAA	ASO-001559	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs DNAts DNAcs OxyAs OxyMCs OxyAs OxyA
1845	119165	119182	3182	3199	DES-001309	TATatttattatgtCACA	ASO-001309	OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs DNAts OxyMCs OxyAs OxyMCs OxyA
1845	119165	119182	3182	3199	DES-001396	TATatttattatgtcaCA	ASO-001396	OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs DNAts DNAcs DNAas OxyMCs OxyA
1846	119166	119183	3183	3200	DES-001629	ATATatttattatgTCAC	ASO-001629	OxyAs OxyTs OxyAs OxyTs DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs OxyTs OxyMCs OxyAs OxyMC
1846	119166	119183	3183	3200	DES-001655	ATAtatttattatgtCAC	ASO-001655	OxyAs OxyTs OxyAs DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs DNAts OxyMCs OxyAs OxyMC
1847	119168	119185	3185	3202	DES-001272	GTAtatatttattatgTC	ASO-001272	OxyGs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAgs OxyTs OxyMC
1847	119168	119185	3185	3202	DES-001316	GTAtatatttattaTGTC	ASO-001316	OxyGs OxyTs OxyAs DNAts DNAas DNAts DNAas DNAts DNAts DNAas DNAts DNAas DNAts DNAas OxyTs OxyGs OxyTs OxyMC
1848			226	241	DES-000902	ACActgtcgtcgaATG	ASO-000902	OxyAs OxyMCs OxyAs DNAcs DNAts DNAgs DNAts DNAmcs DNAgs DNAts DNAmcs DNAgs DNAas OxyAs OxyTs OxyG
1867			230	249	DES-001774	TTtacaccacactgtcgtC G	ASO-001774	OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAgs DNAts DNAcs DNAgs DNAts OxyMCs OxyG
1863			231	250	DES-001318	CTttacaccacactgtcgTC	ASO-001318	OxyMCs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAas DNAas DNAcs DNAas DNAcs DNAts DNAgs DNAts DNAcs DNAgs OxyTs OxyMC

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1865			232	249	DES-001706	TTtacaccacactgtCGT	ASO-001706	OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAgs DNAts OxyMCs OxyGs OxyT
1865			232	249	DES-001736	TTtacaccacactgtcGT	ASO-001736	OxyTs OxyTs DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAgs DNAts DNAcs OxyGs OxyT
1849			233	248	DES-000903	TTAcaccacactgTCG	ASO-000903	OxyTs OxyTs OxyAs DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAgs OxyTs OxyMCs OxyG
1850			234	249	DES-000904	TTTacaccacactGTC	ASO-000904	OxyTs OxyTs OxyTs DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts OxyGs OxyTs OxyMC
1866			234	251	DES-001759	CCtttacaccacactgTC	ASO-001759	OxyMCs OxyMCs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAgs OxyTs OxyMC
1876			235	252	DES-002805	TCCTttacaccacacTGT	ASO-002805	OxyTs OxyMCs OxyMCs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyGs OxyT
1851			376	391	DES-000905	TTGgagcctacatAGA	ASO-000905	OxyTs OxyTs OxyGs DNAgs DNAas DNAgs DNAcs DNAcs DNAts DNAas DNAcs DNAas DNAts OxyAs OxyGs OxyA
1852			416	431	DES-000906	AGccactgttgccaCA	ASO-000906	OxyAs OxyGs DNAcs DNAcs DNAas DNAcs DNAts DNAgs DNAts DNAts DNAgs DNAcs DNAcs DNAas OxyMCs OxyA
1853			417	432	DES-000907	CAgccactgttgccAC	ASO-000907	OxyMCs OxyAs DNAgs DNAcs DNAcs DNAas DNAcs DNAts DNAgs DNAts DNAts DNAgs DNAcs DNAcs OxyAs OxyMC
1854			422	437	DES-000908	CTTctcagccactGTT	ASO-000908	OxyMCs OxyTs OxyTs DNAcs DNAts DNAcs DNAas DNAgs DNAcs DNAcs DNAas DNAcs DNAts OxyGs OxyTs OxyT
1855			561	576	DES-000909	CTTcattcttgcccAA	ASO-000909	OxyMCs OxyTs OxyTs DNAcs DNAas DNAts DNAts DNAcs DNAts DNAts DNAgs DNAcs DNAcs OxyMCs OxyAs OxyA
1856			562	577	DES-000910	TCttcattcttgccCA	ASO-000910	OxyTs OxyMCs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAts DNAgs DNAcs DNAcs OxyMCs OxyA
1857			563	578	DES-000911	TTcttcattcttgcCC	ASO-000911	OxyTs OxyTs DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs DNAts DNAts DNAgs DNAcs OxyMCs OxyMC
1858			566	581	DES-000912	TCCttcttcattcTTG	ASO-000912	OxyTs OxyMCs OxyMCs DNAts DNAts DNAcs DNAts DNAts DNAcs DNAas DNAts DNAts DNAcs OxyTs OxyTs OxyG
1859			641	656	DES-000913	TTCctcagaaggcATT	ASO-000913	OxyTs OxyTs OxyMCs DNAcs DNAts DNAcs DNAas DNAgs DNAas DNAas DNAgs DNAcs DNAcs OxyAs OxyTs OxyT

Figure 1A (cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1		SEQ ID 2 NM_000345.3		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	End	Start	End				
1860			648	663	DES-000914	GAtacccttcctcaGA	ASO-000914	OxyGs OxyAs DNAts DNAas DNAcs DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAcs DNAas OxyGs OxyA
1861			649	664	DES-000915	TGatacccttcctcAG	ASO-000915	OxyTs OxyGs DNAas DNAts DNAas DNAcs DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts DNAcs OxyAs OxyG
1862			650	665	DES-000916	TTGatacccttccTCA	ASO-000916	OxyTs OxyTs OxyGs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs OxyTs OxyMCs OxyA
1862			650	665	DES-001485	TTgatacccttcctCA	ASO-001485	OxyTs OxyTs DNAgs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts OxyMCs OxyA
1862			650	665	DES-001641	TTgatacccttccTCA	ASO-001641	OxyTs OxyTs DNAgs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs OxyTs OxyMCs OxyA
1862			650	665	DES-002821	TTGatacccttcctCA	ASO-002821	OxyTs OxyTs OxyGs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs DNAts OxyMCs OxyA
1864			651	666	DES-001425	CTtgatacccttccTC	ASO-001425	OxyMCs OxyTs DNAts DNAgs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs DNAcs OxyTs OxyMC
1864			651	666	DES-001460	CTtgatacccttcCTC	ASO-001460	OxyMCs OxyTs DNAts DNAgs DNAas DNAts DNAas DNAcs DNAcs DNAts DNAts DNAcs OxyMCs OxyTs OxyMC

Figure 1B

SEQ ID NO.	SEQ ID 3 NM_001146054.1		SEQ ID 5 NM_007308.2		DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
	Start	end	Start	End				
1868			563	578	DES-002705	CTTGatacccttccTT	ASO-002705	OxyMCs OxyTs OxyTs OxyGs DNAas DNAts DNAas DNAcs DNAcs DNAcs DNAts DNAts DNAcs DNAcs OxyTs OxyT
1869	231	248	231	248	DES-002730	TCctttacaccacactGA	ASO-002730	OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAts OxyGs OxyA

Figure 1C

SEQ ID NO.	SEQ ID 4 NM_001146055.1 Start	SEQ ID 4 NM_001146055.1 End	DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
1870	43	62	DES-002742	AAttcctttacaccacaCTC	ASO-002742	OxyAs OxyAs DNAts DNAts DNAcs DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas OxyMCs OxyTs OxyMC
1871	42	61	DES-002756	ATtcctttacaccacacTCT	ASO-002756	OxyAs OxyTs DNAts DNAcs DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyMCs OxyT
1872	43	58	DES-002779	CCTttacaccacacTC	ASO-002779	OxyMCs OxyMCs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyMC
1873	40	57	DES-002789	CTttacaccacactCTTT	ASO-002789	OxyMCs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts OxyMCs OxyTs OxyTs OxyT
1874	38	57	DES-002790	CTttacaccacactctttCA	ASO-002790	OxyMCs OxyTs DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs DNAts DNAcs DNAts DNAts DNAts OxyMCs OxyA
1875	42	59	DES-002804	TCctttacaccacacTCT	ASO-002804	OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyMCs OxyT
1877	43	60	DES-002817	TTCctttacaccacacTC	ASO-002817	OxyTs OxyTs OxyMCs DNAcs DNAts DNAts DNAts DNAas DNAcs DNAas DNAcs DNAcs DNAas DNAcs DNAas DNAcs OxyTs OxyMC

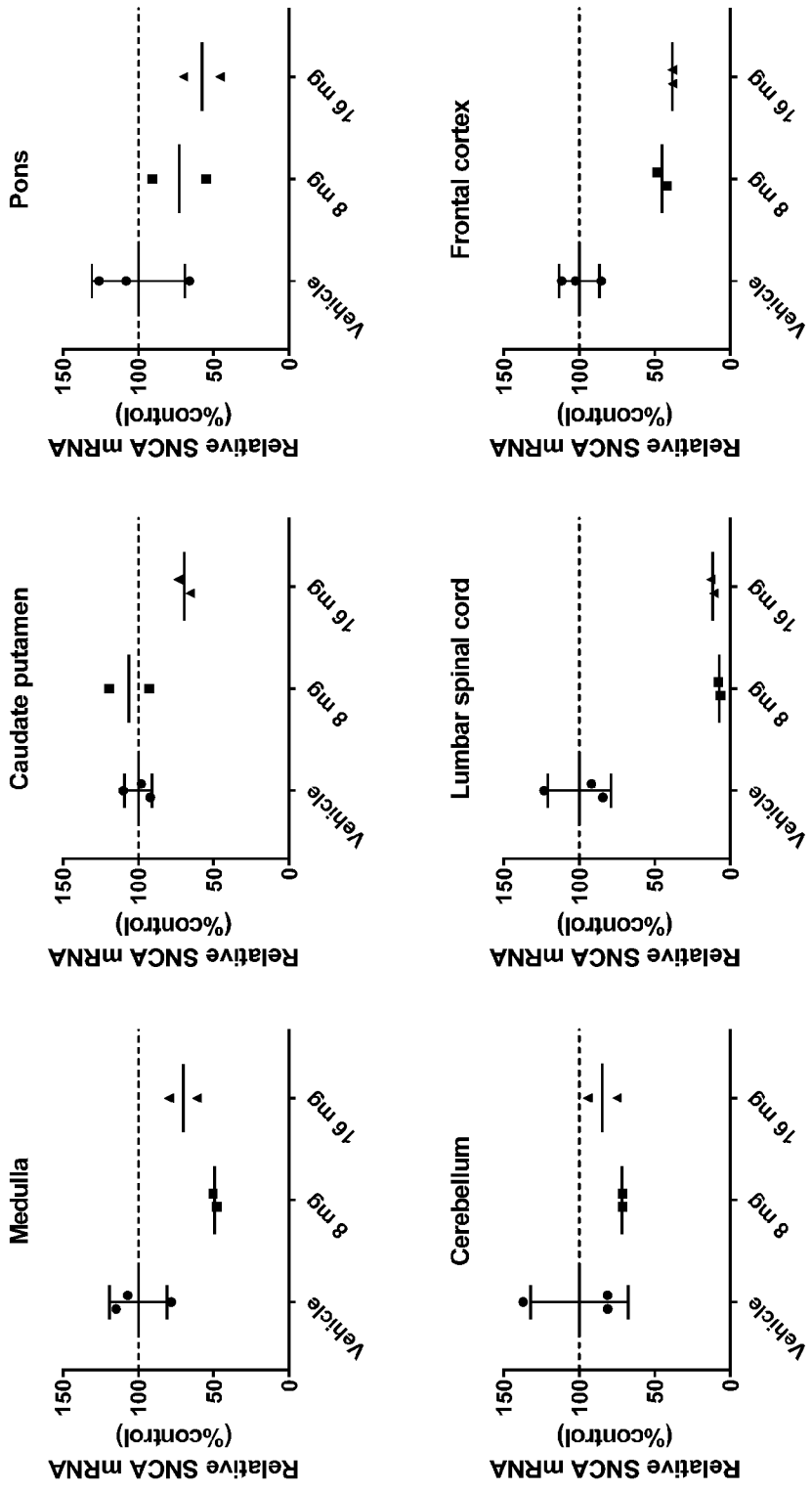
Figure 2

SEQ ID NO.	SEQ ID 1 NG_011851.1 Start	SEQ ID 1 NG_011851.1 End	DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
1467	116997	117015	DES-287033	CaaATCactaacaaCTtCT A design for SEQ ID NO: 1467 OMe1-D2-OMe2-L1-D8-L2-D1-L1-OMe1	ASO-287033	OMecs DNAas DNAas OMeas OMets OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1467	116997	117015	DES-287041	CaaATCactaacaaCTtCT A design for SEQ ID NO: 1467 OMe1-D2-L2-OMe1-D8-OMe1-L1-D1-L1-OMe1	ASO-287041	OMecs DNAas DNAas OxyAs OxyTs OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OMecs OxyTs DNAts OxyMCs OMet
1467	116997	117015	DES-287053	CAAatCactaacaacTTcT A design for SEQ ID NO: 1467 OMe1-L1-OMe1-D2-OMe1-D9-OMe1-L1-D1-OMe1	ASO-287053	OMecs OxyAs OMeas DNAas DNAts OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OMets OxyTs DNAcs OMet

Figure 2 (Cont.)

SEQ ID NO.	SEQ ID 1 NG_011851.1 Start	SEQ ID 1 NG_011851.1 End	DES No.	ASO with Design	ASO No.	ASO with Chemical Structure
1467	116997	117015	DES-287965	CAAATcactaacaacTTCT A design for SEQ ID NO: 1467 OMe3-L2-D10-L2-OMe2	ASO-287965	OMecs OMeas OMeas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OMecs OMet
1467	116997	117015	DES-288902	CAAatCactaacaacTTCT A design for SEQ ID NO: 1467 OMe1-L2-D2-OMe1-D9-OMe1-L2-OMe1	ASO-288902	OMecs OxyAs OxyAs DNAas DNAts OMecs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OMets OxyTs OxyMCs OMet
1467	116997	117015	DES-288903	CAAATCactaacaacTTCT A design for SEQ ID NO: 1467 OMe4-L2-D9-L2-OMe2	ASO-288903	OMecs OMeas OMeas OMeas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas DNAcs OxyTs OxyTs OMecs OMet
1467	116997	117015	DES-288905	CAAATcactaacaaCTTCT A design for SEQ ID NO: 1467 OMe3-L2-D9-OMe2-L2-OMe1	ASO-288905	OMecs OMeas OMeas OxyAs OxyTs DNAcs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OMecs OMets OxyTs OxyMCs OMet
1467	116997	117015	DES-290315	CaaATCactaacaaCTtCT A design for SEQ ID NO: 1467 OMe1-D2-L3-D8-L2-D1-L1-OMe1	ASO-290315	OMecs DNAas DNAas OxyAs OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1467	116997	117015	DES-292378	CaaATCactaacaaCTtCT A design for SEQ ID NO: 1467 OMe1-D2-OMe1-L2-D8-L2-D1-L1-OMe1	ASO-292378	OMecs DNAas DNAas OMeas OxyTs OxyMCs DNAas DNAcs DNAts DNAas DNAas DNAcs DNAas DNAas OxyMCs OxyTs DNAts OxyMCs OMet
1764	118706	118725	DES-286762	CACAtaaatccttaaaTTCA A design for SEQ ID NO: 1764 OMe1-L3-D12-L3-OMe1	ASO-286762	OMecs OxyAs OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OxyMCs OMea
1764	118706	118725	DES-286783	CACAtaaatccttaaaTTCA A design for SEQ ID NO: 1764 OMe2-L2-D12-L2-OMe2	ASO-286783	OMecs OMeas OxyMCs OxyAs DNAts DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas DNAas OxyTs OxyTs OMecs OMea
1764	118706	118725	DES-286785	CACATaaatccttaaATTCA A design for SEQ ID NO: 1764 OMe2-L3-D10-L3-OMe2	ASO-286785	OMecs OMeas OxyMCs OxyAs OxyTs DNAas DNAas DNAas DNAts DNAcs DNAcs DNAts DNAts DNAas DNAas OxyAs OxyTs OxyTs OMecs OMea

Figure 3


Pons
Frontal cortex
Caudate putamen
Lumbar spinal cord
Medulla
Cerebellum
Relative SNCA mRNA (%control)
150
100
50
0
Vehicle
8 mg
16 mg

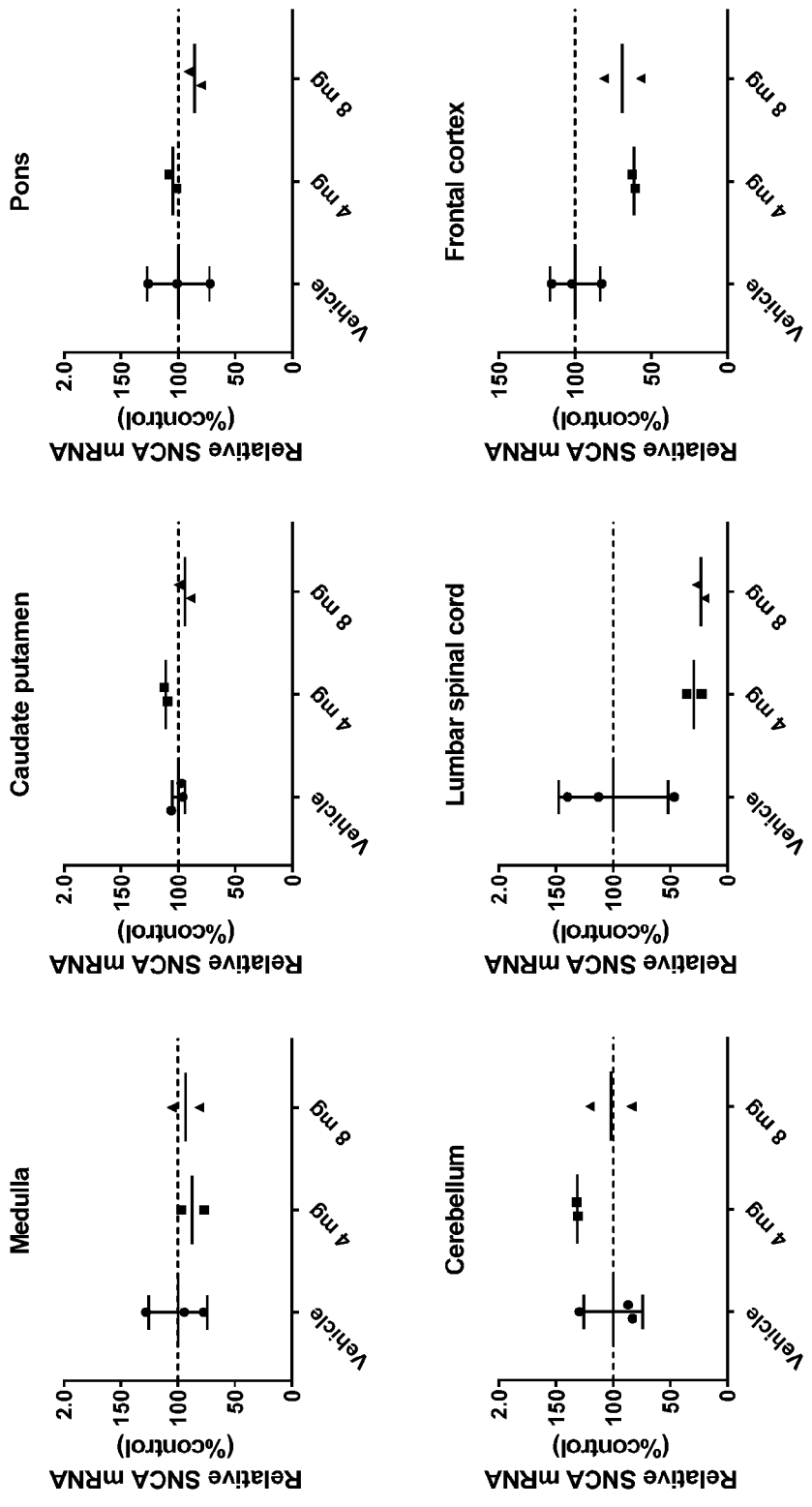

Pons
Frontal cortex
Caudate putamen
Lumbar spinal cord
Medulla
Cerebellum
Relative SNCA mRNA (%control)
2.0
150
100
50
0
Vehicle
4 mg
8 mg

Figure 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/050661

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N15/113 C07K14/47 A61K48/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C12N C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal , WPI Data, BIOSIS, EMBL, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE Geneseq [Online] 7 May 2002 (2002-05-07), "Human neuropeptide Y protein 9 PCR primer 2 SEQ ID NO:4.", XP002792104, retrieved from EBI accession no. GSN:ABA94063 Database accession no. ABA94063 sequence ----- -/--	1-4

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 June 2019	27/06/2019

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Kools, Patrick

2

Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE Geneseq [Online] 27 November 2008 (2008-11-27), "Human TNF targeted mdRNA sense strand, SEQ ID 255.", XP002792105, retrieved from EBI accession no. GSN:ATL95109 Database accession no. ATL95109 sequence	1-4
Y	WO 2012/068405 A2 (ISIS PHARMACEUTICALS INC [US]; BENNETT C FRANK [US]; FREIER SUSAN M [U) 24 May 2012 (2012-05-24) cited in the application whole document, especially page 27, lines 19-21 and page 28, lines 11-12, and claims.	1-27
Y	WO 2016/061263 A1 (IONIS PHARMACEUTICALS INC [US]; COLD SPRING HARBOR LAB [US]) 21 April 2016 (2016-04-21) Whole document, especially the claims.	1-27
Y	US 2005/009088 A1 (CROOKE ROSANNE [US] ET AL) 13 January 2005 (2005-01-13) Whole document, especially the claims.	1-27
A	WO 2012/027713 A2 (ALNYLAM PHARMACEUTICALS INC [US]; HINKLE GREGORY [US]; BUMCROT DAVID [) 1 March 2012 (2012-03-01) cited in the application Whole document, especially the claims.	1-27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2019/050661

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

1-27(partially)

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☒ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-27(partially)

   Antisense oligonucleotide with Seq ID No 276 or 278. Conjugates comprising said antisense molecule. Pharmaceutical composition comprising said antisense molecule or conjugate. Use of the antisense molecule, the conjugate, or pharmaceutical composition for the manufacture of a medicament. Use of the antisense molecule, the conjugate, or pharmaceutical composition for the manufacture of a medicament for the treatment of synucleinopathy. The antisense molecule, the conjugate, or pharmaceutical composition for use in medicine. The antisense molecule, the conjugate, or pharmaceutical composition for use in the treatment of synucleinopathy.

   ---

2. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 295 and 296.

   ---

3. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 325-333.

   ---

4. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 339 and 341.

   ---

5. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 390.

   ---

6. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 522.

   ---

7. claims: 1-27(partially)

   As for subject 1, now for Seq ID No 559.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2019/050661

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012068405 A2	24-05-2012	AU 2011329777 A1	02-05-2013
		AU 2016225852 A1	29-09-2016
		CA 2817960 A1	24-05-2012
		EP 2640853 A2	25-09-2013
		JP 6126009 B2	10-05-2017
		JP 2014501507 A	23-01-2014
		JP 2017079786 A	18-05-2017
		US 2014005252 A1	02-01-2014
		US 2018073022 A1	15-03-2018
		WO 2012068405 A2	24-05-2012
WO 2016061263 A1	21-04-2016	NONE	
US 2005009088 A1	13-01-2005	US 2004214325 A1	28-10-2004
		US 2005009088 A1	13-01-2005
WO 2012027713 A2	01-03-2012	NONE	