METHODS AND COMPOSITIONS OF NUCLEIC ACID LIGANDS FOR DETECTION OF CLINICAL ANALYTES RELATED TO HUMAN HEALTH

Applicant: John Bruno, Boerne, TX (US)

Inventor: John Bruno, Boerne, TX (US)

Assignee: OTC BIOTECHNOLOGIES, LLC, San Antonio, TX (US)

Publication Classification

Int. Cl. C12N 15/115 (2006.01)

U.S. Cl. CPC .................................... C12N 15/115 (2013.01)

USPC .................................................. 536/23.1

ABSTRACT

Specific DNA sequences for binding various clinically relevant analytes from the human body are described. Each of these sequences or their linear, two- and three-dimensional linked sequences can function in varying assay and sensor formats with varying degrees of success. Linkage of the whole or partial DNA sequences (putative binding sites) can be used to enhance specificity and affinity towards complex targets, thereby improving assay selectivity and sensitivity in many instances. In addition, a FRET-based quantitative method is described for normalizing analyte data by assessing urine creatinine and urea levels. Finally, a method is described for removing creatinine or urea by size-exclusion chromatography prior to a FRET-based aptamer assay to avoid the denaturing effects of these compounds.
Antibody Hypervariable Regions Linked Together

Fig. 1A

Multi-Aptamer or Linked Aptamer Binding Pockets

Fig. 1B

Super Multi-Aptamer Consisting of Linked Aptamers or Binding Pockets from Aptamers

Ag = a Complex Antigen Such as a Virus or Cell Surface
Fig. 5
Urea & Creatinine

denature ds DNA

into ss DNA

Denatured ss Aptamer

(F is not Quenched = "Lights On" in Proportion to Concentration of Urea and Creatinine)

Creatinine Aptamer Beacon FRET

Fig. 6A

Fig. 6B
Fig. 7A

CTx Peptide -
Fraction 1 -
Fraction 2 -
Fraction 3 -
Fraction 4 -
Fraction 5 -
Fraction 6 -
Fraction 7 -
Urine Only -

8% SDS-PAGE
(Coomassie Blue)

MW Standards -

- 5 kD

Fig. 7B

Fluorescence Intensity (RFU)

Concentration of CTx (ng/ml)
Forward
VD3 22/47/52/53
A

Reverse
Fig. 8
VD3 14/20
A

B
C
Loop A

VD3 A-1
VD3 A-2
VD3 A-3
VD3 A-4
VD3 A-5
VD3 A-6
VD3 A-7
VD3 A-8
VD3 A-9
VD3 A-10
Zero

50 µg/ml 2-Fold Dilutions

Intensity (a.u.)

Wavelength (nm)

Fig. 9A
LOD = 195 ng/ml

Fig. 9D
**A. Vitamin D Loop C Beacon Cross-Reactivity**

- Background
- H-Pyridineline
- H-Deoxypyridinoline
- Glucosamine
- Glucose
- 25-OH-Vitamin D3
- 1-OH-Vitamin D3
- Vitamin D2

Fluorescence Intensity (RFU)

**Fig. 12A**

**Fig. 12B**
Competitive FRET Vitamin D Loop 3

Trial 1

Fig. 13A

Trial 2

Fig. 13B
Vitamin D3 Competitive FRET

Fig. 14
### Table: Capture Aptamer

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ar-31R</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>H-43R</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>H-49R</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>H-55F</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>H-57R</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td>32</td>
<td>33</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>rH-50F</td>
<td>36</td>
<td>37</td>
<td>38</td>
<td>39</td>
<td>40</td>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>rH-54F</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>48</td>
<td>49</td>
</tr>
</tbody>
</table>

**Fig. 17A**

- Mean ECL Intensity vs Sandwich Assay Combination Number
- Asterisks indicate significant values

**Fig. 17B**
Fig. 18A

hGH Assay Combination 18 Titration in 50% Human Serum

Fig. 18B

hGH Assay Combination 40 Titration in 50% Human Serum

Concentration of hGH (ng/mL)
<table>
<thead>
<tr>
<th>Reporter Aptamer</th>
<th>Capture Aptamer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2F</td>
<td>2F</td>
</tr>
<tr>
<td>6R</td>
<td>6R</td>
</tr>
<tr>
<td>14bF</td>
<td>14bF</td>
</tr>
<tr>
<td>25cF</td>
<td>25cF</td>
</tr>
</tbody>
</table>

Fig. 19A

BNP Sandwich Assay Screen

Fig. 19B
Figure 20A

Concentration of BNP (pg/mL)

Figure 20B
METHODS AND COMPOSITIONS OF NUCLEIC ACID LIGANDS FOR DETECTION OF CLINICAL ANALYTES RELATED TO HUMAN HEALTH

CLAIM OF PRIORITY TO PRIOR APPLICATION

[0001] This application claims the benefit of the filing date of U.S. Provisional Application Ser. No. 61/402,491, filed on Aug. 31, 2010; U.S. Provisional Application Ser. No. 61/463,020, filed on Feb. 10, 2011; and U.S. Non-Provisional application Ser. No. 13/199,484, filed on Aug. 31, 2011, each of which is entitled “Methods and Compositions of Nucleic Acid Ligands for Detection of Clinical Analytes Related to Human Health”, the entire disclosures of which are hereby incorporated by reference into the present disclosure, to include the Sequence Listing(s) previously submitted with the subject applications.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention pertains to the field of aptamer- and nucleic acid ligand (DNA and RNA ligand)-based diagnostics. More specifically, the application relates to single-stranded deoxyribonucleic acid (“DNA”) and ribonucleic acid (“RNA”) ligand sequences, whether individual or linked together to form longer multiple binding site “receptors,” that specifically target and bind to clinically relevant analytes on one or more binding sites or “epitopes” from humans such as cardiovascular biomarkers, bone metabolism markers, glucose, natural or recombinant human growth hormone (“hGH”) or somatotropin and vitamins. The invention includes general DNA ligand or aptamer-based detection and quantitation of these analytes in body fluids such as blood plasma, serum, sputum or saliva, interstitial, synovial, or cerebrospinal fluid aspirates, mucus, and urine or solid biopsy samples.

[0004] 2. Background Information

[0005] These individual or linked DNA ligand (aptamer) sequences represent valuable target analyte-responsive components of diagnostic devices or biosensors. A “biosensor” is defined as any device that employs a biologically-derived molecule as the sensing component and transduces a target analyte binding event into a detectable physical signal (including, but not limited to, changes in light intensity, absorbance, transmittance, refraction (Surface Plasmon Resonance or “SPR”), wavelength, color, agglutination of cells or particles, fluorescence intensity, fluorescence lifetime, fluorescence polarization or anisotropy, fluorescence correlation spectroscopy (“FCS”), fluorescence or Förster resonance energy transfer (“FRET”), nonradiative dipole-dipole coupling of fluorophores or fluorophores and quenchers), upconverting phosphor, two-photon interaction phenomena, Raman spectroscopy or surface-enhanced Raman spectroscopy (“SERS”); electrical conduction, electrical resistance or other electrical properties, mass, photon or radioactive particle emissions, etc.

[0006] Once bonded with the target, these DNA ligand sequences can be used to qualitatively determine the presence of analyte, as well as to quantify or semi-quantify the target analyte amount in a sample using a broad variety of assay types and diagnostic or sensor platforms including, but not limited to, affinity-based lateral flow test strips, membrane blotting, SPR, surface acoustic waveguides (“SAW” devices), magnetic bead (“MB”) based capture, plastic-adherent sandwich assays (“PASA”), chemiluminescence (“CL”), electrochemiluminescence (“ECL”), radioisotopic fluorescence intensity, including quantum dot (“QD”) or other fluorescent nanoparticle (“NFP”) of dye-based, fluorescence lifetime, and fluorescence polarization (“FP”) assays or enzyme-linked (“ELISA-like”) microplate assays. ELISA-like assays refer to microwell or microplate assays similar to traditional Enzyme-Linked Immunosorbent Assays (“ELISA”) in which an aptamer or nucleic acid ligand is substituted for the antibody or receptor component or components, but the other components such as peroxidase or alkaline phosphatase enzymes and color-producing substrates remain the same.

[0007] In addition, these DNA ligand sequences are valuable in competitive displacement assays which are not solely dependent on high affinity (strong attractive forces between a receptor and its ligand) or high avidity (high tensile or physical strength of receptor-ligand bonds) to produce sensitive detection (sub-nanomolar or sub-nanogram levels), because the equilibrium constant (generally Kd = 10^-10 to 10^-16 to enable competition) must allow reasonable displacement of previously bound target materials to detect a change at or below nanogram or nanoMolar levels.

[0008] In a competitive displacement assay, labeled DNA ligand plus labeled analyte complexes compete with unlabeled analyte to bind with the labeled DNA. After allowing the labeled and unlabeled analytes to come to equilibrium with the labeled DNA, the unlabeled target analyte may be quantitatively assayed by fluorescence intensity or other methods. Such assays would include competitive displacement FRET assays or DNA ligand “beacon” FRET assays. In a competitive displacement FRET assay the fluorophore (“F”) and quencher (“Q”) are placed in a putative binding loop or pocket so as to reside within the Förster distance of 60-85 Angstroms to enable quenching.

[0009] In an aptamer beacon assay, the F and Q labels are placed on the 5’ and 3’ ends and binding of the target analyte to the beacon opens the beacon beyond the Förster quenching distance so that F is no longer quenched and emits light generally in proportion to the amount of target analyte introduced into the liquid system. Each of these types of aptamer assays and detection platforms has different applications in either central medical laboratories or in point-of-care (“POC”) sensor devices for use in emergency rooms, intensive care units, cardic care units, or physician’s offices and clinics.

SUMMARY OF THE INVENTION

[0010] The DNA ligand sequences listed herein (Table 9) were derived by iterative cycles of affinity-based selection, washing, heated elution, and polymerase chain reaction (“PCR”) amplification of bound DNA ligands from a randomized library using immobilized target analytes for affinity selection and PCR amplification followed by cloning and Sanger dideoxynucleotide DNA sequencing.

[0011] Sanger dideoxynucleotide sequencing refers to DNA chain termination due to a lack of a 3’ hydroxyl (—OH) group to link incoming bases to during DNA synthesis followed by automated fluorescence reading of the DNA sequence from an electrophoresis gel containing all of the terminated DNA fragments. DNA sequencing may be accomplished by PCR doped with dideoxynucleotides lacking hydroxyl groups at the 2’ and 3’ sugar ring positions and
thereby disallowing chain formation. PCR refers to the enzymatic amplification or copying of DNA molecules with a thermo-stable DNA polymerase such as Thermus aquaticus polymerase (Tag) with known “primer” regions or short oligonucleotides of known sequence that can hybridize to a longer target DNA sequence to enable priming of the chain reaction (exponential doubling of the DNA target copy number with each round of amplification).

A randomized library can be chemically synthesized by linking together the four deoxynucleotide triphosphate bases (adenine; A; cytosine; C; guanine; G; and thymine; T) in equal amounts (25% each), so that a combinatorial oligonucleotide arises with sequence diversity equal to 4 raised to the nth power (4^n) where n is the desired length of the randomized region in bases. In other words, if position 1 in an oligonucleotide is allowed to consist of A, C, G, or T (diversity=4) by equal availability of all 4 bases and these 4 possibilities are multiplied by each base linking to 4 more possible bases at position 2, then this process yields 16 possible 2-base oligonucleotides (i.e., AA, AC, AG, AT, CA, CC, CG, CT, GA, GC, GG, GT, TA, TC, TG, TT) and so on for the entire chosen length (n) of the randomized region. This combinatorial progression displays immense diversity as a function of oligonucleotide chain length. For example, an oligonucleotide decamer of 10 base length could be expected to contain 4^10=1,048,576 unique DNA sequences from which to choose or select one or more DNA sequences that bind a given immobilized target analyte with the strongest affinities.

The randomized oligonucleotide or DNA is designed to be flanked on either side by short primer regions of known and fixed sequences to enable PCR amplification (exponential copying) of the rare sequences that are selected from the random library by binding to the target after the non-binding members of the random library are washed away (not selected).

Additional assays, such as ELISA-like plate assays or fluorescence (e.g., intensity and FRET) assays, may be used to screen or verify the value of particular DNA and RNA ligands or aptamer sequences for detection of a given target analyte in a given assay format or type of biosensor. Some of the sequences operate (bind and transduce the binding signal) more effectively in affinity-based (ELISA-like or fluorescence intensity) assays, while other DNA ligand sequences against the same targets function better in lower affinity competitive or other assays, thereby leading to more sensitive detection with lower limits of detection (sub-nanoMolar or sub-nanogram) and less cross-reactivity or more specificity for the target analyte. “Specificity” or “selectivity” means the ability to selectively exclude molecules similar in structure to the true target analyte that may interfere with the assay and give false indications of detection. All of the listed DNA ligand nucleotide sequences have potential applications in some type of assay format, because they have survived at least 5 rounds of affinity-based selection and enrichment (by PCR amplification), although some of the sequences will undoubtedly perform better in certain assay formats or configurations (in tubes, square cuvettes, membranes, or on biochips) than others.

Combinations of the DNA ligands, whether in whole or in part (i.e., their binding sites of approximately 5-10 or more nucleotides or bases), could be linked together in a linear or 2-dimensional (“2-D”) or 3-dimensional (“3-D”) fashion similar to dendrimers as shown in FIG. 1B to bind multiple epitopes or binding sites on a complex target analyte (Ag or antigen) such as a virus or whole prokaryotic (bacterial) or eukaryotic (animal, fungal or plant) cell surface having numerous spatially separated epitopes of different types. The advantage of linking aptamers or their shorter binding pockets, loops or binding sites is that the nascent linear, 2-D, or 3-D aptamer construct will likely have improved affinity or “avidity” (tensile binding strength) making it more difficult to remove or dissociate from the target antigen. Higher affinity and avidity generally lead to greater assay sensitivity and specificity which are typically desirable traits in many assays.

The linked aptamer complex will be likely to gain specificity as well since the probability of binding to multiple epitopes with any degree of success is multiplicative. Thus, the ability to bind to epitopes A, B, and C equals the product of the probability of binding to A with high affinity times the probability of binding to B with high affinity times the probability of binding to C with high affinity. The product of those three fractional probabilities is clearly much less than the probability of binding to only A, B, or C independently in the absence of binding the other two or any combination of the two epitopes therein in the absence of binding the third. Hence by linking two or more aptamers or their binding regions with or without DNA or other “spacer” regions, the selectivity or specificity of aptamers or DNA ligands can be increased.

This approach to binding site linkage emulates the nature of antibodies which demonstrate linkage of their “hypervariable” (“H”) regions on the antigen combining sites of the immunoglobulin ("lg") light and heavy chains. In the H regions, the variability of the 20 amino acid types is quite high and essentially represents a selection of one combination from a large combinatorial library in the protein realm (similar to down selection of a few candidate antibodies from a large diverse starting library). The trait of H region linkage contributes to Ig affinity, avidity and specificity. Similarly, linking aptamers or aptamer binding sites for various epitopes in one, two or three dimensions will enhance larger aptamer or DNA ligand construct affinity, avidity, and selectivity or specificity as illustrated in FIGS. 1A and 1B.

The present invention provides specific DNA sequence information for nucleic acid ligands (aptamers) or their linked constructs selected from randomized pools to bind clinically important proteins, peptides, hormones, sugars, vitamins, post-translational N-acetylated unnatural amino acids (NAG or O-GlcNAc) modifications of key proteins, etc., in a variety of assay formats and sensor or diagnostic platforms for assessment of human health status. While all of the candidate sequences have been shown to bind their cognate targets, some are shown to function more effectively in affinity-based assays versus fluorescence resonance energy transfer (FRET) or other assay formats that rely more on physical parameters other than affinity such as fluorophore-quencher proximity (i.e., the Förster distance). Therefore, all of the sequences are potentially valuable for simple qualitative detection or quantitative assays, but some may function better in terms of sensitive and specific detection than others in particular assay formats.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A illustrates an antibody, revealing the multiple hypervariable antigen combining of binding sites on both the heavy and light chains.

FIG. 1B illustrates the concept of linking aptamers or their binding sites in a linear fashion (although 2-D and 3-D.
linkages are also possible) to mimic the linkage of multiple hypervariable (HV) regions in antigen combining sites of antibody chains to enhance affinity, avidity, and specificity against complex target antigens (Ag) containing two or more distinct epitopes.

[0021] FIG. 2 represents secondary stem-loop structures of DNA ligands or aptamers (SEQ ID NOs 3 and 4).

[0022] FIGS. 3A-3F show how the aptamer beacons from FIG. 2 behaved as a function of decreasing CTx peptide concentration.

[0023] FIG. 4A illustrates specificity of the 15-base CTx 2R-2h aptamer beacon for the full-length 26-amino acid (AA) version of the CTx peptide.

[0024] FIG. 4B shows the same samples evaluated by a handheld fluorometer that only reports fluorescence peak height, but confirms the level of specificity.

[0025] FIG. 5 shows the relative linearity and sensitivity of the 15-base CTx 2R-2h aptamer beacon assay.

[0026] FIG. 6A illustrates the ability to normalize urine concentration readings with simple aptamer beacon fluorescence readings.

[0027] FIG. 6B shows a quantitative estimation of creatinine and urea levels in urine or serum using the aptamer beacon denaturation approach.

[0028] FIG. 7A illustrates that the 2,942 dalton (26-amino acid) CTx bone peptide can be extracted from urine to avoid the denaturing effects of creatinine and urea on the CTx 2R-2h aptamer beacon assay by use of a desalting size-exclusion polyacrylamide bead column.

[0029] FIG. 7B shows that CTx peptide extracted from human urine by means of a desalting column can still be detected to a level of at least 122 ng/ml by the CTx 2R-2h aptamer beacon.

[0030] FIG. 8 illustrates the secondary stem-loop structures of several aptamers which dominated a sequenced pool of vitamin D3 aptamers (abbreviated VD3 and from the SEQ ID NOs 429-526).

[0031] FIGS. 9A-9D illustrate the FRET responses of loops A, B, and C for the aptamers shown in FIG. 8.

[0032] FIGS. 10A-10C reveal that the VD3 Loop C beacon appears to react equally well with (A) 1-hydroxy-vitamin D2, (B) 1-hydroxy-vitamin D3 and (C) 25-hydroxy-vitamin D3.

[0033] FIG. 11 shows an assessment of the VD3 Loop C beacon.

[0034] FIGS. 12A and 12B summarize assessment of the specificity or cross-reactivity of the VD3 Loop C aptamer beacon versus a variety of potential analytes or interfering species.

[0035] FIGS. 13A and 13B show fluorometric spectra from two separate trials of a competitive displacement FRET assay.

[0036] FIG. 14 shows the same samples from FIG. 13 assessed for fluorescence peak height.

[0037] FIGS. 15A-15D show four examples of aptamers from the pool of aptamers that bind recombinant human growth hormone.

[0038] FIGS. 16A-16D show four more examples of aptamers from the pool of aptamers that bind recombinant human growth hormone.

[0039] FIG. 17A shows an experimental matrix screening scheme for capture aptamer-conjugated magnetic microbeads.

[0040] FIG. 17B shows mean bar heights of three separate measurements.

[0041] FIGS. 18A and 18B give ECL line plots for assay combinations 18 and 40 from the matrix in FIG. 17A.

[0042] FIG. 19A shows an experimental matrix screening scheme for capture aptamer-conjugated magnetic microbeads.

[0043] FIG. 19B shows mean bar heights of three separate measurements.

[0044] FIG. 20A shows the linear ECL response for the sandwich assay of FIG. 19.

[0045] FIG. 20B shows cross-reactivity of the combination number 4 BNP assay versus other peptide or protein analytes that might be found at the 100 ng/ml level in human blood.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0046] There is no single preferred embodiment for use of the DNA aptamer ligand sequences or linked aptamer constructs identified herein. Rather, the sequences are useful to varying extents in a variety of assay formats and sensors or diagnostic devices chosen from at least the following list: lateral flow test strips, Surface Enhanced Raman (SERS), Surface Plasmon Resonance (SPR), Surface Acoustic or Transverse Wave (SAW or STW) detection, electric, electrochemical, colorimetric absorbance, agglutination, ELISA-like or enzyme-linked microplate assays, magnetic bead-based capture assays, ECL, or other chemiluminescence assays, radioisotopic assays and a variety of fluorescence assays including, but not limited to, fluorescence intensity, fluorescence lifetime, fluorescence polarization (FP) and Fluorescence or Förster Resonance Energy Transfer (FRET) assays (both beacon and competitive FRET (Bruno et al., 2010, 2011) in round tubes, square or flat cuvettes, or immobilized on magnetic beads, other types of microbeads, or flat surfaces such as nitrocellulose, nylon, or other membranes or on glass or plastic DNA microarrays or "biochips."

[0047] While there may appear to be considerable variability among sequences that bind the same clinical analytic targets, "epitopes" and their cognate aptamer binding sites are usually quite small (e.g., 5-10 bases) and a single target may contain numerous individual binding sites or epitopes for multiple aptamer binding. In addition, however, there is often a common or consensus sequence (designated herein by slashes between clone numbers in Table 9, e.g., —aptamer clones CTx 2, 13, 19, 20, 25, 32F or R series are identical and only listed once as SEQ ID NO 3 and 4) or common segments of 5-10 or more nucleotides in a row within otherwise different aptamer sequences that can bind a specific target epitope that may dominate the other binding sites by being more physically accessible or having stronger electrostatic, hydrogen bonding, or other attractive forces (summation of van der Waals or other weak forces). Variations in nucleotide sequences around these consensus segments or common binding sequence segments may serve to modulate the binding segment's affinity or specificity or may have no effect at all. These properties must be determined by empirical comparisons.

DNA Ligand (Aptamer) Selection and Generation

[0048] General methods for developing DNA ligands or aptamers to the immobilized proteins, peptides, or small molecules (defined as less than 1,000 daltons) are as follows. The protein, peptide or amino-derivative of the small molecule (such as glucosamine in the case of D-glucose or dextrose) is
then added to 2×10^6 tosyl-coated magnetic beads (MBs; e.g., Dynal brand from Invitrogen Corp., Carlsbad, Calif., 2.8 micron size) for 2 hours at 37°C. The tosyl group is a “leaving” group that allows the formation of a very stable covalent bond between primary amine groups in the target protein, peptide or amino-derivatized small molecule and therefore immobilizes the target on the surfaces of the MBs so that they can be used to probe the randomized DNA library for DNA ligands. Target molecule-conjugated MBs (or target-MBs) are collected for 2 minutes in a magnetic collection device using an external magnet and the supernate is carefully withdrawn with a pipette tip. Target-MBs are then resuspended by vortexing briefly in 1× Binding Buffer (1×BB; 0.5M NaCl, 10 mM Tris-HCl, and 1 mM MgCl₂, pH 7.5-7.6), and washed by agitation for 5 minutes. MBs are collected and washed three times in this manner and then resuspended in 1 ml of 1×BB.

MB-based DNA ligand or aptamer development is then performed using a template library sequence such as: CTGCAGTCTACACCTCTCT-N_12-TGGTGTGGCTC- CCGTAT-3’, where N_12 represents the randomized 36-base region of the DNA library (maximal sequence diversity: 4^36 in theory). Primer sequences are: 5’-ATACGGGGACCAACAACCA-3’ (designated forward) and 5’-ATCCGGTAGCCACCATCTGCTCTT-3’ (designated reverse) to prime the template and nascent strands for PCR, respectively. The random library is reconstituted in 500 μl of sterile nucleic-free water and heated to 95°C for 5 minutes to ensure that the DNA library is completely single-stranded and linear. The hot DNA library solution is added to 100 μl of target-MBs (2×10^6 beads) with 600 μl of sterile 2× Binding Buffer (2×BB). The DNA library and target-MB suspension (1.2 ml) is mixed at room temperature (RT, approximately 25°C) for 1 hour. Target-MBs with any bound DNA (round 1 aptamers) are magnetically collected. The DNA-target-MB complexes are washed three times in 400 μl of sterile 1×BB. Following the third wash, the DNA-target-MB pellet (about 75 μl) is used in a PCR reaction to amplify the bound DNA as follows. The MB pellet is split into 15 μl aliquots and added to five pre-made PCR tubes which contain most of the nonproductive ingredients of a PCR reaction beneath a wax seal. A total of 3 μl of 1:10 primer mix (10% forward primer plus 10% reverse primer) in nuclease-free deionized water or ~20 nanomoles of each primer per μl plus 1 μl (5 U) of Taq DNA polymerase and 5 μl of 2 mM MgCl₂ are added to each of the five PCR tubes. Reactions are supplemented with 0.5 μl of E. coli single-strand binding protein (SSBP, Stratagene Inc., La Jolla, Calif.) to inhibit high molecular weight concatamerizer (end to end aggregates of the DNA ligands) formation. PCR is carried out as follows: an initial 95°C, phase for 5 minutes, followed by 20 cycles of 1 minute at 95°C, 1 minute at 53°C, and 1 minute at 72°C, followed by a 72°C completion stage for 7 minute, and refrigeration at 4°C. This constitutes the first of multiple rounds of MB-aptamer development. Iterations of the MB-aptamer development process are repeated until the desired affinity or assay sensitivity and specificity are achieved. Typically, 5-10 rounds of the MB-aptamer development process are required to achieve low ng/ml detection of target analytes. To begin the second round and all subsequent rounds, 4 complete tubes of the 5 original PCR tubes are heated to 95°C, for 5 minutes to release bound DNA from the target-MBs. The fifth tube is always retained and refrigerated as a back-up for that round of the aptamer generation process. All available DNA (25 μl per tube) is spined out of the hot tubes without removing the target-MBs before the tubes cool significantly and the DNA is pooled. The 100 μl of hot DNA is added to 100 μl of fresh target-MBs in 200 μl of 2×BB and allowed to mix for 1 hr at RT. Thereafter, the selection and amplification process are repeated for 3-8 more rounds with checking for 72 hp aptamer PCR products by ethidium bromide-stained 2% agarose electrophoresis after each round. Following the last round of aptamer development, aptamers are cloned into chemically competent E. coli using a cloning kit from Invitrogen Corp. (Middleton, Wis.) and clones are sent to Sequetech, Inc. (Mountain View, Calif.) for DNA sequencing.

Screening of Aptamers for Highest Affinity, Lowest Cross-Reactivity and to Determine Lower Limit of Detection by Target Titration in ELISA-Like Plate Assay (“ELASA”)  
[0050] To evaluate, screen, and rank aptamers based on affinity against clinically relevant targets, an enzyme-linked plate assay is conducted by first immobilizing 100 μl of 1:10 diluted target (about 0.1 mg of total protein, peptide or small molecule) in 0.1M NaHCO₃ (pH 8.5) overnight at 4°C in a covered polystyrene 96-well plate. The plate is decanted and washed three times in 250 μl of 1×BB. Each of the different 5’-biotinylated aptamers raised against the target is dissolved in 1×BB at 1.00 n mole to 4.50 n moles per 100 microliters and applied to their corresponding plate wells for 1 hour at room temperature (RT, ~25°C) with gentle mixing on an orbital shaker. The plate is decanted and washed three times in 250 μl of 1×BB for at least 5 minutes per wash with gentle mixing. One hundred μl of a 1:2,000 dilution of streptavidin-peroxidase from a 5 mg/ml stock solution in 1×BB is added per well for 30 minutes at RT with gentle mixing. The plate is then washed with 250 μl of 1×BB per well as before. One hundred μl of ABTS (2,2’-azino-bis(3-ethylbenzthiazoline-6-sulphonic acid) substrate with stabilized hydrogen peroxide (Kirkegaard Perry Laboratories, Inc., Gaithersburg, Md.) is added per well for 10 minute at RT. Finally absorbance is quantified using a microplate reader with 405 nm optical filter.

[0051] As Tables 1-8 illustrate for several cardiovascular biomarker targets (Brain Natriuretic Peptide; BNP; D-Dimer; DD, Creatine Kinase-MB types 1 and II; MB1 and MB2, Interleukin-18; IL18, and Tropinin-T; Tn pro all at (1 pg/ml) the initial ELASA screening is useful for ranking the relative affinity of aptamers for their respective targets by simple ranking of absorbance values at 405 nm from highest to lowest. Each of the Tables (1-8) illustrates general consistency between ELASA trials as well (i.e., the highest affinity aptamers consistently rank among the highest absorbance values between ELASA trials or plates 1-4 maximally).

<table>
<thead>
<tr>
<th>Well</th>
<th>Aptamer</th>
<th>A405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A12</td>
<td>BNP - 6R</td>
<td>2.766</td>
</tr>
<tr>
<td>C1</td>
<td>BNP - 14F</td>
<td>2.283</td>
</tr>
<tr>
<td>A3</td>
<td>BNP - 2F</td>
<td>2.276</td>
</tr>
<tr>
<td>B1</td>
<td>BNP - 7F</td>
<td>2.227</td>
</tr>
<tr>
<td>E3</td>
<td>BNP - 25f</td>
<td>2.215</td>
</tr>
<tr>
<td>A1</td>
<td>BNP - 1F</td>
<td>2.184</td>
</tr>
<tr>
<td>B4</td>
<td>BNP - 8R</td>
<td>2.176</td>
</tr>
<tr>
<td>A8</td>
<td>BNP - 49R</td>
<td>2.163</td>
</tr>
</tbody>
</table>
### TABLE 1
DNA Ligand ELASA Rankings for Brain Natriuretic Peptide (BNP)

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3</td>
<td>BNP - 15af</td>
<td>2.162</td>
</tr>
<tr>
<td>D4</td>
<td>BNP - 21bR</td>
<td>2.149</td>
</tr>
</tbody>
</table>

**Plate 2**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A12</td>
<td>BNP - 6R</td>
<td>2.171</td>
</tr>
<tr>
<td>A3</td>
<td>BNP - 2F</td>
<td>2.110</td>
</tr>
<tr>
<td>C1</td>
<td>BNP - 14bf</td>
<td>2.089</td>
</tr>
<tr>
<td>A8</td>
<td>BNP - 49R</td>
<td>1.989</td>
</tr>
<tr>
<td>A1</td>
<td>BNP - 1F</td>
<td>1.987</td>
</tr>
<tr>
<td>B9</td>
<td>BNP - 131f</td>
<td>1.986</td>
</tr>
<tr>
<td>A9</td>
<td>BNP - 5/11/15b/19/25bF</td>
<td>1.977</td>
</tr>
<tr>
<td>C2</td>
<td>BNP - 140R</td>
<td>1.971</td>
</tr>
<tr>
<td>D9</td>
<td>BNP - 23bf</td>
<td>1.963</td>
</tr>
<tr>
<td>B4</td>
<td>BNP - 8R</td>
<td>1.953</td>
</tr>
</tbody>
</table>

**Plate 3**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A12</td>
<td>BNP - 6R</td>
<td>2.285</td>
</tr>
<tr>
<td>D3</td>
<td>BNP - 22f</td>
<td>2.272</td>
</tr>
<tr>
<td>E3</td>
<td>BNP - 25ef</td>
<td>2.240</td>
</tr>
<tr>
<td>D4</td>
<td>BNP - 21bR</td>
<td>2.212</td>
</tr>
<tr>
<td>C1</td>
<td>BNP - 14bf</td>
<td>2.206</td>
</tr>
<tr>
<td>B4</td>
<td>BNP - 8R</td>
<td>2.197</td>
</tr>
<tr>
<td>A9</td>
<td>BNP - 5/11/15b/19/25bF</td>
<td>2.196</td>
</tr>
<tr>
<td>A3</td>
<td>BNP - 2F</td>
<td>2.176</td>
</tr>
<tr>
<td>C3</td>
<td>BNP - 15af</td>
<td>2.165</td>
</tr>
<tr>
<td>B5</td>
<td>BNP - 10ef (70)</td>
<td>2.157</td>
</tr>
</tbody>
</table>

### TABLE 2
DNA Ligand ELASA Rankings for D-Dimer (DD)

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A10</td>
<td>DD - 5R</td>
<td>1.888</td>
</tr>
<tr>
<td>B10</td>
<td>DD - 12R</td>
<td>1.427</td>
</tr>
<tr>
<td>C7</td>
<td>DD - 17F (71)</td>
<td>1.261</td>
</tr>
<tr>
<td>B8</td>
<td>DD - 11R (71)</td>
<td>1.122</td>
</tr>
<tr>
<td>B12</td>
<td>DD - 13R (71)</td>
<td>1.088</td>
</tr>
<tr>
<td>B1</td>
<td>DD - 7F (71)</td>
<td>1.027</td>
</tr>
<tr>
<td>B7</td>
<td>DD - 11F (71)</td>
<td>1.021</td>
</tr>
<tr>
<td>B2</td>
<td>DD - 7R (71)</td>
<td>1.017</td>
</tr>
<tr>
<td>A12</td>
<td>DD - 6R (71)</td>
<td>0.989</td>
</tr>
<tr>
<td>B2</td>
<td>DD - 20R (71)</td>
<td>0.952</td>
</tr>
</tbody>
</table>

**Plate 2**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>A10</td>
<td>DD - 5R</td>
<td>1.899</td>
</tr>
<tr>
<td>A4</td>
<td>DD - 2R (71)</td>
<td>1.620</td>
</tr>
<tr>
<td>C7</td>
<td>DD - 17F (71)</td>
<td>1.237</td>
</tr>
<tr>
<td>B10</td>
<td>DD - 12R</td>
<td>1.213</td>
</tr>
<tr>
<td>A12</td>
<td>DD - 6R (71)</td>
<td>1.065</td>
</tr>
<tr>
<td>B7</td>
<td>DD - 11F (71)</td>
<td>1.003</td>
</tr>
<tr>
<td>B8</td>
<td>DD - 11R (71)</td>
<td>0.986</td>
</tr>
<tr>
<td>B1</td>
<td>DD - 7F (71)</td>
<td>0.964</td>
</tr>
<tr>
<td>C11</td>
<td>DD - 20F (71)</td>
<td>0.932</td>
</tr>
<tr>
<td>B6</td>
<td>DD - 10R (71)</td>
<td>0.930</td>
</tr>
</tbody>
</table>

### TABLE 3
DNA Ligand ELASA Rankings for Creatine Kinase-MB Type 1 (MB1)

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>MB1 - 20F</td>
<td>2.917</td>
</tr>
<tr>
<td>D2</td>
<td>MB1 - 1/4/5/8/9/17R (71)</td>
<td>2.725</td>
</tr>
<tr>
<td>D6</td>
<td>MB1 - 3R (70)</td>
<td>2.668</td>
</tr>
<tr>
<td>E10</td>
<td>MB1 - 16R</td>
<td>2.665</td>
</tr>
<tr>
<td>E1</td>
<td>MB1 - 11F</td>
<td>2.658</td>
</tr>
<tr>
<td>E3</td>
<td>MB1 - 11R</td>
<td>2.651</td>
</tr>
<tr>
<td>E11</td>
<td>MB1 - 19R (69)</td>
<td>2.580</td>
</tr>
<tr>
<td>E7</td>
<td>MB1 - 15F</td>
<td>2.578</td>
</tr>
<tr>
<td>D1</td>
<td>MB1 - 1/4/5/8/9/17F (71)</td>
<td>2.556</td>
</tr>
<tr>
<td>D4</td>
<td>MB1 - 2R (71)</td>
<td>2.522</td>
</tr>
</tbody>
</table>

**Plate 1**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>MB1 - 20F</td>
<td>2.692</td>
</tr>
<tr>
<td>D2</td>
<td>MB1 - 1/4/5/8/9/17R (71)</td>
<td>2.680</td>
</tr>
<tr>
<td>D6</td>
<td>MB1 - 3R (70)</td>
<td>2.647</td>
</tr>
<tr>
<td>E1</td>
<td>MB1 - 11F</td>
<td>2.612</td>
</tr>
<tr>
<td>E10</td>
<td>MB1 - 16R</td>
<td>2.612</td>
</tr>
<tr>
<td>D3</td>
<td>MB1 - 2F (71)</td>
<td>2.511</td>
</tr>
<tr>
<td>E2</td>
<td>MB1 - 11R</td>
<td>2.499</td>
</tr>
<tr>
<td>D1</td>
<td>MB1 - 1/4/5/8/9/17F (71)</td>
<td>2.497</td>
</tr>
<tr>
<td>F2</td>
<td>MB1 - 20R</td>
<td>2.424</td>
</tr>
<tr>
<td>D4</td>
<td>MB1 - 2R (71)</td>
<td>2.419</td>
</tr>
</tbody>
</table>

**Plate 3**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>MB1 - 20F</td>
<td>1.863</td>
</tr>
<tr>
<td>D2</td>
<td>MB1 - 1/4/5/8/9/17R (71)</td>
<td>1.858</td>
</tr>
<tr>
<td>D3</td>
<td>MB1 - 2F (71)</td>
<td>1.808</td>
</tr>
<tr>
<td>E3</td>
<td>MB1 - 12F (70)</td>
<td>1.753</td>
</tr>
<tr>
<td>E2</td>
<td>MB1 - 11R</td>
<td>1.716</td>
</tr>
<tr>
<td>E5</td>
<td>MB1 - 14/18F</td>
<td>1.692</td>
</tr>
<tr>
<td>D4</td>
<td>MB1 - 2R (71)</td>
<td>1.663</td>
</tr>
<tr>
<td>E4</td>
<td>MB1 - 12R (70)</td>
<td>1.642</td>
</tr>
<tr>
<td>E1</td>
<td>MB1 - 11F</td>
<td>1.640</td>
</tr>
<tr>
<td>F2</td>
<td>MB1 - 20R</td>
<td>1.619</td>
</tr>
</tbody>
</table>

**Plate 4**

<table>
<thead>
<tr>
<th>Well</th>
<th>APTamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>MB1 - 20F</td>
<td>1.948</td>
</tr>
<tr>
<td>D3</td>
<td>MB1 - 2F (71)</td>
<td>1.823</td>
</tr>
<tr>
<td>D6</td>
<td>MB1 - 3R (70)</td>
<td>1.746</td>
</tr>
<tr>
<td>D2</td>
<td>MB1 - 1/4/5/8/9/17R (71)</td>
<td>1.744</td>
</tr>
<tr>
<td>F2</td>
<td>MB1 - 20R</td>
<td>1.742</td>
</tr>
<tr>
<td>D1</td>
<td>MB1 - 1/4/5/8/9/17F (71)</td>
<td>1.733</td>
</tr>
<tr>
<td>E2</td>
<td>MB1 - 11R</td>
<td>1.659</td>
</tr>
<tr>
<td>E3</td>
<td>MB1 - 12F (70)</td>
<td>1.647</td>
</tr>
<tr>
<td>D5</td>
<td>MB1 - 3F (70)</td>
<td>1.629</td>
</tr>
<tr>
<td>D4</td>
<td>MB1 - 2R (71)</td>
<td>1.607</td>
</tr>
</tbody>
</table>
### Table 4

DNA Ligand ELASA Rankings for Creatine Kinase-MB Type II (MBII)

<table>
<thead>
<tr>
<th>Well</th>
<th>Aptamer</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>MBII - 6/8F</td>
<td>2.206</td>
</tr>
<tr>
<td>G12</td>
<td>MBII - 12R (71)</td>
<td>2.191</td>
</tr>
<tr>
<td>F12</td>
<td>MBII - 5R</td>
<td>2.173</td>
</tr>
<tr>
<td>H6</td>
<td>MBII - 14R</td>
<td>1.989</td>
</tr>
<tr>
<td>G4</td>
<td>MBII - 7R</td>
<td>1.910</td>
</tr>
<tr>
<td>H7</td>
<td>MBII - 15F (71)</td>
<td>1.838</td>
</tr>
<tr>
<td>G11</td>
<td>MBII - 12F (71)</td>
<td>1.827</td>
</tr>
<tr>
<td>H5</td>
<td>MBII - 14F</td>
<td>1.794</td>
</tr>
<tr>
<td>F10</td>
<td>MBII - 4R (71)</td>
<td>1.731</td>
</tr>
<tr>
<td>G9</td>
<td>MBII - 11F</td>
<td>1.732</td>
</tr>
</tbody>
</table>

**Plate 2**

| G1   | MBII - 6/8F | 2.120 |
| G4   | MBII - 7R   | 1.931 |
| G12  | MBII - 12R (71) | 1.850 |
| H5   | MBII - 14F  | 1.688 |
| F7   | MBII - 3F (71) | 1.682 |
| G5   | MBII - 9F   | 1.675 |
| G11  | MBII - 12F (71) | 1.640 |
| H7   | MBII - 15F (71) | 1.611 |
| F12  | MBII - 5R   | 1.588 |
| F9   | MBII - 4F (71) | 1.586 |

### Table 5-continued

DNA Ligand ELASA Rankings for Interleukin-18 (IL18)

<table>
<thead>
<tr>
<th>Aptamer</th>
<th>Well</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IL18 - 29F</td>
<td>D1</td>
<td>1.433</td>
</tr>
<tr>
<td>IL18 - 10F</td>
<td>A7</td>
<td>1.393</td>
</tr>
<tr>
<td>IL18 - 22R</td>
<td>C4</td>
<td>1.373</td>
</tr>
<tr>
<td>IL18 - 21R</td>
<td>C2</td>
<td>1.367</td>
</tr>
<tr>
<td>IL18 - 21F</td>
<td>C1</td>
<td>1.270</td>
</tr>
<tr>
<td>IL18 - 29R</td>
<td>D2</td>
<td>1.219</td>
</tr>
<tr>
<td>IL18 - 3F</td>
<td>A3</td>
<td>1.217</td>
</tr>
<tr>
<td>IL18 - 15R</td>
<td>B6</td>
<td>1.209</td>
</tr>
<tr>
<td>IL18 - 22F</td>
<td>C3</td>
<td>1.204</td>
</tr>
</tbody>
</table>

**Plate 2**

| IL18 - 22R | C4 | 1.738 |
| IL18 - 21R | C2 | 1.697 |
| IL18 - 10F | B1 | 1.673 |
| IL18 - 29F | D1 | 1.655 |
| IL18 - 5F | A7 | 1.596 |
| IL18 - 22F | C3 | 1.594 |
| IL18 - 26F (71) | C7 | 1.553 |
| IL18 - 21F | C1 | 1.534 |
| IL18 - 29R | D2 | 1.528 |
| IL18 - 30F (71) | D3 | 1.525 |

**Plate 3**

| IL18 - 29F | D1 | 1.288 |
| IL18 - 21R | C2 | 1.202 |
| IL18 - 22R | C4 | 0.993 |
| IL18 - 10F | B1 | 0.917 |
| IL18 - 26F (71) | C7 | 0.886 |
| IL18 - 22F | C3 | 0.855 |
| IL18 - 2F | A1 | 0.844 |
| IL18 - 29R | D2 | 0.795 |
| IL18 - 5F | A7 | 0.791 |
| IL18 - 4R | A6 | 0.785 |

### Table 6

DNA Ligand ELASA Rankings for Troponin-T (Tnp)

<table>
<thead>
<tr>
<th>Aptamer</th>
<th>Well</th>
<th>A 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tnp - 20F (71)</td>
<td>H3</td>
<td>2.325</td>
</tr>
<tr>
<td>Tnp - 12R (71)</td>
<td>G2</td>
<td>2.070</td>
</tr>
<tr>
<td>Tnp - 4F (71)</td>
<td>F3</td>
<td>2.030</td>
</tr>
<tr>
<td>Tnp - 18F</td>
<td>H1</td>
<td>1.986</td>
</tr>
<tr>
<td>Tnp - 18R</td>
<td>H2</td>
<td>1.971</td>
</tr>
<tr>
<td>Tnp - 7F (71)</td>
<td>F3</td>
<td>2.298</td>
</tr>
<tr>
<td>Tnp - 12F (71)</td>
<td>G1</td>
<td>2.252</td>
</tr>
<tr>
<td>Tnp - 4R (71)</td>
<td>E1</td>
<td>1.871</td>
</tr>
<tr>
<td>Tnp - 6F (71)</td>
<td>F1</td>
<td>1.915</td>
</tr>
</tbody>
</table>

**Plate 2**

| Tnp - 20F (71) | H3 | 2.462 |
| Tnp - 20R (71) | H4 | 2.479 |
| Tnp - 1F (71) | E1 | 2.374 |
| Tnp - 12R (71) | G2 | 2.357 |
| Tnp - 6R (71) | F2 | 2.342 |
| Tnp - 18R | H2 | 2.304 |
| Tnp - 7F (71) | F3 | 2.595 |
| Tnp - 12F (71) | G1 | 2.252 |
| Tnp - 1R (71) | E2 | 2.249 |
| Tnp - 6F (71) | F1 | 2.195 |

**Plate 3**

| Tnp - 20F (71) | H3 | 2.482 |
| Tnp - 20R (71) | H4 | 2.249 |
| Tnp - 16R (71) | G10 | 1.854 |
| Tnp - 6F (71) | G9 | 1.811 |
| Tnp - 6R (71) | F2 | 1.656 |
| Tnp - 7F (71) | F3 | 1.599 |
| Tnp - 15R (71) | G8 | 1.535 |
| Tnp - 9R | F8 | 1.517 |
| Tnp - 1F (71) | E1 | 1.487 |
| Tnp - 46R (71) | E10 | 1.477 |

**Plate 4**

| Tnp - 20F (71) | H3 | 2.507 |
| Tnp - 20R (71) | H4 | 2.259 |
| Tnp - 16F (71) | G9 | 1.525 |
| Tnp - 6R (71) | F2 | 1.514 |
| Tnp - 16R (71) | G10 | 1.507 |
| Tnp - 18F | H1 | 1.396 |
| Tnp - 11F (71) | F11 | 1.386 |
| Tnp - 46R (71) | E10 | 1.350 |
| Tnp - 1F (71) | E1 | 1.318 |
| Tnp - 7F (71) | F3 | 1.264 |
TABLE 7 DNA Ligand ELASA Rankings for C-Reactive Protein (CRP)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Aptamer</th>
<th>Abs 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CRP-5R</td>
<td>2.332</td>
</tr>
<tr>
<td>2</td>
<td>CRP-10R</td>
<td>2.27</td>
</tr>
<tr>
<td>3</td>
<td>CRP-2R</td>
<td>2.210</td>
</tr>
<tr>
<td>4</td>
<td>CRP-11R</td>
<td>2.173</td>
</tr>
<tr>
<td>5</td>
<td>CRP-17R</td>
<td>2.165</td>
</tr>
<tr>
<td>6</td>
<td>CRP-23F</td>
<td>2.139</td>
</tr>
<tr>
<td>7</td>
<td>CRP-10F</td>
<td>2.100</td>
</tr>
<tr>
<td>8</td>
<td>CRP-2F</td>
<td>2.072</td>
</tr>
<tr>
<td>9</td>
<td>CRP-9R</td>
<td>2.066</td>
</tr>
<tr>
<td>10</td>
<td>CRP-9F</td>
<td>2.055</td>
</tr>
</tbody>
</table>

TABLE 8 DNA Ligand ELASA Rankings for Myoglobin (Myo)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Aptamer</th>
<th>Abs 405 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Myo-3R/4R</td>
<td>2.395</td>
</tr>
<tr>
<td>2</td>
<td>Myo-22F</td>
<td>2.237</td>
</tr>
<tr>
<td>3</td>
<td>Myo-15F</td>
<td>2.294</td>
</tr>
<tr>
<td>4</td>
<td>Myo-3F/6F</td>
<td>2.233</td>
</tr>
<tr>
<td>5</td>
<td>Myo-5R</td>
<td>2.294</td>
</tr>
<tr>
<td>6</td>
<td>Myo-24F</td>
<td>2.272</td>
</tr>
<tr>
<td>7</td>
<td>Myo</td>
<td>2.250</td>
</tr>
<tr>
<td>8</td>
<td>Myo-15R</td>
<td>2.269</td>
</tr>
<tr>
<td>9</td>
<td>Myo-28F</td>
<td>2.264</td>
</tr>
<tr>
<td>10</td>
<td>Myo-8F</td>
<td>2.250</td>
</tr>
</tbody>
</table>

Aptamer Beacons and Competitive FRET-Aptamer Assays

Once key aptamers have been identified by the commonality of their sequences or their secondary stem-loop structures, the assay developer decides upon secondary structure loops (potential binding pockets) to label with a fluorophore (F) or quencher (Q) as illustrated by dotted lines that define the borders or limits of potential binding loops in FIGS. 2 and 8. Secondary stem-loop structures are easily generated by Gibbs free energy minimization with common software such as M-fold and Vienna RNA (using DNA parameters) that is freely available for public use. The researcher or inventor simply enters the DNA sequence and selects a temperature and secondary stem-loop structures like those shown in FIG. 2 are generated. At this point, one can empirically assess candidate aptamer “beacon” potential in FRET analyte titration experiments such as those shown in FIGS. 3A-3F. The suspected short aptamer beacon loop is re-synthesized independent of the original larger parent aptamer sequence with a fluorophore (F) such as TYLE 665 attached to the 5' end and a matched quencher (Q) such as Iowa Black attached to the 3' end (or vice versa), purified by HPLC or other form of chromatography and assessed for fluorescence output or intensity as a function of different levels of the target analyte (e.g., FIGS. 3A-3F and FIGS. 9A-9D). The greatest separation of fluorescence peak values or spectral emissions (e.g., FIGS. 3A-3F and FIGS. 9A-9D) is used to define the optimal beacon since separation of fluorescence values as a function of analyte concentration is essentially the definition of a good quality fluorescent assay.

Alternatively, one may label the suspected binding loops internally and place an F or a Q somewhere in the mid-section of the suspected loop other than the 3' or 5' end (i.e., intrachain FRET). Attachment of F or Q is usually accomplished via succinimide linkage of F- or Q-succinimides to amino-modified aptamers at specifically chosen locations in the binding pockets. Primary amine linker moieties such as the “Unilink™” can be added internally at the time of chemical synthesis of aptamers. Typically 1 mg or more of an aptamer sequence is synthesized with a primary amine linker moiety (Unilink™) located at the approximate center of each loop structure (suspected binding pockets). Each of these internally amine-labeled aptamers is then labeled with 100 μl (0.1 mg) of F-succinimide (or alternatively Q-succinimide) for 2 hours in a 37°C incubator, followed by purification through a 1×BB-equilibrated PD-10 (Sephadex G-25; GE Healthcare) column. In the meantime, an equal molar amount of primary amine-modified target molecule is labeled with 0.1 mg of spectrally matched Q-succinimide (to accept photons from F) at 37°C for 2 hours and then washed three times by centrifugation at 14,000 rpm for 10 minutes per wash and resuspension in 1 ml of 1×BB. “Spectrally matched” means that most of the wavelengths of light emitted by F can be effectively absorbed by Q because its absorbance spectrum largely overlaps the emission spectrum of F. Naturally, if the aptamer is labeled with a Q-succinimide in the alternate form of the assay, the amine-modified target must be labeled with an appropriately matched F-succinimide to be quenched when bound to the Q-labeled aptamer. Pooled one ml fractions of purified F-labeled DNA aptamers are mixed with an equimolar amount of Q-labeled-amine-target analyte (or vice versa in the alternate embodiment) for 30 minutes at RT with mixing in 1×BB or phosphate buffered saline (PBS, 0.1M phosphates in 8.5 g/L sodium chloride at pH 7.2 to 7.4) and then purified through an appropriate size-exclusion chromatography column (according to molecular weight of the combined F-aptamer plus Q-target complex) to produce a purified “competitive FRET complex” consisting of F-aptamer conjugate bound to Q-labeled target. This competitive FRET complex can later be competed against unlabeled cognate analyte concentrations to increase the fluorescent light output of the liquid assay system and quantify the unlabeled analyte concentration.

Generally, the aptamer beacons or competitive FRET-aptamer complexes are then diluted to a final concentration of 1-5 μg/ml in 1×BB and equally dispensed to polystyrene or methacrylate cuvettes in which 1 ml of unlabeled target at various concentrations in 1×BB, PBS or diluted blood, plasma, serum, saliva, aspirate or urine has been added already. Cuvettes are gently mixed for 15 to 20 minutes at RT prior to reading their fluorescence in the homogeneous beacon or competitive-displacement FRET assay formats using a spectrophotometer having gratings to vary the excitation wavelength and emission scanning ability or a stationary, handheld or otherwise portable fluorometer having a more restricted or fixed excitation and emission optical filter set with a range of wavelengths for excitation and emission.

Aptamer or Aptamer Binding Site Linkage in One or More Dimensions

The linkage of binding sites is beneficial in terms of enhancing receptor affinity, avidity (tenisile binding strength), and selectivity versus complex targets with two or more distinct epitopes. This linkage can be sequential and linear (one-dimensional as in antibody heavy and light chain linkage of HV regions, FIG. 1A) or could be expanded into two or three dimensions much like DNA dendrimers or other more com-
plex structures known to those skilled in the art. Linear linkage by chemical synthesis is quite facile, if one knows that aptamer DNA sequences or shorter (approximately 5-10 base) binding site sequences to be linked. One can simply design one long sequence to incorporate the desired aptamers or binding sites with repetitive poly-adenine (A), poly-cytosine (C), poly-guanine (G), poly-thymine (T), poly-uridine (U), or other intervening sequences that are unlikely to bind the target epitopes. The length of the composite aptamer construct will be limited by current chemical synthesis technology to about 200 bases. However, cellular biosynthesis or enzymatic synthesis by polymerase chain reaction (PCR) or asymmetric PCR (producing predominately single-stranded ss-DNA from a template) would not be so limited and should produce aptamer constructs up to 2,000 bases before the Taq polymerase falls off the template. The 2 kilobase Taq polymerase limit is the basis for the well-known RAPD (Random Amplification of Polymorphic DNA) method of DNA or genetic “fingerprint” analyses in which primers greater than 2 kilobases apart fail to produce a PCR product or amplicon, because Taq becomes disengaged from the template DNA before traveling 2,000 bases. In this way, lengthy aptamer constructs of less than 2 kilobases could be made from complementary DNA templates that would enable binding of different epitopes that are distal on the surface of relatively large objects such as viruses and whole bacterial or eukaryotic cells. Again, poly-A, C, G, T, or U or other linker nucleotide segments could be designed into the cDNA template to produce the resultant nascent strand to ligate aptamers or aptamer binding sites together into one contiguous linear chain with intervening linkers.

For 2-D or 3-D linked aptamer structures a variety of linker chemistries are available, but the preferred embodiment is probably addition of a UniLink™ primary amine group somewhere in the middle-section of a larger multi-aptamer construct followed by covalent linkage of two or more such multi-aptamer constructs by means of bifunctional linkers such as low levels (≤1%) of glutaraldehyde, carbodiimides, sulfos-EGS, sulfos-SMCC or other such bifunctional linkers familiar to those skilled in conjugate chemistry. This strategy would result in a larger flower-like 2-D or 3-D structure consisting of two or more-lengthy multi-aptamer structures.

Referring to the figures, FIG. 1A illustrates the general structure of an IgG antibody showing the linkage of hypervariable (HV) amino acid regions used for actual binding to target epitopes on complex antigens. Linear linkage of HV binding sites adds affinity, avidity and specificity the antibody binding to complex targets. Likewise in FIG. 1B, aptamers or their shorter (5-10 base) binding sites can be linked during chemical or biochemical (enzymatic) synthesis to enhance aptamer binding affinity, avidity or specificity for improved assay sensitivity and selectivity.

FIG. 2 is a diagram of secondary structures for two “finalists” (SEQ ID Nos 3 and 4) from the pool of 24 unique candidate aptamers (SEQ ID Nos. 1-24) that bind human Type I bone collagen C-telopeptide (CTX) indicative of bone loss when found in the urine. These 2 aptamer sequences (forward and reverse or F and R-primed) dominated the aptamer pool (12 of 38 total clones~31.6%) and were therefore considered prime candidates to investigate for possible binding pockets (secondary loop structures). These potential binding pockets are shown as loops cut off from the rest of the aptamer by dotted lines and designated according to the 12 hour clock as 2 O’clock (or second hour or 2 h), 6 O’clock (6 h) and 10 O’clock (10 h). The overall 5' and 3' ends as well as a numbering system from bases 1 (at the 5' end) to base 72 (at the 3' end) are also indicated. A variation on the CTX 2R-2 h loop or beacon consisting of 13 and 15 bases (13b or 15b) is also indicated. The 2 O’clock or second hour (2 h) aptamer was subsequently synthesized to produce an aptamer beacon (3' end labeled with a quencher molecule and the 5' end labeled with a fluorophore) as demarcated by the dotted lines which is capable of detecting CTX peptide to low nanogram per ml levels.

FIGS. 3A-3F show how each of the aptamer beacons derived and defined from FIG. 2 behaved as a function of decreasing CTX peptide concentration (serial two-fold dilutions beginning with 100 micrograms per ml and ending with zero CTX peptide) in 1x binding buffer (1xBB: 0.5 M NaCl, 10 mM Tris-HCl, pH 7.5-7.6, 1 mM MgCl2). In the figures “h” means hour or O’clock so that 2 h refers to the 2 O’clock loop from FIG. 2, while F means forward-primed and R means reverse-primed by reference to FIG. 2 as well. FIGS. 3A-3F demonstrate that there is in fact a significant difference in the ability of each candidate loop or candidate beacon from FIG. 2 to bind and detect a 26-amino acid (AA; full-length) CTX peptide in 1xBB. The figures show that the 15-base CTX 2R-2h loop (5'-GGTGGTTGGCTCC-3') acts as a superior aptamer beacon for detection of CTX peptide, because it gives the greatest fluorescence spread as a function of CTX peptide concentration. The CTX 2R-2h loop was optimal for FRET-based detection because it gives the greatest spread or separation for various two-fold serial dilutions of the 26-AA CTX peptide beginning at 100 μg/ml. The CTX 2F-10 h loop was also noteworthy, but could not discriminate many of the different CTX concentrations. The candidate loops or beacons from this experiment were 5' labeled with TYLE/665 fluorophore and 3' labeled with Iowa Black RQ quencher and HPLC-purified prior to use at Integrated DNA Technologies, Inc. (Corvalle, Iowa). Excitation on a spectrofluorometer was at 645 nm with 5 nm slits and a PMT (photomultiplier tube) setting of 9000V. A slightly shorter 13-base version of the CTX 2R-2h beacon (5'-GGTGGTGGCTCC-3') has also been shown to work almost as well as the 15-base version, but has slightly higher background fluorescence. Excitation in all cases was at 645±5 nm to maximally excite TYLE 665 dye (fluorophore) on the 5' end of each potential aptamer beacon with a photomultiplier tube (PMT) detector setting of 1,000 Volts.

FIGS. 4A and B demonstrate relative specificity of the CTX 2R-2h aptamer beacon. FIG. 4A illustrates specificity or preference of the beacon for binding to the full-length 26-AA version of the CTX peptide based on its more intense fluorescence with the full-length CTX peptide, but not with a shorter 8-amino acid segment of the same peptide using a spectrofluorometer. Since the 8-AA version of the CTX peptide (one letter amino acid sequence: EKAFHGDGR) represents a subset of the larger 26-AA peptide (amino acid sequence: SAGDFDSFLPQQPQKEAHGDGRRYRA), this observation indicates where the aptamer does not bind on the larger CTX peptide and narrows down the possible binding sites to SAGDFDSFLPQQPQ or YYRA. The aptamer beacon does unexpectedly cross-react with and bind an epitope on bovine serum albumin (BSA) and since the 607 amino acid BSA protein shares its longest region of commonality with the CTX peptide at the amino acid sequence SFL or serine-phenylalanine-leucine, this may be the actual binding site of
the CTX 2R-2h aptamer beacon to CTx bone peptide, although other sites cannot be ruled out completely. Again, intact bovine proteins and epitopes are not expected in human clinical samples, making the CTx 2R-2h aptamer beacon specific for its target bone peptide.

[0061] FIG. 4B shows the same samples FIG. 4A evaluated by a handheld fluorometer that only reports fluorescence peak height, but confirms the level of specificity seen in the spectra above. The beacon was again 5' labeled with TYLE65 fluorophore and 3' labeled with Iowa Black quencher and HPLC-purified prior to use in assays. Excitation on the spectrophotometer was at 645 nm with 5 nm slits and a PMT (photomultiplier tube) setting of 900V. Handheld fluorometer values were obtained with an optically modified (red light emitting diode with peak excitation at 650 nm with a 660-720 nm emission filter) Quantifluor™ device from Promega Corp. Other abbreviations used in FIGS. 3A-3F are: NTx; N-terminal telopeptide of human Type 1 bone collagen, HP; helical peptide of human bone, BSA; bovine serum albumin, DPD; deoxyxypyrindoline, and Pyd; pyridinoline.

[0062] FIG. 5 compares the 15-base CTx 2R-2h aptamer beacon assay's titration versus different levels of the full-length CTx peptide (26 amino acids) in 1x binding buffer for 30 minutes at room temperature as assessed by the handheld Quantifluor™ from 0 to 32 ng/ml of CTx peptide with a limit of detection (LOD) of 1 ng/ml with a photodiode standard value setting of 599.0. It shows the relative linearity and sensitivity of the 15-base CTx 2R-2h aptamer beacon assay.

[0063] FIGS. 6A and 6B illustrate the linear normalization response of three different aptamer beacons raised against creatinine from the SEQ ID NOs 239-294 family to the denaturing effects of creatinine across the physiologic range found in human urine. The non-specific linear response of aptamer beacons in general to the denaturing (linearizing) effects of creatinine and urea across the physiologic range of these substances found in human urine suggest that addition of almost any aptamer beacon to urine could be used to estimate creatinine and urea levels in urine and normalize the values for other analytes in urine. It is a common practice in clinical diagnostics in which the creatinine or urea level of urine is used as a divisor for the amount of other analytes detected in urine to normalize readings between different patients. In essence, the creatinine or urea levels indicate how concentrated the urine is and that information can be used to adjust or normalize (divide by) the creatinine level to place the levels of other analytes in proper perspective (i.e., high analyte levels in a dehydrated individual may be misleading). Quantitative estimation of creatinine and urea levels in urine or serum using the aptamer beacon denaturation approach is simple (one step bind and detect), rapid (within 10-15 minutes) and facile as compared to the more complicated multi-component alkaline picrate colorimetric and time-consuming Jaffe method (i.e., results obtained greater than 35 minutes after reagent and sample preparation).

[0064] FIGS. 7A and 7B illustrate that the 2,942 dalton (26 amino acid) CTx peptide can be extracted from urine to avoid the denaturing effects of creatinine and urea on the CTx 2R-2h aptamer beacon assay (demonstrated in FIG. 5) by use of a desalting size-exclusion polyacrylamide column. FIG. 7A shows fractions collected from a desalting column (with a 1,800 dalton molecular weight cut off) and run in an 8% polyacrylamide-sodium dodecyl sulfate (SDS) electrophoresis gel which was run against molecular weight protein standards (last lane) and Comassie blue stained to reveal the

location of the 2.9 kilodalton CTx peptide which emerged in the void volume fractions 4 and 5 (boxed). The far right lane of this gel shows molecular weight protein standards beginning at 5 kD. FIG. 7B shows that CTx peptide extracted from human urine by means of a desalting column can still be sensitively detected to a level of at least 122 ng/ml by the CTx 2R-2h aptamer beacon.

[0065] FIG. 8 illustrates the secondary stem-loop structures of several candidate aptamers (SEQ ID NOs 433 and 434) which dominated the sequenced pool of vitamin D3 aptamers (abbreviated VD3 and from the SEQ ID NOs 429-526). Again, the lines and capital letters demarcate the loops which were considered further as binding pockets or for aptamer beacons to detect vitamin D and its isomers or congeners.

[0066] FIGS. 9A-9D illustrate the FRET responses of loops A, B, and C for the VD3 aptamers shown in FIG. 8 as well as handheld (Quantifluor™-P) fluorometer peak fluorescence values as a function of 25-hydroxy-vitamin D3 (calcidiol) level in 1xBB. Loop C (5'-ACTATGGT-3') proved to be the optimal aptamer beacon based on its maximal spread or separation of fluorescence spectra as a function of vitamin D concentration as shown in the upper right quadrant after Loop C was separately synthesized with 5'-TYE 665 dye and 3'-Iowa Black quencher to convert it into a beacon for the titration experiment. The spectra were obtained by serial two-fold dilutions of calcidiol beginning at 100 μg/ml in 1xBB. The candidate VD3 loop beacons were 5' labeled with TYLE65 fluorophore and 3' labeled with Iowa Black quencher and HPLC-purified prior to use in assays. Excitation on a spectrophotometer was at 645 nm with 5 nm slits and a PMT setting of 900 V. Handheld fluorometer values (lower right quadrant) were obtained with an optically modified (red light emitting diode with peak excitation at 650 nm with a 660-720 nm emission filter) Quantifluor™-P device from Promega Corp. and show a lower limit of detection of about 195 ng/ml in 1xBB.

[0067] FIGS. 10A-10C show that the VD3 Loop C beacon appears to react equally well with 1-hydroxy vitamin D2, 1-hydroxy-vitamin D3 and 25-hydroxy-vitamin D3 as assessed by spectrofluorometry in 1xBB (binding buffer). Hence the Loop C beacon is only specific for the vitamin D family and cannot discriminate individual congeners. Cross-reactivity is not problematic since a number of immunoassays for vitamin D detect the total of the major forms of vitamin D2 and D3 together. Hence, the inability of the Loop C VD3 aptamer to discriminate the minor variants of vitamin D is not viewed as a limiting factor. The figures again show serial two-fold dilutions for each of the types of vitamin D beginning at 100 μg/ml in 1xBB with 1-hydroxy-vitamin D2 spectra in the top panel, 1-hydroxy-vitamin D3 spectra in the middle panel, and 25-hydroxy-vitamin D3 spectra in the bottom panel.

[0068] FIG. 11 shows a graphical assessment of the VD3 Loop C beacons by the handheld fluorometer (Quantifluor™-P) in 1xBB across a range of various vitamin D concentrations and for various forms of vitamin D. The handheld reader was modified with a red-emitting (650 nm) LED light source and 660-720 nm emission filter to better work in serum where the red region optics (>600 nm) can avoid much of the blue-green (<600 nm) autofluorescence background of blood, serum or urine. The range shown on the x-axis spans much higher levels than previously shown. Some of the higher levels are not physiological, but might be relevant to detection of vitamin D is some vitamin-rich foods or dairy products.
Lines of best fit, whether linear or exponential, are shown for the three different types of vitamin D congeners as well. The highest standard value photodetector setting of 999.0 was used in all cases.

**SEQ ID NOs:**

- **SEQ ID NO 1**
  - **LENGTH:** 59
- **TYPE:** DNA
- **ORGANISM:** Artificial Sequence

**FIGS. 12A and 12B** further assess the specificity or cross-reactivity of the VD3 Loop C aptamer beacon versus a variety of potential analytes or interfering species commonly found in food and urine by the customized handheld fluorometer (FIG. 12A) and by spectrofluorometry (FIG. 12B) H-DPF; hydroxy-deoxypropidinoline and H-Pyd; hydroxylpropidinoline cross linkers from bone.

**FIGS. 13A and 13B** show fluorometric spectra from two separate trials of a competitive displacement FRET assay using the VD3 Loop C beacon versus various levels of 25-hydroxy-vitamin D3 (two-fold serial dilutions starting at 100 pg/ml in 1xBB). In this case, 25-hydroxy-vitamin D3 was labeled with carboxylfluorescein by Fisher esterification (reaction of a hydroxyl group on the vitamin with a carboxyl group on the fluorescein to form a covalent ester bond at acidic pH of approximately 5) followed by binding to appropriately quencher-labeled VD3 aptamer Loop C and competition against levels of calcidiol (100 micrograms per ml).

**FIG. 14** shows the same samples from FIGS. 13A and 13B assessed for fluorescence peak height by the custom-ized red-emitting handheld fluorometer assessed with the highest standard value photodetector setting of 999.0. The competitive FRET-aptamer assay appears to have a detection limit between 156 to 312 ng/ml in these experiments.

**FIGS. 15A-15D** show four examples of aptamers from the SEQ ID NOs 325-526 that bind recombinant human growth hormone (r-HGH; >95% pure research grade) better than the natural form of hGH or somatropin in ELISA-like assays to help discriminate the artificial form of hGH in potential drug or doping tests for athletes, or to monitor serum levels of exogenous doses of r-HGH administered to children with growth deficits. The ELISA-like assays were conducted with the named aptamers (SEQ ID NOs 336, 338, 343 and 345) instead of antibodies in each case and absorbances were red at 405 nm with an automated microplate reader after a 15 minute development time in the presence of ABTS substrate as is standard in the diagnostics industry.

**FIGS. 16A-16D** show four more examples of aptamers (from the SEQ ID NOs 325-526) that bind recombinant human growth hormone (“r-HGH”) better than the natural form of hGH or somatropin to help discriminate the artificial form in potential drug or doping tests for athletes and growth-challenged children. The ELISA-like assays were conducted with the named aptamers (SEQ ID NOs 348, 377, 379 and 388) instead of antibodies in each case and absorbances were red at 405 nm with an automated microplate reader after a 15 minute development time in the presence of ABTS substrate as is standard in the diagnostics industry.

**FIG. 17A** shows an experimental matrix screening scheme for capture aptamer-conjugated magnetic microbeads to be mixed with ruthenium trisbipyridine (Ru(bpy)32+)-labeled reporter aptamers in a sandwich assay scheme to determine which of the 7x7 top hGH and r-HGH aptamer combinations (numbered 1-49 in the scheme table) gave the strongest electrochemiluminescence (“ECL”) signal versus 10 pg/ml of r-hGH using an IGEN International Origen® ECL analyzer in phosphate buffered saline containing 0.2 M tripropylamine (“TPA”). ECL was induced by ramping the electrode voltage to 1.25 V.

**FIG. 17B** shows the results of this ECL matrix screening process. Mean bar heights of three separate measurements are plotted with standard deviation error bars and the best (most intense ECL) combinations are marked with asterisks.

**FIGS. 18A and 18B** give ECL line plots for assay combinations 18 and 40 from the matrix in FIG. 17A as a function of natural hGH concentrations showing sub-pico gram and sub-nanogram per ml detection limits and relative linearity over the hGH ranges indicated in 50% human serum (serum diluted 1:1 in 1xBB buffer). The difference in assay regression line slope is due to doubling of the amount of aptamer-coated magnetic beads and reporter aptamer per tube in two different assay trials.

**FIG. 19A** shows an experimental matrix screening scheme for capture aptamer-conjugated magnetic microbeads to be mixed with ruthenium trisbipyridine (Ru(bpy)32+)-labeled reporter aptamers in a sandwich assay scheme to determine which of the 4x4 top Brain or B-type Natriuren tic Peptide (“BNP”) aptamer combinations numbered 1-16 (and selected from the SEQ ID Nos. 527-562) gave the strongest ECL signal versus 100 ng of BNP using an IGEN International Origen® ECL analyzer in phosphate buffered saline containing 0.2 M TPA.

**FIG. 19B** shows the results of this ECL matrix screening process. Bar heights represent the means of three separate measurements plotted with standard deviation error bars and the best (most intense ECL) combinations are marked with asterisks.

**FIG. 20A** shows the linear ECL response for combination 4 (see FIG. 19A) sandwich assay versus picogram per ml levels of BNP in a 50% human serum and 1xBB diluent environment.

**FIG. 20B** shows cross-reactivity of the combination number 4 BNP assay versus other peptide or protein analytes that might be found at the 100 ng/ml level in human blood.

**Although the invention and DNA ligand (aptamer) sequences have been described with reference to specific embodiments, these descriptions are not meant to be construed in a limited sense. Various modifications of the disclosed embodiments, as well as alternative embodiments of the inventions will become apparent to persons skilled in the art upon reference to the description of the invention. It is, therefore, contemplated that the appended claims will cover such modifications that fall within the scope of the invention.**
FEATURE: OTHER INFORMATION: chemically synthesized

SEQUENCE: 1
atacgagc caacaccact aacctttgtgc tgtttttatc cagacaggt gtaggtgat

SEQ ID NO 2
LENGTH: 59
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 2
atacgagc caacaccact aacctttttc gtaggtgatg atctcggtat

SEQ ID NO 3
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 3
atacgagc caacaccacc tgtttttatc ctagaggtggt ctaaaaa cggttaggtg

tggtcgcgtg at

SEQ ID NO 4
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 4
atacgagc cttcggtttag acaataatgg tatactcctgt agatcaaaaa cggttaggtg
tggtcgcgtg at

SEQ ID NO 5
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 5
atacgagc caacaccacg taggggttag actattaca tagaggagt ctagaggtg
tggtcgcgtg at

SEQ ID NO 6
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 6
atacgagc cttcggtttag acaataatgg tatactcctgt agatcaaaaa cggttaggtg
tggtcgcgtg at
<210> SEQ ID NO 7
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 7
atacgggagc caacaccaat ctcgocgacta ggccacagtta ttatatccag ctggagaga 60

gggtgtgacgg at 72

<210> SEQ ID NO 8
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 8
atacgtoaca cctgtotccc acgtgaatat aattacttgg ccctagcggc agattgtgt 60
tggtctccgt at 72

<210> SEQ ID NO 9
<211> LENGTH: 59
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 9
atacgggagc caacaccccc gctgatattg gctggtccgg cagacaggt gtacggat 59

<210> SEQ ID NO 10
<211> LENGTH: 59
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 10
atcgtcaca cctgctctgc cggacccatcc aatatccgct gttgtgttgg ctccggtat 59

<210> SEQ ID NO 11
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 11
atacgggagc caacaccccc ttaaataaga tgtatggaca tctcgggaca gtgcagagca 60
gggtgtgacgg at 72

<210> SEQ ID NO 12
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 12
atacgtoaca cctgctctcg aactgcogga tatgtcata catctattg atagtgtgt 60
<210> SEQ ID NO 13
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 13
atacgggagc caacaccact cgtgtagtgc tgtctttttg gaacocttgc atcgagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 14
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 14
atacgtcaca cctgctctcg atgcaaggtat tcacaaca acgcactaca cgaattgtg 60
tggtgtgagc at 72

<210> SEQ ID NO 15
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 15
atacgggagc caacaccacc acgtgaccca tacgatacaa caaataattg citggagca ggtgttggt 60
ggtgtgacgg at 72

<210> SEQ ID NO 16
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 16
atacgtcaca cctgctcttg acaaatatt tgggttatcg tagtggctac ggtgtggtgt 60
tggtgtgacgg at 72

<210> SEQ ID NO 17
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 17
atacgggagc caacaccacat ctagctcat ctaaccctcc ttcgaagctc caccagacca 60
ggtgtgacgg at 72

<210> SEQ ID NO 18
<211> LENGTH: 72
-continued

<210> SEQ ID NO 19
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 19
atcggtcaca cctgctctcg aagaggtatat agatagcga tggatgtgt

<210> SEQ ID NO 22
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 22
atcggtcaca cctgctctac ggtgagggcg ggaatatag gacacgcct atccatgtg

<210> SEQ ID NO 23
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 23
atcggtcaca cctgctctac ggtgagggcg ggaatatag gacacgcct...
atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt

atacgggac caacaccata gtttggggcc aatacggttaa cgtgtctcttg gagacaggt
<210> SEQ ID NO 29
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 29
atacgaggag caacaccatt gacgtaacta gaggattact gaaagccata aactagagca
    60
ggtgtagccg at
    72

<210> SEQ ID NO 30
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 30
atacgtoaca cctgtcttag ttatatggt tcaagtaacc tctagtaacc ccaatggtgt
    60
tggtctccgt at
    72

<210> SEQ ID NO 31
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 31
atacgaggag caacaccatc actataatcc cttctgaacct tattgttgtt agttagagca
    60
ggtgtagccg at
    72

<210> SEQ ID NO 32
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 32
atacgtoaca cctgtcttag ctaacacaag taagttcga aggaattata gttaggtgt
    60
tggtctccgt at
    72

<210> SEQ ID NO 33
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 33
atacgaggag caacaccaact atccgttttt cactcctgtgt acaattaaccgtt cctagagca
    60
ggtgtagccg at
    72

<210> SEQ ID NO 34
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 34
taggtatcgtc 60
tggtatcgt at 72

<210> SEQ ID NO 35
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 35
atcgggagc caaacaac caatgtatgg atagatagaa ggtgttgtg at 60
ggtgatcgt at 72

<210> SEQ ID NO 36
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 36
atcgggagc caaacaac caatgtatgg atagatagaa ggtgttgtg at 60
ggtgatcgt at 72

<210> SEQ ID NO 37
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 37
atcgggagc caaacaac caatgtatgg atagatagaa ggtgttgtg at 60
ggtgatcgt at 72

<210> SEQ ID NO 38
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 38
atcgggagc caaacaac caatgtatgg atagatagaa ggtgttgtg at 60
ggtgatcgt at 72

<210> SEQ ID NO 39
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 39
atcgggagc caaacaac caatgtatgg atagatagaa ggtgttgtg at 60
ggtgatcgt at 72
<210> SEQ ID NO 40
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 40
atccgtgtaa cctgtcttgt ttctgataca gtcctggttc gtctgaggt ttcctggtgt  60
tgctgctcgt at 72

<210> SEQ ID NO 41
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 41
atccggagac caacacactc cagagtaaac gtaaggggg aatctcaatg aaccagaca  60
ggtgtgacgg at 72

<210> SEQ ID NO 42
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 42
atccgtgtaa cctgtcttggt ttcattggag ttctcctta tcttttaacttgtggttgtgt  60
tgctgctcgt at 72

<210> SEQ ID NO 43
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 43
atccggagc caacaccaat actctcaaaaa cctacaacaga caacccggag gcacagaca  60
ggtgtgacgg at 72

<210> SEQ ID NO 44
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 44
atccgtgtaa cctgtcttggt gcctcggttgt tgtcttgta gttttgtgata gtttggtgtt  60
tgctgctcgt at 72

<210> SEQ ID NO 45
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 45
atcgccgccc cagacgccag attcagccgc atacatttgt act aagagca ggtgttgacgg 60
ggtgcacgg at 72

<210> SEQ ID NO 46
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 46
atcgtcaca cctgtcttta gacacattgt atgtcctgga tggaccagct ctcctaggtt 60
tgcctccgt at 72

<210> SEQ ID NO 47
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 47
atcgccgccc cagacgccag attcagccgc atacatttgt act aagagca ggtgttgacgg 60
ggtgcacgg at 72

<210> SEQ ID NO 48
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 48
atcgtcaca cctgtcttac agtcgctcgg taaggggggc cattattctg gtcctaggtt 60
tgcctccgt at 72

<210> SEQ ID NO 49
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 49
atcgccgccc cagacgccag attcagccgc atacatttgt act aagagca ggtgttgacgg 60
ggtgcacgg at 72

<210> SEQ ID NO 50
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 50
atcgtcaca cctgtcttac tttatgtct accttggtac acatttcggg ctcattgtt 60
<210> SEQ ID NO 51
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 51
atacgggagc caacaccagt cgtacgacac ccatacaaga ctttatatcg cctagagca ggtgttgacgg at

tgcctcccg at 72

<210> SEQ ID NO 52
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 52
atacgttaca cctgcatta gcacagaataa agttttggat ggtgtgtgta gactgtgtg at
tgcctcccg at 72

<210> SEQ ID NO 53
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 53
atacgggagc caacaccacg gctacacct ctaacagct accactttgg cctagaagca ggtgttgacgg at
tgcctcccg at 72

<210> SEQ ID NO 54
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 54
atacgttaca cctgcctttg gactaaaagt gtagttgtgt gagagttgtg accgtgtgtg at
tgcctcccg at 72

<210> SEQ ID NO 55
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 55
atacgggagc caacaccact cgttttggccc accagtcaat cctatatcag ctaagagca ggtgtgtgca at
tgcctcccg at 72

<210> SEQ ID NO 56
<211> LENGTH: 72
<210> SEQ ID NO 57
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 57
atacgggac caaaccatt attataaaga cgtatatctag agagatctca agacagaca ggtgttgacgg at

<210> SEQ ID NO 58
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 58
atacgtaca cctgctcctt attgatata tggattacgc gtgggccaaa cgagtgggt

tggtcccggt at

<210> SEQ ID NO 59
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 59
atacgggac caaaccaggt cgtgcgtgag gcagctacct actgactatg tcgtagaga

ggtgtcccggt at

<210> SEQ ID NO 60
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 60
atacgtaca cctgcctcac gcatagtca gttagcccg cgccacgca gcactgggt

tggtcccggt at

<210> SEQ ID NO 61
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 61
atacgggac caaaccagt cgtgcgttgg gcagctacct actgactatg tcgtagaca
-continued

atacgggac caacaccagt ccaatctcgt gttagtcgt cccgctcgaca aggcagagca  
ggtgtgacgg at  

<210> SEQ ID NO 62  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 62  
atacgtgacg cctgctctgc cttgctgaac ggacagacta acacaggat ggcaggttgt  
tgctctcgg at  

<210> SEQ ID NO 64  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 64  
atacgtgacg caacacccaga gtttggcga taacaccaat gaccoacagc oggagagca  
ggtgtgacgg at  

<210> SEQ ID NO 66  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 66  
atacgtgacg caacaccaatt ctgggtgcgg tgcgatgaga gaagagtc ccgtactgtg  
tgctctcgg at
<210> SEQ ID NO 67
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 67
atagggagc caacaccacc gcggtaaaga ggctagctag tctacgct tact gacagata

<210> SEQ ID NO 68
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 68
atctggcagc ccatgtctag ggaacactag cacagtctac cctcttaacc ggggtgtgtt

ggtgtacgg at

<210> SEQ ID NO 69
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 69
atagggagc caacaccacc catttgctag ctggtgcgcg tdaatgaga gaaatggctic gtacagagca

ggtgtacgg at

<210> SEQ ID NO 70
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 70
atctggcagc ccatgtctag acagaccatt tctctcattg cagcgcacc agaatgtgtt

tggtctcccc at

<210> SEQ ID NO 71
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 71
atagggagc caacaccacc gcggtaaaga ggctagctag tctacgct tact gacagata

<210> SEQ ID NO 72
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 72
atcgtcaac cctgctctgg cgagactgag acatcgctacg cctctttaac gcgggtgtgt 60
tgctccct at 72

<210> SEQ ID NO 73
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 73
atacgggagc caacacagtctaatgtatgt gttgcaaggg ctgtctctgtg ttagatgacagca ggtgttgacgg at 60
ggtgtgcag at 72

<210> SEQ ID NO 74
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 74
atcgtcaac cctgctctat cacaacagc acacctcgca acacactagtt gtagatgtgt 60
tgctccct at 72

<210> SEQ ID NO 75
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 75
atacgggagc caacacaggg cgggagaata gtagtagatta gtcgtagatta gacgagacga 60
ggtgtgcag at 72

<210> SEQ ID NO 76
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 76
atcgtcaac cctgctctgc tcacactacg actaactctta tctattctcc cgcttggtgt 60
tgctccct at 72

<210> SEQ ID NO 77
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 77
atacgggagc caacacagga agaaccgcta aagcctatga ggaaaggtca atcgcagacg 60
ggtgtgcag at 72
<210> SEQ ID NO 78
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 78
atacgtoaca cctgtotgc atgatcttt cctcatagc tttacggtt cttctgtgtg 60
tggtctccgt at 72

<210> SEQ ID NO 79
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 79
atacgggagc caacaccagc caagtcgacg cgggtgtcca tataccta atgcagagca ggtgttgacgg at

ggtgtgacgg at 72

<210> SEQ ID NO 80
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 80
atacgtoaca cctgtotgc attagcta tattggaccc cgggtcgacg tgggtgtg 60
tggtctccgt at 72

<210> SEQ ID NO 81
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 81
atacgggagc caacaccatg ccatgtacg gtacctacte tatcaggtata tagaggagca ggtgtg 60
ggtgtgacgg at 72

<210> SEQ ID NO 82
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 82
atacgtoaca cctgtotcc tatatctga tagagtaggt accgtacat ggcgatggtgt 60
tggtctccgt at 72

<210> SEQ ID NO 83
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
Continued

<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 83
atcgggagc caacaccaga gtttccgct caccatagc caccatctac acaagagca 60
ggtgtgacggt at 72

<210> SEQ ID NO 84
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 84
atcgtcaca cctgcctctg gtgtacatgg tggccatagg tggcgcgaat auctcgttgt 60
tgcttcctgt at 72

<210> SEQ ID NO 85
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 85
atcgggagc caacaccaca atgagcgtg tggcatagt ggaacgcga auctgagac 60
ggtgtgacggt at 72

<210> SEQ ID NO 86
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 86
atcgtcaca cctgcctctca gttccggttt ccaactatgc cacactctca atgtgttgt 60
tgcttcctgt at 72

<210> SEQ ID NO 87
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 87
atcgggagc caacaccaga gcaactgca gaattacaa ggtacgaacc ggtagagca 60
ggtgtgacggt at 72

<210> SEQ ID NO 88
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 88
atcgtcaca cctgcctctat cogggtcga cctggatac tcttcttgtt ggtccgttgt 60
-continued

tggctccggt at 72
<210> SEQ ID NO 89
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 89
atacgggagc caacaccatg tcatctata ccaacactgg cgccgatagt cccagagca 60
gggtgacggt at 72

<210> SEQ ID NO 90
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 90
atacggtcaac cctgtctctgt gaactatcgg cggccagttt gtatatgat gacatgttgt 60
tggctccggt at 72

<210> SEQ ID NO 91
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 91
atacgggagc caacaccagc ctcctgatttt gatgaagtatt cttgatctgc acgtagagca 60
gggtgacggt at 72

<210> SEQ ID NO 92
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 92
atacggtcaac cctgtctctac gtgcagatcat agaaaacttca tcacactcag aggctgttgt 60
tggctccggt at 72

<210> SEQ ID NO 93
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 93
atacgggagc caacaccgcc tggaccgctt ccctatataa cactagagca 60
gggtgacggt at 72

<210> SEQ ID NO 94
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 94
atccgtcaaca ccgtccttag tgttatatag ggacggaggt gagcgggctca tccatggtgt 60

<210> SEQ ID NO 95
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 95
atccgggagc caaacacaaa ggacacaaga agctgtgaac tccagttagt gggagagca 60
ggtgtacgg at 72

<210> SEQ ID NO 96
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 96
atccgtcaaca ccgtccttoc caactaactg gagatcaag ctctctgtgt cctcttggtg 60
tggtctccgt at 72

<210> SEQ ID NO 97
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 97
atccgggagc caacacaag ctcctccgaga tccgcatcg tcgcocccaga ctggagagca 60
ggtgtacgg at 72

<210> SEQ ID NO 98
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 98
atccgtcaaca ccgtccttoc agtcaggggc gagcgtacgt gatctcgggg agcgtggtgt 60
tggtctccgt at 72

<210> SEQ ID NO 99
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 99
-continued

```
atacgggagc caacaccagt gctoaccagg acctatttt tcagcttccc cgccagagca 60
   ggtgtgacgg at 72

<210> SEQ ID NO 100
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 100
atcgtgaaca cctgctctgg cgggggagct gaaataatg gtctgggtga gccatggtgt 60
tgctctcaggt at 72

<210> SEQ ID NO 101
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 101
atcgggagc caacaccagtt ccaacaaaata aaaagctgtc cccagacticga gcgalaga.gca ggtgttgacgg at 60
   ggtgtgacgg at 72

<210> SEQ ID NO 102
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 102
atcgtgaaca cctgcttttc cctgctggtct ggacagcttt tttatggtg gcactggtgt 60
tgctctcaggt at 72

<210> SEQ ID NO 103
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 103
atcgggagc caacaccaat ctgtgtaaaca ttcgcatatcc taagtcataa gccaagagca 60
   ggtgtgacgg at 72

<210> SEQ ID NO 104
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 104
atcgtgaaca cctgcttggt gattgtgcg tagatagc catttgacag catttggtgt 60
tgctctcaggt at 72
```
<210> SEQ ID NO 105
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 105

atacgagc cacaccata ataccagccg acagcccttg ggctgtgatt tgcacagca ggtgttgacgg at

ggtgtgacgg at

<210> SEQ ID NO 106
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 106

atacgtoaca cctgctctgt caaatcata cacaagggct gtctcgctgg atattgtatt ggtgttgacgg at

tgctctcggt at

<210> SEQ ID NO 107
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 107

atacgagc cacaccata gatcgcgtgg aactcamaag ggccacaatag ccctgctcct atatcgagca ggtgttgacgg at

ggtgtgacgg at

<210> SEQ ID NO 108
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 108

atacgtoaca cctgctctgt ctagtatagg ttccctggag ttccacgac ccctggttgt atgctctcggt at

tgctctcggt at

<210> SEQ ID NO 109
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 109

atacgagc cacaccaca tagtccctgt cgcaccccc ctctggtggt attcagaca ggtgttgacgg at

ggtgtgacgg at

<210> SEQ ID NO 110
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 110
atcgggagc caaacaagctttactatactta ataaccttga tggaggtgac tgtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72

<210> SEQ ID NO 111
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 111
atacgggagc caaacaacaggtttactatactta ataaccttga tggaggtgac tgtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72

<210> SEQ ID NO 112
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 112
atacgggagc caaacaacagttaaatacttgagttactatactta ataaccttga tggaggtgac tgtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72

<210> SEQ ID NO 113
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 113
atacgggagc caaacaacagttagcctgcgtataatatacttgagaactcgcg tagagga ggtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72

<210> SEQ ID NO 114
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 114
atacgggagc caaacaacagttagcctgcgtataatatacttgagaactcgcg tagagga ggtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72

<210> SEQ ID NO 115
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 115
atacgggagc caaacaacagttagcctgcgtataatatacttgagaactcgcg tagagga ggtgttgacg at 60
tgcctctctctgtcatacagggggtg cacacagggac tatgtggtgtctgtcgttgt 72
<210> SEQ ID NO 116
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 116
atcggtaca cctgctotac cctatgcaaa cgacaggagtc cgagactgtc acatgggtgtgtg
atggtctccgt at

<210> SEQ ID NO 117
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 117
atccggggac caaacccaa caaataaacaat ggtgaaacat tgaatgcatc gtgaagagca ggtgttgacgg at

ggtgtacggt at

<210> SEQ ID NO 118
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 118
atcggtaca cctgctottc aactgcatc ggtgttcca ccatgtgcat ttttgggtgtgt
atggtctccgt at

<210> SEQ ID NO 119
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 119
atccggggac caaacccata tgggtctcctg agactgtaac cccgatgagga acctagagca

ggtgtacggt at

<210> SEQ ID NO 120
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 120
atcggtaca cctgctotag gttcccatc cgggtacagt ctatgagccg cgcatgtggtgt

tggtctccgt at
FEATURE: OTHER INFORMATION: chemically synthesized

SEQUENCE: 121
atacgggagc caacaccaag tccggtcacc aaacagaacc atggagacg atggagacca 60
ggtgtgacgg at 72

SEQ ID NO 122
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 122
atcgtcaca cctgctctcc atcgctctcc atggttcgtg tgtgtaacgg gacctggtgt 60
tgctccctg at 72

SEQ ID NO 123
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 123
atacgggagc caacccagtt gacccgagac tccagctgag tgcacacctga tgtgagacca 60
ggtgtgacgg at 72

SEQ ID NO 124
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 124
atcgtcaca cctgctctca ctcaggtgt cactcagctg gactcctcgg tgttgagacca 60
tgctccctg at 72

SEQ ID NO 125
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 125
atacgggagc caacccaggt gaccccaacc cagtcctcgg ccaatgcggt tgtatagacca 60
ggtgtgacgg at 72

SEQ ID NO 126
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 126
atcgtcaca cctgctctat ataacgaat ggcctgacca tgtgagggtg tgtatgcggt 60
-continued

tggctcccggt at 72

<210> SEQ ID NO 127
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 127
atacgggagc caaaccagcg caacggacac caggttgatc aatcc cc agt cctgaga.gca ggtgttgacgg at

<210> SEQ ID NO 128
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 128
atacggtacac cctgctctca ggactggggga ttgatcaacc tgggtcctcg tgtgtgtgtg tgtgtgtgtg at

tggctcccggt at 72

<210> SEQ ID NO 129
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 129
atacgggagc caaaccagcg cctacggtac ccocctcaaga cagaacctgc atcaagagca ggtgttgacgg at

tggctcccggt at 72

<210> SEQ ID NO 130
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 130
atacggtacac cctgctcttg atgcaggttc tgtcttgagg ggtgtcggtga ggtgtgtgtg tgtgtgtgtg at

tggctcccggt at 72

<210> SEQ ID NO 131
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 131
atacgggagc caaaccagcg tggacggttc aacocgata tggacccgct ctagagca ggtgtcagcg at

tggctcccggt at 72

<210> SEQ ID NO 132
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 132

atccgtcaacacctctcatagcagggctcacatgcgcgtttgacctgtctcataggtgtgt

ttgctcccgat

60

72

<210> SEQ ID NO 133
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 133

atccgggacacaacaccacacatgcagcgtgtttctgtccctaatgcgcgtttgaatgtgcagcattatgtggcatagaccaacgtgtcgttttgcagtgcgt

ggttgacggat

60

72

<210> SEQ ID NO 134
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 134

atccgggaccaacaccacagcagcagcgttttccctaatgcgcgtgagatgtgcagcatgctgtcgttttgcagtgcgt

ggttgacggat

60

72

<210> SEQ ID NO 135
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 135

atccgggaccaacaccacagcagcagcgttttccctaatgcgcgtgagatgtgcagcatgctgtcgttttgcagtgcgt

ggttgacggat

60

72

<210> SEQ ID NO 136
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 136

atccgtcaacacctctcagagtgatcagctttcagttatattgcacacgtt gccgtgggtct

ttgctcccgat

60

72

<210> SEQ ID NO 137
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 137

atatcgggagca caaaccaccttggtctcaagctgtgtcttc tgggacggtta ggggagca ggtgttgacgg at
<210> SEQ ID NO 138
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 138
atatcgggagca caaaccaccttggtctcaagctgtgtcttc tgggacggtta ggggagca ggtgttgacgg at
<210> SEQ ID NO 142
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 142
atatcgggagca caaaccaccttggtctcaagctgtgtcttc tgggacggtta ggggagca ggtgttgacgg at
<210> SEQ ID NO 143
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 143
atcgggagc caacaccatt gactaagcga ttatccccac aagtgaccgg ggagagaga 60
ggtgtacgg at 72

<210> SEQ ID NO 144
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 144
atcctctaca ctctctctct ctctgctct ctctgctctt ttctttatctcttcgcgt 60
tgcctcgg at 72

<210> SEQ ID NO 145
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 145
atcgaggagc caaccacact ctctacagc gcgggtcct atactttta gctagagaga 60
ggtgtacgg at 72

<210> SEQ ID NO 146
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 146
atcctctaca ctctctctct gcagctctct acctctctct ctctcgtcct ggcacg 60
tgcctcgg at 72

<210> SEQ ID NO 147
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 147
atcgggagc caaccacact cctctctct gcgccttta gctagcctg cctctctctt 60
ggtgtacgg at 72

<210> SEQ ID NO 148
<211> LENGTH: 72
-continued

<210> SEQ ID NO 148  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 148

atacggtacatcctgctctag aagtgccat attaataagtgt tccagacggga tggagtattgtg  
tggctccctg at  

<210> SEQ ID NO 150  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 150

atacggtacatcctgctctag aatcagcagc atccgcatct acggtgaat ttgcagagca  
ggtgtacgg at  

<210> SEQ ID NO 151  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 151

atacggtacatcctgctctag aatccaccatg cggaagcc cc atccaccc cgaagccagg gcctagagca  
ggtgtacgg at  

<210> SEQ ID NO 152  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 152

atacggtacatcctgctctag ctgggtgatt ctgggtgtgtg atgggctttc gctatgttgtg  
tggctccctg at  

<210> SEQ ID NO 153  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 153
-continued

atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
ggtgtaacgg at 72

<210> SEQ ID NO 154
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 154
atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
tgctctcccgt at 72

<210> SEQ ID NO 155
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 155
atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
ggtgtaacgg at 72

<210> SEQ ID NO 156
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 156
atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
tgctctcccgt at 72

<210> SEQ ID NO 157
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 157
atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
ggtgtaacgg at 72

<210> SEQ ID NO 158
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 158
atacgggac caacaccgcg caactagcct gaaacccta attatacage ttagagacg 60
tgctctcccgt at 72
<210> SEQ ID NO 159
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 159
atacgggagc caacaccaag ctcgtagaag ccatctagcg ggcgcaccttg caccagagca
gtgtagcgg at

<210> SEQ ID NO 160
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 160
atacgtcaca cctgcgtcgg tgtacaaccg ccgggtgaga tgtctgctag agctggtgtg
tgctccctg at

<210> SEQ ID NO 161
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 161
atacgggagc caacaccaag atcatgtcgc taacctctctctc gcgtccctctg tctgtcagc
gtgtagcgg at

<210> SEQ ID NO 162
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 162
atacgtcaca cctgcgtcctc agacagacgg gatagagaag tatgtcataag atcgtggtgtg
tgctccctg at

<210> SEQ ID NO 163
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 163
atacgggagc caacaccaac cacagctcta ccciaagtgag gctgtcaacte aacagacga
gtgtagcgg at

<210> SEQ ID NO 164
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
This page continues the description of DNA sequences, specifically sequences 164, 165, 166, and 167, which are artificial sequences of 72 nucleotides each. The sequences are listed in order, with each sequence starting from the top left of the page and continuing to the right. The sequences are described as being chemically synthesized. Each sequence is followed by a brief description of its type and length, with the type being DNA and the length being 72 nucleotides. The sequences are listed as being part of an artificial sequence, and the description includes the name of the sequence and the number of the sequence in the series. The sequences are numbered from 164 to 167, and each sequence is followed by a dash and a continuation marker. The sequences are separated by commas, and the page number is displayed at the bottom right of the page.
<210> SEQ ID NO 170
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 170
atocgtcga cctgctctgg tccactctgt ccgatatacg cattccaaga catttgtgtg
72
tggtccctg at

<210> SEQ ID NO 171
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 171
atocgtcga cccaccaga caactcagta tggacactc cattccacgcg tgtgagca
72
gggtgacgcg at

<210> SEQ ID NO 172
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 172
atocgtcga cctgctctca caacgcgtga tgtgtcgtc cattcctgag tgtgttgtg
72
tggtccctg at

<210> SEQ ID NO 173
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 173
atocgtcga cccaccactc cgccaccaga atctgttaag ggtgtagata tgtcagaca
72
gggtgacgcg at

<210> SEQ ID NO 174
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 174
atocgtcga cctgctctgg cattcatacg gctttactac atctgtctcg cggatggtgtg
72
tggtccctg at

<210> SEQ ID NO 175
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
Continued

<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 175
atacgggagc caacacta cagtgtaacg ggtggagac ctcacatog a tggagaca 60
ggttgacgg at 72

<210> SEQ ID NO 176
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 176
atacgggagc caacacta cagtgtaacg ggtggagac ctcacatog a tggagaca 60
tgcctccgt at 72

<210> SEQ ID NO 177
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 177
atacgggagc caacacta cagtgtaacg ggtggagac ctcacatog a tggagaca 60
ggttgacgg at 72

<210> SEQ ID NO 178
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 178
atacgggagc caacacta cagtgtaacg ggtggagac ctcacatog a tggagaca 60
tgcctccgt at 72

<210> SEQ ID NO 179
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 179
atacgggagc caacacta cagtgtaacg ggtggagac ctcacatog a tggagaca 60
ggttgacgg at 72

<210> SEQ ID NO 180
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 180
atacgtcaca cctgtcttc cagtgtaacg ggtggagac ctcacatog a tggagaca 60
tgcctccgt at 72
-continued

tggctcctcg at 72

<210> SEQ ID NO 181
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 181
atacgggagc caacaccacg cgataaagaa cgcagctaat ttgtctcccg gaggagcagcg cgtgttgcgg at 60
ggtgctcgcgt at 72

<210> SEQ ID NO 182
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 182
atacgtcaca ccctgcttcg ctcggagac caatagagct gttctttat ccgtgtgtgt tggctcctcg at 60
tggctcctcg at 72

<210> SEQ ID NO 183
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 183
atacgggagc caacaccacg atatgtagtg aagcagcata cacrcggggcg aacggagcagcg cgtgttgcgg at 60
ggtgctcgcgt at 72

<210> SEQ ID NO 184
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 184
atacgtcaca ccctgcttcg gcgtgcggcgg tttggtgcgg ccgtgcgctat ccgtgtgtgt tggctcctcg at 60
tggctcctcg at 72

<210> SEQ ID NO 185
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 185
atacgggagc caacaccacg gaactaagag gaagtctcag ggtgtgggtg ggtgtgtgtg at 60
ggtgctcgcgt at 72

<210> SEQ ID NO 186
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 186
atacgggagc caacaccacg gaaacagag gaaagtctcag ggtgtgggtg ggtgtgtgtg at 60
ggtgctcgcgt at 72
-continued

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72

atccggtcaca cctgctctaa ctagcgcagc tccgagcct tccctcttag tccgttgggt 60
tggtcctccgt at 72
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 192
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 192
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at

atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 193
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 193
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at

atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 194
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 194
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at

atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 195
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 195
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at

atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 196
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 196
atacgggagc cagcaccaca gattcttcac attttgctgc atatatcac ca aacagacag gcgtgacggg at
<210> SEQ ID NO 197
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 197
atabgggcc cacaaccatt ttagctctactt aatagttgtatatcgccgcg cccagaga 60
gggtgacgg at 72

<210> SEQ ID NO 198
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 198
atacgtaga cctctccgccg cccagcat cactaactacttat aataagtgtgtatatcgccgcg cccagaga 60
tggtcctcggt at 72

<210> SEQ ID NO 199
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 199
atabgggcc cacaaccaaa agaacgcactactt cctctggaa tctctctctctccagaga 60
gggtgacgg at 72

<210> SEQ ID NO 200
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 200
atacgtaga cctctcctgg gtagatctcctctctcctctcgagaga 60
tggtcctcggt at 72

<210> SEQ ID NO 201
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 201
atacgtaga cctctctag acgaattttctctctcctctctcctctcctctcttcagaga 60
tggtcctcggt at 72

<210> SEQ ID NO 202
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 202
atacggagc caacaccacg ttttctaga atgatattct ttagctacct gagaagagca 60
ggtgtacgg at 72

<210> SEQ ID NO 203
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 203
atacgtoaca cttcgcttc tcagttgcct aaagaaaaat atctagagaa aagcttgggtgt 60
tggctccggt at 72

<210> SEQ ID NO 204
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 204
atacggagc caacaccacg ttttatatt atctttgtcc agacagggtg tgaaggt 58

<210> SEQ ID NO 205
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 205
atacgtoaca cttcgctccg acaagggata tataaagcc tgggtggggt cccgtgt 58

<210> SEQ ID NO 206
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 206
acacgggagc caacaccactc catagctc catatccttc tccggatcc caccagagca 60
ggtgtacgg at 72

<210> SEQ ID NO 207
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 207
atacgtoaca cttcgctcgg tgggactcgg aagaggtat aagtagagta tggatgggtgt 60
tggctccggt gt 72

<210> SEQ ID NO 208
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 208

atacgggagc caacaccacc gcctacact tttgtagcac ttcgagagca

72

ggtgtgacgg at

<210> SEQ ID NO 209
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 209

atacgtcaca ctcgtctctg aagtgtaca aagtgtagg gcctgtgtgt atgggttgtgt

72
tgctccgt at

<210> SEQ ID NO 210
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 210

atacgggagc caacaccact gtttgaggc aataggttag cgtgtccctg gaggacaggt

69
gtgcggat

<210> SEQ ID NO 211
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 211

atacgtcaca ctcgtctcc aaggtacgt taccgtatgc gcccaacact atgggttgtgg

69
cctccgtat

<210> SEQ ID NO 212
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 212

atacgggagc caacaccacc cgttttgat ctaatgaga tacaatttc gtctagagca

72
ggtgtgacgg at

<210> SEQ ID NO 213
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 213
-continued

atacgggagc caaaccct actcaatttgt tggcgcact tcaaccccaca cgttagagca 60
ggtgctacgg at 72

<210> SEQ ID NO 214
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 214
atacgtcaac cctgctotaa cgtgtggtgt gaaagcggcc ccaacatttg atagtggtgt 60
tgctcccggt at 72

<210> SEQ ID NO 215
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 215
atacgggac caaccccaat gcaatgctgg cagagctgggg gaaat atttg gtc gaga caca ggtgttgacgg at 72

<210> SEQ ID NO 216
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 216
atacgtcaac cctgctotcg accaatttt tcccccaagct ccaccacatg ctgatgggtg 60
tgctcccggt at 72

<210> SEQ ID NO 217
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 217
atacgggac caacaccata gttggtggcc atacggtaa cgtgtccttg gacagcgagt 60
gtgacggtat 69

<210> SEQ ID NO 218
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 218
atacgtcaac cctgctotcc aagacacgt tacgatttt gcocaacact atgtgtgggt 60
tgctcccggt at 69
<table>
<thead>
<tr>
<th>seq_id_no</th>
<th>length</th>
<th>type</th>
<th>organism</th>
<th>feature</th>
<th>other_information</th>
</tr>
</thead>
<tbody>
<tr>
<td>219</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td>chemically synthesized</td>
<td></td>
</tr>
<tr>
<td>220</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td>chemically synthesized</td>
<td></td>
</tr>
<tr>
<td>221</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td>chemically synthesized</td>
<td></td>
</tr>
<tr>
<td>222</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td>chemically synthesized</td>
<td></td>
</tr>
<tr>
<td>223</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td>chemically synthesized</td>
<td></td>
</tr>
</tbody>
</table>

**Sequence 219**

```
atccggagc caacaccaac aaaaacacag gatatacgtt cccagcggga cccagagca
```

**Sequence 220**

```
atccgtaaca cctgtctcgg ggtgctcggt ggaacgatat tcctgtttct ttggtgtgtt
```

**Sequence 221**

```
atccggagc caacaccata acaatggtttg ttagatttaa cccatgtttgc catcagagca
```

**Sequence 222**

```
atccgtaaca cctgtctcga tgccacagt ggttaaatct aacaaccttt tgtatgtgtt
```

**Sequence 223**

```
atccggagc caacaccaag ggtgttcaca otggcaagcgg accgcccctgt ggtagagca
```

**Sequence 224**

```
atccgtaaca cctgtctcga cctgagcgac cctgagcggac cctgagcgcgc
```
<210> SEQ ID NO 225
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 225
atcgggagc caacaccaca atagtgcatt agtaatgtac cacacatgag tcggagaga
60
ggttgcaggg at
72

<210> SEQ ID NO 226
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 226
atcgtcaca cctgtctccc aacacagggc gtgctggtcc agtgtaacca cctctgggtt
60
tggctcctcgt atn
73

<210> SEQ ID NO 227
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 227
atcgggagt caacaccata gttttgggcc atacggtaa cgtgtccttg gagagacagt
60
gtgcaggt
69
-continued

atacgggagc caacaccata gtcgttggacct aatacggatat gcacgtgtgcctt gagaagcaggt gtcgacggat
<210> SEQ ID NO 230
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 230
atacgggagc caacaccata gtcgttggacct aatacggatat gcacgtgtgcctt gagaagcaggt gtcgacggat

ctcgtatat
<210> SEQ ID NO 231
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 231
atacgggagc caacaccacat cattaatggc attatctaac agagcaggtg tgcaggtatat

ctcgtatat
<210> SEQ ID NO 232
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 232
atacgggagc caacaccacat cattaatggc attatctaac agagcaggtg tgcaggtatat

ctcgtatat
<210> SEQ ID NO 233
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 233
atacgggagc caacaccacat cattaatggc attatctaac agagcaggtg tgcaggtatat

ggtgtgacgg at
<210> SEQ ID NO 234
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 234
atacgggagc caacaccacat cattaatggc attatctaac agagcaggtg tgcaggtatat

tgcaggtatat at
<210> SEQ ID NO 235
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
FEATURE: OTHER INFORMATION: chemically synthesized

SEQUENCE: 235
atacgggagc caaaccatt ctatggttc gcagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 236
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 236
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
tgctctcctg at 72

SEQ ID NO 237
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 237
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 238
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 238
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
tgctctcctg at 72

SEQ ID NO 239
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 239
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 240
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 240
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 241
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 241
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 242
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 242
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 243
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 243
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 244
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 244
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72

SEQ ID NO 245
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 245
atacgggagc caaaccaca tcgtctctcgagcgtatat gctttgctat ctacagagca 60
ggttgacgg at 72
-continued

tggctcoccgt at 72

<210> SEQ ID NO 241
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 241
ataccggagc caaccaaat gaccatatca aaccacccg gcccccact gataggagca 60
ggtgtgacgg at 72

<210> SEQ ID NO 242
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 242
atccgtcaca cctgctcctca tcagtgggcg cggctgctgg ttgtatatgg tcatgggtgt 60
tggctcoccgt at 72

<210> SEQ ID NO 243
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 243
atccggagc caaccaaat gaccatatca aaccacccg gcccccact gataggagca 60
ggtgtgacgg at 72

<210> SEQ ID NO 244
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 244
atccgtcaca cctgctcctca tcagtgggcg cggctgctgg ttgtatatgg tcatgggtgt 60
tggctcoccgt at 72

<210> SEQ ID NO 245
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 245
atccggagc caaccaacct caaactcaga tcacactcgt gctgctaccg gttoagagca 60
ggtgtgacgg at 72

<210> SEQ ID NO 246
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 246
atccgtcaaca cctgctctga accggtagca gcacgagtgt gatctgact tgtgtgtgg t 60
tggctccggt at 72

<210> SEQ ID NO 247
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 247
atccgtcaaca cctgctctca accggccagt gcacgagact gataggtaa aatgtctc tc gcacagtta gaaatgtgg t 60
gggtgacgg at 72

<210> SEQ ID NO 248
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 248
atccgtcaaca cctgctctca gggccccagt gcacgacact gataggtaa aatgtcttc gcacagtta gaaatgtgg t 60
tggctccggt at 72

<210> SEQ ID NO 249
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 249
atccgtcaaca cctgctctca ggtcggasat aatgtccctc gcacactctc ccgcagagca 60
gggtgacgg at 72

<210> SEQ ID NO 250
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 250
atccgtcaaca cctgctctcg ggaggagtg gcagagagca ttatatctca gcatggtgt t 60
tggctccggt at 72

<210> SEQ ID NO 251
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 251
Continued...

atacgggac caaaccaac cgtaaaca acgctagtgtg gtaataactg ctaagagca 60
ggtgtagcgg at 72

<210> SEQ ID NO 252
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 252
atacgtcaaca cctgtcttta tgcagttata accaactag cttgtttgta cggtggtgt 60
tgcctcggcgt at 72

<210> SEQ ID NO 253
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 253
atacgggac caaaccaga ggcgtcgggt aatgggata tcaattgccttt tcgaagagca 60
ggtgtagcgg at 72

<210> SEQ ID NO 254
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 254
atacgtcaaca cctgtcttgg caacgcaaat ctcaaccgtat tggcgtgggtc cctgtgggt 60
tgcctcggcgt at 72

<210> SEQ ID NO 255
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 255
atacgggac caaaccact caaagggtta ccaatccggtt ggacagctag ctgtcagaca 60
ggtgtagcgg at 72

<210> SEQ ID NO 256
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 256
atacgtcaaca cctgtcttac atgtctgtgt ccgaacggatt ggtacccgtt tgaacctggt 60
tgcctcggcgt at 72
<table>
<thead>
<tr>
<th>Seq ID No</th>
<th>Length</th>
<th>Type</th>
<th>Organism</th>
<th>Feature</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>257</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
<tr>
<td>258</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
<tr>
<td>259</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
<tr>
<td>260</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
<tr>
<td>261</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
<tr>
<td>262</td>
<td>72</td>
<td>DNA</td>
<td>Artificial Sequence</td>
<td></td>
<td>chemically synthesized</td>
</tr>
</tbody>
</table>

**Sequence 257**

```plaintext
atacgagc caacacagt aacatacag cctttgagct ggttgtgagta ttctagagca 60
ggtgtacgg at 72
```

**Sequence 258**

```plaintext
atcctgtaa aatgacta cccccggctc aatctgtatg ttctggtgt 60
tggtccggt at 72
```

**Sequence 259**

```plaintext
atacgagc caacacactc tggctctaa ttgttatttt tcctaggagct gcctggagca 60
ggtgtacgg at 72
```

**Sequence 260**

```plaintext
atcctgtaa aatgactg gaaataacc aattacggct cagatggtg 60
tggtccggt at 72
```

**Sequence 261**

```plaintext
atacgagc caacacactc actactgggg cagacatcc cgctctctca tcagagca 60
ggtgtacgg at 72
```

**Sequence 262**

```plaintext
atacgagc caacacactg actactggg cagacatcc cgctctccta tcagagca 60
ggtgtacgg at 72
```
-continued

<400> SEQUENCE: 262
atcctgtaaca cctgctcttg gatggacgcg cgggatgtct tggccacgta gtcatggttct 60
tggtctccgt at 72

<210> SEQ ID NO 266
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 266
atcctgtaaca cctgctcttg gatggacgcg cgggatgtct tggccacgta gtcatggttct 60
tggtctccgt at 72
<210> SEQ ID NO 268  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 269  
atacgtoaca cctgcctotat agcttgcccc tactggacgt aaggttatca gtcttggtgtg  
tgctctccgt at  

<210> SEQ ID NO 269  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 269  
atacggtggc caaaccacat aacgtttttc ggccatgaga atactgtcac ttacagagca ggtgttgacgg at  
ggtgtggccgt at  

<210> SEQ ID NO 270  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 270  
atacgtoaca cctgcctotgt aagtgagcgt atctctagtg ccgaaaacgg ttatgtgtgtg  
tgctcctccgt at  

<210> SEQ ID NO 271  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 271  
atacggtggc caaaccacag acgaatagct acacacttcg tgaactatcc cctagagca ggtgttgacgg at  
ggtgtggccgt at  

<210> SEQ ID NO 272  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 272  
atacgtoaca cctgcctotca ggggtaggtt cagagagtgc tgaactatcc gcttgggtggt  
tgctcctccgt at  

<210> SEQ ID NO 273  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence
atcggtgagc caacaccata caggatctat tcccaagaaga gttggcaatat accaagaca 60
ggtggtgacgg at 72
<210> SEQ ID NO 274
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<223> SEQ ID NO 274 &211s LENGTH: 72 &212s TYPE: DNA &213s ORGANISM: Artificial Sequence &220s FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 274
atcggtgaaca ctgctctcgg gatatatgcca actcttccttg gatagatcc tgtggtgtgt 60
tgcttcgcgt at 72
<210> SEQ ID NO 275
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<223> SEQ ID NO 275 &211s LENGTH: 72 &212s TYPE: DNA &213s ORGANISM: Artificial Sequence &220s FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 275
atcggtgagc caacaccata caggatctat tcccaagaaga gttggcaatat accaagaca 60
ggtggtgacgg at 72
<210> SEQ ID NO 276
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<223> SEQ ID NO 276 &211s LENGTH: 72 &212s TYPE: DNA &213s ORGANISM: Artificial Sequence &220s FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 276
atcggtgaaca ctgctctcgg gatatatgcca actcttccttg gatagatcc tgtggtgtgt 60
tgcttcgcgt at 72
<210> SEQ ID NO 277
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<223> SEQ ID NO 277 &211s LENGTH: 72 &212s TYPE: DNA &213s ORGANISM: Artificial Sequence &220s FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 277
atcggtgagc caacaccata caggatctat tcccaagaaga gttggcaatat accaagaca 60
ggtggtgacgg at 72
<210> SEQ ID NO 278
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE: OTHER INFORMATION: chemically synthesized
<223> SEQ ID NO 278 &211s LENGTH: 72 &212s TYPE: DNA &213s ORGANISM: Artificial Sequence &220s FEATURE: OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 278
atcggtgaaca ctgctctcgg caacgggaga cggctctgttgt agtataatct tgtggtgtgt 60
-continued

tggtcctcgt at

<210> SEQ ID NO 279
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 279
atacgggagc caacaccaag caaactacct ttcaaggtgc ttcagtcagc gacttagagca ggtgttgacgg at

<210> SEQ ID NO 280
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 280
atacggtcaac cctgcctcag aacagcgcgt aagagtagtt tggcggtgt at

tggtcctcgt at

<210> SEQ ID NO 281
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 281
atacgggagc caacaccaag cccagggagt catcagtcag atagaacac ctttagagca ggtgttgacgg at

<210> SEQ ID NO 282
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 282
atacggtcaac cctgcctcag aagaggtct attactcagc tgcagcgcgt ggcatgtat at

tggtcctcgt at

<210> SEQ ID NO 283
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 283
atacgggagc caacaccaag cccaggtcag atggaggtgt cgcgtatcag aagcagagca ggtgttgacgg at

<210> SEQ ID NO 284
<211> LENGTH: 72
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 284

atacgcgaac cctgctctgc ggtatattca cgcaacgctgca atacgacgcg tgtctggtgtg

<210> SEQ ID NO 285  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 286

atacgggagc caacacactg atacacggtg ctagaagactg gacgctgcccggttagacgca

<210> SEQ ID NO 287  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 287

atacgggagc caacaccaac tgggaacagt tgcttgctac gtagtactag tgcagagca

<210> SEQ ID NO 289  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 289

atacgtacca ctctgtctgc ggtatattca cgcaacgctgca atacgacgcg tgtctggtgtg
atacgggac caacaccaat gtttgaagca aagccgagcc atgtagaaac gitt Ctagagca ggtgttgacgg at
<210> SEQ ID NO 290
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 290
atacgggac caacaccaat gtttgaagca aagccgagcc atgtagaaac gitt Ctagagca ggtgttgacgg at
60
ggtgtgacgg at
72

atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72
<210> SEQ ID NO 291
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 291
atacgggac caacaccaat gtttgaagca aagccgagcc atgtagaaac gitt Ctagagca ggtgttgacgg at
60
ggtgtgacgg at
72

atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72
<210> SEQ ID NO 292
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 292
atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72

atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72
<210> SEQ ID NO 293
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 293
atacgggac caacaccaat gtttgaagca aagccgagcc atgtagaaac gitt Ctagagca ggtgttgacgg at
60
ggtgtgacgg at
72

atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72
<210> SEQ ID NO 294
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 294
atacgtoca aactgtctag aogttctctac atgctctggc ttgcttcaaa acattgtgtg 60
tgctctcct at
72
-continued

<210> SEQ ID NO 295
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 295
atacgggac caacaccatt cccccccttc gtctctggtg ccgcctacct aatttagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 296
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 296
atacgggac caacaccagc ccgcataccg atgtggttgtgt ctgacctggt cccatgcagcag 60
ggtgtgacgg at 71

<210> SEQ ID NO 297
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 297
atacgggac caacaccact gttatgtag ctcctcctca asctctttga ccacagacag 60
ggtgtgacgg at 72

<210> SEQ ID NO 298
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 298
atacgggac caacaccacc gcatgcgttc ccaccgcgcgt gcatgattgt tggtagacag 60
ggtgtgacgg at 72

<210> SEQ ID NO 299
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 299
atacgggagc caacaccags atcctccctg tttataacac gttcagacag 60
ggtgtgacgg at 72

<210> SEQ ID NO 300
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 300
atacgggagc caacaccgac ccggtgtgctg accactcgttg ttcgagccg ccgagaccag

71
<210> SEQ ID NO 301
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 301
atacgggagc caacaccgac atgatatgcc ggtccttgga attacgtcttt gccagcagca

72
ggtcgcagacg at
<210> SEQ ID NO 302
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 302
atacgggagc caacacagg gcaagtgtgta tggatatcg ggaaccaaca ccagagcag

tgtaacgggt

70
<210> SEQ ID NO 303
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 303
atacgggagc caacacagg gcaagtgtgta tggatatcg ggaaccaaca ccagagcag

tgtaacggat

70
<210> SEQ ID NO 304
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 304
atacgggagc caacacagg gcaagtgtgta tggatatcg ggaaccaaca ccagagcag

tgtaacggat

70
<210> SEQ ID NO 305
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 305
atactgtaaca cctgctotgc actgtgagat caagtgtgag ttatagtttg cgtttgtgt

72
tggtcctcgt at
<210> SEQ ID NO 306
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 306
atacgggagc caaaccaaat gcacagtgca cgcccttttt gccttgacgg gtaagagca 60
ggtgtaacgg at 72

<210> SEQ ID NO 307
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 307
atacgggagc caaaccaact tgctctctac ggaacctta cgccaatcta cacagagcag 60
gtctgaacgg at 71

<210> SEQ ID NO 308
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 308
atacgggagc caaaccaatt agcaacgatt ccocgttag ttcpggtgca tcccagagca 60
gtctgaacgg at 72

<210> SEQ ID NO 309
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 309
atacgggagc caaaccaact gcaggggttgag ggcgaattc cacacactg gcggcgtta 60
catgtaacgt 69

catgtaacgt 69

<210> SEQ ID NO 310
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 310
atccgtcaca cctgctctaa ttaggatag cggcaacgga aacagaggg gggaattgttgt 60
tggtccttcgt at 72

<210> SEQ ID NO 311
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 311
atcgctgaca cctgcttctg gaccaggtca gacaagcaca tggatatctc ggctgggtgt  60
ggctccgcgt at 72

<210> SEQ ID NO 312
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 312
atcgctgaca cctgcttctg agtcaagag tttaggagg agcstacata acagtgggtgt  60
tgccctccgt at 72

<210> SEQ ID NO 313
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 313
atcgctgaca cctgcttctg cascaagtca tcagcgggtc ggggacgcgt gggctgggtgt  60
tgccctccgt at 72

<210> SEQ ID NO 314
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 314
atcgctgaca cctgcttctg acaggttata aacaggagtg atagtttcaag gatctgggtgt  60
tgccctccgt at 72

<210> SEQ ID NO 315
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 315
atcgctgaca cctgcttctg gcggctcgcga accgagtgga tcgaccccg gggtgggtgt  60
ggctccgcgt at 71

<210> SEQ ID NO 316
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 316
atcgctgaca cctgcttctg gcgaacgcga tccacaaga cctggaasac atagttggtgt  60
atcgctcaca cctgctctgg tggtgctcc tgtatatcca tcaacacctgc tctggttgtg 60
atcgctcaca cctgctctgg tggtgctcc tgtatatcca tcaacacctgc tctggttgtg 60
gatccgcgtat 70

taggtgcacagt caagtgctag tcatagtttg cgttttgtgtg 60
taggtgcacagt caagtgctag tcatagtttg cgttttgtgtg 60
tggtcctcct at 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 322
atccgtaaca cctgctctgt gtatgatgag gtagttgctt cgtagagacc agtggggttgt
60
ggcctccgt t
71

<210> SEQ ID NO 323
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 323
atccgtaaca cctgctctgg gatgcacccg aaactacgg ggaatcgttg ctaatggttgt60
tgcctccgt at
72

<210> SEQ ID NO 324
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 324
atccacagt aacgccgccg agtgtgtctg gattgagcct cacaacgtct gtggtgttgtg60
tccctcgtat
69

<210> SEQ ID NO 325
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 325
atccgggagc caacacccag gggtggtgccg ctgacacttg acacgtacct gtggagac60
ggtgtgcacccg at
72

<210> SEQ ID NO 326
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 326
atccgtaaca cctgctctcc acaggtacgt gtcaatgtca agoggccact ccccctgtg60
tgcctccgt at
72

<210> SEQ ID NO 327
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 327
-continued

```
atcgggagc caaaccaca agagccgta cgaaaaaata actatgcaat tgtagacag  
gtgtacgga t  

<210> SEQ ID NO 328  
<211> LENGTH: 71  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 328  
atcgggagc caaaccaca ccaaggaaga ataaaaagat cgagtgaaca caccagagca  
gtgtagacag at  

<210> SEQ ID NO 329  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 329  
atcgggagc caaaccacca ccaaggaaga ataaaaagat cgagtgaaca caccagagca  
ggtgtacgga at  

<210> SEQ ID NO 330  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 330  
atcgggagc caaaccacca ccaaggaaga ataaaaagat cgagtgaaca caccagagca  
gtgtacgga at  

<210> SEQ ID NO 331  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 331  
atcgggagc caaaccacca ccaaggaaga ataaaaagat cgagtgaaca caccagagca  
gtgtacgga at  

<210> SEQ ID NO 332  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 332  
atcgggagc caaaccacca ccaaggaaga ataaaaagat cgagtgaaca caccagagca  
gtgtacgga at  

tgctgccgt at  
```
<210> SEQ ID NO 333
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 333
atacgagcc caacaccagc gcaagcagaa aagcgttaaag cgaatctcct tcagagca 60
gtgtgacagc at 72

<210> SEQ ID NO 334
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 334
atacgtcaca ccctctcctc ggacaaatct tgtttaacag ttttctggtt gocatgtgt 60
tgctctccgt at 72

<210> SEQ ID NO 335
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 335
atacgagcc caacaccagc cttatctcct gcagatcata aaaggtacac ccccagca 60
gtgtgacagc at 72

<210> SEQ ID NO 336
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 336
atacgtcaca ccctctcctg ggtgtatctc tcatttgatc tcgcagata atgtgtgt 60
tgctctccgt at 72

<210> SEQ ID NO 337
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 337
atacgagcc caacaccacga gactcaagtg gactacgaac aatgtattca cccaagca 60
gtgtgacagc at 72

<210> SEQ ID NO 338
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 339
atcgtcaac cctctcctg ggtgacataa tgtctgtcac tccacaggtgt tctgtgggt

<410> SEQ ID NO 339
<411> LENGTH: 72
<412> TYPE: DNA
<413> ORGANISM: Artificial Sequence
<420> FEATURE:
<423> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 340
atcgtcaac cctctcctg ggtgacattt ccattaaccc ttaacctc tcaagaacca 60
ggtgagcg

<410> SEQ ID NO 340
<411> LENGTH: 72
<412> TYPE: DNA
<413> ORGANISM: Artificial Sequence
<420> FEATURE:
<423> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 341
atcgtcaac cctctcctg ggtgaggtta atgagttaat ggsaagatcc cccgtgggt

<410> SEQ ID NO 341
<411> LENGTH: 72
<412> TYPE: DNA
<413> ORGANISM: Artificial Sequence
<420> FEATURE:
<423> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 342
atcgtcaac cctctcctac ttttgtggtg taaatccttg ggttgttttt tttctgtgg

<410> SEQ ID NO 342
<411> LENGTH: 72
<412> TYPE: DNA
<413> ORGANISM: Artificial Sequence
<420> FEATURE:
<423> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 343
atcgtcaac caaacatca agcagagac tacaaagacatccatatto caagagca 60
gtgaggcg

<410> SEQ ID NO 343
<411> LENGTH: 71
<412> TYPE: DNA
<413> ORGANISM: Artificial Sequence
<420> FEATURE:
<423> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 343
<210> SEQ ID NO: 344
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 344
atcgctacactcttcttctggatgtggattctctgtgttgctgtgg 60
gctgccgta t

<210> SEQ ID NO: 345
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 345
attcgccgac acccaccgg tgtgctcata aagaaataag ggtatcact tagagagccag 60
gtgcacgcga t

<210> SEQ ID NO: 346
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 346
atcgctacactcttcttctgtggtgattctctgtgttgctgtgg 60
gctgccgta t

<210> SEQ ID NO: 347
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 347
attcgccgac acccaccgg ggtctcccat cgtgggagac ataaacaaaa tctagagca 60
gtgcacgcga at

<210> SEQ ID NO: 348
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 348
atcgctacactcttcttctgtggtgattctctgtgttgctgtgg 60
tgcctccgta at
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 349
atacgggac caacacacag aggttcacag taagagaagg acotgggacg cgtgagaga 60
gggtgtcagc gat 72

<210> SEQ ID NO 350
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 350
atcgtcaca cctgctctga cgagtcacag gtctctctct tactgtgacg ctcatgtgt 60
tgcttccgt at 72

<210> SEQ ID NO 351
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 351
atacgggac caacacacag acgcctctct ttcagctcga gatagttgta atagagaga 60
gggtgtcagc gat 72

<210> SEQ ID NO 352
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 352
atcgtcaca cctgctctct attctcatat ttcgctggtg aaagtgaggc gtctgtgtgt 60
tgcttccgt at 72

<210> SEQ ID NO 353
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 353
atacgggac caacacaccc gtagcggcgg ccttgccgaggg acgcagaggg ctcagagaga 60
gggtgtcagc gat 72

<210> SEQ ID NO 354
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 354
atcgtcaca cctgctctcg aggcctcgcgc gtcgccccca ggccctgcgca tcgggtgtgt 60
atcgggag ccacacaggg ctgaacgtat tgacggaaat aaataagaca cgtagagca 60
ggtgcgacgg at 72

<210> SEQ ID NO 356
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 356
atcgtcaca cctgtctatat cgtgctttat tttacctgct ctagcgtta cgctggtgt 60
tgcgtcctgt at 72

<210> SEQ ID NO 357
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 357
atcgggag ccagacggcga cagggcgggc cgggtcgagg tttagagca 60
ggtgcgacgg at 72

<210> SEQ ID NO 358
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 358
atcgtcaca cctgtcttaa aacctcaggc gggccccccc ggtgctcgct cgctggtgt 60
tgcgtcctgt at 72

<210> SEQ ID NO 359
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 359
atcgggag ccacacaggg cggtctcgcc cgctctccag agccgactca ttagagca 60
ggtgcgacgg at 72

<210> SEQ ID NO 360
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 360

atcgtcaaca cctgctctca ttagcttgg cttggtgagc cgccgcaccc cgccggttgt  60
tgctccagt at  72

<210> SEQ ID NO 361
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 361

atacggagc caaacaacgc tcaaatccct ctggataaa tctgaacacg ggttaagcag  60
ggtgtacgg at  72

<210> SEQ ID NO 362
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 362

atcgtcaaca cctgtattta cgggttctcg agttatcgc aggggatgg tagttgttgt  60
tgctccagt at  72

<210> SEQ ID NO 363
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 363

atacggagc caaacaact ggtgagcggc ctgcgccgcc tggcgtcccc cccgagcag  60
ggtgtacgg at  72

<210> SEQ ID NO 364
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 364

atcgtcaaca cctgctctcg gggaggccgc cagtcgagcg aggcgcctca ccaagtttgt  60
tgctccagt at  72

<210> SEQ ID NO 365
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 365
-continued

atacgagc caaaccacg aaggtgccgc gaccaccta tttgtttgcc attagagcag  60
gtctgacgga t  71

<210> SEQ ID NO 366
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 366
atgctcaaca cctgctctaa tagcaaaca aatagtcggt cgcgccaccc tgtggtgttt  60
gcttcggtat  71

<210> SEQ ID NO 367
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 367
atacgagc caaaccacat aacaagaaga acagcacgta cagcagtact taccagacgt  60
gtctgacggat  72

<210> SEQ ID NO 368
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 368
atgctcaaca cctgctctgg taagtactgc tgtacgtgct gttctcttgg ttagtggtgt  60
tgcttcggtat  72

<210> SEQ ID NO 369
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 369
atacgagc caaaccaccc acgtagcgc accaaact ataaacgaa tcttacagca  60
gtctgacggat  72

<210> SEQ ID NO 370
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 370
atgctcaaca cctgctctag gattcggttt atagattttg gtgcgctagc gtggtgtgtt  60
tgcttcggtat  72
-continued

<210> SEQ ID NO 371
<211> LENGTH: 62
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 371
aatagggagc caacacaga gcaggtgtga acgatagac aggtagagca ggtgtagcgg 60
at

<210> SEQ ID NO 372
<211> LENGTH: 62
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 372
atccgtcaca cctgtcttac ctgtcttact cgtcacaacct gtctgtgtgtg tggctccgt 60
at

<210> SEQ ID NO 373
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 373
aatagggagc caacacacag aacccccgggt ccccccggggg actataatcc taccagagca 60
ggtgtgacgg at

<210> SEQ ID NO 374
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 374
atccgtcaca cctgtctctg taggaatata gtcccccccggg gacccggggg ttcgtggtgt 60
tggctccgt at

<210> SEQ ID NO 375
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 375
aatagggagc caacacacac ggaagacttc tccgcatgtg accgyttacc ttccagagca 60
ggtgtgacgg at

<210> SEQ ID NO 376
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 376
atacgtaaca ccgtctctgg aaggttaacgg ttcacatgcg gagaagctct cctgtgtgtg
   60
tgctctccgt at
   72

<210> SEQ ID NO 377
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 377
atacggaag ccaaaccaaa tgaaggtgta cttaaagacg aatactcaca attaagagca
   60
ggttgtacgg at
   72

<210> SEQ ID NO 378
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 378
atacgtaaca ccgtcttota attgsggat ttcgtcttttt agtcacccgt catgtgtgtg
   60
tgctctccgt at
   72

<210> SEQ ID NO 379
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 379
atacggaagc caaacaacc tgacggcggc cagcactcaca tatgggtccc cggcagagca
   60
ggttgtacgc at
   72

<210> SEQ ID NO 380
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 380
atacgtaaca ccgtctcttg cgggacaaaa tagtgtgtgc tgcggcggcgt caggtgtgtg
   60
tgctctccgt at
   72

<210> SEQ ID NO 381
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 381
atacggaagc caaacaacc atccctctgtg gcgggaggga ttgcccggcag tgccagagca
   60
ggttgtacgc at
   72
<210> SEQ ID NO 382
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 382
atcgtgtaac cctgctotgg cactggccgc aatcgggccc gcacacagg atgtggtgtg 60
tgctcctcctg at 72

<210> SEQ ID NO 383
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 383
atcggggagc caacaccagc ccgccccccg gctcattggaa gtotaatcag atcagaagca 60
gtggtgacgg at 72

<210> SEQ ID NO 384
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 384
atcgtgtaac cctgctotgg atctgattag acttcgagt acgctgggggc ggcgtggtgtg 60
tgctcctcctg at 72

<210> SEQ ID NO 385
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 385
atcggggagc caacaccagg gttgccgcgg ccagcacgct ctgccttca agctagagca 60
gtggtgacgg at 72

<210> SEQ ID NO 386
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 386
atcgtgtaac cctgctttag ctgsgaaggc aggastcgct gcgcgggcgc accotggtgtg 60
tgctcctcctg at 72

<210> SEQ ID NO 387
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
ataggggac caacaccaga cgggtggtat caagcttaat tggcaccatg tttaagagca  
ggtgtgacgg at  
72

<210> SEQ ID NO 388
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 388
atcgtcaaca cctgctctaa aacatgggcc caattagccg tgaatccacc cgtcttggtg

tgctcgcgt at  
72

<210> SEQ ID NO 389
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 389
ataggggac caacaccacct ctcaagctcg aagttctgca aaagtttctg ccocagagca  
ggtgtgacgg at  
72

<210> SEQ ID NO 390
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 390
atcgtcaaca cctgctctgg ggccaaatct ttccgtctat cttcgacttg agagtgggtg

tgctcgcgt at  
72

<210> SEQ ID NO 391
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 391
ataggggac caacaccatcg aagcatcatc taactcctac cagggatccg gactagagca  
ggtgtgacgg at  
72

<210> SEQ ID NO 392
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 392
atcgtcaaca cctgctctag tcggtatcc taagtggagc taatgtgtc cgactgggtg  
60

Continued...
tggctccctgt 72

<210> SEQ ID NO 393
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 393
atacggagc caacaccase ggcgacccgt atgcctcgga ctcatactcg gcagcagcag 60
ggcgtgacgg ggt 72

<210> SEQ ID NO 394
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 394
atacgtcaca cctgcttcgg cctgtgtgtg acgcggagag ctaacgtcgg cctgtgtggtg 60
tggctccctgt 72

<210> SEQ ID NO 395
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 395
atacggagc caacaccaga gcgggtgtga cggatactcg ggacgcaaca ccagacagg 60
tgtgacggat 70

<210> SEQ ID NO 396
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 396
atacgtcaca cctgcttcgg tgttggttcc cggatactcg tcacacccgc tctgtgtggtg 60
gctccctgtat 70

<210> SEQ ID NO 397
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 397
atacggagc caacaccacc gaatgtgagt ataaaaaggg ttagactcgt ccagacagg 60
tgtgacggat 70

<210> SEQ ID NO 398
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 398

atccgtcaca cctgctcttg ggcgatctaa ccccttttat cactcaatct ggtggtgttg

60
gctccgtat

70

<210> SEQ ID NO 399
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 399

atacgggagc caacaccagc aggagcaat aaaaaccatt aaatgtagc agtacagaca

60
ggtgtagcgg at

72

<210> SEQ ID NO 400
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 400

atccgtcaca cctgctcttg cagctgactt tataggttct tttatgctcc cctgcgggtt

60
tgcgccgt at

72

<210> SEQ ID NO 401
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 401

atacgggagc caacaccagc ggctcagac ccggtcctgg gccggcccct cccagagaca

60
ggtgtagcgg at

72

<210> SEQ ID NO 402
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 402

atccgtcaca cctgctcttg ggagggccgg gcacaagcag ggtcgtgag cctgtgggt

60
tgcgccgt at

72

<210> SEQ ID NO 403
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 403
atagggacg caacacacct ccaagtcctat accctccaaa taagttgat taccagacga 60
gggtgtacag at 72

<210> SEQ ID NO: 404
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<240> SEQUENCE: 404
atcatgcaac actgtctctg tattcaact tatttggag gtaattgctt gggatggtgat 60
tgctcctgct at 72

<210> SEQ ID NO: 405
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<240> SEQUENCE: 405
atagggacg caacacagct atctgtgatca agagaactga aggaattttct taccagacga 60
gggtgtacag at 72

<210> SEQ ID NO: 406
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<240> SEQUENCE: 406
atcatgcaac actgtctctg tagaattact ctccaggatt ctggatccag atacttggtgct 60
tgctcctgct at 72

<210> SEQ ID NO: 407
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<240> SEQUENCE: 407
atagggacg caacacacoag tgcgtcact atcatttcaaa aacaacaccc taggagacga 60
gggtgtacag at 72

<210> SEQ ID NO: 408
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<240> SEQUENCE: 408
atcatgcaac actgtcctcc ttagggtgctg ttttgaata gtaagtcag cacgtggtctg 60
tgctcctgct at 72
-continued

<210> SEQ ID NO 409
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 409
atagggagc caacaccaag gataagaatc aatagggcaat gaaagaagac cggaagagca 60
ggtgtgcagc at 72

<210> SEQ ID NO 410
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 410
atctgctca acctgctcgc gctgtctttc tcaattgcta ttgatctttata atcgctcggt 60
tggtcctcgat 72

<210> SEQ ID NO 411
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 411
atagggagc caacaccaag cgccgagcgg tgcctgatt tcaatttgctg agcctgcagca 60
ggtgtgcagc at 72

<210> SEQ ID NO 412
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 412
atctgctca acctgcttca caaacatgtc taatacgctgc gatctccttt cggctgcaggt 60
tggtcctcgat 72

<210> SEQ ID NO 413
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 413
atagggagc caacaccaacc gacatggag cggacccatt agatctttcaat tcttgcagca 60
ggtgtgcagc at 72

<210> SEQ ID NO 414
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 414
atcgcgtaaca ccgcctctag gattgaagat ctaatgggctc gcgtccatgg tcgggtggtg 60
tgccctccgt at 72

<210> SEQ ID NO 415
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 415
atacgggagc caacacccac cggacgcggtcg accggggtc cgcgcgcgc cccagagca 60
gtggtgacgg at 72

<210> SEQ ID NO 416
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 416
atcgcgtaaca ccgcctctgg ggagcggggg gcgggctcgc gcgtttgggtgc ggggtggtg 60
tgcctccggt at 72

<210> SEQ ID NO 417
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 417
atacgggagc caacacccag cgacgggtcc acggcgcgc ggcagctcaag tggtagagca 60
gtggtgacgg at 72

<210> SEQ ID NO 418
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 418
atcgcgtaaca ccgcctctac cattgcagct ccgcgcgcgc gggacgcgct gcgtctgggt 60
tgccctccgt at 72

<210> SEQ ID NO 419
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 419
atacgggagc caacacccag ggccggacgt ctcctccccc gcgcacagcg gcgttagagca 60
gtggtgacgg at 72
<210> SEQ ID NO 420
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 420
atcgatcag tctgctcttg 60
tgctctctgt 72

<210> SEQ ID NO 421
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 421
atcgagc gacaaagct 60
ggtgctcacg 72

<210> SEQ ID NO 422
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 422
atcgatcag cccgctcttg 60
tgtctctctg 72

<210> SEQ ID NO 423
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 423
atcgagc gacaaagct 60
ggtgctcacg 72

<210> SEQ ID NO 424
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 424
atcgatcag cccgctcttg 60
tgctctctgt 72

<210> SEQ ID NO 425
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<210> SEQ ID NO 426  
<211> LENGTH: 71  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 426  
atcggtcaca cctgctctag ctggtatgtt tcagcttagt ccgcctagac gcttggttgtt 
60  
ggtcctcgtta t 
71

<210> SEQ ID NO 427  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 427  
atccggagc caacaccaag cggacgacg gcttaagtg aaacatacga gcctagagca 
60  
ggtgtagcag at 
72

<210> SEQ ID NO 428  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 428  
atccgctcaca cctgtctttta acggttataa tcggtgcggt cgctgtggtgt 
60  
tgcgttcctat 
72

<210> SEQ ID NO 429  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 429  
atacgggagc caacaccaagt acggcggtgt cggacactac tataccagt tgaahagca 
60  
ggtgtagcag at 
72

<210> SEQ ID NO 430  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  
<400> SEQUENCE: 430  
atacgtcaca cctgctcttt caactgggtta tagtgagtt gcacacggcc gtactgggt 
60
tggtctccct 72

<210> SEQ ID NO 431
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 431
atacgggagc caacccacca cctgacacacg aaaaaacccag tgtgctgcat agccagagca 60
gggtgtgacg at 72

<210> SEQ ID NO 432
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 432
atacgtgac aactctctgg gatgtgggac aactggtgct ttggtttgtca ggtgatgtgt 60
tggtctccct 72

<210> SEQ ID NO 433
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 433
atacgggagc caacccacca ggtggcgcc aatactggtaa cgtgctcttg gagacgagt 60
gtgacaggt 69

<210> SEQ ID NO 434
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 434
atacgtgac aactctctcc aagacagct taccgtattg gcccaacact atggtgttg 60
cctccggtat 69

<210> SEQ ID NO 435
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 435
atacgggagc caacccacca agcgaacac agctcaacctt cc tsgtgaggt atcgagacga 60
gggtgtgacg at 72

<210> SEQ ID NO 436
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 436
atcgctcaca cctgctctcg ctatctcact cagggatgga ctgtgttgcg cttatggtgt 60
tggtctccgt at 72

<210> SEQ ID NO 437
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 437
atcgggagc caacaccag cacatactag ctatctcact agagcaggtg tgaaggat 58

<210> SEQ ID NO 438
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 438
atcgctcaca cctgctctga tgaagatagt agtatgttgcg tgggttgtgc tccogtat 58

<210> SEQ ID NO 439
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 439
atcgggagc caacaccac aacggtggtgc tgaattcacc agagcaggtg tgaaggat 58

<210> SEQ ID NO 440
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 440
atcgctcaca cctgctcttg taagatcagc aacaagttag tgggttgtgc cccogttat 58

<210> SEQ ID NO 441
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<220> FEATURE:
<221> NAME/KEY: misc_feature
<222> LOCATION: (54)...(54)
<223> OTHER INFORMATION: n is a, c, g, or t

<400> SEQUENCE: 441
atcgggagc caacaccac cgtttttgt tcaatgagg tcaaatattc gtcnagagca 60
ggtgtgcagc at 72
<210> SEQ ID NO 442
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<221> NAME/KEY: misc_feature
<222> LOCATION: (19)..(19)
<223> OTHER INFORMATION: n is a, c, g, or t

<400> SEQUENCE: 442
atcggtacca ctcgctctng acgaatattg tctctcatt agatcaaaaa cgggtggtgtggtatgctcctcgt 60

<210> SEQ ID NO 443
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 443
atcgggac caacaccagt tctggtacca tctggtcagc tctggtacca aacggacca 60
gggtggtacca tctggtacca 72

<210> SEQ ID NO 444
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 444
atcggtacca ctcgctctgc tcttcactcgc tcttcactcgc ctcacgtctggtgctcctcgt 60
tgctcctcgt atgctcctcgt 72

<210> SEQ ID NO 445
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 445
atcgggac caacaccata gcaaragccg tacttttctgt aatcctcaca aatcctcaca 60
gggtggtacca tctggtacca 72

<210> SEQ ID NO 446
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 446
atcggtacca ctcgctctat tcttgtggaa ttcgaaaaa taacagtta tctatggtgt 60
tgctcctcgt atgctcctcgt 72
<210> SEQ ID NO 447
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 447
atagggagc caacaccata gtttgggcc aatacggttaa cgtgtctttg gagagcagtt 60
gtgaoggtat 69

<210> SEQ ID NO 448
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 448
atctgtoaca cctgtctcgc aagagacgt tacggtattg gcaccaaacat atgtgttgg 60
cctccgtat 69

<210> SEQ ID NO 449
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 449
atagggagc caacaccacc acaaaagcct tcgccttac agacaggtgt gcgaggtat 58

<210> SEQ ID NO 450
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 450
atctgtoaca cctgctctgt aagggcgaat gtttttggtg tgtgtggtgct cctccgtat 58

<210> SEQ ID NO 451
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 451
atagggagc caacaccagc gtgtagctag ttccaggatt gtgtatgta atatagagsa 60
gtgtgtgcaggt at 72

<210> SEQ ID NO 452
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 452
atctgtoaca cctgctctat attacatact acaatctcga aactagctac acgcttgtgt 60
tggctccggt

<210> SEQ ID NO 453
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 453
atagggagc caacaccag cacatactag ctatcttctc agagcaggtg tgacggat

<210> SEQ ID NO 454
<211> LENGTH: 58
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 454
atcgctcaca cctgctctga tgagatact agatagtgtg tggggtggtgc cccggtat

<210> SEQ ID NO 455
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 455
atagggagc caacaccacg agagatctc taaaagaaa cctggtcttc gcccagagca ggtgtgacgg at

ggtgtgacgg

<210> SEQ ID NO 456
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 456
atcgctcaca cctgctctgg gcagacccca tgatccccgt tagatgatct ctgatgggtgatcgctccggt

tgctccggt

<210> SEQ ID NO 457
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 457
atagggagc caacaccagc aaagaatgt gagccctatg atcatctgtt cgtcagagca ggtgtgacgg at

ggtgtgacgg
<400> SEQUENCE: 458
atcgctcaca cctctctga cgaacagatg atcatagggc tcaactattct ttgctgtgt  60
tgctccagt at  72

<210> SEQ ID NO 459
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 459
atacgggac caacaccaga cactagtctg catatctctga ttctagaagct attoagaga  60
gtggtacggt at  72

<210> SEQ ID NO 460
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 460
atcgctcaca cctctctga atagccccata gatcagata tgcagatga tgtctgttgt  60
tgctccagt at  72

<210> SEQ ID NO 461
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 461
atacgggagc caacaccnta gttggggccc atacgggttaa cgtgtacttg gagagcaggt  60
gtgacggt at  69

<210> SEQ ID NO 462
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 462
atcgctcaac cctctctcc aagctacaagtt tacgctattt gccaacact atggttgtgg  60
tctccagt at  69

<210> SEQ ID NO 463
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 463
atacgggagc caacaccaga gacctcagtt tgcacccctg tgcctgctgtt atgcaagaca  60
gtggtacggt at  72
<210> SEQ ID NO 464
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 464
atgcgtgca cctgctotgc ataaacgcac gaccggggtg caacatgaac tctctggtgt  60
tgctccggt at 72

<210> SEQ ID NO 465
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 465
atacgggagc caaacaccct tatacgtgcc ctttttagca cctgtgctca cccctagagca  60
ggtgtcgag at 72

<210> SEQ ID NO 466
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 466
atgcgtgca cctgctotag ggtgacaca aagctctaag agggctcagta tagatggtgt  60
tgctccggt at 72

<210> SEQ ID NO 467
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 467
atacgggagc caaacaccct tatacgtgcc gcccagttat ccctgccat ctacagacca  60
ggtgtcgag at 72

<210> SEQ ID NO 468
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 468
atgcgtgca cctgctotgt aagagcgcag gcataacgcg ccggacgat agaatggtgt  60
tgctccggt at 72

<210> SEQ ID NO 469
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 469
atcggggc caaaccca tttgcaac ccggacccca gaggctagg gcacgagca  60
ggtgtagccg at  72

SEQ ID NO 470
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 470
atcgtgca cctgctctgg tccctaggcc tctagggctc ggggtgcca aatgtggtg  60
tggtctcccg at  72

SEQ ID NO 471
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 471
atcgggggc caacccact gccacgacca atcatgaaat agggcatccg agagagagca  60
ggtgtagccg at  72

SEQ ID NO 472
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 472
atcgtgca cctgctctct ctcggatgcc tcatctcatg atgtctgtg ccagtgtggt  60
tggtctcccg at  72

SEQ ID NO 473
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 473
atcgggggc caaaccaatg tgcattggtg ggcgtggctc tccagcaag ctctagagca  60
ggtgtagccg at  72

SEQ ID NO 474
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 474
atcgtgca cctgctctag aacctggctcg gataagcaac cccaccaatg cacaatggtg  60
<210> SEQ ID NO 475
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 475
atacgggac caacaccaca tcgaataca cactatgcgt acggatccta ttagtagca 60
gtggtgacggt at 72

<210> SEQ ID NO 476
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 476
atacgtcaac cctgtctac aataggatcc gtcatcatga tgtgtatgtg catgtggtgt 60
tggtcctcgt at 72

<210> SEQ ID NO 477
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 477
atacgggac caacaccaag tggcaagct attacgccag ctgtagagta gtacagagca 60
gtggtgacggt at 72

<210> SEQ ID NO 478
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 478
atacgtcaac cctgtctctg tctcatctta gtcctgcgta atagcttgct ctactggtgt 60
tggtcctcgt at 72

<210> SEQ ID NO 479
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 479
atacgggac caacaccaagct cattggtgag tggagagtag cagtgtgatga tggagagca 60
gtggtgacggt at 72

<210> SEQ ID NO 480
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 480
atccgtcaac cctgtcctcg ctaaattcaac tgcactcatt gcatccccaa tgttggtgtgt  60
tgctccctgt at  72

<210> SEQ ID NO: 481
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 481
atatcgggac caaaccaata caaacctcga agcgtaactc tttaacatca ctccgagca  60
ggtgtcagcgt at  72

<210> SEQ ID NO: 482
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 482
atatcgtcaac cctgtcctcg agagtatgta aagaataacg ctttgacggt tgtatggtgt  60
tgctccctgt at  72

<210> SEQ ID NO: 483
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 483
atatcgggac caaaccaata ttgagtgtgt ccaggtcagc tatggtatc cagagagca  60
ggtgtcagcgt at  72

<210> SEQ ID NO: 484
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 484
atatcgtcaac cctgtcctcc tgaataccaa tacticgtcctc gagacagtca aaattggtgt  60
tgctccctgt at  72

<210> SEQ ID NO: 485
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 485
ATACGGGAC CAACACACG AATGTGTA TCCTGTTGTC CCTGCGGTA TTAGAGCA
GGTGGACGG AT

SEQ ID NO: 486
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 486
ATCGGTCGAC CGCTCCTGAC AGAGACACT ATACAGACG TCCTGTGGAT
TGGCTCCGG AT

SEQ ID NO: 487
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 487
ATACGGGAC CAACACACG GCTGCCAGG TATGACACCG CGTGCGGTA TCCTGACGG
GGTGGACGG AT

SEQ ID NO: 488
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 488
ATCGGTCGAC CGCTCCTGAC GAGATCTAC CGCGGGTGA TACCTGGCGA GCGTGGAT
TGGCTCCGG AT

SEQ ID NO: 489
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 489
ATACGGGAC CAACACACG GGGATCTGA AAACCCGTA TATGCTAAG GCGCGGCA
GGTGGACGG AT

SEQ ID NO: 490
LENGTH: 72
TYPE: DNA
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: chemically synthesized

SEQUENCE: 490
ATCGGTCGAC GCGCTAGTCA ATACGGGCG TTTGAGAC CGTTGCGGAT
TGGCTCCGG AT
<400> SEQUENCE: 496
atccgtaaca cctgctctca aggcagctga gatacggttgg atccgagcacc atgatggttgctcctcctgct
60
tgctcccggt at
72

<210> SEQ ID NO 497
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 497
atccgagc caacaccc acgttttgat ctatagagga tacaatatta cttcgagctcctcctgct
60
gggtgacgg at
72

<210> SEQ ID NO 498
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 498
atccgtaaca cctgctctag acgaatattg tatactcatt gatacaaaaa cggtggttgctcctcctgct
60
tgctcccggt at
72

<210> SEQ ID NO 499
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 499
atccgagc caacaacata taaaagggga aaggtcaactt tgggtggagt acgtagaggtcctcctgct
60
gggtgacgg at
72

<210> SEQ ID NO 500
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 500
atccgtaaca cctgctctac gtaactcagac caaagtgcacc gttgccccttt tataatggttgctcctcctgct
60
tgctcccggt at
72

<210> SEQ ID NO 501
<211> LENGTH: 57
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 501
atccgagc caacaccaagt gttggcgtct tcctgatac gacgaggtgctcctcctgct
57
<210> SEQ ID NO: 502
<211> LENGTH: 57
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 502
atcgtgcacagtctgta tcagggaga aagcaacact ggtgttggtg cccgat

<210> SEQ ID NO: 503
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 503
atcgtgcacagagagctc accntcgcacgc ggcgagcgct gccgagcagc 60
GGTGGAGG 72

<210> SEQ ID NO: 504
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 504
atcgtgcacagtctgta tcagggaga aagcaacact ggtgttggtg cccgat

<210> SEQ ID NO: 505
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 505
atcgtgcacagagagctc accntcgcacgc ggcgagcgct gccgagcagc 60
GGTGGAGG 72

<210> SEQ ID NO: 506
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 506
atcgtgcacagtctgta tcagggaga aagcaacact ggtgttggtg cccgat

<210> SEQ ID NO: 507
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 507
atacggagc caacaccacc cgtttttgat ctaagagga tacaatattc gtctagagca

<210> SEQ ID NO 508
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 508
atacgtcaac cctgtcttag acaaatatgg tatactcatt agatcaaaaa cggtggtgtg

tggcctcctgt at

<210> SEQ ID NO 509
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 509
atacggagc caacaccacc acgcagaaga gatgccattgt atgatcgggtg taccagagca
gggtgacccg at

<210> SEQ ID NO 510
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 510
atacgtcaac cctgtctcag tacacaggc atacaatgca tctctctctgc gtctggtggt

tgctcctcctgt at

<210> SEQ ID NO 511
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 511
atacggagc caacaccacc ccaacagtgt ttttagctca tgcacaaaa gatcaagca

gggtgacccg at

<210> SEQ ID NO 512
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 512
atacgtcaac cctgtctcag tacaagttgtg catgacatca aacactgttt ggcgtggtgtg

tgctcctcctgt at
<210> SEQ ID NO: 513
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 513
atagggagc caacacaag gggttttacg atcggcaggt cggtggtcg acacagagca 60
ggtgtcagcag at 72

<210> SEQ ID NO: 514
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 514
atcctgtaaca cctctctgtg gcgtacacgca cggacgtgccg atctaaacc acgctgttgt 60
tgtcctcccgt at 72

<210> SEQ ID NO: 515
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 515
atagggagc caacacaac gcgcgcqgggc gcgtacacag gtgtacgtcg ggttagagca 60
ggtgtcagcag at 72

<210> SEQ ID NO: 516
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 516
atcctgtaaca cctctctac cccgactac acgtgtgacg tgcgcctcgc cggctgttgt 60
tgcctcccgt at 72

<210> SEQ ID NO: 517
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 517
atagggagc caacaccaag caatagaaca ccccttggtcg cactggtagc grantagagca 60
ggtgtcagcag at 72

<210> SEQ ID NO: 518
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<210> SEQ ID NO 524
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 524
atccggtcac accggttgc cagaatactc ctttggtggt tgaatgttgt 60
tgctccg ctg at 72

<210> SEQ ID NO 525
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 525
atacgagcg caacacca ta cccggttgc cagaataactc ttacagaca 60
ggtgctac cg at 72

<210> SEQ ID NO 526
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 526
atacggtcac accagtta cta ccgttgc ggggtcctg atatgttgt 60
tgctccg at 72

<210> SEQ ID NO 527
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 527
atacgagcg caacacca tctc ggtttgc ccttggtcag ttacagcag 60
tgctac gg at 70

<210> SEQ ID NO 528
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 528
atccggtcac acctccta cggtcagcg ctaaaaaagcg gcgtgtgggg aatgtgttgg 60
gctccgctg at 70

<210> SEQ ID NO 529
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 529
atcggagc caacaccaac ggtgctggg ttacctgctct ttcctgtgac cggtggagca 60
   ggtgctgacg at 72

<210> SEQ ID NO 530
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 530
atcgtcaca cctgctctca cggtcagca ggagggcaat acacacacac acggttgtgt 60
tgctcccgt at 72

<210> SEQ ID NO 531
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 531
atcggagc caacacaccc ttttaaaacgt ctagccagct tagcctatct cccagagca 60
ggtgctgacg at 72

<210> SEQ ID NO 532
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 532
atcgtcaca cctgctctcg ggaatggac taagcttggt taggtttttaa aaggttgtgt 60
tgctcccgt at 72

<210> SEQ ID NO 533
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 533
atcggagc caacaccacat ccacaccgat gcagctgcc tgttcgccc ctaacagca 60
ggtgctgacg at 72

<210> SEQ ID NO 534
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 534
atcgtcaca cctgctctagt tagcggcggg aagcagaggt gcacaggtgt agatgttgt 60
<210> SEQ ID NO: 535
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 535
atacgggac caacaccacc tattacagc ccaatttcca cctggtcattt ctatagaca
60
gtctcccggt at
72

<210> SEQ ID NO: 536
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 536
atactgtaaca cctgctctat agaattgccga ggtggaatt cgggtctgtaa taggtggtgt
60
tgctcccggt at
72

<210> SEQ ID NO: 537
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 537
atacgggac caacaccaca taactcacac tccatacc cactgtagac agcagagca
60
gtctcccggt at
72

<210> SEQ ID NO: 538
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 538
atactgtaaca cctgctcttgct gttgctacag tggtgtatgg gatgtgtagga tatgtggtgt
60
tgctcccggt at
72

<210> SEQ ID NO: 539
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 539
atacgggac caacaccacaa cggagtgcgtg gtggccctct ctcgccatata agttagagca
60
gtctcccggt at
72

<210> SEQ ID NO: 540
<211> LENGTH: 72
-continued

<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 540
atcggtcaca cctgccctca cttatatggcg agaggggccc accagcactc ggttttgtgt 60
tggcctccgt at 72

<210> SEQ ID NO: 541
<211> LENGTH: 73
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 541
atcgggagc caaaccaccg tttaaaaacg ctagctagct tagtocaatt ccaccagac 60
aggtgtgacg gat 73

<210> SEQ ID NO: 542
<211> LENGTH: 73
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 542
atcgctgaca cctgcttggcg tgasattgga ctagctagcc tagcgtttaa aaagttgtgt 60
ttgctcccg tat 73

<210> SEQ ID NO: 543
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 543
atcgggagc caaaccaccg acattggcaac tatagctta cccagctcag ctccagacga 60
ggtgtgacgc at 72

<210> SEQ ID NO: 544
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 544
atcgctgaca cctgcttggcg agctgacgtg gtaagctgta tagttgcaat gtcagtggt 60
tggcctccgt at 72

<210> SEQ ID NO: 545
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 545
atcggggc caacaccatt aacotgaag taccagtgc agtttaacct acctagagca 60
gggtgtagcg at 72

<210> SEQ ID NO 546
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 546
atcggtagca cctgtcatg gtaggtaaa cttgacactg ttccttccagg ttaatggtgt 60
tgcctcgcgt at 72

<210> SEQ ID NO 547
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 547
atcggggc caacaccagg cattagtgta aacgactaag agtcaggctg ttagcgagga 60
gggtgtagcg at 72

<210> SEQ ID NO 548
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 548
atcggtagca cctgtctgc tacagacctg cttctatgtc tttacactaa tgcctggtgt 60
tgcctcgcgt at 72

<210> SEQ ID NO 549
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 549
atcggggc caacaccatg aacggcgat ttagaggttg ggaactagt tgtagagca 60
gggtgtagcg at 72

<210> SEQ ID NO 550
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 550
atcggtagca cctgtotac caacagttc gcaacgctca ttaatggcgt gtcatttgt 60
tgcctcgcgt at 72
<400> SEQUENCE: 556
atcctgtaac ccgggtcag tcagttaca aatgacgagta aacaagtttt tacagttgtg 60
tgctcctcgt at 72

<210> SEQ ID NO 557
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 557
atacgggagc caacaccaac aacacgctg ccgggtcagt cagttaca aatgacgagta aacaagtttt tacagttgtg 60
ggtgtaagcg at 72

<210> SEQ ID NO 558
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 558
atacctgtaac ccgggtcag tcagttaca aatgacgagta aacaagtttt tacagttgtg 60

tgctcctcgt at 72

<210> SEQ ID NO 559
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 559
atacgggagc caacacacac accgtaattg agccatcgggt catccagcag tctagacagc 60
ggtgtaagcg at 71

<210> SEQ ID NO 560
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 560
atacctgtaac ccgggtcag tcagttaca aatgacgagta aacaagtttt tacagttgtg 60
tgctcctcgt at 71

<210> SEQ ID NO 561
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 561
atacgggagc caacacaccc ttcgcacatc ttgtaatcctg cctagtgctg tgtagagcag 60
ggtgtaagcg at 72
<210> SEQ ID NO 562
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 562
atcgtacat cctgtctaa acacgcagaa gtttcagaa tataatgtga gagggtggtgta

72
tgctccccag at

<210> SEQ ID NO 563
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 563
atcgggagac caacacacagt gctttctgct ttcttattgt gatatgtgatt atctagagca

60
ggtgcagcagc at

<210> SEQ ID NO 564
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 564
atcgtacatatcagatacagagacacgagaa gcaggtcatt gctatgtgtgta

60
tgctccccag at

<210> SEQ ID NO 565
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 565
atcgggagac caacacacaa attaacgtgt gtagataatg tgagcctcata ataaagaca

60
ggtgcagcagc at

<210> SEQ ID NO 566
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 566
atcgtacac cctgtcttt agatagggtt cccatatct ccaacgta atttggtgta

60
tgctccccag at

<210> SEQ ID NO 567
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 567
atcgggagc caacaccagt cccccctccc gttggaatga ctgctcataa caggagca 60
ggtgtgacgg at 72

<210> SEQ ID NO 568
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 568
atccgctcaa ctgcctctcc tgttatggac agtcattcag acggaatgg gactgttgt 60
tggtccttcg at 72

<210> SEQ ID NO 569
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 569
atcgggagc caacaccacc tgaatactaa ccacataggc cgacttgtgt tcacagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 570
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 570
atccgctcaa ctgcctctgt gaacacaagt cgggtcttag tgtttagatt cagggttgg 60
tggtccttcg at 72

<210> SEQ ID NO 571
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 571
atcgggagc caacaccagc taggtgctca ccacogggct caatctgtgc agacagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 572
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 572
atccgctcaa ctgcctcttg tctgacatga agtcacgccg ggtgacatcc tagtgggtg 60
<210> SEQ ID NO 573
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 573
atacgggac caacacca tcatatgcgc tcagccctct cccgtccata cccgtccataat cctagagca 60
ggtggtgacgg at 72

<210> SEQ ID NO 574
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 574
atcggtca ca cccgctctag gatgatgact ggagcgggct cgacgcaata gttatggtgt 60
tgctcctcg at 72

<210> SEQ ID NO 575
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 575
atacgggac caacacca cacggtcttttt cttatggtcg tgcggggacc cggagagca 60
ggtggtgacgg at 72

<210> SEQ ID NO 576
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 576
atcggtca ca cccgctcttc cgctcctccgg caacgacgta agaagagcac gcctctggtgat 60
tgctcctcg at 72

<210> SEQ ID NO 577
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 577
atacgggac caacaccaacc ggagacacta tacatctctc agacatata agtagagca 60
ggtggtgacgg at 72

<210> SEQ ID NO 578
<211> LENGTH: 72
atcgcgtaca cctgcctcag ctatattgtg ctagagagtag tataagtgtc ccggtggtgt 60
tgctccctg at 72

atagggagg caacaccaga tagttgtcct gcataatgtg tctgtgcta atgtagagca 60
ggtgtgacgg at 72

atcgcgtaca cctgcctcag attagcacac gacaaacat gcagggaca ctagtgggtg 60
tcgtccctg at 72

atagggggc caacaccacac tacagagcct aatcgtcact tctaagaga aatcagagca 60
ggtgtgacgg at 72

atcgcgtaca cctgcctcga cgtatctgtg aagtgagca taagttgtgta ggggtggtg 60
tgctccctg at 72
-continued

atcgggacc cacaccaccg caagttggtc tcaacggccac ctttctcat tttgagac  60
  ggtgctacgcg at  72

<210> SEQ ID NO 584
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 584
atacggtaaca cctgtctcat aatactgaaat aggtgagccgt gtagaccagc tgcgtggtgt  60
tgcctcgcgt at  72

<210> SEQ ID NO 585
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 585
atacgggacc cacaccaccct cctgtcttct tcaacggccac cactttctat cttttagac  60
  ggtgctacgcg at  72

<210> SEQ ID NO 586
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 586
atacggtaaca cctgtcttaa agatagaaag tgcctcgcgcg tgaagaacag aggtggtgt  60
tgcctcgcgt at  72

<210> SEQ ID NO 587
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 587
atacgggacc cacaccaccg aatggcaggt tgcttcatc tgcacgtggt tcacagac  60
  ggtgctacgcg at  72

<210> SEQ ID NO 588
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 588
atacggtaaca cctgtcttgc gacccatgtg caatatggaa caacttgcca tttgatggt  60
tgcctcgcgt at  72
atcagggac caacaccaac ctacctcccc acccccctccg agctctcgc gcggagaga

60
ggtgtgacgg at

72

atcggaggt cactttctgg gcggagggg agtggagtgt ctctctgtct gttgtgtgt
ggtgtgacgg at

72

atcagggac cacaacact caacagtccc cataaccccc gcacgcccc ctctagaga

60
ggtgtgacgg at

72

atcgtgagtcagagaggctt gcgtgtgtat tcggactact tggtgtgtgt
ggtgtgacgg at

72

atcagggagc caacaccaact ctacctagtt tcggaaaaaa ataaataaag caagagaga

60
ggtgtgacgg at

72

atcagggagc caacaccaact ctacctagg ttcggaaaaa atttaataaag caagagaga

60
ggtgtgacgg at

72
<400> SEQUENCE: 594
atcctcaac ccgtccttg ccctatattta attttttttcc ccaactagta agatgttgt
   60
tgctccggt at
   72

<210> SEQ ID NO 595
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 595
atacgggagc caacacacca ccctgcctcc accctccccc aagctctcgg cggagagca
   60
gtgtgcaggt at
   72

<210> SEQ ID NO 596
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 596
atcctcaac ccgtcctcgg gcccggagag cctgsgaggg gttggacgggt attgtgtgt
   60
tgctccggt at
   72

<210> SEQ ID NO 597
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 597
atacgggagc caacacagc ctacgcctcgt cccaaaagag tccacgcccc ggttagagca
   60
gtgtgcaggt at
   72

<210> SEQ ID NO 598
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 598
atcctcaac ccgtcctctat ccgggggcttg gactctttttg gggagagagct aagctgtgt
   60
tgctccggt at
   72

<210> SEQ ID NO 599
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 599
atacgggagc caacacacaac aaatttccag cgtatgagc cctaattacc actaagagca
   60
gtgtgcaggt at
   72
<210> SEQ ID NO 600
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 600
atcgggagc caacacacac ctctctctct tttctttttc ccctaaaaat ggcggagca
60
ggttgtcgg at
72

<210> SEQ ID NO 601
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 601
atcgggagc caacacacac ctctctctct tttctttttc ccctaaaaat ggcggagca
60
ggttgtcgg at
72

<210> SEQ ID NO 602
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 602
atcgggagc caacacacac ctctctctct tttctttttc ccctaaaaat ggcggagca
60
ggttgtcgg at
72

<210> SEQ ID NO 603
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 603
atcgggagc caacacacac ctctctctct tttctttttc ccctaaaaat ggcggagca
60
ggttgtcgg at
72

<210> SEQ ID NO 604
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 604
atcgggagc caacacacac ctctctctct tttctttttc ccctaaaaat ggcggagca
60
ggttgtcgg at
72

<210> SEQ ID NO 605
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<223>  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 605
atcgggagc caaacaacaagacgagccccagttgttcttggttagcaagacagcag
   60
gtgtgacgcc  t
   71

<210>  SEQ ID NO: 606
<211>  LENGTH: 71
<212>  TYPE: DNA
<213>  ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 606
atccgtcaaca cctgctcttt gcattcggagc gcggagccgaa gggggggtct cttggttgtt
   60
ggtccgta  t
   71

<210>  SEQ ID NO: 607
<211>  LENGTH: 72
<212>  TYPE: DNA
<213>  ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 607
atcgggagc caaacaacaagtcccgttgggc acacacacaacc acatccccact ctcagagcag
   60
gtgtgacccg  at
   72

<210>  SEQ ID NO: 608
<211>  LENGTH: 72
<212>  TYPE: DNA
<213>  ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 608
atccgtcaaca cctgctcttg agaagtgggga ttgggtgttg tggcacaagagcaggttgtg
   60
tgcctccgta  at
   72

<210>  SEQ ID NO: 609
<211>  LENGTH: 72
<212>  TYPE: DNA
<213>  ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 609
atcgggagc caaacaacagtggttgttg tgtgttgttc acatgtctgc aagcagacagcag
   60
gtgtgacccg  at
   72

<210>  SEQ ID NO: 610
<211>  LENGTH: 72
<212>  TYPE: DNA
<213>  ORGANISM: Artificial Sequence
<220>  FEATURE:  OTHER INFORMATION: chemically synthesized
<400>  SEQUENCE: 610
atccgtcaaca cctgctcttgcttgagcacacagacagccagcacgagcagcag
   60
tggttccgt at

<210> SEQ ID NO 611
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 611
atacgggac caaaccaca ctaaacgctcc accccctacc aagctctctcg ggcagagca
       60
ggtgtgacgg ag
       72

<210> SEQ ID NO 612
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 612
atcctgtaaca cctgtctcg ggcagggag cttggagggg gttggacggt aggtgggtgt
       60
tggttccgt at
       72

<210> SEQ ID NO 613
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 613
atacgggac caaaccatag cttgggggacc gctcatctacc ttgcatggtg tcttgagagca
       60
ggtgtgacgg at
       72

<210> SEQ ID NO 614
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 614
atcctgtaaca cctgctctca gacacatgaa caggtagatg gctgtcccgc agcatgtgtg
       60
tggttccgt at
       72

<210> SEQ ID NO 615
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 615
atacgggac caaaccaggg atggcgttta cattaocctc gttgtcactc tgagacgacag
       60
ggtgtgacga t
       71

<210> SEQ ID NO 616
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 616
atccgtcaacctgctctccagatgacaaaagggctaatgtaaggggctactctgtgtt
60
gggtcogta t
71

<210> SEQ ID NO: 617
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 617
atacgggagcaacaccaagtgcocctggagagggactgtcgagggctcgctcgactcacagca
60
gggtgacgg at
72

<210> SEQ ID NO: 618
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 618
atccgtcaacctgctctgaagtaagcagctcgcgacagctcgctctggacactgtgtg
60
tgctcccgat
72

<210> SEQ ID NO: 619
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 619
atacgaggacaacaccaattctgcctggagatctctgctcgcgctctcctccagagca
60
gggtgacgg at
72

<210> SEQ ID NO: 620
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 620
atccgtcaacctgctctgtgggagagcagggactagtctccagagcagaatatgtgtg
tgctcccgat
72

<210> SEQ ID NO: 621
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 621
-continued

```
atcggggc caaaccaccc aagggctccg aatcattatac attaattgtg tccctaggagca

<210> SEQ ID NO 622
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 622
atcggggc caaaccaccc cactctcccc cccgccctcc cctccctcct cccgccagagca

<210> SEQ ID NO 623
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 623
atcggggc caaaccaccc cactctcccc cccgccctcc cctccctcct cccgccagagca

<210> SEQ ID NO 624
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 624
atcggggc caaaccaccc cactctcccc cccgccctcc cctccctcct cccgccagagca

<210> SEQ ID NO 625
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 625
atcggggc caaaccaccc cactctacct accacatca agttotctct cactagacca

<210> SEQ ID NO 626
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 626
atcggggc caaaccaccc cactctacct accacatca agttotctct cactagacca
```

```
gggtgtgacg

<210> SEQ ID NO 622
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 622
atcggggc caaaccaccc aagggctccg aatcattatac attaattgtg tccctaggagca

<210> SEQ ID NO 623
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 623
atcggggc caaaccaccc cactctcccc cccgccctcc cctccctcct cccgccagagca

<210> SEQ ID NO 624
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 624
atcggggc caaaccaccc cactctcccc cccgccctcc cctccctcct cccgccagagca

<210> SEQ ID NO 625
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 625
atcggggc caaaccaccc cactctacct accacatca agttotctct cactagacca

<210> SEQ ID NO 626
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 626
atcggggc caaaccaccc cactctacct accacatca agttotctct cactagacca
```

tgctcctcgt

tgctcctcgt

tgctcctcgt

tgctcctcgt

-continued

<210> SEQ ID NO 627
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 627
atcgagagc caacacccac ttttaaacg ttagtagct tagtoccttc caccagagca 60
gggtgacgg at 72

<210> SEQ ID NO 628
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 628
atctcgtacac cctgtctcgg ttgaatggac taagtagct caggttttaa aaggtggtgt 60
tgctcctcct at 72

<210> SEQ ID NO 629
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 629
atcgagagc caacaccaat agttgatcgg ggtccaacact tagctcgct ccgaagagca 60
gggtgacgg at 72

<210> SEQ ID NO 630
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 630
atctcgtacac cctgtctcgc ggagccgagc gtagtttgag ccaccgatca ctatggtgt 60
tgctcctcct at 72

<210> SEQ ID NO 631
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 631
atcgagagc caacacccagt cggtgttcgc cgtttactga cgttccagtt gccaagagca 60
gggtgacgg at 72

<210> SEQ ID NO 632
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 632
atccgtaaca cctgtcttg gcaactggaa cgtcagtaaa cggcgaacca cgaacttgtt

tggtcctcgt at

72

<210> SEQ ID NO 633
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 633
atacgggagc caacaacoat ggttttccta cgacaagaat agaaaaattg cogaagagca

ggtgtgacgg at

72

<210> SEQ ID NO 634
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 634
atacgtaca cctgtcttc ggcaattttt ctttcttgt gttaggaaaa ccatgtgtt

tggtcctcgt at

72

<210> SEQ ID NO 635
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 635
atacgggagc caacaacoat ctatctcttg tattttatta ggccagaccc tccagagca

ggtgtgacgg at

72

<210> SEQ ID NO 636
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 636
atacgtaca cctgtcttg gaggggtctg ccataaaag tacagaaat gaagtggtgt

tggtcctcgt at

72

<210> SEQ ID NO 637
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 637
atacgggagc caacccaccct ttttaaaccg ctagttacgt tttccattcc accagacagcag

gtggagcga t

71
<210> SEQ ID NO 638
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 638
atcgtcaaca ctgctctgga tggaatggat aagctagcta gcgttttaaa agtggtgttt 60
ggtcctcgta tc 71

<210> SEQ ID NO 639
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 639
atcggggac caacaccaaa tagtgttcata cccttatccg agcccocctca ctgaagcaca 60
ggtgtagccgg at 72

<210> SEQ ID NO 640
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 640
atcgtcaaca ctgctcttc acgtgagggg ctccgtaaaa ggtggaacac tatctggttt 60
tgcctcgcgt at 72

<210> SEQ ID NO 641
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 641
atcggggac caacaccaac gcacactcagg aagaatgaga aactaccccc ccocagca 60
ggtgtagccgg at 72

<210> SEQ ID NO 642
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 642
atcgtcaaca ctgctctgga ggggggtgga gtttttcatt cttcgtgatt gcgtgggttt 60
tgcctcgcgt at 72

<210> SEQ ID NO 643
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 643

atagggagc caaacaacat aacatgccg caggtgtcgt gcccgcgatg ctaagagca

60
ggtgtgaccg at

72

<210> SEQ ID NO 644
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 644

atccgcaaca cctgctctga tgtggacgac ggacagagc ctcgctgcag ttaggtgtg

60
tgctctcgg at

72

<210> SEQ ID NO 645
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 645

atagggagc caaacaacacctgccatct gcagcgcggat cggcgcttg ttaggagca
ggtgtgaccg at

60
72

<210> SEQ ID NO 646
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 646

atccgcaaca cctgctctcc aacaagcgc ccgcacccat gcagatagc aaggtgtg

60
tgctctcgg at

72

<210> SEQ ID NO 647
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 647

atagggagc caaacaacag cctcctcaac cttaaccttc toxaacccg ctgtagagca
ggtgtgaccg at

60
72

<210> SEQ ID NO 648
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 648

atcgtcaca cctgctctca aacggtttat gagaagttaa aaggtgaggg ttaggtgtg

60
-continued

tgctctccgt at 72

<210> SEQ ID NO 649
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 649
atacggagc caacacattc gctgcctaat gcggccatt ctactgcctg gcctagcag 60
gctgtaaccg at 72

<210> SEQ ID NO 650
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 650
atctgtaaca cctgctctag gcgaagcgag aagatggccgc gctaggccg cggatgt 60
tgctctccgt at 72

<210> SEQ ID NO 651
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 651
atacggagc caacacattc tgcactaatc ttagtgcgac aagttctca acttagcag 60
gctgtaaccg at 72

<210> SEQ ID NO 652
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 652
atctgtaaca cctgctctaag ttaggaacgc tttcaacagc tacagtagta cacatgt 60
tgctctccgt at 72

<210> SEQ ID NO 653
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 653
atacggagc caacacactg ggtgaggcgc tgcgctggac tggcgctccc cggagcag 60
gctgtaaccg at 72

<210> SEQ ID NO 654
<211> LENGTH: 72
-continued

<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 654
atctgtcaca cctgtcttcg ggggacggc cagtcggcgc aggccctca ccagtggtgt
60
tggtcctcgt at
72

<210> SEQ ID NO 655
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 655
atacgggagc caacaccagc gggtcctcgt ttcagctctc gggtgtgc ccctcagaca
60
gggtgacgg at
72

<210> SEQ ID NO 656
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 656
atctgctgaca cctgcttctg aagggacac gggctctcgt tgaagagggc cccctgtgtg
60
tggtcctcgt at
72

<210> SEQ ID NO 657
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 657
atacgggagc caacaccagc cctatgtcgc aagcagaccc cccgctcgaca
60
gggtgacgg at
72

<210> SEQ ID NO 658
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 658
atctgctgaca cctgcttctg ggggttcgga ttagcggata ggtggcctca gcaatgtgt
60
tggtcctcgt at
72

<210> SEQ ID NO 659
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 659
atgggagc caacaccacg cccggacccc cccagatgg ctgcctatat gtccagagca 60
gggtgtgaccc at 72

<210> SEQ ID NO 660
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 660
atcgtoca actgtcttggacctaggg acggactgtg ggggggtcgc gcgtggtgtgt 60
tgctctcagt at 72

<210> SEQ ID NO 661
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 661
atcggagc caacaccaccc taacttataagtgctcttattac gcggtaacagc 60
gggtgtgaccc at 72

<210> SEQ ID NO 662
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 662
atcgtoca actgtcttgg ccagtaaggg gggtataaggg atcttattac gcgtggtgtgt 60
tgctctcagt at 72

<210> SEQ ID NO 663
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 663
atcggagc caacaacctc accactcctt acttgtaaggt cacctgtctcc caccagagca 60
gggtgtgaccc at 72

<210> SEQ ID NO 664
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 664
atcgtoca actgtcttgg tgcctacaaggg tcaagtaacagc gtaaggtggtatgtgtgt 60
tgctctcagt at 72
<210> SEQ ID NO 665
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 665
atagggagc caacaccatt cctgtcaact tgcgcttgac cctcaccaggg getcagagca  60
ggctgagcgg at  72

<210> SEQ ID NO 666
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 666
tagtctcaaca cctgtcttgac gccocgtgga ggacaggcag caagttagca ggaatggtgt  60
tgcctccgt at  72

<210> SEQ ID NO 667
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 667
atagggagc caacaccatc tcatgttagc tgcgcttggt tgcgtctgta tattagagca  60
ggctgagcgg at  72

<210> SEQ ID NO 668
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 668
tagtctcaaca cctgtcttaa tataacgcac aaacaccagc cacgtaccat ggaatggtgt  60
tgcctccgt at  72

<210> SEQ ID NO 669
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 669
atagggagc caacacccatg taaactttca ggttggatag tacgggtctca caacagagca  60
ggctgagcgg at  72

<210> SEQ ID NO 670
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
-continued

<400> SEQUENCE: 670
acggtcaaca ccttccttgg tgtgagcccg tactatccaa cctgaaagt tcatcttggtg 72
tgctccggt at 72

<210> SEQ ID NO 671
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 671
atacgggagc caacaaccag tgtccttcgct tgttatttctg tgtccctcgcgca atcgagca 60
gtgtgacgga at 72

<210> SEQ ID NO 672
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 672
atacgggagc ctccttcctc tgtgagccgcg gcacacaaaa caagggcggc caacatgtggtg 60
tgctccggt at 72

<210> SEQ ID NO 673
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 673
atacgggagc caacacaccag aggtaacgcg ccgctatcga atccatgacg atcagacgag 60
gtgtgaacgg gat 71

<210> SEQ ID NO 674
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 674
atacgtcaaca cctgcctcga tgctcatggg atgggataag gatggtttagc tgctggtgtg 60
gtgacgta t 71

<210> SEQ ID NO 675
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 675
atacgggagc caacaacatt taggataagc tgtcaagcgg ctctgattta atcgagca 60
gtgtgaacgg at 72
<210> SEQ ID NO 676
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 676
atcggtca cctgctotca gttatatcga gacgctgta ccaacttacc taatggtgt
60
tgctccagt at
72

<210> SEQ ID NO 677
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 677
atcgggagc caacacccat cctgctotca tgcgcctgct gcgtatcccc tttgagaca
60
ggctgtacaag at
72

<210> SEQ ID NO 678
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 678
atcggtca cctgctotca aaggggatcc gcagccagag ccagctccag gaatgtgtgt
60
tgctccagt at
72

<210> SEQ ID NO 679
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 679
atcgggagc caacacccag aagccgatac gggatcccc ctaccaacc cccagaca
60
ggctgtacag at
72

<210> SEQ ID NO 680
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 680
atcggtca cctgctctgg ggggttgtga aaggggatcc cctaccccg ttcctgtgtgt
60
tgctccagt at
72

<210> SEQ ID NO 681
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 681
atacgggac caaacacaag acaacgcccc otgtcgttcc caattgctgt tataagagca 60
ggtgtgacgg at 72

<210> SEQ ID NO: 682
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 682
atacgtcaca cctgtctcga taacagcaat tggacacag aaggggccggt gttctgtgtg 60
tgctcctcct at 72

<210> SEQ ID NO: 683
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 683
atacgggac caaacacccc cggtttaaac ttttgtgggt atgtcctcga aaccagagca 60
ggtgtgacgg at 72

<210> SEQ ID NO: 684
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 684
atacgtcaca cctgtctcgg gatccggac atacaaaaac aagtttaaac cgggtggtgt 60
tgctccctcct at 72

<210> SEQ ID NO: 685
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 685
atacgggac caaacaccaaa tagagttcc gaaagtccgg tacctcaggt cctagacag 60
gtgtacgca t 71

<210> SEQ ID NO: 686
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 686
atacgtcaca cctgtctcag gacotgaagt agtcatacct tcgataactct atttgggtg 60
-continued

ggtccctgta t

<210> SEQ ID NO 687
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 687
atacgggagc caaacaccac gaattgattg ataaaaaggg ttagatgct ccagagcagg  60
tgtgacgagat

<210> SEQ ID NO 688
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 688
atcgtcaca cctgctctgg agcgatctaa ccccttttat ccaaccatcc ggtggtgttg  60
gtccctgctat

<210> SEQ ID NO 689
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 689
atacgggagc caaacacatt ggacacagag ttcgacgtcc cctagtgcca gagagcgag  60
gtggacggsaat

<210> SEQ ID NO 690
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 690
atcgtcaca cctgctctct ctgcccactag ggacagtcga aactctgcgc caatggtgtt  60
gtccctgctat

<210> SEQ ID NO 691
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 691
atacgggagc caaacacacatcgctcacca aatatgccc agacctacat catoagcag  60
gtgggtacaggat

<210> SEQ ID NO 692
<211> LENGTH: 72
-continued

<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 692
atcgcctcaca cctgctctga tggatgagst ctagggccaa ttttgtgaagc gcagttggtgta cgggtcctcctg at 60
72

<210> SEQ ID NO 693
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 693
atatggaga cccacacaca acctttgaaga tcttgtgacgc gcagttcaca cctagagcag 60
ggtgacagga t 71

<210> SEQ ID NO 694
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 694
atcgcctcaca cctgctctag tggatgagcg gcagttcaagc atcttaaaaat ttttggtgtgtg 60
ggcctcctgta t 71

<210> SEQ ID NO 695
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 695
atatggaga cccacacaca aatgttagcg ttatgcaact cccoccttata ctcgagacat ggtgacagga at 60
72

<210> SEQ ID NO 696
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 696
atcgcctcaca cctgctctcg agtataagg gggatgtgcat aacgctaaac ttttggtgtgtg 60
tgcctcctcctg at 72

<210> SEQ ID NO 697
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 697
-continued

```
atcggagc caaccaca aagtttagcg ttatgcaact ccoccttata ctcagagac
  60
ggtgtagcgg at
  72

<210> SEQ ID NO 698
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 698
atcgtcaaca cctgtctcag agtataagg ggagtgtcag aacgtaaact ttggtgtgt
  60
tgctccctgt at
  72

<210> SEQ ID NO 699
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 699
atcggagc caaccataa cggctataac gcgcagcagt aacaccacac ccagagcag
  60
ggtgtagcgg t
  71

<210> SEQ ID NO 700
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 700
atcgtcaaca cctgtcctgg ggaagttggtg taacgtagggc gggtagtgcc gtaggtgtt
  60
ggttccgtga t
  71

<210> SEQ ID NO 701
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 701
atcggagc caacacctgt gtaacttoga gcocctgaaga gctttcccg tagcagaca
  60
ggtgtagcgg at
  72

<210> SEQ ID NO 702
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 702
atcgtcaaca cctgtctcag ttcgggaaga gctgtcaggg gotocaagtt aacggtgtt
  60
tgctccctgt at
  72```
<210> SEQ ID NO 703
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 703
atcgyggac caacacatca gtttagcatg ctcaatagta caccagatca gtttagacca ggtgtacccg at
60
ggtgtacccg
72

<210> SEQ ID NO 704
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 704
atcgytcaac cctgtctcc actgtcttg gttactatgg agctatctaa actatggtgt
tgctctcct at
60
72

<210> SEQ ID NO 705
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 705
atcgyggac caacacatc tctgtgctctg tctagtgga actgcctgta attagacca ggtgtacccg at
60
ggtgtacccg
72

<210> SEQ ID NO 706
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 706
atcgytcaac cctgtctctt attacaagca gttccactta gacagacaca cgaatggtgt
tgctctcct at
60
72

<210> SEQ ID NO 707
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 707
atcgyggac caacacacca tgagtgcccgg gttagcggg ctgcaagccg cgtttagacca ggtgtacccg at
60
ggtgtacccg
72

<210> SEQ ID NO 708
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
-continued

```<400> SEQUENCE: 708
atcgtcaac acctgtctaa accgcctttgc accgccttac accgctcact ctatgtgtgt
  60
tgctccggatt 72

<210> SEQ ID NO 709
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 709
atacgagcg cacaaccctg tggcataaac acagcattt gtcttataac ggtgagca
  60
ggtgctacgatt 72

<210> SEQ ID NO 710
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 710
atcgtcaac acctgtctac tcggatttagg acaatcctgt ctttttatgc cacatgtgt
  60
tgctccggatt 72

<210> SEQ ID NO 711
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 711
atacgagcg cacaaccctt tattgcttag ttgcttcggc actctcccc tacaagca
  60
ggtgctacgatt 72

<210> SEQ ID NO 712
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 712
atcgtcaac acctgctttgg gtagggagaa gtctcaagct aaatcggttaa ttaaggtgt
  60
tgctccggatt 72

<210> SEQ ID NO 713
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 713
atacgagcg cacaaccctt gttttgtact tttgagccg cacggagccc ccccagca
  60
ggtgctacgatt 72```
-continued

<210> SEQ ID NO 714
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 714
atcggtaaca cctgtctcg gggggctcgc tgctgctcat aaagtaaaca acagatgggtg 60
tgctcctcg at 72

<210> SEQ ID NO 715
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 715
atacggggcc caaaccacac tcggtaagct ctgtgggggac taaccttcgc gattacaca 60
gggtgtacgg at 72

<210> SEQ ID NO 716
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 716
atcggtaaca cctgtctgaa tagcgggagtc tagctccacag agacattagc gagatgggtg 60
tgctcctcg at 72

<210> SEQ ID NO 717
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 717
atacggggcc caaaccacac caccccctgt ctaaatagta aaatgaacac atatagacga 60
gggtgtacgg at 72

<210> SEQ ID NO 718
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 718
atcggtaaca cctgtctaat agatgttcca ttctatatta tgacgttggc tggatgggtg 60
tgctcctcg at 72

<210> SEQ ID NO 719
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 719

atcggggac caacaccac caactccccc cgcgcgcgc tcggcgcgc gcgcgcgc gcgcgcgc 60
ggtgtgacgc at 72

<210> SEQ ID NO 720
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 720

atcgtgcaac cctgcttcag cgcgcgcgc gcgcgcgc gcgcgcgc gcgcgcgc gcgcgcgc 60
tgcgcgcgc at 72

<210> SEQ ID NO 721
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 721

atcggggac caacaccac aagttgtcct tgcctgtcct gcgcgcgc gcgcgcgc gcgcgcgc 60
ggtgtgacgc at 72

<210> SEQ ID NO 722
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 722

atcgtgcaac cctgcttcag tgcagcgc gcgcgcgc gcgcgcgc gcgcgcgc gcgcgcgc 60
tgcgcgcgc at 72

<210> SEQ ID NO 723
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 723

atcggggac caacaccac gcgtttctta gttgtgtgac gcgcgcgc gcgcgcgc gcgcgcgc 60
ggtgtgacgc at 72

<210> SEQ ID NO 724
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 724

atcgtgcaac cctgcttcag aaacagcgc tccaactcag actaagacgc gcgcgcgc 60
<210> SEQ ID NO: 725
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 725
atcgggagc caacaccaag agcaacgtga ccctcctcgc ctctattgca ttctagagca 60
ggtgtagcgg at 72

<210> SEQ ID NO: 726
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 726
atcgtcaca ccctgtctag aatgcaatag agggcgggag ggtgcaagtg ctctcgttgt 60
tgcctcctg at 72

<210> SEQ ID NO: 727
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 727
atcgggagc caacacacca tcatacttg ttctacgagc agccctcctc aata gagcga 60
ggtgtagcgg at 72

<210> SEQ ID NO: 728
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 728
atcgtcaca ccctctctta tttagaggg ctgcccgttag aacaaggtat gatgtgttgt 60
tgcctcctg at 72

<210> SEQ ID NO: 729
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 729
atcgggagc caacaccaatt ccacatgaac agtttcgat cccacttttc atctagagca 60
ggtgtagcgg at 72

<210> SEQ ID NO: 730
<211> LENGTH: 72

-continued
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 730
atcgggacg caacacagaa ctatgcgcgc cctgtctcgg cttgtctgc cctagaca 60
ggctgacgg at 72

<210> SEQ ID NO 731
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 731
atcgggacg caacacagaa ctatgcgcgc cctgtctcgg cttgtctgc cctagaca 60
ggctgacgg at 72

<210> SEQ ID NO 732
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 732
atcgggacg caacacagaa ctatgcgcgc cctgtctcgg cttgtctgc cctagaca 60
ggctgacgg at 72

<210> SEQ ID NO 733
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 733
atcgggacg caacacagaa ctatgcgcgc cctgtctcgg cttgtctgc cctagaca 60
ggctgacgg at 72

<210> SEQ ID NO 734
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 734
atcgggacg caacacagaa ctatgcgcgc cctgtctcgg cttgtctgc cctagaca 60
ggctgacgg at 72

<210> SEQ ID NO 735
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 735
atacgggac caacaccacc ccttaacctc atatattaat ctatcacaat tttagagca 60
                                  ggtgtgacgg at 72

<210> SEQ ID NO 736
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 736
atacgtcaaca cctgtcttag aataattgata aggattaat ataggagtta ggggtgggtg 60
tggtctccgt at 72

<210> SEQ ID NO 737
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 737
atacgggac caacaccacc agcagtaaag ttcagcatt ggcattaata gactagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 738
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 738
atacgtcaaca cctgtcttag tctattaacc gcatagtggt gaacttactg ctggtggtg 60
tggtctccgt at 72

<210> SEQ ID NO 739
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 739
atacgggac caacaccacaag tccaagcaca aacaagcat aacaacaaat ctggagaca 60
ggtgtgacgg at 72

<210> SEQ ID NO 740
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 740
atacgtcaaca cctgtctcc agaatggtgt tcatgtccttt atggtggttg gacttggtg 60
tggtctccgt at 72
<210> SEQ ID NO 741
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 741
atacgacgca caacaccaact caatacgctct tatacgctct ggtactatct ggcagagca
  60
ggtgacg ggt
  72

<210> SEQ ID NO 742
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 742
atcgcctcaaat gctgctgg gcacgtgatc tcaagacaga taagacgtat tgaagttggt
  60
tgctccag at
  72

<210> SEQ ID NO 743
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 743
atacgagagc caacacacgg gctgccgctg cttctacgct atacctgctcg ttctacagca
  60
ggtgacg ggt
  72

<210> SEQ ID NO 744
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 744
atcgcctcaaat gctgctgg gcacgtgatc tcaagacaga taagacgtat tgaagttggt
  60
tgctccag at
  72

<210> SEQ ID NO 745
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 745
atacgacgca caacaccaact caatacgctct tatacgctct ggtactatct ggcagagca
  60
ggtgacg ggt
  72

<210> SEQ ID NO 746
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 746
atcgctcaac ccgtcttcg ccgaaaaat ctttgatgttg tcattagccg gttgtgtgtgt 60
tgctcctcg at 72

<210> SEQ ID NO 747
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 747
atcgggagc caaacaaccg acaaaacttg tggagctggcttaa gcatagaga 60
gttgtagccg at 72

<210> SEQ ID NO 748
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 748
atcgctcaac ccgtcttccttg ttgattccg aatgttcttg cacttaagtt gttgtgtgtgt 60
tgctcctcg at 72

<210> SEQ ID NO 749
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 749
atcgggagc caaacaactcg aagctaagcttg agctctttt cattagaca 60
gttgtagccg at 72

<210> SEQ ID NO 750
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 750
atcgctcaac ccgtcttta agaaaggagc aaggtctttaa actaactgtt catggtgtgt 60
tgctcctcg at 72

<210> SEQ ID NO 751
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 751
atcagggagc caaacaaccttc aaaaagtca gatacaaga cagagatgg acttagagca 60
gttgtagccg at 72
<210> SEQ ID NO 752
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 752
atcgtggtc aatgcctgta gtcgaacttc ttgattttta tcctgcttgtt gaaagtgtgt
60
tgttcccgt at
tggtgactga
72

<210> SEQ ID NO 753
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 753
attacgggac caacaccaact ttgcctataa gctttctgga atttactacg attagacgatcag
60
gtgtaaggtga t
ggtgatgaa
71

<210> SEQ ID NO 754
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 754
atcgtggtc aatgcctgta gtcgaacttc ttgattttta tcctgcttgtt gaaagtgtgt
60
tgttcccgt at
gtggactgtga
71

<210> SEQ ID NO 755
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 755
atcgtggtc aatgcctgta gtcgaacttc ttgattttta tcctgcttgtt gaaagtgtgt
60
tgttcccgt at
gtggactgtga
71

<210> SEQ ID NO 756
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 756
atcgtggtc aatgcctgta gtcgaacttc ttgattttta tcctgcttgtt gaaagtgtgt
60
gtgatgtgc
71
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 757

atacggagc caacaccata gacatagct atctatcagga ggttgcgct tgcagacag 60
gttgccgga t 71

<210> SEQ ID NO 758
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 758

atacgtcaac cctgtctgc agagcaacaag atctatcagga ggttgcgct tgcagacag 60
gttgccgga t 71

<210> SEQ ID NO 759
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 759

atacggagc caacaccaco ggggcatctt ccattaacc attacccac cccagacagca 60
gttgccgga at 72

<210> SEQ ID NO 760
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 760

atacgtcaac cctgtcttg ggttgagta atggttaat gsaagagctt ccccgtgtgt 60
tggtccctat 72

<210> SEQ ID NO 761
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 761

atacggagc caacacacc acaagcatg ggccacatcg ggcagagcag 60
gttgccgga t 71

<210> SEQ ID NO 762
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 762

atacgtcaac cctgtcttg cccaattgct cccgtaatca atggttaatg tgcaggtgtt 60
-continued

ggctccgctta t

<210> SEQ ID NO 763
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 763

atacgggagc caacacact ggtactgtgag tgtgtgtctg tcctggcactc gtagagcag 60
gtgtgaacgga t

<210> SEQ ID NO 764
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 764

atcctgctaca cctgctctaa cgtactgagc tgcagcagcac acactcctac cagtggtgtt 60
ggctccgctta t

<210> SEQ ID NO 765
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 765

atacgggagc caacacacc gaaattgtt gataaaaggg ttagatcgtt ccagacaggg 60
tgtgacggtct

<210> SEQ ID NO 766
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 766

atcctgctaca cctgctctgg aagcatctaa cccctttatat caaatcattc ggtggtgttg 60
ggctccgctat

<210> SEQ ID NO 767
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 767

atacgggagc caacacacc taggccccca acatggtgag tataagtttc gtagagcag 60
gtgtgaacgga t

<210> SEQ ID NO 768
<211> LENGTH: 71
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 769  
atacggagc caacacacg agaaactata gttgcoactgt tttatatcttg tgacagacag 60  
gttgacagga t  
  
<210> SEQ ID NO 769  
<211> LENGTH: 71  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 770  
atacgtcaac ccctgtctct cacccacatg tcggagccct acgtgggttt 60  
ggtgtgacagga t  
  
<210> SEQ ID NO 770  
<211> LENGTH: 71  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 771  
atacggagc caacacacg agaaactata gttgcoactgt tttatatcttg tgacagacag 60  
ggtgtgacagga t  
  
<210> SEQ ID NO 771  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 772  
atacgtcaac ccctgtctct cacccacatg tcggagccct acgtgggttt 60  
tggtctcccgt at  
  
<210> SEQ ID NO 772  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 773  
atacgtcaac ccctgtctct cacccacatg tcggagccct acgtgggttt 60  
tggtctcccgt at  
  
<210> SEQ ID NO 773  
<211> LENGTH: 72  
<212> TYPE: DNA  
<213> ORGANISM: Artificial Sequence  
<220> FEATURE:  
<223> OTHER INFORMATION: chemically synthesized  

<400> SEQUENCE: 773
-continued-

atcgggac caaaccgacc aacgatatc acctaggccata gcacaatca caacagac 60
ggtgtgacg at 72

<210> SEQ ID NO 774
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 774
atacgtcaac cctgctcgtgt tttatttgtg cctaggccctg tttattctgt ttgtgtggtgt 60
tgtgctcgtgt at 72

<210> SEQ ID NO 775
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 775
atacgggac caaaccaaa cttgagatat ggccgtctctg ttcctcttct ccacacacag 60
ggtgtgacgca t 71

<210> SEQ ID NO 776
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 776
atacgtcaac cctgctcgtg atgaaaagga acaatagcgc cctacatcacg gttggtgtgt 60
ggtttccgta t 71

<210> SEQ ID NO 777
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 777
atacgggac caaaccagcg cctaggttaa gtctattataa actctcgcg cctagacag 60
ggtgtgacgca t 71

<210> SEQ ID NO 778
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 778
atacgtcaac cctgctcgtag gggcgggaagt cttatataaa attaccggtc gggtgtggtgt 60
ggtttccgta t 71
<210> SEQ ID NO 779
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 779
atacgagac caacacag atctcaacg gctgccccca cgaagactct ccaagacag
60
gtgtagga t
71
<210> SEQ ID NO 780
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 780
atatctgta caacccctct cgaagactct tggcgggga gaagcgtgag tcattgtggt
60
tgctcctgta t
71
<210> SEQ ID NO 781
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 781
atacgagac caacacag acgacactgc aagaaactcg acacatcctc acgagacag
60
gtgtagga t
71
<210> SEQ ID NO 782
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 782
atatctgta caacccctct tggaaatcg tcgatttct tcattgtgag tcattgtggt
60
tgctcctgta t
71
<210> SEQ ID NO 783
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 783
atacgagac caacaccaag catttagatt cgcctctgga accccacctc ttcagacag
60
gtgtagga t
71
<210> SEQ ID NO 784
<211> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<210> SEQ ID NO 790
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 790
atcggtaa cctgatcctc taaagcggatt ctatggttct gtatgtgagt tcgtggtgtt 60
ggtctcggta t 71

<210> SEQ ID NO 791
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 791
atacgggagc caacaccatg aaggtttctct cacatggggga ggtctcccat gttgagagca 60
ggtgtcaccag at 72

<210> SEQ ID NO 792
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 792
atcggtaa cctgatcctc acaatggagga cctcoccacat tgagagaaco ctcatggtgt 60
tggtcoccct at 72

<210> SEQ ID NO 793
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 793
atacgggagc caacaccaggg acatacatga taagaattgc gastaatcat tggagagcag 60
ggtgtcaggg t 71

<210> SEQ ID NO 794
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 794
atcggtaa cctgatcctc aatgatttt cgcaattctt ataatgttag tccctggtgtt 60
ggtctcggta t 71

<210> SEQ ID NO 795
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 795
atacgggac caaaccacatt gtaactttaac tataactcagc tacattatgc caaagcagc
60
gtgtagcagc t
71

<210> SEQ ID NO: 796
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 796
atactgcaaca cctgctcttt ggcataatgt agcttggtat agtttacgaa caatgttgtc
60
ggtctcccga t
71

<210> SEQ ID NO: 797
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 797
atacgggac caaaccacct catgttggaat ataacgactc gttgcttagg ctgagcagc
60
gtgtagcagc t
71

<210> SEQ ID NO: 798
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 798
atactgcaaca cctgctctca gocctacgga ctgtctgtaa tataccacat gagctggttc
60
ggtctcccga t
71

<210> SEQ ID NO: 799
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 799
atacgggac caaaccactg acgcctcaca ctgctctca cactogacta gctagcagc
60
gtgtagcagc t
71

<210> SEQ ID NO: 800
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 800
atactgcaaca cctgctctag ctgctctag gtaagactac tctgatgct tcagtgtggt
60
<210> SEQ ID NO 801
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 801
atacgggagc caacacaaa aactacttcg taacgactgt acatcagtgg ctzagagcag 60
gtgtgacgga t 71

<210> SEQ ID NO 802
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 802
atacggtca acctgtctac gccagtagt taagatccgt agagagtagt ttttgtgtgtt 60
ggtgtgacggt t 71

<210> SEQ ID NO 803
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 803
atacgggagc caacacacc cactctcccc cgcgccggcg cccccccttc cgccgagcag 60
ggtgtgacggt at 72

<210> SEQ ID NO 804
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 804
atacggtca acctgtctcg cggagcgggg ggccgggagc ggaggagaggt tgtgtgtgtt 60
tggtgacggt at 72

<210> SEQ ID NO 805
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 805
atacgggagc caacaccata ggccaaattaa ggccagagt tgtggggctc gcctagagcag 60
ggtgtgacgga t 71

<210> SEQ ID NO 806
<211> LENGTH: 71

<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 806
atccgtcaca cctgctctag cgacggcaca cactcttgcc ctaastgccc ctatggtgctt 60
ggctcccgta t 71

<210> SEQ ID NO 807
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 807
atacgggac caacacacaa acgggaacct gcaatttccca cgctcctgaac cccagagcag 60
gtgtgaagaa t 71

<210> SEQ ID NO 808
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 808
atccgtoaca cctgctcttg ggtacgaggc gttggaaatg cagtttcccg ttttgtgttt 60
ggctccccgta t 71

<210> SEQ ID NO 809
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 809
atacgggac caacacacaa ccgaaggttc ggcgggtcag acctatctica agcagcgag 60
gtgtgaagaa t 71

<210> SEQ ID NO 810
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 810
atccgtoaca cctgctctgc ttgagatagg tctgaccgag cgtctcttcg gtttgtgttt 60
ggctccccgta t 71

<210> SEQ ID NO 811
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 811
atacggagc caacaccatt tgcgtacgaa ccattggaata gcttgattgt cacagagcag 60
gttgcaaggat 71

<210> SEQ ID NO: 812
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 812
atacggagc cctgtcttgt gacaatcaag ctagcaatag gtctgtcacg aatggtgtt 60
ggtcoccgta t 71

<210> SEQ ID NO: 813
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 813
atacggagc caacaccaga ctttctgtg ccctccgggt gtctgtgca agtagagcag 60
gttgcaaggat 71

<210> SEQ ID NO: 814
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 814
atacgtcaca cctgtcttac ttgcaacgc accgggatg gcaccaaaaa gtctgtgttt 60
ggtcoccgta t 71

<210> SEQ ID NO: 815
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 815
atacggagc caacaccagc ccctccgcgc ggcgcgcgc ccgcgcgcgc acacagaca 60
gttgcaagg at 72

<210> SEQ ID NO: 816
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 816
atacgtcaca cctgtcttgt ctcgagcgag gcggcgccgg ccgggcgggg tgcgtgtgtt 60
tgctcccgat 72
<210> SEQ ID NO 817
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>atacgggagc caaaccaca atcattaaac tttttactt tcctgaact accagacgcg</td>
<td>60</td>
</tr>
<tr>
<td>gttgtaagga t</td>
<td>71</td>
</tr>
</tbody>
</table>

<210> SEQ ID NO 818
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>atctctoca aacctgctcg ggattcagga agagttaaaa ggttaatga ttggtggtt</td>
<td>60</td>
</tr>
<tr>
<td>ggctccgta t</td>
<td>71</td>
</tr>
</tbody>
</table>

<210> SEQ ID NO 819
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>atacgggagc caaaccaca cttgtgcgcc cttccggttag ctggaggtta ttaagacgcg</td>
<td>60</td>
</tr>
<tr>
<td>gttgtaagga t</td>
<td>71</td>
</tr>
</tbody>
</table>

<210> SEQ ID NO 820
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>atcctgctota atacacctca gctacccggaa ggtggtgcatgt</td>
<td>60</td>
</tr>
<tr>
<td>ggctccgta t</td>
<td>71</td>
</tr>
</tbody>
</table>

<210> SEQ ID NO 821
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>atacgggagc caaaccacyg gcccgcctct tccgattccc tggagcccttc ttaaagaccg</td>
<td>60</td>
</tr>
<tr>
<td>gttgtaaggg at</td>
<td>72</td>
</tr>
</tbody>
</table>

<210> SEQ ID NO 822
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized


<210> SEQ ID NO 829
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 829
atcgtgtaa cctgctctgt gcgaagcga ctggatgatc tccagtgcac actgggtgtt 60
ggtccgcga t 71

<210> SEQ ID NO 830
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 830
atcgtgtaa cctgctctcc gtggatctcg tagaagcag tcgcaatcca ctgggtgtt 60
ggtccgcga t 71

<210> SEQ ID NO 831
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 831
atcgtgtaa ccaacccagg acaogggca agcctcggaa ccaaagcccc gaaagagcag 60
ggtggagcga t 71

<210> SEQ ID NO 832
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 832
atcgtgtaa cctgctcttt cgggggcccc gcgtgaggg gcgtgcctgt tcgggtgttt 60
ggtccgcga t 71

<210> SEQ ID NO 833
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 833
atcgggagc caacaccgc gacgacagtt atataatcg agaatagtac atagagcag
   60
gtgtgacgga t
   71

<210> SEQ ID NO 834
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 834
atccgtaaca cctgcttca tgtacttctcgattata taactgtctgt cgctggttgtt
   60
ggtcccgta t
   71

<210> SEQ ID NO 835
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 835
atcgggagc caacaccgc acacggaac gccccgggac cagggccccg aagagcag
   60
ttgtgacggtat
   70

<210> SEQ ID NO 836
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 836
atccgtaaca cctgcttttt cggggggcgtg gttcggggag gctgccggtgt gctggtgttg
   60
gctcccggtat
   70

<210> SEQ ID NO 837
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 837
atcgggagc caacaccgta ttgcaatctg ttgaatataat toatcatgct taagagcag
   60
gtgtgacgga t
   71

<210> SEQ ID NO 838
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 838
atccgtaaca cctggtotta agcattgatg aattatgtca acagatgtga ataggtgtgtt
   60
<210> SEQ ID NO 839
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 839
atcgggagc caacaccatc tctctgcgcac gctctggagaa cagctctctac ttaagagca  60
ggtgtagcgg at  

<210> SEQ ID NO 840
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 840
atcgtgcaat ctgcttota aagtagaggc tgttctccag acgtgcaggg ggtggttgtat  60
tgtctcagt at  

<210> SEQ ID NO 841
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 841
atcgggagc caacaccagg ctgctgcatca gaacaggcac tacaattgc tccaagacag  60
gtgtagcggat t  

<210> SEQ ID NO 842
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 842
atcgtgcaat ctgctcttg ggacattgt atgtgcctgttt ctgtaacgca gctgtggttgt  60
gtgtctcagaga t  

<210> SEQ ID NO 843
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 843
atcgggagc caacaccaca cacagaagta cgtacatca aaacoctggt cagaagagca  60
gtgtagcggat  

<210> SEQ ID NO 844
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 844
atacgtcaca cctgtctttc tgaccgcgtt tttgatgtta cgtaaccttc tctgtgttgt  60
tggtcctcgt at  72

<210> SEQ ID NO 845
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 845
atacgggagc caaacaaca acaacggagc caataagcaaa tcagtggttc acagacaggg  60
tggtgcaggat  70

<210> SEQ ID NO 846
<211> LENGTH: 70
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 846
atacgtcaca cctgtcttgt gaaacactga ttgtatattg gtcggttgtgt gttgtggttg  60
gttcccgtat  70

<210> SEQ ID NO 847
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 847
atacgggagc caaacaacac ctaaatttca gagggtcaca gagaacgaac taccagacac  60
ggtgtgcagg at  72

<210> SEQ ID NO 848
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 848
atacgtcaca cctgtcttgtg tagttggtc tcctgtacac tcgtggaattt aggggttgtgt  60
tggtcctcgt at  72

<210> SEQ ID NO 849
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 849
ataggggac caacaccaat agatggataa gggggaaact gcatttcggg tagtagagca 60
  gggtgtgacgg at 72

<210> SEQ ID NO 950
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 950
atcctgtaaac cctgtctac taacgaatg gcagttttccc ctttatccat ctattgtgt 60
tggctcctgg at 72

<210> SEQ ID NO 951
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 951
ataggggac caacceaaaa acccgcaact cctctctct gcggcctctt gataagagca 60
gggtgtgacgg at 72

<210> SEQ ID NO 952
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 952
atcctgtaacc ctgctcttta tcagaagggg gcagggaga tggagtgcgg gttttgtgt 60
tggctcctgg at 72

<210> SEQ ID NO 953
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 953
ataggggac caacccact gaaatgtctc ccaactaaag aaactctca tocagagcag 60
ggtgtgacgg 69

<210> SEQ ID NO 954
<211> LENGTH: 69
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 954
cgctcaaccc tgctctggat gggagttctc tttagttggg agaccatctg atggtgtgg 60
cctcccgtat 69
atagyggagc caacaccaac gggctcatctt ccattaacc ccattcacc cccaagagca 60
ggtgtagggc at 72

atcgctcaac cctgctcttg ggtgtggtta atgggttaat ggaagatgcc cccgtgggtt 60
tggctcccg at 72

atagyggagc caacaccaac gacgtctcatg ctcggcccgta ccttttttcag ttgagacag 60
ggtgtagggc t 71

atcgctcaac cctgctctca actgaaaaag gaaygagggca gtcagtaagcc ccatgggttt 60
ggtctccgta t 71

atagyggagc caacaccaac taactctcct caatgaaacat gcggctgcctgtc gcctagcag 60
ggtgtagggc t 71
<400> SEQUENCE: 860
atcctgtaac ccgtctctgt aaacgccaag acgtgctcac tcgtagagtt agtttggtttt
60

ggctccgta t
71

<210> SEQ ID NO 861
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 861
atacgggac caacaacag ccattaaagtt tcgtaacag acctgcagatg ctagagcag
60
ggtgaagga t
71

<210> SEQ ID NO 862
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 862
atcctgtaac ccgtctctag tcgtagagtt aacgcttaag gcgtggtttt
60
ggctccgta t
71

<210> SEQ ID NO 863
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 863
atacgggac caacaacac ctcacatcag acctgcatttt ttartggacag cccagacag
60
ggtgaagga t
71

<210> SEQ ID NO 864
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 864
atcctgtaac ccgtctctcag gcgtgcata aaaaatcag ttgtaaagta ggtttgggttt
60
ggctccgta t
71

<210> SEQ ID NO 865
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 865
atacgggagc caacaccatt tgcacggcag ctaacoggc gacaaatcag ctacagacag
60
ggtgaaggc at
72
<210> SEQ ID NO 866
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 866
atcggtaaca cctgcctctgt agcgaattgg tcggcagggt aagctgcgct caaatggtgt 60
tgctcoccgt at 72

<210> SEQ ID NO 867
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 867
atacgggagc caaccaccgg ttttaaacgc ctagctagct tcacgctatt caacagaca 60
ggtgtagcgg at 72

<210> SEQ ID NO 868
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 868
atcggtaaca cctgcctctgg tgaatggac taagctagct agcgttttaa aaggtcgtgt 60
tgctcoccgt at 72

<210> SEQ ID NO 869
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 869
atacgggagc caaccaccgc cctggggcag cccgctgactt tccccggcg cccaagaca 60
ggtgtagcgg at 72

<210> SEQ ID NO 870
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 870
atcggtaaca cctgcctcttg gacgcggggt gaaagtcacg ggcgtgcoccga ggtgcgtgt 60
tgctcoccgt at 72

<210> SEQ ID NO 871
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 871
atacggagc caacacccca ctcctcgggc ctgttgagaa cagctotcctc ctttaagac 60
gggttgtacgg atggtgtcctc 72

<210> SEQ ID NO 872
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 872
atcgtgaaca cctctcttta aagtagaggc tgttctccag acgcggcaggg agatgtgtg 60
tggtctccct atcgtgtcctc 72

<210> SEQ ID NO 873
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 873
atacggagc caacacccca aacggatcct accgggctta gcacaactca caacagc 60
gggttgtacgg atcgtgtcctc 72

<210> SEQ ID NO 874
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 874
atcgtgaaca cctctcttctg tgtttctgtgt gtgtggtgtg cgtgtcttg ctgtgtcttg tttggtgtgt 60
tggtctccct atcgtgtcctc 72

<210> SEQ ID NO 875
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 875
atacggagc caacacccca gaagtggtgcgt caagactaat ctggatggcc atgcagcag 60
gggttgtacgg atcgtgtcctc 72

<210> SEQ ID NO 876
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 876
atcgtgaaca cctctcttctg atgggcaatcg agaatgtctc tgcagcacaat tgggtgtgt 60
tgctccagt at

<210> SEQ ID NO 877
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 877

atacgggacc aacaccctaa gaggcccttg gatactgcctt ctttaagctcc aggagacgag 60
gttgacctgga t

<210> SEQ ID NO 878
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 878

atacgtcaca cctgtcctac tggtcctttta ggtgcagtat cccagccocct caatggtgtt 60
ggctccgta t

<210> SEQ ID NO 879
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 879

atacgggacc caacaccaaat aagcagctag tgtattggtta cttggcctttt cgggagcag 60
gttgacctgga t

<210> SEQ ID NO 880
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 880

atacgtcaca cctgtcctcg gaaagagccga tctacacatac actagtgctct tattggtgtt 60
ggctccgta t

<210> SEQ ID NO 881
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 881

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 882
<211> LENGTH: 72

<210> SEQ ID NO 883
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 883

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 884
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 884

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 885
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 885

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 886
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 886

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 887
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 887

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 888
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 888

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 889
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 889

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 890
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 890

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 891
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 891

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at

<210> SEQ ID NO 892
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 892

atacgggacc caacaccaaat ttactagtt gggaatata attaaatcta agcaagcg 60
gttgacctgga at
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 882
atcgtcaaca ctgctcttg ctatatatta attttttccc caaactagta agatgggtg
60
tgcctccgct at
72

<210> SEQ ID NO 883
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 883
atacggagc caaaccagct cctttatgac atgtcggac cccgacgccgt gtcagaagca
60
gggtgcacgg at
72

<210> SEQ ID NO 884
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 884
atcgtcaaca ctgctcttg acaagcgtac gggtcggac atgtcataac ggaatgggtg
60
tgcctccgct at
72

<210> SEQ ID NO 885
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 885
atacggagc caaaccaggg gattgcatta cccatgctca agataggtgc gcaagecag
60
gtgtagcgcga t
71

<210> SEQ ID NO 886
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 886
atcgtcaaca ctgctcttg gcaaccttc ttagcatgg gtaatgcatt ccctgggtgt
60
gtcctccgta t
71

<210> SEQ ID NO 887
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 887
-continued-

atcgggagc caaaccata gaagttgtgt gttattctat ggaataaaaa cgacagagca
72

ggtgtgacgg at

<210> SEQ ID NO 888
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 888

atcgtcaaca cctgtctgtg cgtttatatc ccatagaata acacataact tcataatgt
60
tgctccoggt at

<210> SEQ ID NO 889
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 889

atcgggagc caaaccata cctgtgtgat cagagagcat gaaatgatgt tttgagagca
60
ggtgtgacgg at

<210> SEQ ID NO 890
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 890

atcgtcaaca cctgtctca aacacattt tcataatcac tgtcaacaac ggtgtgtgat
60
tgctccoggt at

<210> SEQ ID NO 891
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 891

atcgggagc caaaccatg catgggacct gttatcatt caagctgtca agccgagacs
60
ggtgtgacgg at

<210> SEQ ID NO 892
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 892

atcgtcaaca cctgtctgc cttgacagct tgtaggata acagtcocca tgcattgtgat
60
tgctccoggt at
<210> SEQ ID NO 893
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 893
atagggagc caacaccacca aaacgctcag agggagtaag caotcttaaa tgtagacgag
60
gtgtgacgga t
71

<210> SEQ ID NO 894
<211> LENGTH: 71
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 894
atgcgtaoa caatgcctac attataagt gcgtactccc tcggaaacct ttgtggtgtt
60
ggcgcacgta t
71

<210> SEQ ID NO 895
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 895
atagggagc caacaccagc tgtcttagat gcgtgtatgg tttatcgctc gcggagagca
60
ggtgtgacgg at
72

<210> SEQ ID NO 896
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 896
atgcgtaoa cctgcctcgg gcggagcata aacaatacag acatcttataa gacgtgtgtt
60
tggcgcacgt at
72

<210> SEQ ID NO 897
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 897
atagggagc caacaccagc atctcagtt gataccagtt atottaacta tagcagca
60
ggtgtgacgg at
72

<210> SEQ ID NO 898
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized
<400> SEQUENCE: 898
atccgtaaca cctgctctgc tatagtttaag atcactgtgtt atcaccagag atggtggtgt 60
tgctcctcgt at 72

<210> SEQ ID NO 899
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 899
atacgggagc caaacaacc accctcactac atggtccttt tgcctcgtag atggtcacta atggtccaca 60
ggtgtgacg at 72

<210> SEQ ID NO 900
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 900
atccgtaaca cctgctctgg ctatccag caaagatac atgtagtgag gtgtggtgtg 60
tgctcctcgt at 72

<210> SEQ ID NO 901
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 901
atacgggagc caaacaacag tctttttaga taacaagcca aaarcagcgc aagcagagca 60
ggtgtgacg at 72

<210> SEQ ID NO 902
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 902
atccgtaaca cctgctctgc acgggctcag tttgtgtttg tatcctaga gacgattgtg 60
tgctcctcgt at 72

<210> SEQ ID NO 903
<211> LENGTH: 72
<212> TYPE: DNA
<213> ORGANISM: Artificial Sequence
<220> FEATURE:
<223> OTHER INFORMATION: chemically synthesized

<400> SEQUENCE: 903
atacgggagc caaacaaccc tcaaatagcc aaaaagaact gcacoactac ggcaagagca 60
ggtgtgacg at 72
1. A DNA ligand sequence consisting of SEQ ID NO.: 4.
2. A DNA ligand sequence consisting of SEQ ID NO.: 434.
3. A DNA ligand sequence consisting of SEQ ID NO.: 462.

* * * * *