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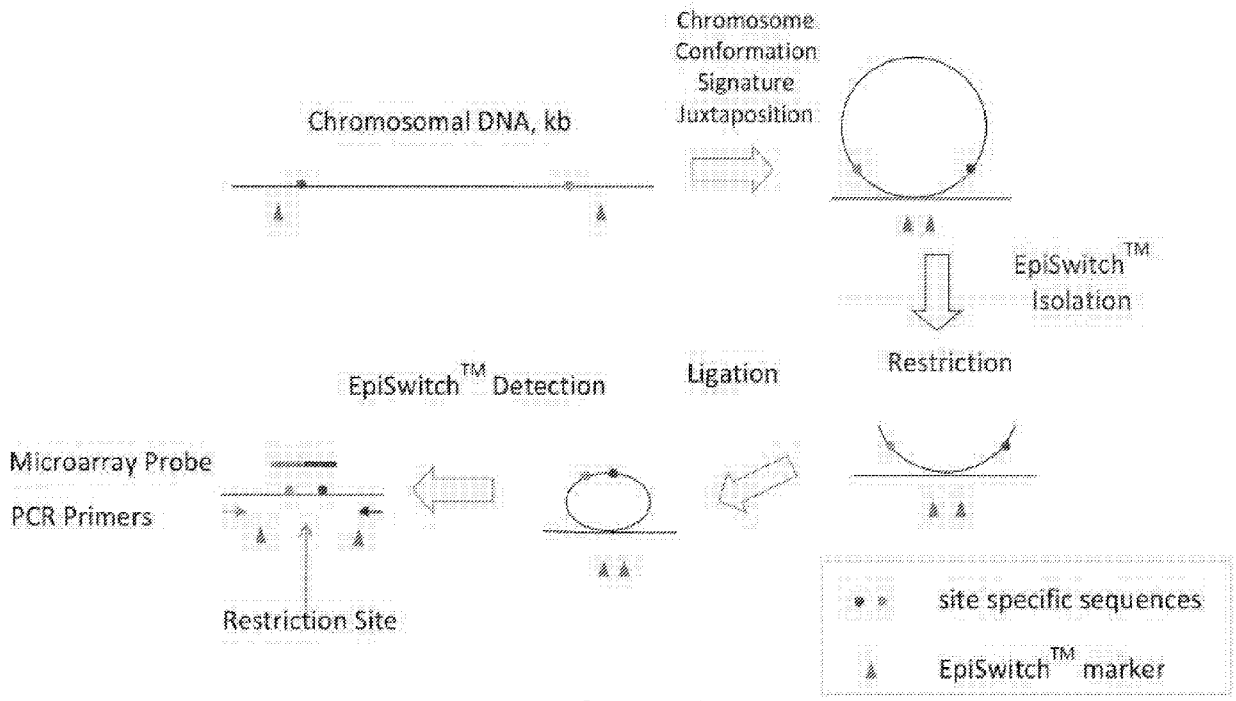


FIGURE 1

(57) Abstract: A process for analysing chromosome interactions relating to immune health.

[Continued on next page]

WO 2022/148958 A1

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ANALYSIS METHOD

Field of the Invention

The invention relates to the immune system.

Background of the Invention

How the immune system reacts to particular triggers, such as pathogens or targeted therapeutic intervention, can determine the severity or immune-related side effects of the disease. The different parts of the immune response, including humoral and cellular, have different roles in protecting the body, but also common control mechanisms.

An example of an immune response is cytokine release syndrome (CRS) is a form of systemic inflammatory response syndrome (SIRS) that can be triggered by a variety of factors such as infections and certain drugs. It can occur when large numbers of white blood cells are activated and release inflammatory cytokines, which in turn activate yet more white blood cells. CRS is also an adverse effect of some monoclonal antibody medications, as well as adoptive T-cell therapies. When occurring as a result of a medication it is also known as an infusion reaction.

Summary of the Invention

The inventors have identified chromosome conformation signatures that define how the immune system will react to specific triggers. This elucidates the role of this modality of regulation in immune system control and allows a 'readout' of the immune health of an individual, and in particular a determination of their susceptibility to an overreaction of the immune system. The invention is focused on the immune response as something distinct from the rest of the disease process. The invention 'isolates out' the immune component for separate analysis at the level of the 3D architecture of the genome defined by chromosome interactions.

3D genomics offers very early symptomatic and pre-symptomatic readouts. The typing of the chromosome interactions of an individual allows recognition at an early time point in the systemic immune profile of whether, for example, they are pre-set for an immune overreaction such as a cytokine storm and/or a strong hyperinflammation and/or autoimmune reaction in a specific organ or tissue.

Accordingly, the invention provides a method of detecting prognosis for method of determining whether an individual is susceptible to an immune overreaction, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in Table 1 or 3, to thereby determine presence or absence of said susceptibility in the individual. The invention also

provides a method of determining the immune health of an individual, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in Table 7, to thereby determine the immune health of the individual.

The invention further provides a method of determining the immune health of an individual, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in any one of Tables 8, 9, 10 and 11, to thereby determine the immune health of the individual. The invention provides a method of determining immune health in an individual comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in any of Tables 14, 15, 6 and 17, to thereby determine immune health in the individual.

The invention also provides a method of detecting the presence of, or susceptibility to sepsis, in an individual, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in Table 12 or 13.

Preferably the method is carried out to select an individual for receiving therapy or a treatment. The method may be carried out on individual that has been preselected, for example based on a physical characteristic, risk factor or the presence of a symptom.

Brief Description of the Drawings

Figure 1 shows a preferred method for carrying out the marker detection step of the invention.

Figure 2 shows leucocyte lineage.

Figure 3 shows the study design.

Figure 4 shows a PCA for 38 patients (from 3 cohorts) for asymptomatic (square), mild (triangle) and ICU (severe) (circle).

Figure 5 shows a PCA only for mild (circle) and ICU (square).

Figure 6 shows the analytical pipeline.

Figure 7 shows 20 Hallmark GeneSets for ICU versus mild. The central column represents GeneSets shared between ICU and mild. The four sets on the bottom right indicated immune processes associated with ICU patients. These 20 gene sets are identified on the basis of the top EpiSwitch markers and their localisation at the gene position is described by GeneSets.

Figure 8 shows BioCarta pathways for ICU versus mild. Shared gene sets are shown in the centre and the far left 7 gene sets show immune processes associated with ICU. This analysis is based on the genomic positions of the top EpiSwitch markers to see which overlapping genes are part of which pathways.

Figure 9 shows top 20 reactome pathways for ICU versus mild. The 7 gene sets on the right of ICU relate to immune processes. Immune and angiotensin processes are shown in the mild. In this analysis the EpiSwitch positions were compared to the same genomic positions described in the reactome database.

Figure 10 shows the top 100 significant markers for mild associated to immune processes. This is not a two dimensional PCA, but a similar single dimensional standard Linear Discriminant Analysis (all complexity reduce to one linear score for three clinical outcomes/phenotypes). It is produced on the basis of the top 100 significant markers, present only in mild cases and not asymptomatic or severe ICU, and overlapping in their positions with immuno-genetic loci in the genome (hence called Immune EpiSwitch markers). This analysis contains 80 patients: on top of three cohorts from UK (1) and USA (2), and has 42 patients from Lima, Peru, all collected at the time when Lima became the site of the highest fatalities from Covid-19. The top of the diagram is to the left of the page. The top set of circles is severe (bottom left of the page). The middle set of circles is mild (top of the page). The bottom set of circles is asymptomatic (to the middle right of the page).

Figure 11 shows a genome view of the markers of Figure 10.

Figure 12 shows the top 100 significant markers for ICU that are associated with immune processes, showing ICU is a distinct phenotype. This analysis is done in the same way as for Figure 10, except the top markers that were used were all statistically significant and present in ICU (severe) group of patients, not in the mild or asymptomatic. This demonstrates that on the basis of top markers unique to ICU outcomes and present in advance of complications at the time of blood collection and first Covid-19 testing, one can prognostically identify and distinguish the profile present for severe outcome, as a distinct phenotype in 3D genomics associated with a distinct clinical outcome. The top of the diagram is to the left of the page. The top set of circles is severe (top left of the page). The middle set of circles is mild (second set of circles from the bottom of the page). The bottom set of circles is asymptomatic (to the bottom right of the page).

Figure 13 shows a genome view of the markers of Figure 12.

Figure 14 relates to the how the top 50 ICU markers associated with immune processes were selected for LDA analysis and classification statistics. The markers were selected using a 30 training sample set and then used to classify the 12 test set.

Figure 15 shows enrichment of pathways using the genetic location enriched with the top 50 markers.

Figure 16 shows enrichment of compounds using the genetic location enriched with the top 50 markers.

Figure 17 shows the LDA plot of the 30 training set using the top 50 markers. The left of the page is the top of the diagram. The triangles at the top are severe (top left of the page). The circles at the bottom are mild (bottom right of the page).

Figure 18 shows the LDA plot of the 30 training set with the 12 set test.

Figure 19 shows patient calls by LDA on 42 patients from the Lima cohort and the efficacy of prognostic stratification by LDA calls.

Figure 20 shows a standard STRING network analysis – functional protein association networks, where the immune genes that have ICU/Severe COVID associated EpiSwitch significant markers are overimposed onto the known interaction networks. It matches the known network very well and shows a highly connected part of the regulatory network through EpiSwitch dysregulated genes. No additional nodes form outside of Episwitch list had to be added for completion of the network. Table 5 shows the names of the key genes which are involved and provides further data.

Figure 21 shows how Table 6 is to be interpreted.

Figure 22 shows pathways which relate to both immune overreaction and sepsis identified by analysis of the markers found in the present work. In particular PSMA5 is implicated, and HG38_1_109341939_109348573_109359719_109366704_RR (OBD183_q481.q483) is a shared marker. PSMA5, CD3D and CD3G are matched genes in the pathway relating to antigen processing-cross presentation and KLRG1, CD3D and CD3G are matched genes in the pathway related to immunoregulatory interactions between a lymphoid and non-lymphoid cell.

Detailed Description of the Invention

Terms Used Herein

The method of the invention may be referred to as the 'process' of the invention herein.

The chromosome interactions which are typed may be referred to as 'markers', 'CCS', 'chromosome conformation signature', 'epigenetic interaction' or 'EpiSwitch markers' herein.

The word 'type' will be interpreted as per the context, but will usually refer to detection of whether a specific chromosome interaction is present or absent.

The term 'immune overreaction' is a broad term which includes within it any type of immune response that causes harm to the individual, generally because it is either higher than it should be or should not be present at all. Typically the immune reaction will be a cytokine storm, hyperinflammation or an autoimmune reaction.

The term 'immune related side effect' relates to another type of harmful immune response which is detected by the method of the invention, and typically concerns side effects of a therapy which is given.

Coronavirus infection is the disease model which is the basis of much of the work described herein. Therefore where results or tables refer to 'severe' disease or phenotype this represent an immune reaction as described herein.

The Epigenetic Interactions Relevant to the Invention

The chromosome interactions which are typed in the invention are typically interactions between distal regions of a chromosome, said interactions being dynamic and altering, forming or breaking depending upon the state of the region of the chromosome. That state will reflect different aspects of immune health.

The chromosome interaction may, for example, reflect if it is being transcribed or repressed. Chromosome interactions which are specific to immune health 'subgroups' as defined herein have been found to be stable, thus providing a reliable means of measuring the differences between the two subgroups (for example reflecting different immune responses).

Chromosome interactions specific to immune health will normally be present before or in the early stages of a disease process, for example compared to other epigenetic markers such as methylation or changes to binding of histone proteins. Thus the process of the invention is able to provide valuable information about the way the immune system will react at an early stage. This allows early intervention (for example treatment) which as a consequence will be more effective. Chromosome interactions also reflect the current state of the individual and therefore can be used to assess changes to disease status. Furthermore there is little variation in the relevant chromosome interactions between individuals within the same subgroup. Detecting chromosome interactions is highly informative with up to 50 different possible interactions per gene, and so processes of the invention can for example interrogate 500,000 possible different interactions.

Chromosomal interactions may overlap and include the regions of chromosomes shown to encode relevant or undescribed genes, but equally may be in intergenic regions. It should further be noted that

the inventors have discovered that chromosome interactions in all regions are equally important in determining the status of a chromosomal locus.

The chromosome interactions which are detected in the invention could be impacted by changes to the underlying DNA sequence, by environmental factors, DNA methylation, non-coding antisense RNA transcripts, non-mutagenic carcinogens, histone modifications, chromatin remodelling and specific local DNA interactions. However it must be borne in mind that chromosome interactions as defined herein are a regulatory modality in their own right and do not have a one to one correspondence with any genetic marker (DNA sequence change) or any other epigenetic marker.

The changes which lead to the chromosome interactions may be impacted by changes to the underlying nucleic acid sequence which themselves do not directly affect a gene product or the mode of gene expression. Such changes may be for example, SNPs within and/or outside of the genes, gene fusions and/or deletions of intergenic DNA, microRNA, and non-coding RNA. For example, it is known that roughly 20% of SNPs are in non-coding regions, and therefore the process as described is also informative in non-coding situation. In one aspect the regions of the chromosome which come together to form the interaction are less than 5 kb, 3 kb, 1 kb, 500 base pairs or 200 base pairs apart on the same chromosome.

The chromosome interaction which is detected in the method of the invention can be in any gene, chromosome region defined in the tables, or in any pathway shown herein (for example in any gene in such a pathway).

The chromosome interaction which is detected may be within a gene, such as any gene mentioned herein. However it may also be upstream or downstream of the gene, for example up to 50,000, up to 30,000, up to 20,000, up to 10,000 or up to 5000 bases upstream or downstream from the gene or from the coding sequence.

The Process of the Invention

The process of the invention comprises a typing system for detecting chromosome interactions relevant to immune health. Any suitable typing method can be used, for example a method in which the proximity of the chromosomes in the interaction is detected. The typing method may be performed using the *EpiSwitch*™ system mentioned herein which for example may be carried out by a method comprising the following steps (for example on a sample from the subject):

(i) cross-linking regions of chromosome which have come together in a chromosome interaction,

(ii) optionally isolating the cross-linked DNA from said chromosomal locus

(iii) subjecting the cross-linked DNA to cleavage, and

(iv) ligating the nucleic acids present in the cross-linked entity to derive a ligated nucleic acid with sequence from both the regions which formed a chromosomal interaction.

Detection of this ligated nucleic acid allows determination of the presence or absence of a particular chromosome interaction. The ligated nucleic acid therefore acts as a marker for the presence of the chromosome interaction. Preferably the ligated nucleic acid is detected by PCR or a probe based method, including a qPCR method.

In the method the chromosomes can be cross-linked by any suitable means, for example by a cross-linking agent, which is typically a chemical compound. In a preferred aspect, the interactions are cross-linked using formaldehyde, but may also be cross-linked by any aldehyde, or D-Biotinoyl-e-aminocaproic acid-N-hydroxysuccinimide ester or Digoxigenin-3-O-methylcarbonyl-e-aminocaproic acid-N-hydroxysuccinimide ester. Para-formaldehyde can cross link DNA chains which are 4 Angstroms apart. Preferably the chromosome interactions are on the same chromosome. Typically the chromosome interactions are 2 to 10 Angstroms apart.

The cross-linking is preferably *in vitro*. The cleaving is preferably by restriction digestion with an enzyme, such as TaqI. The ligating may form DNA loops.

Where PCR (polymerase chain reaction) is used to detect or identify the ligated nucleic acid, the size of the PCR product produced may be indicative of the specific chromosome interaction which is present, and may therefore be used to identify the status of the locus. In preferred aspects the primers shown in any table herein are used, for example the primer pairs shown in Table 1 or 3 are used (corresponding to the chromosome interaction which is being detected). In other preferred aspects the primers shown in Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 are used (corresponding to the chromosome interaction which is being detected). Homologues of such primers or primer pairs may also be used, which can have at least 70% identity to the original sequence.

Where a probe is used to detect or identify the ligated nucleic acid, this is generally by Watson-Crick based base-pairing between the probe and ligated nucleic acid. Probe sequences as shown in any table herein may be used, for example the probe sequences shown in Table 1 or 3 (corresponding to the chromosome interaction which is being detected). Probe sequences as shown in Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 may used (corresponding to the chromosome interaction which is being detected). Homologues of such probe sequences may also be used, which can have at least 70% identity to the original sequence.

Typing according to the process of the invention may be carried out at multiple time points, for example to monitor the progression of the disease. This may be at one or more defined time points, for example at at least 1, 2, 5, 8 or 10 different time points. The durations between at least 1, 2, 5 or 8 of the time points may be at least 5, 10, 20, 50, 80 or 100 days. Typically there are 3 time points at least 50 days apart.

Subgroups and Personalised Treatment

As used herein, a "subgroup" preferably refers to a population subgroup, more preferably a subgroup in the population of a particular organism such as a particular eukaryote, animal, bird or mammal. Most preferably, a "subgroup" refers to a subgroup in the human population. Therefore the process of the invention is preferably carried out to detect the presence of coronavirus infection in a eukaryote, such as an animal, mammal or bird, and preferably in a human. The process of the invention may be carried out for diagnostic or prognostic purposes.

The invention includes detecting and treating particular subgroups in a population, typically differing in their immune health, for example susceptibility to particular immune overreactions. The inventors have discovered that chromosome interactions differ between subsets (for example at least two subsets) in the relevant population. Identifying these differences will allow physicians to categorize their patients as a part of one subset of the population. The invention therefore provides physicians with a process of personalizing medicine for the patient based on their epigenetic chromosome interactions. Such testing may be used to select how to subsequently treat the patient, for example the type of drug and/or its dose and/or its frequency of administration.

The Individual That is Tested

The individual that is tested in the process of the invention may have been selected in some way, for example based on a risk factor or physical characteristic. The individual may have been selected based on being symptomless for a given disease, or being in the early stages of the disease or having a mild form of the disease.

The individual may be susceptible to any condition mentioned herein and/or may be in need of any therapy mentioned in. The individual may be receiving any therapy mentioned herein. In particular, the individual may have, or be suspected of having, a condition related to the immune system, such as any such condition mentioned herein.

The Specific Purpose for Carrying out the Test

In one aspect the method is carried out to determine the immune health and/or systemic immune competence of the individual. The method may be carried out to determine the:

- systemic immune response to infection (for example by a viral, bacterial or fungal pathogen)

- systemic immune response to oncology (cancer) treatment

- immune profile of neurodegenerative prognosis

- systemic immune competence relevant to mechanisms of disease development/host response

-rheumatoid arthritis and auto-immune response, for example as a side effect of oncological treatment, especially immune-oncological treatment

-immune response to sepsis or the immune response which is a side effect of treatment for sepsis.

In one aspect the method is carried out to detect susceptibility to an immune system overreaction. The method may be carried out to determine susceptibility to hyperinflammation. Typically this hyperinflammation targets very specific tissues and organs in the individual, for example depending on their unique weaknesses. Such hyperinflammation can occur in many different diseases and complications. The hyperinflammation could be an autoimmune reaction, typically affecting a specific organ or tissue, such as an autoimmune reaction to lung or heart tissue (i.e. against the pulmonary or cardiovascular system).

The method may be carried out to detect susceptibility to a cytokine storm, cytokine release syndrome or an immune crisis. The method may be carried out to determine susceptibility to an immune response that is detrimental to the health of the individual. That immune response may be caused by a 'trigger' which can be a pathogen, an antigen (self or foreign) or a therapy (including a drug or therapy).

The method may be carried out to determine the immune response of an individual in immune-oncology (for example also taking into account auto-immune side effects, rheumatoid arthritis, autism (which has a significant neuroimmune component) or scleroderma (which has a significant immune component for prognosis). Thus the method may detect susceptibility to any such immune response, for example as occurs in any of these conditions.

The method may be carried out to detect susceptibility to an immune overreaction against a therapy, for example a targeted therapeutic agent or intervention (such as a therapy related to T cell immune-oncology).

Preferred Groups of Individuals to be Tested

The individual who is tested by the method of the invention may have one or more of the following characteristics:

- immunocompromised, for example due to having been administered with immunosuppressants. Such immunocompromised individuals may have rheumatoid arthritis, lupus or may have received an organ transplant;

- excluded from Covid-19 vaccination by a regulator, for example individuals with an allergy or pregnant women

- a chronic condition

- a concierge medicine client, wishing their physicians to make a risk assessment for Covid-19 complications. (Concierge medicine is a separate health-care system and market in the US)

- part of the corporate workforce, for example as part of a “return to work” strategy, such as when the employer arranges for staff to be evaluated for Covid-19 complications, so that employees can be accommodated by work conditions in offices or at home accordingly.

Other types of preferred individuals to be tested include:

- having received chemotherapy or antibody treatment for cancer, including immunotherapy

- having received intense course of radiotherapy (radical radiotherapy) for lung cancer

- having received targeted cancer treatments that can affect the immune system (such as protein kinase inhibitors or PARP inhibitors)

- they have, or have had, blood or bone marrow cancer (such as leukaemia, lymphoma or myeloma)

- they have, or have had, a severe lung condition (such as cystic fibrosis, severe asthma or severe COPD)

- a high risk of getting infections (such as SCID or sickle cell)

- they are taking medicine that makes individuals much more likely to get infections (such as high doses of steroids or immunosuppressant medicine)

- have a problem with spleen or the spleen has been removed (splenectomy)

- they have Down's syndrome

- having dialysis or have severe (stage 5) long-term kidney disease

- classed as clinically extremely vulnerable, based on clinical judgement and an assessment of their needs

- are 70 years old or older

- have a lung condition that is not severe (such as asthma, COPD, emphysema or bronchitis)

- have heart disease (such as heart failure)

- have diabetes

- have liver disease (such as hepatitis)

- have a condition affecting the brain or nerves (such as Parkinson's disease, motor neurone disease, multiple sclerosis or cerebral palsy

- they are very obese (for example a BMI of 40 or above).*The Prognosis which is Determined*

The process of the invention preferably determines outcomes (prognosis) for a disease by allowing determination of the immune profile, including the susceptibility to particular types of immune response in that type of individual or in that specific disease setting. The outcome and/or immune response can be determined for any type of disease situation and/or any type of individual mentioned herein. Thus the method can be used to determine the prognosis for severity of disease, and may determine whether the individual has a prognosis of severe disease or mild disease. The process may determine whether the individual has prognosis of severe disease that will lead: to the need for ICU treatment, a cytokine storm (cytokine release syndrome), hyperinflammation. The process may determine whether the individual is in need of any treatment or therapy mentioned herein, such as a therapy which controls, modulates or suppresses the immune response.

The process of the invention may be carried out to detect sepsis.

Tables Provided Herein

Tables 1, 2, 3 and 4 show specific markers which can be used to detect immune health. Their presence or absence can be used in such a detection (i.e. they are 'disseminating' markers). Tables 1 and 2 show markers which are present in individuals that have the prognosis of an immune overreaction. Tables 3 and 4 shows markers which are present in individuals that have prognosis of a normal immune reaction. Tables 2 and 4 are subsets of markers from Table 1 and 3 respectively. The process of the invention can be carried out using markers from any one of Tables 1 to 4 or by using markers from more than one Table, for example using markers from both Table 1 and Table 3.

Table 7 shows a further set of markers which can be used to determine immune health. The process of the invention may be carried out using only the markers of Table 7, or these markers may be combined with other markers as disclosed herein. In this table markers denoted as 'ICU' are those whose presence is associated with an immune over-reaction, and markers denoted as 'Mild' are those whose presence is associated with an absence of an immune over-reaction.

Tables 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17 show further sets of markers which can be used to detect immune health. The process of the invention may be carried out using only the markers of any of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 or these markers may be combined with other markers as disclosed herein.

Table 8 includes markers which are associated with the severe phenotype (i.e. immune overreaction). Markers where there is a '1' in the LS column are associated with severe phenotype in this table. These are preferred markers to be used in the invention.

Table 9 shows preferred markers which are all associated with severe phenotype.

Table 10 includes markers which are associated with mild phenotype (i.e. lack of an immune reaction). Markers where there is a '-1' in the LS column are associated with mild phenotype. These are preferred markers to be used in the invention.

Table 11 shows preferred markers which are all associated with mild phenotype.

Tables 12 and 13 show markers which can be used to determine sepsis status. The results in Table 12 relate to "S_SS" and "qPCR_ICU". These are 27 markers which are ICU prognosis markers but have also been found to be significant and sepsis-specific in the analysis of patients with sepsis vs severe sepsis. The results in Table 13 relate to "H_SS" and "qPCR_ICU". These are 5 markers are ICU prognosis markers that also come as significant and severe-sepsis specific in the analysis of patients with severe sepsis when comparing to healthy.

Tables 14 and 15 show preferred severe phenotype markers, the '1' in the CCS column representing that phenotype.

Tables 16 and 17 show preferred mild phenotype markers, the '-1' in the CCS column representing that phenotype.

The markers are defined using probe sequences (which detect a ligated product as defined herein). The first two sets of Start-End positions show probe positions, and the second two sets of Start-End positions show the relevant 4kb region. The markers may be defined with reference to the Start-End

positions which are provided as these will uniquely identify the marker in the same way a probe sequence does.

The following information is provided in the probe data tables:

RP - Rsum the Rank Product statistics evaluated per each chromosome interaction.

FC - Interaction frequency (positive or negative).

Pfp - estimated percentage of false positive predictions (pfp), both considering positive and negative chromosome interactions.

Pval - estimated pvalues per each CCSs being positive and negative.

Adj.P.value (FDR) - False discovery rate adjusted p.value.

Loop Detected - which state the loop is found in.

Simple permutation-based estimation is used to determine how likely a given RP value or better is observed in a random experiment. This has the following steps:

1. Generate p permutations of k rank lists of length n.
2. Calculate the rank products of the n CCS in the p permutations.
3. Count (c) how many times the rank products of the CCS in the permutations are smaller or equal to the observed rank product. Set c to this value.
4. Calculate the average expected value for the rank product by: Erp(g)=c/p.
5. Calculate the percentage of false positives as: pfp (g)=Erp(g)/rank (g) where rank(g) is the rank of CCS g in a list of all n CCSs sorted by increasing RP.

The rank product statistic ranks chromosome interactions according to intensities within each microarray and calculates the product of these ranks across multiple microarrays. This technique can identify chromosome interactions that are consistently detected among the most differential chromosome interactions in a number of replicated microarrays. Where the p-value is 0 this indicates that there is very little variation in the Rank Product of the CCS across the samples, this is a good example of the signal to noise and effect size of CCS. Where p value is 0 and pfp is 0 this means that permutated Rank Product doesn't differ from the actual observed Rank Product. These methods are described Breitling R and Herzyk P (2005) Rank-based methods as a non-parametric alternative of the t-test for the analysis of biological microarray data. J Bioinf Comp Biol 3, 1171–1189.

The FC indicates prevalence of marker in each comparison, 2 means twice over average test, 1.5 means 1.5 over the average test, etc., and so FC indicates the weight of a marker to phenotype/group. The FC value can be used to give an indication of how many markers are needed for a highly effective test. Individual markers are powerful indicators of prognosis, and typically 5 to 10 markers will give a highly

effective test, though smaller numbers of markers will give a functional test for detection of immune health.

The probes are designed to be 30bp away from the Taq1 site. In case of PCR, PCR primers are typically designed to detect ligated product but their locations from the Taq1 site vary. Probe locations:

Start 1 - 30 bases upstream of TaqI site on fragment 1
End 1 - TaqI restriction site on fragment 1
Start 2 - TaqI restriction site on fragment 2
End 2 - 30 bases downstream of TaqI site on fragment 2
4kb Sequence Location:
Start 1 - 4000 bases upstream of TaqI site on fragment 1
End 1 - TaqI restriction site on fragment 1
Start 2 - TaqI restriction site on fragment 2
End 2 - 4000 bases downstream of TaqI site on fragment 2

Table 5 relates to the network analysis shown in Figure 20 and shows the String functional sub-networks represented in this network, with the names of the key genes in the sub-network associated with EpiSwitch markers.

Table 6 provides a list of therapeutic compounds which have sets of affected gene associated with them (see #genes column) and have individual genes from that sets (see following columns #matching genes) associated with EpiSwitch significant markers specific for severe disease outcome (all of them being immune associated genes). In the table:

- the column with total number of genes shows genes affected by the therapeutic agent

- the column with matched genes shows the number of affected genes matching EpiSwitch markers.

The high scores that were obtained confirm the non-random selection of the matching genes, i.e. affected by 3D genome architecture in severe disease patients.

Table 7 shows a set of preferred markers for use in the invention, as well as preferred probe and PCR primers. The specific prognosis the presence of each marker is associated with is shown in the first column: 'Mild' denotes the clinical manifestation of COVID disease (as opposed to asymptomatic conditions), where the patient may even be hospitalised, but responds to a standard of care and remains stable; 'ICU' denotes a severe condition when the hospitalized patient does not respond to a standard of care on the hospital ward and requires Intensive Care Unit (ICU) support. Examples of severe (ICU) are hyperinflammation and need of mechanical ventilation.

Table 8 shows a set of markers for use in the invention. Any marker may be used from this table. Preferred markers have a '1' in the LS column are associated with severe phenotype in this table, and so

all these markers represent a preferred subset of markers from which markers can be chosen for use in the invention.

Table 9 shows markers which are all associated with severe phenotype. The table also shows preferred primer and probe sequences. These primers and probes can be used in a qPCR format for detection of the relevant marker.

Table 10 shows a set of markers for use in the invention. Any marker may be used from this table. Preferred markers have a '-1' in the LS column are associated with mild phenotype in this table, and so all these markers represent a preferred subset of markers from which markers can be chosen for use in the invention.

Table 11 shows markers which are all associated with mild phenotype. The table also shows preferred primer and probe sequences. These primers and probes can be used in a qPCR format for detection of the relevant marker.

Tables 14 and 16 show preferred probe and primer sequences which can optionally be used in a qPCR format.

Tables 15 and 17 show preferred primer sequences which can optionally be used in a nested PCR format.

Preferred Marker Sets

The invention relates to detecting prognosis for immune health by typing chromosome interaction markers, such as any of the specific markers disclosed herein, for example in Table 1 or 3, or preferred combinations of markers, or markers in defined specific regions disclosed herein. Markers present in genes and regions mentioned in the tables may be typed. Specific markers are defined herein by location or by probe and/or primer sequences. Therefore preferred markers are those which are represented by the probes and/or primer pairs disclosed in tables herein.

The invention relates to detecting prognosis for coronavirus infection by typing chromosome interaction markers, such as any of the specific markers disclosed Table 8, 9, 10, 11, 14, 15, 16 or 17 or preferred combinations of markers from any of these tables, or markers in defined specific regions disclosed in any of these tables.

The invention relates to further detecting sepsis status during coronavirus infection by typing chromosome interaction markers, such as any of the specific markers disclosed Table 12 or 13, or preferred combinations of markers from any of these tables.

Combinations of markers can be defined in different ways, such as:

- by ranking by any parameter defined herein, or

- by any 'part' of Table 1 or 3,

- by reference to the 'number' of the marker which is listed in the left hand column of the Tables.

In a preferred aspect at least 10 markers are typed from the top 40 markers for any parameter mentioned in the Tables, such as FC.

In one aspect one or more markers are typed which:
(i) are present in any one of the regions listed in Table 1 or 3; and/or
(ii) corresponds to any one of the chromosome interactions represented by any probe shown in Table 1 or 3; and/or
(iii) is present in a 4,000 base region which comprises or which flanks (i) or (ii).

In a preferred aspect:

- at least 5 chromosome interactions are typed from Table 1, and/or

- at least 5 chromosome interactions are typed from Table 3.

In another preferred aspect at least 5 chromosome interactions are typed selected from:

- the top 40 interactions in Table 1 defined using any parameter, and/or

- the top 40 interactions in Table 3 defined using any parameter.

Combinations of markers can be defined by any 'part' of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17.

In a preferred aspect at least 10 markers are typed from the top 40 markers for any parameter mentioned in the Tables, such as FC.

In one aspect one or more markers are typed which:

(i) are present in any one of the regions listed in Table 8, 9, 10 or 11; and/or

(ii) corresponds to any one of the chromosome interactions represented by any probe shown in Table 8, 9, 10 or 11; and/or

(iii) is present in a 4,000 base region which comprises or which flanks (i) or (ii).

In a preferred aspect:

- at least 5 chromosome interactions are typed from Table 9, and/or

- at least 5 chromosome interactions are typed from Table 11.

In another preferred aspect at least 5 chromosome interactions are typed selected from:

- the top 40 interactions in Table 8 defined using any parameter, and/or

- the top 40 interactions in Table 10 defined using any parameter.

Preferred Numbers of Markers to be Typed

Typing a very low number of the markers disclosed herein will result in an effective test due to the nature of regulation by chromosome interaction, including their network-like properties. The different numbers and combination of markers give rise to different performance properties. Further as will be appreciated the markers can be selected from Table 1 or 3 as a whole or from the parts of the Tables defined by a number and letter (for example 'a2'). Similarly markers can be selected from the whole or parts of any of Tables 8, 9, 10, 11, 14, 15, 16 or 17. Markers can also be selected from the whole or parts of Tables 12 and 13.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 100, 150, 200, 250 or 300 of the chromosome interactions represented by the probes in Table 1. In one embodiment at least 10 chromosome interactions represented by the probes in Table 1 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 25 or 30 of the chromosome interactions represented by the probes in Table 2. In one embodiment at least 10 chromosome interactions represented by the probes in Table 2 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 80, 100, 150 or 200 of the chromosome interactions represented by the probes in Table 3.

In one aspect the process comprises typing at least 3, 5, 8 or 10 of the chromosome interactions represented by the probes in Table 4. In one embodiment at least 10 chromosome interactions represented by the probes in Table 4 are typed.

In one aspect at least 3, 5, 8, 10, 15 or 20 chromosome interactions are typed from the top 40 markers in Table 1 defined using any parameter and/or at least 3, 5, 8, 10, 15 or 20 chromosome interactions are typed from the top 40 markers in Table 3 defined using any parameter.

In one aspect 2, 3, 4, 5 or 6 markers are types from Table 7. All 6 of the markers of Table 7 may be typed. In another aspect all 6 of the markers from Table 7 are typed together with at least 3, 5, 8, 10, 15

or 20 chromosome interactions from Table 1. In another aspect all 6 of the markers of Table 7 are typed together with at least 3, 5, 8, 10, 15 or 20 markers from Table 3.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 100, 150, 200, 250 or 300 of the chromosome interactions represented by the probes in Table 8. Preferably at least 10 chromosome interactions represented by the probes in Table 8 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 100, or all of the chromosome interactions shown in Table 8 which have a '1' in the LS column. Preferably at least 10 chromosome interactions shown Table 8 which have '1' in the LS column are typed.

In one aspect the process comprising typing at least 3, 5, 8, 10, 15, 20, 30 or all of the chromosome interactions shown in Table 9. Preferably at least 10 chromosome interactions represented by the probes in Table 9 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 100, 150, 200 or all of the chromosome interactions represented by the probes in Table 10. Preferably at least 10 chromosome interactions represented by the probes in Table 10 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 80, or all of the chromosome interactions shown in Table 10 which have a '-1' in the LS column. Preferably at least 10 chromosome interactions shown Table 10 which have '-1' in the LS column are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10 or all of the chromosome interactions shown in Table 11. Preferably at least 10 chromosome interactions represented by the probes in Table 11 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 20, 25 or all of the chromosome interactions shown in Table 12. Preferably at least 10 chromosome interactions represented by the probes in Table 12 are typed.

In one aspect the process comprises typing at least 2, 3 or 5 of the chromosome interactions shown in Table 13. Preferably at least 5 chromosome interactions represented by the probes in Table 13 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 70 or all of the chromosome interactions represented by the probes in Table 14. Preferably at least 10 chromosome interactions represented by the probes in Table 14 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 100, 120, or all of the chromosome interactions represented by the probes in Table 15. Preferably at least 10 chromosome interactions represented by the probes in Table 15 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 40, or all of the chromosome interactions represented by the probes in Table 16. Preferably at least 10 chromosome interactions represented by the probes in Table 16 are typed.

In one aspect the process comprises typing at least 3, 5, 8, 10, 15, 20, 50, 80 or all of the chromosome interactions represented by the probes in Table 17. Preferably at least 10 chromosome interactions represented by the probes in Table 17 are typed.

Types of Chromosome Interaction

In one aspect the locus (including the gene and/or place where the chromosome interaction is detected) may comprise a CTCF binding site. This is any sequence capable of binding transcription repressor CTCF. That sequence may consist of or comprise the sequence CCCTC which may be present in 1, 2 or 3 copies at the locus. The CTCF binding site sequence may comprise the sequence CCGCGNGGNGGCAG (in IUPAC notation). The CTCF binding site may be within at least 100, 500, 1000 or 4000 bases of the chromosome interaction or within any of the chromosome regions shown Table 1.

When detection is performed using a probe, typically sequence from both regions of the probe (i.e. from both sites of the chromosome interaction) could be detected. In preferred aspects probes are used in the process which comprise or consist of the same or complementary sequence to a probe shown in any table. In some aspects probes are used which comprise sequence which is homologous to any of the probe sequences shown in the tables.

The Approach Taken to Identify Markers and Panels of Markers

The invention described herein relates to chromosome conformation profile and 3D architecture as a regulatory modality in its own right, closely linked to the phenotype. The discovery of biomarkers was based on annotations through pattern recognition and screening on representative cohorts of clinical samples representing the differences in phenotypes. We annotated and screened significant parts of the genome, across coding and non-coding parts and over large sways of non-coding 5' and 3' of known genes for identification of statistically disseminating consistent conditional disseminating chromosome conformations, which for example anchor in the non-coding sites within (intronic) or outside of open reading frames.

In selection of the best markers we are driven by statistical data and p values for the marker leads. Selected and validated chromosome conformations within the signature are disseminating stratifying entities in their own right, irrespective of the expression profiles of the genes used in the reference. Further work may be done on relevant regulatory modalities, such as SNPs at the anchoring sites, changes in gene transcription profiles, changes at the level of H3K27ac.

We are taking the question of clinical phenotype differences and their stratification from the basis of fundamental biology and epigenetic controls over phenotype - including for example from the framework of network of regulation. As such, to assist stratification, one can capture changes in the network and it is preferably done through signatures of several biomarkers, for example through following a machine learning algorithm for marker reduction which includes evaluating the optimal number of markers to stratify the testing cohort with minimal noise. This may end with 3-20 markers.

Selection of markers for panels may be done by cross-validation statistical performance (and not for example by the functional relevance of the neighbouring genes, used for the reference name).

A panel of markers (with names of adjacent genes) is a product of clustered selection from the screening across significant parts of the genome, in non-biased way analysing statistical disseminating powers over 14,000-60,000 annotated EpiSwitch sites across significant parts of the genome. It should not be perceived as a tailored capture of a chromosome conformation on the gene of know functional value for the question of stratification. The total number of sites for chromosome interaction are 1.2 million, and so the potential number of combinations is 1.2 million to the power 1.2 million. The approach that we have followed nevertheless allows the identifying of the relevant chromosome interactions.

The specific markers that are provided by this application have passed selection, being statistically (significantly) associated with the condition or subgroup. This is what the data in the relevant table demonstrates. Each marker can be seen as representing an event of biological epigenetic as part of network deregulation that is manifested in the relevant condition. In practical terms it means that these markers are prevalent across groups of patients when compared to controls. On average, as an example, an individual marker may typically be present in 80% of patients tested and in 10% of controls tested.

Simple addition of all markers would not directly represent the network interrelationships between some of the deregulations. This is where the standard multivariate biomarker analysis GLMNET (R package) can be brought in. GLMNET package helps to identify interdependence between some of the markers, that reflect their joint role in achieving deregulations leading to disease phenotype. Modelling and then testing markers with highest GLMNET scores offers not only identify the minimal number of

markers that accurately identifies the patient cohort, but also the minimal number that offers the least false positive results in the control group of patients, due to background statistical noise of low prevalence in the control group. Typically a group (combination) of selected markers (such as 3 to 10) offers the best balance between both sensitivity and specificity of detection, emerging in the context of multivariate analysis from individual properties of all the selected statistical significant markers for the condition.

The tables herein show the reference names for the array probes (60-mer) for array analysis that overlaps the juncture between the long range interaction sites, the chromosome number and the start and end of two chromosomal fragments that come into juxtaposition. The name of each marker listed in a table gives the chromosome position numbers of the two regions which are recognised by the relevant probe, providing an alternative way of defining the chromosome interaction in a unique way.

Samples and Sample Treatment

The process of the invention will normally be carried out on a sample. The sample may be obtained at a defined time point, for example at any time point defined herein. The sample will normally contain DNA from the individual. It will normally contain cells. In one aspect a sample is obtained by minimally invasive means, and may for example be a blood sample. DNA may be extracted and cut up with a standard restriction enzyme. This can pre-determine which chromosome conformations are retained and will be detected with the EpiSwitch™ platforms. Due to the synchronisation of chromosome interactions between tissues and blood, including horizontal transfer, a blood sample can be used to detect the chromosome interactions in tissues, such as tissues relevant to disease.

Preferred Aspects for Sample Preparation and Chromosome Interaction Detection

Methods of preparing samples and detecting chromosome conformations are described herein. Optimised (non-conventional) versions of these processes can be used, for example as described in this section.

Typically the sample will contain at least 2 $x10^5$ cells. The sample may contain up to 5 $x10^5$ cells. In one aspect, the sample will contain 2 $x10^5$ to 5.5 $x10^5$ cells.

Crosslinking of epigenetic chromosomal interactions present at the chromosomal locus is described herein. This may be performed before cell lysis takes place. Cell lysis may be performed for 3 to 7 minutes, such as 4 to 6 or about 5 minutes. In some aspects, cell lysis is performed for at least 5 minutes and for less than 10 minutes.

Digesting DNA with a restriction enzyme is described herein. Typically, DNA restriction is performed at about 55°C to about 70°C, such as for about 65°C, for a period of about 10 to 30 minutes, such as about 20 minutes.

Preferably a frequent cutter restriction enzyme is used which results in fragments of ligated DNA with an average fragment size up to 4000 base pair. Optionally the restriction enzyme results in fragments of ligated DNA have an average fragment size of about 200 to 300 base pairs, such as about 256 base pairs. In one aspect, the typical fragment size is from 200 base pairs to 4,000 base pairs, such as 400 to 2,000 or 500 to 1,000 base pairs.

In one aspect of the EpiSwitch process a DNA precipitation step is not performed between the DNA restriction digest step and the DNA ligation step.

DNA ligation is described herein. Typically the DNA ligation is performed for 5 to 30 minutes, such as about 10 minutes.

The protein in the sample may be digested enzymatically, for example using a proteinase, optionally Proteinase K. The protein may be enzymatically digested for a period of about 30 minutes to 1 hour, for example for about 45 minutes. In one aspect after digestion of the protein, for example Proteinase K digestion, there is no cross-link reversal or phenol DNA extraction step.

In one aspect PCR detection is capable of detecting a single copy of the ligated nucleic acid, preferably with a binary read-out for presence/absence of the ligated nucleic acid.

Figure 1 shows a preferred process of detecting chromosome interactions.

Processes and Uses of the Invention

The process of the invention can be described in different ways. It can be described as a process of making a ligated nucleic acid comprising (i) *in vitro* cross-linking of chromosome regions which have come together in a chromosome interaction; (ii) subjecting said cross-linked DNA to cutting or restriction digestion cleavage; and (iii) ligating said cross-linked cleaved DNA ends to form a ligated nucleic acid, wherein detection of the ligated nucleic acid may be used to determine the chromosome state at a locus, and wherein preferably:

- the locus may be any of the loci or regions mentioned in Table 1, 3,8 or 10 and/or

- wherein the chromosomal interaction may be any of the chromosome interactions mentioned herein or corresponding to any of the probes disclosed in Table 1, 3, 8 or 10 and/or

- wherein the ligated product may have or comprise (i) sequence which is the same as or homologous to any of the probe sequences disclosed in Table 1, 3 8 or 10; or (ii) sequence which is complementary to (ii).

The process of the invention can be described as a process for detecting chromosome states which represent different subgroups in a population comprising determining whether a chromosome interaction is present or absent within a defined epigenetically active region of the genome, wherein preferably:

- the subgroup is defined by prognosis for immune health, and/or

- the chromosome state may be at any locus or region mentioned in Table 1 or 3; and/or

- the chromosome interaction may be any of those mentioned in Table 1 or 3, or corresponding to any of the probes disclosed in those tables.

One or more of the markers of Table 7 may be used in these aspects of the invention, for example 3, 4, 5 or all of the markers of Table 7.

Further one or more of the markers of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 may be used in these aspects of the invention, including specific numbers or combinations or markers from any of these tables as disclosed herein.

Homologues

Homologues of polynucleotide / nucleic acid (e.g. DNA) sequences are referred to herein. Such homologues typically have at least 70% homology, preferably at least 80%, at least 85%, at least 90%, at least 95%, at least 97%, at least 98% or at least 99% homology, for example over a region of at least 10, 15, 20, 30, 100 or more contiguous nucleotides, or across the portion of the nucleic acid which is from the region of the chromosome involved in the chromosome interaction. The homology may be calculated on the basis of nucleotide identity (sometimes referred to as "hard homology").

Therefore, in a particular aspect, homologues of polynucleotide / nucleic acid (e.g. DNA) sequences are referred to herein by reference to percentage sequence identity. Typically such homologues have at least 70% sequence identity, preferably at least 80%, at least 85%, at least 90%, at least 95%, at least 97%, at least 98% or at least 99% sequence identity, for example over a region of at least 10, 15, 20, 30, 100 or more contiguous nucleotides, or across the portion of the nucleic acid which is from the region of the chromosome involved in the chromosome interaction. The homologues may have at least 70%

sequence identity, preferably at least 80%, at least 85%, at least 90%, at least 95%, at least 97%, at least 98% or at least 99% sequence identity across the entire probe, primer or primer pair.

For example the UWGCG Package provides the BESTFIT program which can be used to calculate homology and/or % sequence identity (for example used on its default settings) (Devereux *et al* (1984) Nucleic Acids Research 12, p387-395). The PILEUP and BLAST algorithms can be used to calculate homology and/or % sequence identity and/or line up sequences (such as identifying equivalent or corresponding sequences (typically on their default settings)), for example as described in Altschul S. F. (1993) J Mol Evol 36:290-300; Altschul, S, F *et al* (1990) J Mol Biol 215:403-10.

Software for performing BLAST analyses is publicly available through the National Center for Biotechnology Information. This algorithm involves first identifying high scoring sequence pair (HSPs) by identifying short words of length W in the query sequence that either match or satisfy some positive-valued threshold score T when aligned with a word of the same length in a database sequence. T is referred to as the neighbourhood word score threshold (Altschul *et al*, supra). These initial neighbourhood word hits act as seeds for initiating searches to find HSPs containing them. The word hits are extended in both directions along each sequence for as far as the cumulative alignment score can be increased. Extensions for the word hits in each direction are halted when: the cumulative alignment score falls off by the quantity X from its maximum achieved value; the cumulative score goes to zero or below, due to the accumulation of one or more negative-scoring residue alignments; or the end of either sequence is reached. The BLAST algorithm parameters W5 T and X determine the sensitivity and speed of the alignment. The BLAST program uses as defaults a word length (W) of 11 , the BLOSUM62 scoring matrix (see Henikoff and Henikoff (1992) Proc. Natl. Acad. Sci. USA 89: 10915-10919) alignments (B) of 50, expectation (E) of 10, M=5, N=4, and a comparison of both strands.

The BLAST algorithm performs a statistical analysis of the similarity between two sequences; see e.g., Karlin and Altschul (1993) Proc. Natl. Acad. Sci. USA 90: 5873-5787. One measure of similarity provided by the BLAST algorithm is the smallest sum probability (P(N)), which provides an indication of the probability by which a match between two polynucleotide sequences would occur by chance. For example, a sequence is considered similar to another sequence if the smallest sum probability in comparison of the first sequence to the second sequence is less than about 1, preferably less than about 0.1, more preferably less than about 0.01, and most preferably less than about 0.001.

The homologous sequence typically differs by 1, 2, 3, 4 or more bases, such as less than 10, 15 or 20 bases (which may be substitutions, deletions or insertions of nucleotides). These changes may be

measured across any of the regions mentioned above in relation to calculating homology and/or % percentage sequence identity.

Homology of a 'pair of primers' can be calculated, for example, by considering the two sequences as a single sequence (as if the two sequences are joined together) for the purpose of then comparing against the another primer pair which again is considered as a single sequence.

EpiSwitch™ Technology

The EpiSwitch™ Technology also relates to the use of microarray EpiSwitch™ marker data in the detection of epigenetic chromosome conformation signatures specific for phenotypes. Aspects such as EpiSwitch™ which utilise ligated nucleic acids in the manner described herein have several advantages. They have a low level of stochastic noise, for example because the nucleic acid sequences from the first set of nucleic acids of the present invention either hybridise or fail to hybridise with the second set of nucleic acids. This provides a binary result permitting a relatively simple way to measure a complex mechanism at the epigenetic level. EpiSwitch™ technology also has fast processing time and low cost. In one aspect the processing time is 3 hours to 6 hours.

Arrays

All nucleic acids disclosed herein may be bound to an array, and in one aspect there are at least 15,000, 45,000, 100,000 or 250,000 different nucleic acids bound to the array, which preferably represent at least 300, 900, 2000 or 5000 loci. In one aspect one, or more, or all of the different populations of nucleic acids are bound to more than one distinct region of the array, in effect repeated on the array allowing for error detection. The array may be based on an Agilent SurePrint G3 Custom CGH microarray platform. Detection of binding of first nucleic acids to the array may be performed by a dual colour system.

The Threshold of Detection

The markers which are disclosed herein have been found to be 'disseminating markers' capable of determining immune health status or subgroup. In practical terms it means that these markers are prevalent across groups of patients when compared to controls (as is shown by the FC value, for example). On average, as an example, an individual marker may typically be present in 80% of patients tested and in 10% of controls tested. Thus in one aspect of the method an individual is deemed to be part of the relevant prognosis subgroup if least 80% of the markers that are tested for that subgroup are

present in the individual and/or if at least 80% of the markers that are tested which are related to the control are absent from the individual.

Therapeutic Agents and Treatments

This section is relevant both to:

- therapeutic agents which are given to individuals selected by the process of the invention, and

- therapeutic agents which are selected based on the results of the process of the invention.

The invention provides therapeutic agents for use in preventing or treating any condition mentioned herein, in particular any condition relating to the immune system, such as an immune overreaction, cytokine storm or hyperinflammation. This may comprise administering to an individual in need a therapeutically effective amount of the agent. The invention provides use of the agent in the manufacture of a medicament to prevent or treat the condition, for example in individuals tested by the method of the invention.

The formulation of the agent will depend upon the nature of the agent. The agent will be provided in the form of a pharmaceutical composition containing the agent and a pharmaceutically acceptable carrier or diluent. Suitable carriers and diluents include isotonic saline solutions, for example phosphate-buffered saline. Typical oral dosage compositions include tablets, capsules, liquid solutions and liquid suspensions. The agent may be formulated for parenteral, intravenous, intramuscular, subcutaneous, transdermal or oral administration.

The dose of an agent may be determined according to various parameters, especially according to the substance used; the age, weight and condition of the individual to be treated; the route of administration; and the required regimen. A physician will be able to determine the required route of administration and dosage for any particular agent. A suitable dose may however be from 0.1 to 100 mg/kg body weight such as 1 to 40 mg/kg body weight, for example, to be taken from 1 to 3 times daily.

The invention also provides specific immunogenetic targets (genes) and pathways affected by dysregulation this allowing targeted therapeutic treatment. The therapeutic agent may be any such agent disclosed herein, or may target any 'target' disclosed herein, including any protein or gene disclosed herein in any table or any pathway disclosed herein. It is understood that any agent that is disclosed in a combination should be seen as also disclosed for administration individually.

Therapeutic agents and treatments which can be used in the invention include the following:

- immune modulators

- immunosuppressants

- dexamethasone – for example to dampen down the body's immune system.

- convalescent plasma- contains high levels of polyclonal, pathogen specific antibodies. These antibodies may confer passive immunity to recipients

- any therapeutic agent selected from Table 6, and preferably Abatacept, Afelimomab, Angiotensin II, dexamethasone, Imatinib, immunoglobulin, Infliximab, Nintedanib, Rituximab or Ulixertinib.

Individuals identified as having prognosis for immune overreaction:

- can be treated for hyperinflammation

-can be given specialized treatment under close observation

- can be treated with agents to reduce viral load

- can be given immunomodulators

- can be given a vaccine

- can be given prophylactic treatment

- can be given therapeutic agents which prevent or treat sepsis.

Further Therapy Embodiments

The invention provides therapy of individual to prevent or treat any condition or type of immune response mentioned herein, such as any type of individual mentioned herein (including defined by risk factors, disease, susceptibility or any other characteristic mentioned herein). The individual may have been identified as being susceptible to any type of immune response mentioned herein. Preferably the invention provides therapy to prevent or treat an immune overreaction or an immune side effect, optionally in an individual who has been identified as being susceptible of to these types of immune response. The individual may be given any therapy mentioned herein, including the any of the agents listed in Table 6.

The invention provides a therapeutic agent selected from any of the agents shown in Table 6 for use in a method of treatment of an immune overreaction or immune side effect, said method comprising:

- identifying whether an individual is susceptible to an immune overreaction or immune side effect by the method of the invention, and

- administering to any individual identified as being susceptible to an immune overreaction or immune side effect said agent.

The invention provides a method of treatment comprising identifying whether an individual is susceptible to an immune overreaction or immune side effect by the method of the invention and administering to any individual identified as being susceptible to an immune overreaction or immune side effect any agent listed in Table 6.

Preferred agents from Table 6 include Abatacept, Afelimomab, Angiotensin II, dexamethasone, Imatinib, immunoglobulin, Infliximab, Nintedanib, Rituximab and Ulixertinib.

The invention provides an agent which:

- controls or modulates the immune system; or

- which prevents or treats an aberrant immune response; or

- prevents or treats an overreaction of an immune response;

for use in treating an individual whose immune health has been determined according to the method of the invention.

Personalised Therapy

The invention provides different types of personalised treatment. In one aspect an individual is given or not given therapy based on the results of the method of the invention, i.e. based on the detecting of the presence or absence one or more specific chromosome interactions. The method of the invention is in this sense typically allowing selection of a therapy based on the individual's prognosis or responsiveness to the therapy.

In one aspect the invention provides a method of treatment of an individual comprising:

(i) detecting the presence or absence of one or more chromosome interactions represented by the probes shown in Table 1 or 3,

(ii) administering to the individual a therapeutic agent which is selected based on the presence or absence of said chromosome interactions in the individual.

In one aspect a therapeutic agent is selected which targets a particular gene or gene product (for example the expressed protein) where the gene is one in which the chromosome interaction is associated with or present within.

In the personalised therapy aspects of the invention any specific chromosome interaction can be typed which is mentioned herein, for example in any table. Any number or combination of interactions disclosed herein can be typed.

One or more of the markers of Table 7 may be used in these aspects of the invention, for example 3, 4, 5 or all of the markers of Table 7. Further one or more of the markers of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 may be used in these aspects of the invention, including specific numbers or combinations or markers from any of these tables as disclosed herein.

Screening for Therapeutic Agents

The invention provides a method of screening candidate agents (for example compounds) to determine whether they can be used for therapy of any condition, immune health profile or immune response mentioned herein, including susceptibility to immune overreaction.

In one aspect the invention provides a method of determining whether a candidate agent is therapeutic for an immune overreaction comprising determining whether the candidate is able to alter one or more chromosome interactions disclosed herein, including the numbers and combinations of chromosome interaction disclosed herein, for example as represented by the probes shown in Table 1 or 3. This method may determine whether the candidate agent is able create or destroy such interaction(s).

In one aspect the invention provides a method for determining whether a candidate agent can be used to prevent or treat an immune overreaction comprising;

(i) contacting the candidate agent with one or more chromosomes,

(ii) determining whether the candidate agent is able to create or destroy one or more chromosome interactions represented by the probes shown in Table 1 or 3 on said chromosomes,

to thereby determine whether the candidate agent can be used to prevent or treat an immune overreaction.

One or more of the markers of Table 7 may be used in these aspects of the invention, for example 3, 4, 5 or all of the markers of Table 7.

One or more of the markers of Table 7 may be used in these aspects of the invention, for example 3, 4, 5 or all of the markers of Table 7. Further one or more of the markers of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 may be used in these aspects of the invention, including specific numbers or combinations or markers from any of these tables as disclosed herein.

Properties of Nucleic Acids of the Invention

The invention relates to certain nucleic acids, such as the ligated nucleic acids which are described herein as being used or generated in the process of the invention. These may be the same as, or have any of the properties of, the first and second nucleic acids mentioned herein. The nucleic acids of the invention typically comprise two portions each comprising sequence from one of the two regions of the chromosome which come together in the chromosome interaction. Typically each portion is at least 8, 10, 15, 20, 30 or 40 nucleotides in length, for example 10 to 40 nucleotides in length. Preferred nucleic acids comprise sequence from any of the genes mentioned in any of the tables. Typically preferred nucleic acids comprise the specific probe sequences mentioned in Table 1 or 3; or fragments and/or homologues of such sequences.

Preferably the nucleic acids are DNA. It is understood that where a specific sequence is provided the invention may use the complementary sequence as required in the particular aspect. Preferably the nucleic acids are DNA. It is understood that where a specific sequence is provided the invention may use the complementary sequence as required in the particular aspect.

The primers shown in Table 1 or 3 may also be used in the invention as mentioned herein. In one aspect primers are used which comprise any of: the sequences shown in Table 1 or 3; or fragments and/or homologues of any sequence shown in Table 1 or 3.

One or more of the probes or primer pairs of Table 7 may be used in these aspects of the invention, for example 3, 4, 5 or all of the probes or primer pairs of Table 7. Further one or more of the probes or primers of any of Table 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 may be used in these aspects of the invention.

Screening to Identify Relevant Chromosome Interactions

In one aspect one or more of the chromosome interactions which are typed have been identified by a process of determining which chromosomal interactions are relevant to a chromosome state corresponding to an immune health subgroup of the population, comprising contacting a first set of nucleic acids from subgroups with different states of the chromosome with a second set of index nucleic

acids, and allowing complementary sequences to hybridise, wherein the nucleic acids in the first and second sets of nucleic acids represent a ligated product comprising sequences from both the chromosome regions that have come together in chromosomal interactions, and wherein the pattern of hybridisation between the first and second set of nucleic acids allows a determination of which chromosomal interactions are specific to the subgroup.

The second set of nucleic acid sequences has the function of being a set of index sequences, and is essentially a set of nucleic acid sequences which are suitable for identifying subgroup specific sequence. They can represents the 'background' chromosomal interactions and might be selected in some way or be unselected. They are in general a subset of all possible chromosomal interactions.

The second set of nucleic acids may be derived by any suitable process. They can be derived computationally or they may be based on chromosome interaction in individuals. They typically represent a larger population group than the first set of nucleic acids. In one particular aspect, the second set of nucleic acids represents all possible epigenetic chromosomal interactions in a specific set of genes. In another particular aspect, the second set of nucleic acids represents a large proportion of all possible epigenetic chromosomal interactions present in a population described herein. In one particular aspect, the second set of nucleic acids represents at least 50% or at least 80% of epigenetic chromosomal interactions in at least 20, 50, 100 or 500 genes, for example in 20 to 100 or 50 to 500 genes.

The second set of nucleic acids typically represents at least 100 possible epigenetic chromosome interactions which modify, regulate or in any way mediate immune health in a population. The second set of nucleic acids may represent chromosome interactions that affect immune health (typically relevant to diagnosis or prognosis). The second set of nucleic acids typically comprises sequences representing epigenetic interactions both relevant and not relevant to an immune health subgroup.

In one particular aspect the second set of nucleic acids derive at least partially from naturally occurring sequences in a population, and are typically obtained by *in silico* processes. Said nucleic acids may further comprise single or multiple mutations in comparison to a corresponding portion of nucleic acids present in the naturally occurring nucleic acids. Mutations include deletions, substitutions and/or additions of one or more nucleotide base pairs. In one particular aspect, the second set of nucleic acids may comprise sequence representing a homologue and/or orthologue with at least 70% sequence identity to the corresponding portion of nucleic acids present in the naturally occurring species. In

another particular aspect, at least 80% sequence identity or at least 90% sequence identity to the corresponding portion of nucleic acids present in the naturally occurring species is provided.

Properties of the Second Set of Nucleic Acids

In one particular aspect, there are at least 100 different nucleic acid sequences in the second set of nucleic acids, preferably at least 1000, 2000 or 5000 different nucleic acids sequences, with up to 100,000, 1,000,000 or 10,000,000 different nucleic acid sequences. A typical number would be 100 to 1,000,000, such as 1,000 to 100,000 different nucleic acids sequences. All or at least 90% or at least 50% or these would correspond to different chromosomal interactions.

In one particular aspect, the second set of nucleic acids represent chromosome interactions in at least 20 different loci or genes, preferably at least 40 different loci or genes, and more preferably at least 100, at least 500, at least 1000 or at least 5000 different loci or genes, such as 100 to 10,000 different loci or genes. The lengths of the second set of nucleic acids are suitable for them to specifically hybridise according to Watson Crick base pairing to the first set of nucleic acids to allow identification of chromosome interactions specific to subgroups. Typically the second set of nucleic acids will comprise two portions corresponding in sequence to the two chromosome regions which come together in the chromosome interaction. The second set of nucleic acids typically comprise nucleic acid sequences which are at least 10, preferably 20, and preferably still 30 bases (nucleotides) in length. In another aspect, the nucleic acid sequences may be at the most 500, preferably at most 100, and preferably still at most 50 base pairs in length. In a preferred aspect, the second set of nucleic acids comprises nucleic acid sequences of between 17 and 25 base pairs. In one aspect at least 100, 80% or 50% of the second set of nucleic acid sequences have lengths as described above. Preferably the different nucleic acids do not have any overlapping sequences, for example at least 100%, 90%, 80% or 50% of the nucleic acids do not have the same sequence over at least 5 contiguous nucleotides.

Given that the second set of nucleic acids acts as an 'index' then the same set of second nucleic acids may be used with different sets of first nucleic acids which represent subgroups for different characteristics, i.e. the second set of nucleic acids may represent a 'universal' collection of nucleic acids which can be used to identify chromosome interactions relevant to different characteristics.

The First Set of Nucleic Acids (Screening for Relevant Chromosome Interactions)

The first set of nucleic acids are typically from subgroups relevant to immune health. The first nucleic acids may have any of the characteristics and properties of the second set of nucleic acids mentioned herein. The first set of nucleic acids is normally derived from samples from the individuals which have

undergone treatment and processing as described herein, particularly the EpiSwitch™ cross-linking and cleaving steps. Typically the first set of nucleic acids represents all or at least 80% or 50% of the chromosome interactions present in the samples taken from the individuals.

Typically, the first set of nucleic acids represents a smaller population of chromosome interactions across the loci or genes represented by the second set of nucleic acids in comparison to the chromosome interactions represented by second set of nucleic acids, i.e. the second set of nucleic acids is representing a background or index set of interactions in a defined set of loci or genes.

Library of Nucleic Acids

Any of the types of nucleic acid populations mentioned herein may be present in the form of a library comprising at least 200, at least 500, at least 1000, at least 5000 or at least 10000 different nucleic acids of that type, such as 'first' or 'second' nucleic acids. Such a library may be in the form of being bound to an array. The library may comprise some or all of the probes or primer pairs shown in any table herein. The library may comprise all of the probe sequence from any of the tables disclosed herein.

Hybridisation

The invention typically requires a means for allowing wholly or partially complementary nucleic acid sequences to hybridise, for example in the method of the invention or between the first set of nucleic acids and the second set of nucleic acids to hybridise. In one aspect all of the first set of nucleic acids is contacted with all of the second set of nucleic acids in a single assay, i.e. in a single hybridisation step. However any suitable assay can be used.

Labelled Nucleic Acids and Pattern of Hybridisation

The nucleic acids mentioned herein may be labelled, preferably using an independent label such as a fluorophore (fluorescent molecule) or radioactive label which assists detection of successful hybridisation. Certain labels can be detected under UV light. The pattern of hybridisation, for example on an array described herein, represents differences in epigenetic chromosome interactions between the two subgroups, and thus provides a process of comparing epigenetic chromosome interactions and determination of which epigenetic chromosome interactions are specific to a subgroup in the population of the present invention.

The term 'pattern of hybridisation' broadly covers the presence and absence of hybridisation, for example between the first and second set of nucleic acids, i.e. which specific nucleic acids from the first

set hybridise to which specific nucleic acids from the second set, and so it not limited to any particular assay or technique, or the need to have a surface or array on which a 'pattern' can be detected.

Forms of the Substance Mentioned Herein

Any of the substances, such as nucleic acids or therapeutic agents, mentioned herein may be in purified or isolated form. They may be in a form which is different from that found in nature, for example they may be present in combination with other substance with which they do not occur in nature. The nucleic acids (including portions of sequences defined herein) may have sequences which are different to those found in nature, for example having at least 1, 2, 3, 4 or more nucleotide changes in the sequence as described in the section on homology. The nucleic acids may have heterologous sequence at the 5' or 3' end. The nucleic acids may be chemically different from those found in nature, for example they may be modified in some way, but preferably are still capable of Watson-Crick base pairing. Where appropriate the nucleic acids will be provided in double stranded or single stranded form. The invention provides all of the specific nucleic acid sequences mentioned herein in single or double stranded form, and thus includes the complementary strand to any sequence which is disclosed.

The invention provides a kit for carrying out any process of the invention, including detection of a chromosomal interaction relating to prognosis. Such a kit can include a specific binding agent capable of detecting the relevant chromosomal interaction, such as agents capable of detecting a ligated nucleic acid generated by processes of the invention. Preferred agents present in the kit include probes capable of hybridising to the ligated nucleic acid or primer pairs, for example as described herein, capable of amplifying the ligated nucleic acid in a PCR reaction.

The invention provides a device that is capable of detecting the relevant chromosome interactions. The device preferably comprises any specific binding agents, probe or primer pair capable of detecting the chromosome interaction, such as any such agent, probe or primer pair described herein.

Detection Process

In one aspect quantitative detection of the ligated sequence which is relevant to a chromosome interaction is carried out using a probe which is detectable upon activation during a PCR reaction, wherein said ligated sequence comprises sequences from two chromosome regions that come together in an epigenetic chromosome interaction, wherein said process comprises contacting the ligated sequence with the probe during a PCR reaction, and detecting the extent of activation of the probe, and wherein said probe binds the ligation site. The process typically allows particular interactions to be detected in a MIQE compliant manner using a dual labelled fluorescent hydrolysis probe.

The probe is generally labelled with a detectable label which has an inactive and active state, so that it is only detected when activated. The extent of activation will be related to the extent of template (ligation product) present in the PCR reaction. Detection may be carried out during all or some of the PCR, for example for at least 50% or 80% of the cycles of the PCR.

The probe can comprise a fluorophore covalently attached to one end of the oligonucleotide, and a quencher attached to the other end of the nucleotide, so that the fluorescence of the fluorophore is quenched by the quencher. In one aspect the fluorophore is attached to the 5'end of the oligonucleotide, and the quencher is covalently attached to the 3' end of the oligonucleotide. Fluorophores that can be used in the process of the invention include FAM, TET, JOE, Yakima Yellow, HEX, Cyanine3, ATTO 550, TAMRA, ROX, Texas Red, Cyanine 3.5, LC610, LC 640, ATTO 647N, Cyanine 5, Cyanine 5.5 and ATTO 680. Quenchers that can be used with the appropriate fluorophore include TAM, BHQ1, DAB, Eclip, BHQ2 and BBQ650, optionally wherein said fluorophore is selected from HEX, Texas Red and FAM. Preferred combinations of fluorophore and quencher include FAM with BHQ1 and Texas Red with BHQ2.

Use of the Probe in a qPCR Assay

Hydrolysis probes of the invention are typically temperature gradient optimised with concentration matched negative controls. Preferably single-step PCR reactions are optimized. More preferably a standard curve is calculated. An advantage of using a specific probe that binds across the junction of the ligated sequence is that specificity for the ligated sequence can be achieved without using a nested PCR approach. The processes described herein allow accurate and precise quantification of low copy number targets. The target ligated sequence can be purified, for example gel-purified, prior to temperature gradient optimization. The target ligated sequence can be sequenced. Preferably PCR reactions are performed using about 10ng, or 5 to 15 ng, or 10 to 20ng, or 10 to 50ng, or 10 to 200ng template DNA. Forward and reverse primers are designed such that one primer binds to the sequence of one of the chromosome regions represented in the ligated DNA sequence, and the other primer binds to other chromosome region represented in the ligated DNA sequence, for example, by being complementary to the sequence.

Detection of the ligated nucleic acid may use any probe and/or primer pair disclosed herein in any table. In one aspect a qPCR system is used which used the probes and primer pairs disclosed in Table 7, for homologues of such probes and primer pairs. Preferably the probes shown in the 'Modifications Seq' column of Table 7 are used with the types of quencher and reporter shown.

Choice of Ligated DNA Target

The invention includes selecting primers and a probe for use in a PCR process as defined herein comprising selecting primers based on their ability to bind and amplify the ligated sequence and selecting the probe sequence based properties of the target sequence to which it will bind, in particular the curvature of the target sequence.

Probes are typically designed/chosen to bind to ligated sequences which are juxtaposed restriction fragments spanning the restriction site. In one aspect of the invention, the predicted curvature of possible ligated sequences relevant to a particular chromosome interaction is calculated, for example using a specific algorithm referenced herein. The curvature can be expressed as degrees per helical turn, e.g. 10.5° per helical turn. Ligated sequences are selected for targeting where the ligated sequence has a curvature propensity peak score of at least 5° per helical turn, typically at least 10°, 15° or 20° per helical turn, for example 5° to 20° per helical turn. Preferably the curvature propensity score per helical turn is calculated for at least 20, 50, 100, 200 or 400 bases, such as for 20 to 400 bases upstream and/or downstream of the ligation site. Thus in one aspect the target sequence in the ligated product has any of these levels of curvature. Target sequences can also be chosen based on lowest thermodynamic structure free energy.

Particular Aspects

In one aspect only intrachromosomal interactions are typed/detected, and no extrachromosomal interactions (between different chromosomes) are typed/detected.

In particular aspects certain chromosome interactions are not typed, for example any specific interaction mentioned herein (for example as defined by any probe or primer pair mentioned herein). In some aspects chromosome interactions are not typed in any of the genes relevant to chromosome interactions mentioned herein.

The data provided herein shows that the markers are 'disseminating' ones able to differentiate between different subgroups for immune health. Therefore when carrying out the invention the skilled person will be able to determine by detection of the interactions which subgroup the individual is in. In one embodiment a threshold value of detection of at least 70% of the tested markers in the form they are associated with the relevant disease subgroup (either by absence or presence) may be used to determine whether the individual is in the relevant subgroup.

Screening process

The invention provides a process of determining which chromosomal interactions are relevant to a chromosome state corresponding to an immune health subgroup, comprising contacting a first set of nucleic acids from subgroups with different states of the chromosome with a second set of index nucleic acids, and allowing complementary sequences to hybridise, wherein the nucleic acids in the first and second sets of nucleic acids represent a ligated product comprising sequences from both the chromosome regions that have come together in chromosomal interactions, and wherein the pattern of hybridisation between the first and second set of nucleic acids allows a determination of which chromosomal interactions are specific to an immune health subgroup. The subgroup may be any of the specific subgroups defined herein, for example with reference to particular types of immune response.

Disclosure in Publications and Priority Applications

The contents of all publications mentioned herein are incorporated by reference into the present specification and may be used to further define the features relevant to the invention. The contents of all priority applications are incorporated into the present specification and may be used to define the features relevant to the invention.

Techniques Used to Identify the Specific Relevant Chromosome Interactions

The EpiSwitch™ platform technology detects epigenetic regulatory signatures of regulatory changes between normal and abnormal conditions at loci. The EpiSwitch™ platform identifies and monitors the fundamental epigenetic level of gene regulation associated with regulatory high order structures of human chromosomes also known as chromosome conformation signatures. Chromosome signatures are a distinct primary step in a cascade of gene deregulation. They are high order biomarkers with a unique set of advantages against biomarker platforms that utilize late epigenetic and gene expression biomarkers, such as DNA methylation and RNA profiling.

EpiSwitch™ Array Assay

The custom EpiSwitch™ array-screening platforms come in 4 densities of, 15K, 45K, 100K, and 250K unique chromosome conformations, each chimeric fragment is repeated on the arrays 4 times, making the effective densities 60K, 180K, 400K and 1 million respectively.

Custom Designed EpiSwitch™ Arrays

The 15K EpiSwitch™ array can screen the whole genome including around 300 loci interrogated with the EpiSwitch™ Biomarker discovery technology. The EpiSwitch™ array is built on the Agilent SurePrint G3 Custom CGH microarray platform; this technology offers 4 densities, 60K, 180K, 400K and 1 Million probes. The density per array is reduced to 15K, 45K, 100K and 250K as each EpiSwitch™ probe is presented as a quadruplicate, thus allowing for statistical evaluation of the reproducibility. The average number of potential EpiSwitch™ markers interrogated per genetic loci is 50, as such the numbers of loci that can be investigated are 300, 900, 2000, and 5000.

EpiSwitch™ Custom Array Pipeline

The EpiSwitch™ array is a dual colour system with one set of samples, after EpiSwitch™ library generation, labelled in Cy5 and the other of sample (controls) to be compared/ analyzed labelled in Cy3. The arrays are scanned using the Agilent SureScan Scanner and the resultant features extracted using the Agilent Feature Extraction software. The data is then processed using the EpiSwitch™ array processing scripts in R. The arrays are processed using standard dual colour packages in Bioconductor in R: Limma*. The normalisation of the arrays is done using the normalisedWithinArrays function in Limma* and this is done to the on chip Agilent positive controls and EpiSwitch™ positive controls. The data is filtered based on the Agilent Flag calls, the Agilent control probes are removed and the technical replicate probes are averaged, in order for them to be analysed using Limma*. The probes are modelled based on their difference between the 2 scenarios being compared and then corrected by using False Discovery Rate. Probes with Coefficient of Variation (CV) <=30% that are <=-1.1 or =>1.1 and pass the p<=0.1 FDR p-value are used for further screening. To reduce the probe set further Multiple Factor Analysis is performed using the FactorMineR package in R.

* Note: LIMMA is Linear Models and Empirical Bayes Processes for Assessing Differential Expression in Microarray Experiments. Limma is an R package for the analysis of gene expression data arising from microarray or RNA-Seq.

The pool of probes is initially selected based on adjusted p-value, FC and CV <30% (arbitrary cut off point) parameters for final picking. Further analyses and the final list are drawn based only on the first two parameters (adj. p-value; FC).

Statistical Pipeline

EpiSwitch™ screening arrays are processed using the EpiSwitch™ Analytical Package in R in order to select high value EpiSwitch™ markers for translation on to the EpiSwitch™ PCR platform.

Step 1

Probes are selected based on their corrected p-value (False Discovery Rate, FDR), which is the product of a modified linear regression model. Probes below p-value <= 0.1 are selected and then further reduced by their Epigenetic ratio (ER), probes ER have to be <=-1.1 or =>1.1 in order to be selected for further analysis. The last filter is a coefficient of variation (CV), probes have to be below <=0.3.

Step 2

The top 40 markers from the statistical lists are selected based on their ER for selection as markers for PCR translation. The top 20 markers with the highest negative ER load and the top 20 markers with the highest positive ER load form the list.

Step 3

The resultant markers from step 1, the statistically significant probes form the bases of enrichment analysis using hypergeometric enrichment (HE). This analysis enables marker reduction from the significant probe list, and along with the markers from step 2 forms the list of probes translated on to the EpiSwitch™ PCR platform.

The statistical probes are processed by HE to determine which genetic locations have an enrichment of statistically significant probes, indicating which genetic locations are hubs of epigenetic difference.

The most significant enriched loci based on a corrected p-value are selected for probe list generation. Genetic locations below p-value of 0.3 or 0.2 are selected. The statistical probes mapping to these genetic locations, with the markers from step 2, form the high value markers for EpiSwitch™ PCR translation.

Array design and processing

Array Design

Genetic loci are processed using the SII software (currently v3.2) to:

- Pull out the sequence of the genome at these specific genetic loci (gene sequence with 50kb upstream and 20kb downstream)

- Define the probability that a sequence within this region is involved in CCs

- Cut the sequence using a specific RE

- Determine which restriction fragments are likely to interact in a certain orientation

- Rank the likelihood of different CCs interacting together.

- Determine array size and therefore number of probe positions available (x)

- Pull out x/4 interactions.

- For each interaction define sequence of 30bp to restriction site from part 1 and 30bp to restriction site of part 2. Check those regions are not repeats, if so exclude and take next interaction down on the list. Join both 30bp to define probe.

- Create list of x/4 probes plus defined control probes and replicate 4 times to create list to be created on array

- Upload list of probes onto Agilent Sure design website for custom CGH array.

- Use probe group to design Agilent custom CGH array.

Array Processing

- Process samples using EpiSwitch™ Standard Operating Procedure (SOP) for template production.

- Clean up with ethanol precipitation by array processing laboratory.

- Process samples as per Agilent SureTag complete DNA labelling kit - Agilent Oligonucleotide Array-based CGH for Genomic DNA Analysis Enzymatic labelling for Blood, Cells or Tissues

- Scan using Agilent C Scanner using Agilent feature extraction software.

EpiSwitch™ biomarker signatures demonstrate high robustness, sensitivity and specificity in the stratification of complex disease phenotypes. This technology takes advantage of the latest breakthroughs in the science of epigenetics, monitoring and evaluation of chromosome conformation signatures as a highly informative class of epigenetic biomarkers. Current research methods deployed in academic environment require from 3 to 7 days for biochemical processing of cellular material in order to detect CCSs. Those procedures have limited sensitivity, and reproducibility; and furthermore, do not have the benefit of the targeted insight provided by the *EpiSwitch*™ *Analytical Package* at the design stage.

EpiSwitch™ Array in silico marker identification

CCS sites across the genome are directly evaluated by the EpiSwitch™ Array on clinical samples from testing cohorts for identification of all relevant stratifying lead biomarkers. The EpiSwitch™ Array platform is used for marker identification due to its high-throughput capacity, and its ability to screen large numbers of loci rapidly. The array used was the Agilent custom-CGH array, which allows markers identified through the *in silico* software to be interrogated.

EpiSwitch™ PCR

Potential markers identified by *EpiSwitch™ Array* are then validated either by *EpiSwitch™ PCR* or DNA sequencers (i.e. Roche 454, Nanopore MinION, etc.). The top PCR markers which are statistically significant and display the best reproducibility are selected for further reduction into the final *EpiSwitch™* Signature Set, and validated on an independent cohort of samples. *EpiSwitch™ PCR* can be performed by a trained technician following a standardised operating procedure protocol established. All protocols and manufacture of reagents are performed under ISO 13485 and 9001 accreditation to ensure the quality of the work and the ability to transfer the protocols. *EpiSwitch™ PCR* and *EpiSwitch™ Array* biomarker platforms are compatible with analysis of both whole blood and cell lines. The tests are sensitive enough to detect abnormalities in very low copy numbers using small volumes of blood.

Use of a Classifier

The method of the invention may include analysis of the chromosome interactions identified in the individual, for example using a classifier, which may increase performance, such as sensitivity or specificity. The classifier is typically one that has been 'trained' on samples from the population and such training may assist the classifier to detect any immune health profile or susceptibility mentioned herein, including a susceptibility to any type of immune response mentioned herein.

The invention is illustrated by the following:

Example

Identification of Chromosome Interaction Markers Relevant to Immune Health Using the EpiSwitch™ platform and Infection with the Sars-Covid-2 Virus as a Model Immune Disease

Overview

Chromosome interaction markers were identified based on being the top immunogenetic markers and also on 'pure stats', including having other biological links to important clinical observations such as hypercalcaemia (markers around Ca homeostasis disruption, calmodulin, calcineurin, etc.).

The prognostic stratification was based on blood collections shortly after a Covid positive test, either in asymptomatic individuals, or in people just admitted to hospital. Stratification was based on outcomes of mild Covid disease, which manifests itself in hospitalized patients, who stay of the wards and respond to treatments, and severe Covid disease which we associate with patients being transferred to ICU (intensive care unit). Severe patients do not respond to treatments available on the hospital words (extra oxygen, anti-inflammatories, etc.) and deteriorate to ICU emergency support. The stratifications provide prognosis of immune health and hyperinflammmation in individuals, when exposed to Covid infection.

The marker data is based on 80 patients from a mixture of cohorts from UK, USA and Peru, representing asymptomatic, mild and ICU severe cases. 42 samples came from Lima, Peru, collected at the time of Lima being the world hotspot for the highest number of complications and fatalities from Covid-19 (Peru has highest per capita mortality – 107 per 100,000, for comparison in the US – 71 per 100, 000; in Brazil – 76 per 100,000). There were 11 samples from the UK and 19 from the US.

Covid-19 as a Disease Model for Studying Immune Overreaction

The majority of deaths by Covid-19 complications are in individuals with a background of various health complications and co-morbidities. Hyperinflammation in Covid-19 complications has been recognized as a key contributing factor and the underlying health conditions have direct and indirect effects on the immune health profile.

Experimental Work

Whole blood samples were taken from patients hospitalised with confirmed COVID-19 disease (symptoms of SARS-CoV-2 infection) and split into two definitions: severe outcomes and mild outcomes. The severe outcome definition includes patient that were admitted to hospital and required more

aggressive intervention in ICU care, or where this intervention would have been provided except for comorbidities. Patients that were admitted to hospital that received only oxygen treatment and or less invasive interventions on the ward (not admitted to ICU) are defined as mild.

The EpiSwitch™ Microarray platform was initially utilised to interrogate patient samples with known clinical outcomes to gain biological insight and identify a group of potential markers that can delimit between the severe and mild patient samples. The aim was to identify the most statistically significant and biologically relevant markers. This study is done on the whole genome array, with over 900,000 selected anchor sites interrogated for each of the 80 patients presented in LDA analysis in Figure 12, all reduced to a linear score.

The top EpiSwitch™ markers were subject to primer design to identify interactions that can be successfully interrogated with Nested PCR (nPCR) in the laboratory. The top markers from the list of the successfully designed interactions were selected and used to translate the microarray markers into nPCR markers though screening of the top 150 markers on the complete sample cohort.

The work had three primary aims: to investigate Covid-19 in whole blood samples, identify the top microarray interactions and translate them into nPCR, and provide proof of concept for a Covid-19 severity whole-blood based EpiSwitch™ nPCR product.

Whole blood and PBMC often contain different cell populations, with a large proportion of the granulocytes (basophil, neutrophil and eosinophil) found in whole blood being lost during the density gradient processing to purify the PBMC fraction from whole blood (see Figure 2). This must be borne in mind when interpreting results. The study design is shown in Figure 3.

42 patients were enrolled into the collection for this part of the work. A venous blood sample was taken from each subject. A volume of 5 ml or more of whole blood was be taken for EpiSwitch™ biochemical processing.

Inclusion criteria

Subject must be enrolled within 72 hours of presentation to the hospital

Subjects were recruited into the following two groups:

- severe cases: 24 patients in ICU and/or mechanically ventilated

- mild COVID-19: 18 patients that are not in ICU, and also not mechanically ventilated, but just hospitalised (they can be receiving supplemental oxygen via nasal cannula).

Whole blood samples were collected in EDTA K3 blood collection tubes. The clinical annotations accompanying the samples consisted of:

- demographics
- Travel History
- Symptoms
- Date of Symptom Onset
- Pre-Existing Medical Conditions
- SARS-CoV-2 RT-PCR Result
- Date of Specimen Collection
- Other SOC Respiratory Diagnostic Result (if available)
- Date of Hospitalisation
- Date of Admitted to ICU (if applicable)
- Information in regard to use of mechanical ventilation and duration of use
- Information in regard to supplemental oxygen and duration of use

After blood sampling the EDTA tubes were inverted to mix the sample with the EDTA coating on the surface of the tubes to avoid clots. Sample were stored at -20°C or lower, ideally within 60 minutes of collection.

EpiSwitch Library Preparation

The 42 procured samples were processed using the EpiSwitch™ extraction protocols. The prepared libraries were quantified with Picogreen and Nanoquant (dsDNA and total nucleic acid measurements respectively). Each of the prepared EpiSwitch™ libraries were quality controlled using a standard OBD nPCR positive control assay before being stored at -80°C until used in the subsequent steps.

After the required volume of EpiSwitch library was generated for the Microarray processing the extractions were continued to generate the required volume of library for the nPCR translation.

Microarray Processing

The EpiSwitch™ Whole Genome Medium Density Protein Coding focussed Array was utilised using single channel analysis. The array consists of 973,335 EpiSwitch™ interactions probes and 2500 EpiSwitch™ control probes. The design focuses around protein coding and long non-coding RNA loci in the genome (GRCh38).

Each of the 42 EpiSwitch™ libraries were processed and labelled for a single channel microarray using Cy3 dye only. Each processed library was hybridised to a separate microarray. The in-line control cocktail consisting of four external DNA fragments was used to provide quality control and quantification.

Microarray Analysis

The EpiSwitch Microarray data was analysed to identify differentially detected interactions between the two different disease phenotypes conditions. After the top markers were identified in the statistical and biological analysis the nPCR primer combinations were designed for each putative marker. Only markers that have primer combinations designed were translated to a nPCR assay. The default parameters of the Metagenome primer design were initially used to design optimal primer combinations for the markers followed by raising or lowering parameter thresholds as required.

EpiSwitch™ Discovery Nested PCR translation

For the top 150 markers identified from the Microarray and primer design the physical primers were ordered to allow for screening of nPCR assays that can differentiate between the severe and mild disease phenotypes. The entire 42 sample cohort was used for the nPCR translation. Each patient library was normalised to a 1ng/ul dsDNA concentration and a serial dilution consisting of 1x, 1:2x, and 1:4x generated for assay screening.

The end point nPCR products were run on the LabChip GX Touch High throughput capillary electrophoresis machine using the 5K Chip and reagent option. Appropriate controls, including a negative human genomic control were used for each assay to ensure the products detected are actual chromosome conformation capture products and not non-specific binding of high copy number genomic DNA. The NTC was used to detect any cross contamination of reagents.

EpiSwitch™ Discovery Nested PCR analysis

The EpiSwitch Nested PCR platform data output was analysed with multiple statistical techniques including but not limited to Fishers Exact test, GLMNET (logistic Regression), and Bayesian logistic regression. For development of EpiSwitch™ classifiers the following statistical analysis were used:

- XGBoost. A gradient boosted decision tree algorithm. An ensemble of weak decision tree models is generated and combined to produce one strong classification model.

- Logistic Principal Component Analysis, optimised to use binary data.

- GLMNET. Generalised linear model fitted via penalised maximum likelihood.

Results and Treatment Implications

The markers identified in the above work are shown in Tables 1 to 4 and the Figures shows additional data and results. Separate sets of nPCR and qPCR markers were developed in parallel as shown in the tables. Selection of qPCR markers (when compared to nPCR) from the array relied on an additional filter for high abundance. In the tables, if a marker by its genomic position overlaps with immune-genetic loci (genetic marker for immune controls) it is marked as "immune" and if it coincides with cardiovascular genetic markers – "cardio".

A prognostic test based on the identified markers is a measure of immune-health and immune competence under the exposure to Covid-19 infection. The high risk group (with a prognosis for severe disease) are likely to develop hyperinflammation and show poor response to standard of care treatment, alerting physicians to the necessity of specialized treatment under close observation: reduction of viral load and introduction of immunomodulators. Furthermore, in the context of vaccine use and distribution, the test identifies high risk groups who should be subject to vaccination. At the same time, among the general working population it could help identify high risk groups for further prophylactic treatment, protection and quarantine isolation, whilst the low risk group could be supported in returning to work.

Identification of Gene Pathways

Chromosome interaction markers correspond to a regulatory network. Our analysis looked at how the markers corresponded to biological pathways. We obtained statistical scores showing relative overlap of significant EpiSwitch 3D genomic markers with genetic loci representing particular pathways. The higher the score the more genes from that pathway are co-localized with the sites dysregulated in the genome architecture. This showed the biological relevance of pathways, as distinct to individual genes, at the level of 3D genomics showing. The identified pathways show how the markers relate to immune health (systemic immune competence) beyond a Covid-19 model of disease.

The top pathways affected at genetic locations by 3D dysregulation include:

- Innate Immune System
- Toll-like Receptor Signaling Pathway
- ERK Signaling
- TGF-beta Signaling Pathway (WikiPathways)
- Cytokine Signaling in Immune System

- TCR Signaling (REACTOME)
- Th17 Cell Differentiation
- Class I MHC Mediated Antigen Processing and Presentation
- Apoptosis Pathway
- Rheumatoid Arthritis
- Immune Response NFAT in Immune Response
- ICos-ICosL Pathway in T-Helper Cell
- Signaling By GPCR
- Allograft Rejection
- IL12 Signaling Mediated By STAT4
- Immune Response Function of MEF2 in T Lymphocytes
- CXCR4-mediated Signaling Events
- Apoptotic Pathways in Synovial Fibroblasts
- GPCR Pathway.

Figure 20 shows a standard STRING network analysis that was carried out and Table 5 shows the names of the key genes in the network associated with EpiSwitch markers.

Identified Therapies

Therapeutic compounds were identified using the sets of affected genes and gene sets associated with EpiSwitch significant markers specific for the severe disease group. Table 6 shows the list of compounds and Figure 21 describes how to interpret this table.

Conclusions

The present work clearly indicates that severe /ICU (critical care unit) is a separate phenotype from mild or asymptomatic patients when it comes to 3D genomic profiling with EpiSwitch markers (i.e. chromosome interaction markers). Moreover, this is seen prognostically in advance. The markers that were identified are strongly localized around genes responsible for immunity. De facto this means that through the 3D genomics of the immune-genetic part of the genome there is immune-health predisposition in individuals. This predisposition means that if certain individuals are exposed to Covid-19 infection they will deteriorate due to the nature of their immune response and will not respond to standard treatment (hence they are moved to ICU). They undergo hyperinflammation, often targeting specific organs.

Our study of the Covid-19 disease system has allowed us to identify what the mechanisms of immune response that are occurring at the level of chromosome architecture and how they interact with the relevant pathways. This allows determination of the immune health of an individual and prediction of how the immune response will react in different disease situations.

Further Work Relating to the Markers of Table 7

Marker selection from Array

The data is loaded and normalized using R Limma package, first the Agilent control probes are removed, next step is to exclude any probes that are above the saturation point for the system 65,525, this is due to the range of detection by the scanners. The next two steps relate to normalization of the data, first there is a background correction, then a normalization between the arrays is performed using a quantile approach, this standardizes the probes on the arrays and between arrays, both these steps minimize non-biological variation.

Directly after normalization the positive and spike in controls are removed prior to statistical analysis. Two statistical procedures are adopted for statistical analysis, linear modelling using the LIMMA package and Rank Product analysis using BigRankProduct package. The linear analysis is a parametric approach and Rank Product a non-parametric approach. In order for the probes to be statistically significant they have to be below <=0.05 for the adjusted p-value. The statistic lists from both approaches are compared and the union of the two is restricted further by two steps. The next filter on the combined statistical list is abundance, probes have to be either -1.2<= or => 1.2 in the abundance scale. This list is then further filtered for translation to qPCR by considering the normalized intensity of the samples, all samples have to be above =>1000 in intensity units or => 9.66 in log2 scale. Once these filters have been applied the data is ranked by the probes abundance value (descending for positive integers, and ascending for negative integers), the top 120-200 markers from the positive and negative selection, form the list of markers used in translation to the qPCR platform.

Final C19 Models

The final binary outcome COVID19 model has been built using WHO classification where severity is determined if the patients have been ventilated (see below).

ASTERIX Severity Groups for Cohort Partitioning						
	SARS-COV-2 PCR+	COVID Pneumonia	Admitted to Hospital	Severe Resp Failure (≥ Step 5 i.e Max O2%≥80% or CPAP)	Critical Respiratory Failure requiring ventilation	Dead
1 Mild	YES	Not required but report if YES	NO	NO	NO	NO
2 Moderate	YES	Not required but report if YES	YES	NO	NO	NO
3 Severe	YES	Not required but report if YES	YES	YES	NO	NO
4 Very Severe	YES	Not required but report if YES	YES	Not required but report if YES	YES	NO
5 Fatal	YES	Not required but report if YES	Not required but report if YES	Not required but report if YES	Not required but report if YES	YES
		↓		↓		↓
		This corresponds to Clinical Progression Model 1 in the protocol/SAP		This corresponds to Clinical Progression Model 2 in the protocol/SAP		This corresponds to Clinical Progression Model 3 in the protocol/SAP

The at-risk patients (very severe, Yes to ventilation) are ones who need ventilation, and the ones not requiring ventilation form the other set in this classifier, average-risk (No to ventilation). Two boosting classifiers form the bases of the CST model, XGBoost (Extreme Gradient Boosting) and CatBoost (gradient boosting on decision trees), the probabilities from these models are combined and the call of high-risk are patients who achieve a combined probability score =>0.75, the average-risk patients are ones whose combined probability score is below <0.75.

Final Combined Model Stats

The first confusion table is the training and 2 test sets combined.

Statistics (n=116) for prediction of High Risk (Critical/Severe (ICU))

Accuracy: 92%

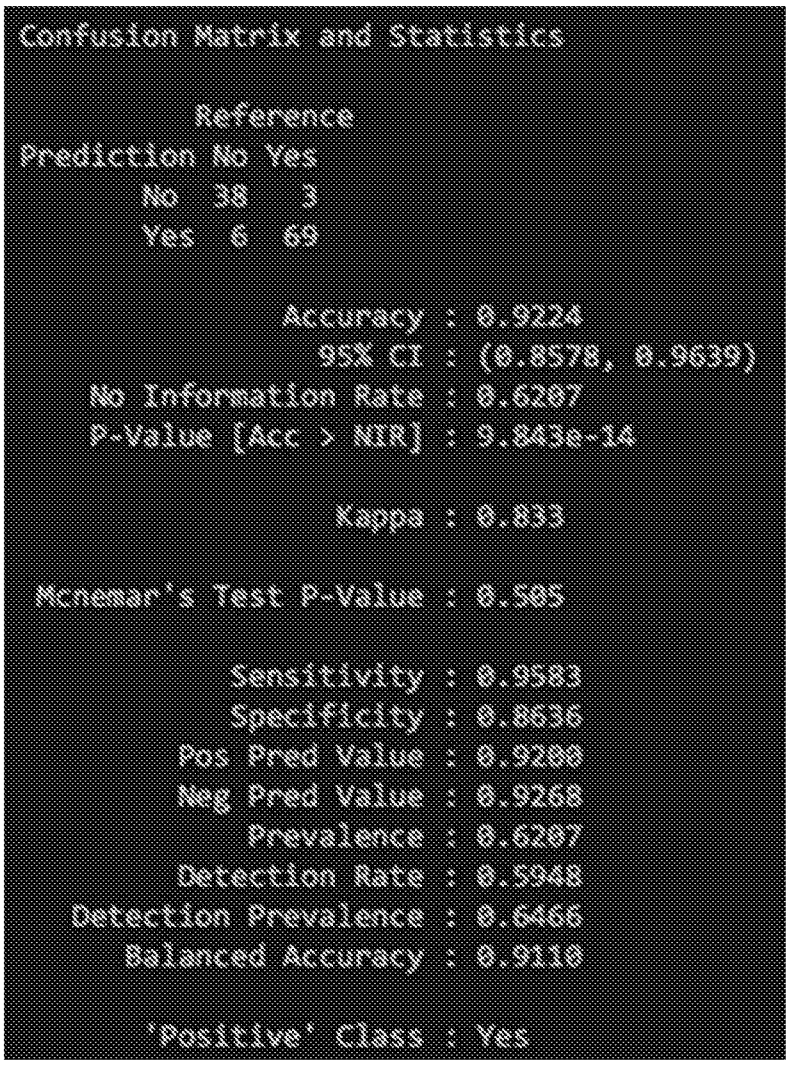
Sensitivity: 96%

Specificity: 86%

PPV: 92%

NPV: 93%

See below:



The second is the 2 test sets combined: 28 ventilated patients (mixture of ICU(18) and not (10)) and patients who died (11 ICU, 8 non ICU, who were not ventilated) . These 2 sets were not used in the model building. This is shown below:

```
> cm.m_3<-confusionMatrix(as.factor(c$Ventilation),
as.factor(c$call),positive="Yes")
> cm.m_3
combined
Confusion Matrix and Statistics
          Reference
Prediction No Yes
       No  38   3
       Yes  6  69

               Accuracy : 0.9224
                 95% CI : (0.8578, 0.9639)
    No Information Rate : 0.6207
    P-Value [Acc > NIR] : 9.843e-14

                  Kappa : 0.833
```

```
     Mcnemar's Test P-Value : 0.505

                Sensitivity : 0.9583
                Specificity : 0.8636
             Pos Pred Value : 0.9200
             Neg Pred Value : 0.9268
                 Prevalence : 0.6207
             Detection Rate : 0.5948
       Detection Prevalence : 0.6466
          Balanced Accuracy : 0.9110

           'Positive' Class : Yes

test sets
Confusion Matrix and Statistics
          Reference
Prediction No Yes
       No   5   3
       Yes  6  33

                  Accuracy : 0.8085
                    95% CI : (0.6674, 0.9085)
       No Information Rate : 0.766
       P-Value [Acc > NIR] : 0.311

                     Kappa : 0.41

     Mcnemar's Test P-Value : 0.505

                Sensitivity : 0.9167
                Specificity : 0.4545
             Pos Pred Value : 0.8462
             Neg Pred Value : 0.6250
                 Prevalence : 0.7660
             Detection Rate : 0.7021
       Detection Prevalence : 0.8298
          Balanced Accuracy : 0.6856

           'Positive' Class : Yes

> c %>% filter(Ventilation=="Yes" & In._ICU=="No") %>% count()
   n
1 16
```

Further Conclusions

In terms of efficiency of testing a qPCR format has many advantages, with a highly effective design of the paired primers and probes providing high efficacy of detection.

Further technical advantages are gained by using a number of markers together in a test. Systemic epigenetic readouts based on EpiSwitch markers capture the functional set up of biological network regulation at cellular levels reflecting the underlying specific pathological phenotype. Stratification models may be based on groups of biomarkers that reflect regulatory network inter-relationships and synchronization between individual contributing factors. This can be combined with machine learning models and a decision can be taken on 'optimised modelling', including how many markers to use in a test.

Sepsis Work

The markers were further analysed to identify those that correlated with sepsis phenotypes. The results are provided in Tables 12 and 13 and Figure 22. It must be noted that PSMA5 is a gene that has already been identified in the sepsis field as well as in Covid studies as a possible therapeutic target. The present work for the first time directly shows PSMA5 locus involvement in the same dysregulation network at chromosome conformation level in both Covid and sepsis conditions, and provides markers for monitoring sepsis and determining prognosis of sepsis-like outcomes in patients whose immune health is being monitored.

no.	Probe	gene	RPs
1	Hg38_1_112145907_112153217_112262815_112272478_FF	WNT2B	6632.327399
2	Hg38_1_112145907_112153217_112262815_112272478_FR	WNT2B	6615.221985
3	Hg38_22_25290566_25299563_25482038_25486782_FR	LRP5L	28171.7163
4	Hg38_11_93191458_93197121_93228754_93237221_FR	MTNR1B	30854.43895
5	Hg38_12_8956666_8971971_9041253_9052225_RF	KLRG1	32830.14986
6	Hg38_17_27705007_27714184_27773460_27778067_RF	LGALS9	31710.89437
7	Hg38_17_27705007_27714184_27860380_27865714_RF	NOS2	32302.86692
8	Hg38_19_50837203_50840748_50961391_50964466_FR	KLK3	41082.56724
9	Hg38_1_27834284_27836433_28029814_28033207_FR	SMPDL3B	34252.74921
10	Hg38_10_101411213_101417434_101485766_101490138_RF	POLL	33830.59298
11	Hg38_11_93057516_93069988_93228754_93237221_RR	MTNR1B	38697.48465
12	Hg38_18_42444488_42452373_42488741_42500135_RR	PIK3C3	36961.50644
13	Hg38_1_99631771_99639876_99708395_99714403_FF	AGL	39107.43986
14	Hg38_19_34387270_34393741_34499918_34506554_FR	GPI	38265.62504
15	Hg38_3_196353836_196356776_196593741_196597691_FF	RNF168	38295.8272
16	Hg38_1_99659612_99670382_99708395_99714403_FF	AGL	38478.96973
17	Hg38_11_9685853_9690988_9710140_9716903_RF	SWAP70	39606.72308
18	Hg38_17_27705007_27714184_27875357_27879509_RF	NOS2	39888.90639
19	Hg38_5_76572657_76583168_76676513_76680170_RF	IQGAP2	42674.08273
20	Hg38_6_132703799_132711156_132757539_132761457_FF	VNN1	41891.67247
21	Hg38_4_154217720_154222054_154421614_154428471_FR	FGB	41672.67989
22	Hg38_15_98874707_98883774_99040149_99043892_FF	IGF1R	42502.98791
23	Hg38_22_25482038_25486782_25613025_25619501_RF	LRP5L	45257.16951
24	Hg38_11_93178112_93183061_93228754_93237221_FR	MTNR1B	40589.83763
25	Hg38_10_122677780_122685636_122702672_122705534_FF	DMBT1	47360.38753
26	Hg38_1_99533569_99538124_99618648_99629858_FR	AGL	45455.75237
27	Hg38_11_93198707_93202947_93228754_93237221_RR	MTNR1B	44085.15403
28	Hg38_17_27594551_27602944_27705007_27714184_FR	LGALS9	45673.11179
29	Hg38_18_42413424_42422256_42488741_42500135_RR	PIK3C3	40889.09224
30	Hg38_3_184235022_184240690_184480439_184482239_FR	EIF2B5	44523.82545
31	Hg38_11_9685853_9690988_9833988_9839719_RF	SWAP70	44637.16946
32	Hg38_3_184389484_184390857_184480439_184482239_FR	EIF2B5	46450.621
33	Hg38_17_27609054_27616846_27705007_27714184_RR	LGALS9	43991.22324
34	Hg38_7_29905017_29911792_30016613_30019069_FR	WIPF3	41863.49514
35	Hg38_8_5120591_5125403_5295149_5302540_FF	ANGPT2	46856.24945
36	Hg38_1_109341939_109348573_109359719_109366704_RR	PSMA5	48297.45591
37	Hg38_8_5115633_5120591_5295149_5302540_FF	ANGPT2	43978.91795
38	Hg38_11_9656772_9663043_9685853_9690988_FR	SWAP70	44994.92012
39	Hg38_2_223382061_223395131_223446116_223450606_FF	AP1S3	36942.13688
40	Hg38_22_34722666_34726389_34750116_34757594_RR	TOM1	35013.59465
41	Hg38_22_34696712_34700627_34750116_34757594_RR	TOM1	42265.79077
42	Hg38_11_9575436_9577203_9685853_9690988_FR	SWAP70	44448.90982
43	Hg38_3_196466940_196470869_196593741_196597691_FF	RNF168	46109.70739
44	Hg38_3_10166863_10171451_10289864_10293604_RF	IRAK2	46779.70177
45	Hg38_16_20282299_20286605_20445721_20457266_FR	UMOD	54241.62999
46	Hg38_8_47127019_47130852_47283075_47288879_FR	PRKDC	48044.37065
47	Hg38_6_46130577_46139255_46168740_46175484_FF	ENPP4	46958.78429
48	Hg38_1_241870739_241874965_242033568_242040771_FF	EXO1	47180.45513

49	Hg38_5_76400222_76402838_76572657_76583168_RR	IQGAP2	45337.39374
50	Hg38_15_34886920_34889054_34974237_34980574_FF	ACTC1	49743.84856
51	Hg38_11_59844932_59849082_59873751_59881156_FF	TCN1	47867.7306
52	Hg38_2_68140822_68144419_68359452_68365969_FR	PLEK	51605.70057
53	Hg38_2_223296739_223307566_223446116_223450606_FF	AP1S3	49372.04609
54	Hg38_3_2993519_3002201_3121830_3126033_FF	IL5RA	48427.09125
55	Hg38_8_47239740_47247017_47283075_47288879_FR	PRKDC	47376.87168
56	Hg38_19_55428737_55436084_55609240_55610480_RR	SSC5D	47009.69299
57	Hg38_19_50907981_50915866_50961391_50964466_RR	KLK5	51087.9601
58	Hg38_6_13822111_13826619_14070076_14075830_RF	CD83	51551.70406
59	Hg38_2_215168332_215174922_215339857_215344488_FF	FN1	48345.93731
60	Hg38_9_83691585_83699524_83785514_83789572_FF	UBQLN1	48416.43058
61	Hg38_5_76572657_76583168_76717099_76725306_RF	IQGAP2	52489.5729
62	Hg38_1_27966549_27971202_28029814_28033207_FR	SMPDL3B	51485.31893
63	Hg38_2_227820023_227824564_227868226_227874758_RR	CCL20	46004.21086
64	Hg38_12_25200007_25206998_25256673_25260057_FR	KRAS	52498.54024
65	Hg38_7_66298919_66305803_66392051_66398673_FF	CRCP	54136.9225
66	Hg38_10_67952694_67960415_68133244_68143089_FR	SIRT1	54837.31692
67	Hg38_11_78974904_78976508_79134716_79152601_RF	GAB2	41989.93216
68	Hg38_16_20348272_20352389_20445721_20457266_RR	UMOD	55380.96235
69	Hg38_4_70243444_70255254_70475197_70476584_FF	MUC7	52402.38034
70	Hg38_12_45013447_45019401_45077155_45087147_FF	ANO6	51383.90016
71	Hg38_16_12325962_12334419_12372790_12375829_FF	CPPED1	52699.22445
72	Hg38_17_39781052_39789227_39819888_39822803_RR	GRB7	55019.10601
73	Hg38_3_157551093_157568769_157606016_157614360_FF	PTX3	53401.93153
74	Hg38_20_32234511_32238066_32285519_32290180_FF	KIF3B	48801.16551
75	Hg38_5_139327785_139331530_139355652_139356681_FF	MATR3	53797.60168
76	Hg38_6_13822111_13826619_14011144_14016925_RF	CD83	58355.99643
77	Hg38_5_55874716_55883166_56069488_56074299_FR	IL31RA	53914.7156
78	Hg38_1_109359719_109366704_109611657_109614647_RF	PSMA5	54950.53026
79	Hg38_19_50732808_50735232_50961391_50964466_RR	GPR32	56016.13008
80	Hg38_8_55800026_55805370_55942582_55947045_FF	LYN	55621.8783
81	Hg38_11_93115381_93124900_93228754_93237221_FR	MTNR1B	52689.14086
82	Hg38_X_70952076_70955538_71213839_71218089_FF	IL2RG	56885.39132
83	Hg38_11_93057516_93069988_93228754_93237221_FR	MTNR1B	55446.12937
84	Hg38_5_76572657_76583168_76637173_76639966_RF	IQGAP2	58308.47106
85	Hg38_20_4763308_4769930_4885862_4890450_FF	RASSF2	59927.43482
86	Hg38_3_105278351_105281788_105425156_105431103_RF	ALCAM	56327.14698
87	Hg38_19_42642158_42648993_42697457_42701566_RR	CEACAM8	55006.12013
88	Hg38_5_76400222_76402838_76572657_76583168_FR	IQGAP2	53090.77575
89	Hg38_2_223203554_223212132_223446116_223450606_FF	SCG2	58337.7325
90	Hg38_19_38895868_38902769_39089148_39091382_FR	SIRT2	57992.17317
91	Hg38_1_17044824_17050263_17192218_17198113_FF	PADI2	57847.82668
92	Hg38_5_76420596_76423340_76572657_76583168_FR	IQGAP2	58745.04935
93	Hg38_20_34791262_34795203_34932162_34933974_FF	NCOA6	60708.3298
94	Hg38_12_8119443_8124985_8341969_8343630_FF	CLEC4A	60019.25444
95	Hg38_17_1287026_1289930_1411117_1412617_FR	CRK	53984.44619
96	Hg38_1_109359719_109366704_109385998_109391476_RF	PSMA5	56576.1692
97	Hg38_1_187499122_187506399_187600952_187612332_FF	PTGS2	59637.75783
98	Hg38_11_72469497_72474813_72726299_72730494_FF	ARAP1	58295.92687
99	Hg38_15_34813171_34816916_34974237_34980574_FF	ACTC1	61960.99999
100	Hg38_12_32741504_32743146_32986666_32993216_RF	PKP2	66693.25

101	Hg38_8_30141432_30150688_30174555_30176773_FR	DCTN6	55692.9615
102	Hg38_12_8705594_8710071_8956666_8971971_RR	KLRG1	58603.68516
103	Hg38_4_146421995_146434783_146576248_146581867_RR	POU4F2	49274.49382
104	Hg38_20_31418840_31431664_31617243_31621976_RR	DEFB123	59083.38395
105	Hg38_5_76380998_76384783_76572657_76583168_FR	IQGAP2	54851.10909
106	Hg38_1_150618429_150622168_150754333_150760976_FF	CTSS	64127.37577
107	Hg38_8_47283075_47288879_47486518_47496230_RF	PRKDC	57314.15933
108	Hg38_8_47250090_47257109_47283075_47288879_FR	PRKDC	50064.97609
109	Hg38_20_46117565_46123196_46312844_46316630_FF	CD40	59459.05109
110	Hg38_11_59836753_59842056_59873751_59881156_FF	TCN1	53784.52324
111	Hg38_17_75812204_75816321_75950756_75954014_FF	UNC13D	60099.77655
112	Hg38_19_51712234_51719472_51826457_51831790_RF	FPR1	65123.51909
113	Hg38_4_146576248_146581867_146648355_146653240_RF	POU4F2	57957.39948
114	Hg38_4_151824476_151828586_151939544_151951330_RF	FBXW7	56112.04376
115	Hg38_6_136360365_136366092_136470425_136479842_RF	MAP3K5	56877.63053
116	Hg38_3_10094056_10097375_10166863_10171451_RR	BRK1	57233.48463
117	Hg38_3_30527627_30532055_30652453_30660274_FR	TGFBR2	60126.87115
118	Hg38_2_74566692_74568044_74592023_74597081_FR	LOXL3	57121.13507
119	Hg38_7_29859712_29867302_30016613_30019069_RR	WIPF3	60565.65705
120	Hg38_10_26740932_26742560_26959699_26967983_RR	ABI1	59888.31329

Table 1.a1

no.	FC:(class1/class2)	pfp	P.value	CCSs
1	1.432700804	0.005113164	0.005113164	Immune
2	1.432377731	0.00216811	0.002123472	Immune
3	1.261392393	0.00019327	0.0000852662093316079	Immune
4	1.24933454	0.000190318	0.0000600478751082751	Cardio
5	1.248199493	0.000191193	0.0000821396004875956	Immune
6	1.248110436	0.000190318	0.0000407351774014788	Immune
7	1.244388651	0.000190318	0.0000608132430656547	Immune
8	1.239284032	0.000190318	0.0000248893629995964	Immune
9	1.238018648	0.000190318	0.0000660302361677739	Immune
10	1.237745489	0.000232634	0.000129254	Immune
11	1.232468734	0.000190585	0.0000679703314288909	Cardio
12	1.230563488	0.000270694	0.000185233	Immune
13	1.228138328	0.000226279	0.000123122	Immune
14	1.227970267	0.000250933	0.000155726	Immune
15	1.227284759	0.000194259	0.0000866473003156764	Immune
16	1.227283877	0.000236458	0.00014024	Immune
17	1.226172597	0.000190318	0.0000175890246934132	Immune
18	1.223195987	0.000190318	0.0000632774145529100	Immune
19	1.220877422	0.000190318	0.0000256473899263971	Immune
20	1.220844426	0.000197577	0.0000924206625724565	Immune
21	1.220594126	0.000295776	0.000219223	Immune
22	1.219932467	0.000217426	0.000113829	Immune
23	1.219326086	0.000190318	0.0000314882959726604	Immune
24	1.218547015	0.00029559	0.000215607	Cardio
25	1.218546484	0.000225914	0.000122259	Immune
26	1.217793578	0.000190585	0.0000727087524469363	Immune
27	1.217634455	0.000190318	0.0000558784524675291	Cardio

28	1.214995239	0.000190318	0.0000261730567931897	Immune
29	1.214925448	0.000445143	0.000381491	Immune
30	1.21420253	0.000221256	0.000117135	Immune
31	1.213208971	0.000232634	0.000129317	Immune
32	1.212777042	0.000190318	0.0000655570525199885	Immune
33	1.212729895	0.000191193	0.0000804439468234639	Immune
34	1.212672171	0.000471617	0.000410584	Immune
35	1.212339076	0.000190585	0.0000783090229779244	Immune
36	1.211313728	0.000190318	0.0000273915828374346	Immune
37	1.210971319	0.000270694	0.000188689	Immune
38	1.210935714	0.000203616	0.000100216	Immune
39	1.210848175	0.001762385	0.001715734	Immune
40	1.210759976	0.003185687	0.003148208	Immune
41	1.210755417	0.000460206	0.000399296	Immune
42	1.210288615	0.000266947	0.000170375	Immune
43	1.209957577	0.000236458	0.000138509	Immune
44	1.209213182	0.000235024	0.000134793	Immune
45	1.209175245	0.000190318	0.0000247322439789465	Immune
46	1.20891203	0.000203616	0.00010061	Immune
47	1.208676033	0.000190318	0.0000585964148685346	Immune
48	1.208555322	0.000190318	0.0000662672547004071	Immune
49	1.207074623	0.000235024	0.000133546	Immune
50	1.204960402	0.000190585	0.0000784761579361953	Cardio
51	1.204466691	0.000270694	0.000186333	Immune
52	1.204265587	0.000198471	0.0000945655818356899	Immune
53	1.203832699	0.000377016	0.000308266	Immune
54	1.20361951	0.000203616	0.0000986733609637470	Immune
55	1.203047691	0.000323677	0.000248469	Immune
56	1.202678261	0.000386009	0.000316755	Immune
57	1.202676692	0.000190318	0.0000369636644668720	Immune
58	1.202099372	0.000190318	0.0000379683365434912	Immune
59	1.201468439	0.000309338	0.000232913	Immune
60	1.201216095	0.000398896	0.000329676	Immune
61	1.201051522	0.000190585	0.0000780928794896019	Immune
62	1.200030214	0.000205013	0.00010311	Immune
63	1.198654468	0.000208559	0.000105506	Immune
64	1.198534797	0.000190318	0.0000524933985960772	Immune
65	1.19847735	0.000424345	0.000356949	Immune
66	1.198308347	0.000190318	0.0000588163199349148	Immune
67	1.1980759	0.003159364	0.003112902	Immune
68	1.198072413	0.000190318	0.0000238384529441442	Immune
69	1.197988929	0.000331089	0.000256107	Immune
70	1.197718744	0.000436269	0.000370828	Immune
71	1.197394377	0.000267757	0.000174042	Immune
72	1.19677388	0.000190585	0.0000778740690545236	Immune
73	1.196698463	0.000236458	0.000138568	Immune
74	1.196661797	0.00035878	0.000285969	Immune
75	1.196248355	0.000270694	0.000187911	Immune
76	1.195984218	0.000190318	0.0000112566859098334	Immune
77	1.195682592	0.000190318	0.0000619732654937230	Immune
78	1.194986266	0.000190318	0.0000241090249404686	Immune
79	1.194608978	0.000190318	0.0000485840591196331	Immune

80	1.194497412	0.000190318	0.0000473235495640848	Immune
81	1.194332622	0.000370996	0.000298257	Cardio
82	1.194295196	0.000190318	0.0000447040951612409	Immune
83	1.193750964	0.000220747	0.000116217	Cardio
84	1.193449221	0.000190318	0.0000206378276547441	Immune
85	1.1931546	0.000190318	0.0000353670578327641	Immune
86	1.19304865	0.000241232	0.000148287	Immune
87	1.192289525	0.000211794	0.000109015	Immune
88	1.19220398	0.000269965	0.0001777	Immune
89	1.192155643	0.000203616	0.0000992033550152097	Immune
90	1.191812951	0.000190318	0.0000370888319081472	Immune
91	1.191782438	0.000190318	0.0000395163946477312	Immune
92	1.191324001	0.000190318	0.0000582140809924575	Immune
93	1.190714179	0.000190318	0.0000203083647353577	Immune
94	1.190702538	0.000190318	0.0000573892590397073	Immune
95	1.190499917	0.000367955	0.000294364	Immune
96	1.190008843	0.000190585	0.0000712243208368300	Immune
97	1.188655157	0.000190318	0.0000490378253543905	Cardio
98	1.187152176	0.000296454	0.000221468	Cardio
99	1.184047821	0.000211794	0.000108871	Cardio
100	1.181070726	0.000190318	0.0000290960447036924	Cardio
101	1.189894605	0.000267757	0.000173585	Immune
102	1.189574098	0.000241232	0.00014759	Immune
103	1.189341371	0.001503703	0.001455054	Immune
104	1.189054381	0.000197577	0.0000912070407078747	Immune
105	1.188958993	0.000349576	0.000274341	Immune
106	1.188853014	0.000190318	0.0000207507672832592	Immune
107	1.188487932	0.000296454	0.000221421	Immune
108	1.18834688	0.000953713	0.000903222	Immune
109	1.187993343	0.0002561	0.000160439	Immune
110	1.187956606	0.000386774	0.00031852	Immune
111	1.187782434	0.000281289	0.000199385	Immune
112	1.187618829	0.000190318	0.0000195821615274430	Immune
113	1.187303761	0.000374876	0.000305414	Immune
114	1.187272836	0.000270662	0.000183891	Immune
115	1.18719651	0.000309944	0.000234281	Immune
116	1.186853935	0.000270451	0.000180566	Immune
117	1.186778182	0.000190318	0.0000444105488788849	Immune
118	1.186672454	0.000211794	0.000108212	Immune
119	1.186560703	0.000270662	0.000181532	Immune
120	1.186285074	0.000197577	0.0000913431738671524	Immune

Table 1.a2

	Probe sequence	Probe Location
no.	**60 mer**	**Chr**
1	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAGGTGACAGATTTTGTAGACACTTTATGG	1
2	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAAAGAGGGAGACCAATAGCAAAAGGAACA	1
3	ACTGAATATCTCTATCTATGAATAGAGTTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
4	TTAATTTTTTAATTACATTTAATCAGCATCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
5	TTATCCAATTATAAGTCTATTGGCTCTTTCGAACTCCTGACCTCACGTAATTCTCCCACC	12

6	AAAAAAAAAAGGAAAAGAAAGAAGAAAGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
7	AATAAACTATGACTTTGTGAAGATTCAGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
8	TACGAGGAAATAGAATAAGATCTAGTATTCGAACTCCTGACCCTAGGTGATCCTCCTGCT	19
9	ATTTTTATTTTTTTGTTTGTTTTTGTTTTCGAACTCCTGACCTCAGGAGTTCCACCCACC	1
10	TTTTTCAGGGTGTGTTTCCATATAAAGATCGAACTCCTGACCTCAAGAAATCTACCTGCC	10
11	CTCAAAGACCCAAATATAGAAATACCATTCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
12	GCATTAAAAAAAGATACCTTGTTCAGAATCGAACTCCTGACCTCACGTCAATTCATAAGT	18
13	CAGTCTTAAAAATCAATTCCACAAATCATCGAGACCAGCCTGACTGATATTGTGAAACCC	1
14	TGCTTTTGTGTCACAGGTTTTGACAACTTCGAACTCCTGACCGAAGCGATGATCCAGCCG	19
15	TATCATAGTCCAGATGAGATAATTTCCTTCGAACTCCTGACCTCAGGTAGTCCAACTGTC	3
16	ACAAAGCACTTGAACTTACATTAAGTCATCGAGACCAGCCTGACTGATATTGTGAAACCC	1
17	GGACCATTTCTGTAGCAGAAAGAGGAAGTCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
18	TGTTTTTTATACTGCAAGACAGAGAGATTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
19	GTTAGACATAAAGACTAATGGGATAGAATCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
20	CATGTGTATTCAGAAAGAAGTATGTGAATCGAACTCCTGACCTCAAATAATTCGCCCGCC	6
21	TAAGTGAACACGCAAGATAAAAATAGTATCGAACTCCTGACCTCAAAAAATCCACCACCT	4
22	GGTGCTGAAAATAAAGATACCCTTTCTGTCGAACTCCTGACCTCAATTAATCCACCCACC	15
23	GAGTAAGGAGTTTTTGTTGTCGTTGTTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
24	AACTAATAAACTTGATGCAGAAGGAATTTCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
25	AGTTCCTGCTATGTATAAAATGAAACTTTCGATCTCCTGTTCTCGTGATCCACCTGCCTC	10
26	ATACTAATTAATACGTAACCTACTAACATCGATCTCTTGACCTCATGGTCTCCCACCTCA	1
27	CCAAAAGCTTGCTTCATCCATTGATTCATCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
28	AAAGGCAGAAGAAAGCCCTAGAAGAAGGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
29	AGGAAACATACTATCAACATTATAGCTGTCGAACTCCTGACCTCACGTCAATTCATAAGT	18
30	CCTAGCAAGGCAATCTACTCTGTTAAAGTCGAACTCCTGACCTCTAGTGATACACCTACC	3
31	TCTGAAACTGTGATGGTAGAGACAGATATCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
32	GAAGTTATTGTCTTAGCCCATTGAAGCATCGAACTCCTGACCTCTAGTGATACACCTACC	3
33	TATTGTCCCCATTTTACAGAAGAAGAAATCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
34	TCATGTACAAAAATTAACTCAAAATGAATCGAACTCCTGACCTCAGAAGATTTGCCTGCC	7
35	TCACTCCCAAGCCATTGTGTTGTCTAAATCGAACTCCTGACCTCAACTGATTTGTCCACC	8
36	AGCTTTGAGCAGCTTTTATTTTTACATGTCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
37	TTTCATACTTTTAATCTTACTAATGTTGTCGAACTCCTGACCTCAACTGATTTGTCCACC	8
38	CGAACAGATATTAATTCAACAGCTGCAATCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
39	TTGATTGGGATGACATTAAATGTATAGGTCGAACTCCTGACCTACCTCAAGTGATCCATC	2
40	CTTGATCAAGAGGGATTTAAACTGAAATTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT	22
41	AGTCTGCCTCTTGGGAGTCATCCTGGGTTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT	22
42	CAGTGCTTGGACAGCATTCTCATGTAGTTCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
43	AACCCTGATTTTCTGATTTAACACTGATTCGAACTCCTGACCTCAGGTAGTCCAACTGTC	3
44	TTTTGTCCTAGTTGTAGCTTTTATAATTTCGAACTCCTGACCTCATGTGATTTGGCCGCT	3
45	AGACTCAACCATTTGTCTAACCAATCAATCGAACTCCTGACCTCAGATGATTCACTCACC	16
46	TTCCTAAACTTTATGACTGAAATTATCTTCGAACTCCTGATCTCAGGTGATTTACTTGCG	8
47	GTGTCTGCATCTATTTTTATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGCAAAATAT	6
48	ACCAGCTCCTGTATTCCACTAGAAGACTTCGAACTCCTGACCTTGTGCTCTGTCTGCCTC	1
49	TTTAAAATAACAGATTATATCAAGAGCATCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
50	ATTCTAATATTCTTTAAAAACCATAAATTCGATCTCTTGACCTTGTGACTCACCCGCATC	15
51	TGCCACCTCTAGAAGGAACACAGCTCCTTCGATCTCCTGACCTCATGACGTGTCCGCCTT	11
52	TCTCAAAATAGCCAAAAGTCTGAAACAATCGAACTCCCGACCTCCAGTGGAAGTTCACAC	2
53	ATACACTTCTATCTTGGAACTATTGAGATCGAACTCCTGACCTACCTCAAGTGATCCATC	2
54	CTAATTTTTATGAATATTTTTAATTGATTCGAACTCCTGACCTCGTGTTCCCCAGGCCTC	3
55	ATTTTGTTAAATCCTTTCTCTGCATCAATCGAACTCCTGATCTCAGGTGATTTACTTGCG	8
56	TTTTTGGAATAAATAGACATTTTCCTGATCGAACTCCTGACTATAGTTGATCCACCCACC	19
57	CGGGGAGCCTTACCAATAACATAAATAGTCGAACTCCTGACCCTAGGTGATCCTCCTGCT	19

58	AATAAAAATAGAAAACAATCCTTCAAAATCGATCTCCTTACCTCGTAATCTGCCTGCATA	6
59	TTGTAAAATCTAGTCTTCTGCTTCCAAGTCGAACTCCTGAGCTCAAGTCATCTACGTGCC	2
60	TTTTTATTTTTTTGTAGACAGGCTGGTCTCGAGGAAGGGATTCTGGACAGATAAAAACAA	9
61	ATTTAAACTATTTAATAATTTGCTGTATTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
62	TGATGCTAAGGCACAGTCAGTTTTACATTCGAACTCCTGACCTCAGGAGTTCCACCCACC	1
63	GAGTTGGGCAGATCATGAGGTCAGGAGTTCGATCTCCTGACCTTATGATCTGCCCACCTT	2
64	ATGAAGTGATTTACATAAAGTAGCTTGATCGAACTCCAGACCTCAGGAGATCTGCAGTCC	12
65	GATAATATTTAGTGAATATAGGGCTATTTCGAACTCCTGACTTGAGGTGATTCACCTGCC	7
66	CTAAAATTTTTTTTTTTGAGACGGAGCTTCGAACTCCTGACCTTATGCAATCCACTTGCC	10
67	TACAACAATTTATTTTTGGTTTAAAAGCTCGAACTCCTGACCTTATATAATCTGCCCACC	11
68	GGAGTGCAGTATAGACGAGGACTGCAAATCGAACTCCTGACCTCAGATGATTCACTCACC	16
69	GGTGGTCACCCATAGTCATTTACTTCTGTCGAACTCCTGACCTCACATTCCTGTATTTTC	4
70	CACGTTCTGGTAGTTAGGAAAATTCAAATCGAACTCCTGACCTCATTACCCACCCACCTT	12
71	TGGGGAAAAAAATCATCCCCGGGTGCATTCGAACTCCTGACCTCAAATGCACCCCCACCT	16
72	TTTACAACTGCTGGTCAGCCAGAGTCAGTCGAACTCCTGACCTCCAGAAAAATCCGCCCA	17
73	ATTTTTTTATGTGATGTGAGGTAAGAGTTCGATCTCCTGACCTCAGATGATCCATCTGCC	3
74	TAAATGCTCTTAATTATAAAAAATTCTGTCGAATTCCTGACCTCAGGTGTTCTACCTGCC	20
75	CTGTTAGTGATAAATCTGTAACAGCCCTTCGAACTCCTGACATCAAATAATCCACTCGCC	5
76	TTCCTATATGCCTGGAATAATGCCTTAGTCGATCTCCTTACCTCGTAATCTGCCTGCATA	6
77	CTGTTTCATCTGATTTAAAATACACACTTCGAACTCCTGACCTCAGGCAGTCACCTTCTT	5
78	GTACAGCCAAGGTGGAGAACTACTGAGGTCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
79	ATCTTCTTTTCTTCCCCCATCCATTTCATCGAACTCCTGACCCTAGGTGATCCTCCTGCT	19
80	CAGATGAATCCCTTGTAACCTAGATACATCGAACTCCTGACCACAGGTGATCTACCTAAC	8
81	TGTCATTCAGCAATATTCAGTTTTTTGATCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
82	TTGATCTACAGACTTAGAGCAACAGCCATCGAAGTCCTGACCTCAGGTAATCCTGCTGCC	X
83	GAATCCTAATCATAAAAGGGAAGTTTTATCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
84	AGATGTATCAAACTATAAAGCAGCAGCATCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
85	TATAAGGCTTAAGATCTCTTAGAGTCTATCGAACTCATGACCTCAGGTTATCCTCCTGCC	20
86	ATAGAAAGTATATTCTATTAAGAGGTACTCGAGACCAGACTGGATAACAAGGCAAAACCC	3
87	CCTGGAAATCAGCTAGGAGGCCATTCCTTCGATCTCCTGACCTCGTGCGCAAGAGCAATG	19
88	TGTAGACAAAAAGTGACAGAAGCAACTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
89	GAAAGGTGGAGAATGAGGTGAAAAGAAGTCGAACTCCTGACCTACCTCAAGTGATCCATC	2
90	TGGCTGCTTTTGCACTGACACAGCAGAGTCGAACTCCTGACCTCAAGTAATCTACCCACC	19
91	CCAGGATGTACTACACTGAATATCTAAGTCGAACTCCTGACCTCAGGTTATCCATCTGCC	1
92	TGGTACCCGCTATTAAAATGGTGCTTGGTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
93	CAGGTTGCTAAAAATCATTTTTGCATGATCGAACTCCTGACCTTACGATCCACCCACCTT	20
94	CCCCCATCATTTGACAAAATATCATAACTCGAACTCCTGACCTCATGATTTCCTGCCTCA	12
95	GCACCCAAGCTGGGAACCTGGGAATCATTCGATCTCCTGACCTCGTGATTACAGGTGTGA	17
96	CAAAACTTCTTGTGCTGTAGATGAGGAATCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
97	GTGATAAGTTATACAGAGATAAAATAAGTCGAACTCCTGGACTTATGTGATCTGCCCCCC	1
98	CAGAAAGGCTATTAGAATGCTTTGACCTTCGAATTCCTGACCTCAAGTGTTGGGATTACA	11
99	TAACAAAACATTTAAGAAGTAAATAATATCGATCTCTTGACCTTGTGACTCACCCGCATC	15
100	TCACATTTGAATTATTCACCCAAATGAATCGAACTCCTGACGTCAGGTGATCTACCTGTC	12
101	GTAAGAAGTGAGTGGGAATTAGACCAGCTCGATCTCCTGACCTTAAGCGATCTCCCCGCC	8
102	ACTGATATACCTATCCTTATTAAGGCACTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
103	GATACAATTTCTGTTTAAGAGAGTGTAATCGAACTCCTGACCTCACTCAGGTGATCCCCC	4
104	ATATTGGAAATTATTTTACTCTAGACTTTCGAACTCCTTGACCTCAGGTGATCTACCTGC	20
105	ACTTTTCTTTTATGCCAATTAGAATAAGTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
106	TTTTTCATGGGTTTTTGTTTTGTTTATTTCGAACTTCTGACCTCATGATCAACCCATCTT	1
107	TTCCCTGACTGGAACCTCTAGTACAATGTCGAACTCCTGATCTCAGGTGATTTACTTGCG	8
108	AACCCCTTTTATTTCCTATACATCTATTTCGAACTCCTGATCTCAGGTGATTTACTTGCG	8
109	GGCTTCTTCTCCAATGTGTCATCTGCTTTCGAACTCCTGACCTCAATGTGACTCACCTGC	20

110	GGATATTTGGATGTAATGAGGAGAAGCATCGATCTCCTGACCTCATGACGTGTCCGCCTT	11
111	TATCTCTGAGATGAGAATGGAAAATAAATCGAATTCCTGACCTCTTGATCTGTCTGCCTT	17
112	ATGGTCTTCCTCAACAGTTTTTCTTTCATCGAACTCGTGACCTCAAGTGGTCTCCCTGCC	19
113	AACTGTTGGGGCTCTAATTTATATCTGATCGAACTCCTGACCTCACTCAGGTGATCCCCC	4
114	AAGACAGATCTGGTTTTTTTTTGAAATGTCGATTTCCTGACCTTGTGATCCAATGCCAGG	4
115	TAAAACTGTAAAACACTGATGCCAGAAATCGAACTCCTGACTTCGGTGATCTACCTGCCG	6
116	TAGGCAGACTTACCTACCACAGATACAGTCGAACTCCTGACCTCATGTGATTTGGCCGCT	3
117	TATTGTCTTTCTTCAGATGTGGGCTACATCGAACTCCTGACCTCAGGTGAATAACCTGCC	3
118	AATTTGAAAAGTTACACAACATTTATAGTCGAACTACTGACCTAAGTGATCCACCCACCT	2
119	TCAGCTGGGGTTTCCCAAGCCCTTGAGATCGAACTCCTGACCTCAGAAGATTTGCCTGCC	7
120	ATAGGTAAAAAAGGAACTGAAGGTAAAATCGAACTCCTGACCTCAAGAGATCTGTCCTCC	10

Table 1.a3

	Probe Location			
no.	**Start1**	**End1**	**Start2**	**End2**
1	112153186	112153215	112272447	112272476
2	112153186	112153215	112262817	112262846
3	25299532	25299561	25482040	25482069
4	93197090	93197119	93228756	93228785
5	8956668	8956697	9052194	9052223
6	27705009	27705038	27778036	27778065
7	27705009	27705038	27865683	27865712
8	50840717	50840746	50961393	50961422
9	27836402	27836431	28029816	28029845
10	101411215	101411244	101490107	101490136
11	93057518	93057547	93228756	93228785
12	42444490	42444519	42488743	42488772
13	99639845	99639874	99714372	99714401
14	34393710	34393739	34499920	34499949
15	196356745	196356774	196597660	196597689
16	99670351	99670380	99714372	99714401
17	9685855	9685884	9716872	9716901
18	27705009	27705038	27879478	27879507
19	76572659	76572688	76680139	76680168
20	132711125	132711154	132761426	132761455
21	154222023	154222052	154421616	154421645
22	98883743	98883772	99043861	99043890
23	25482040	25482069	25619470	25619499
24	93183030	93183059	93228756	93228785
25	122685605	122685634	122705503	122705532
26	99538093	99538122	99618650	99618679
27	93198709	93198738	93228756	93228785
28	27602913	27602942	27705009	27705038
29	42413426	42413455	42488743	42488772
30	184240659	184240688	184480441	184480470
31	9685855	9685884	9839688	9839717
32	184390826	184390855	184480441	184480470
33	27609056	27609085	27705009	27705038
34	29911761	29911790	30016615	30016644
35	5125372	5125401	5302509	5302538

36	109341941	109341970	109359721	109359750
37	5120560	5120589	5302509	5302538
38	9663012	9663041	9685855	9685884
39	223395100	223395129	223450575	223450604
40	34722668	34722697	34750118	34750147
41	34696714	34696743	34750118	34750147
42	9577172	9577201	9685855	9685884
43	196470838	196470867	196597660	196597689
44	10166865	10166894	10293573	10293602
45	20286574	20286603	20445723	20445752
46	47130821	47130850	47283077	47283106
47	46139224	46139253	46175453	46175482
48	241874934	241874963	242040740	242040769
49	76400224	76400253	76572659	76572688
50	34889023	34889052	34980543	34980572
51	59849051	59849080	59881125	59881154
52	68144388	68144417	68359454	68359483
53	223307535	223307564	223450575	223450604
54	3002170	3002199	3126002	3126031
55	47246986	47247015	47283077	47283106
56	55428739	55428768	55609242	55609271
57	50907983	50908012	50961393	50961422
58	13822113	13822142	14075799	14075828
59	215174891	215174920	215344457	215344486
60	83699493	83699522	83789541	83789570
61	76572659	76572688	76725275	76725304
62	27971171	27971200	28029816	28029845
63	227820025	227820054	227868228	227868257
64	25206967	25206996	25256675	25256704
65	66305772	66305801	66398642	66398671
66	67960384	67960413	68133246	68133275
67	78974906	78974935	79152570	79152599
68	20348274	20348303	20445723	20445752
69	70255223	70255252	70476553	70476582
70	45019370	45019399	45087116	45087145
71	12334388	12334417	12375798	12375827
72	39781054	39781083	39819890	39819919
73	157568738	157568767	157614329	157614358
74	32238035	32238064	32290149	32290178
75	139331499	139331528	139356650	139356679
76	13822113	13822142	14016894	14016923
77	55883135	55883164	56069490	56069519
78	109359721	109359750	109614616	109614645
79	50732810	50732839	50961393	50961422
80	55805339	55805368	55947014	55947043
81	93124869	93124898	93228756	93228785
82	70955507	70955536	71218058	71218087
83	93069957	93069986	93228756	93228785
84	76572659	76572688	76639935	76639964
85	4769899	4769928	4890419	4890448
86	105278353	105278382	105431072	105431101
87	42642160	42642189	42697459	42697488

88	76402807	76402836	76572659	76572688
89	223212101	223212130	223450575	223450604
90	38902738	38902767	39089150	39089179
91	17050232	17050261	17198082	17198111
92	76423309	76423338	76572659	76572688
93	34795172	34795201	34933943	34933972
94	8124954	8124983	8343599	8343628
95	1289899	1289928	1411119	1411148
96	109359721	109359750	109391445	109391474
97	187506368	187506397	187612301	187612330
98	72474782	72474811	72730463	72730492
99	34816885	34816914	34980543	34980572
100	32741506	32741535	32993185	32993214
101	30150657	30150686	30174557	30174586
102	8705596	8705625	8956668	8956697
103	146421997	146422026	146576250	146576279
104	31418842	31418871	31617245	31617274
105	76384752	76384781	76572659	76572688
106	150622137	150622166	150760945	150760974
107	47283077	47283106	47496199	47496228
108	47257078	47257107	47283077	47283106
109	46123165	46123194	46316599	46316628
110	59842025	59842054	59881125	59881154
111	75816290	75816319	75953983	75954012
112	51712236	51712265	51831759	51831788
113	146576250	146576279	146653209	146653238
114	151824478	151824507	151951299	151951328
115	136360367	136360396	136479811	136479840
116	10094058	10094087	10166865	10166894
117	30532024	30532053	30652455	30652484
118	74568013	74568042	74592025	74592054
119	29859714	29859743	30016615	30016644
120	26740934	26740963	26959701	26959730

Table 1.a4

	4 kb Sequence Location				
no.	**Chr**	**Start1**	**End1**	**Start2**	**End2**
1	1	112149216	112153215	112268477	112272476
2	1	112149216	112153215	112262817	112266816
3	22	25295562	25299561	25482040	25486039
4	11	93193120	93197119	93228756	93232755
5	12	8956668	8960667	9048224	9052223
6	17	27705009	27709008	27774066	27778065
7	17	27705009	27709008	27861713	27865712
8	19	50836747	50840746	50961393	50965392
9	1	27832432	27836431	28029816	28033815
10	10	101411215	101415214	101486137	101490136
11	11	93057518	93061517	93228756	93232755
12	18	42444490	42448489	42488743	42492742
13	1	99635875	99639874	99710402	99714401

14	19	34389740	34393739	34499920	34503919
15	3	196352775	196356774	196593690	196597689
16	1	99666381	99670380	99710402	99714401
17	11	9685855	9689854	9712902	9716901
18	17	27705009	27709008	27875508	27879507
19	5	76572659	76576658	76676169	76680168
20	6	132707155	132711154	132757456	132761455
21	4	154218053	154222052	154421616	154425615
22	15	98879773	98883772	99039891	99043890
23	22	25482040	25486039	25615500	25619499
24	11	93179060	93183059	93228756	93232755
25	10	122681635	122685634	122701533	122705532
26	1	99534123	99538122	99618650	99622649
27	11	93198709	93202708	93228756	93232755
28	17	27598943	27602942	27705009	27709008
29	18	42413426	42417425	42488743	42492742
30	3	184236689	184240688	184480441	184484440
31	11	9685855	9689854	9835718	9839717
32	3	184386856	184390855	184480441	184484440
33	17	27609056	27613055	27705009	27709008
34	7	29907791	29911790	30016615	30020614
35	8	5121402	5125401	5298539	5302538
36	1	109341941	109345940	109359721	109363720
37	8	5116590	5120589	5298539	5302538
38	11	9659042	9663041	9685855	9689854
39	2	223391130	223395129	223446605	223450604
40	22	34722668	34726667	34750118	34754117
41	22	34696714	34700713	34750118	34754117
42	11	9573202	9577201	9685855	9689854
43	3	196466868	196470867	196593690	196597689
44	3	10166865	10170864	10289603	10293602
45	16	20282604	20286603	20445723	20449722
46	8	47126851	47130850	47283077	47287076
47	6	46135254	46139253	46171483	46175482
48	1	241870964	241874963	242036770	242040769
49	5	76400224	76404223	76572659	76576658
50	15	34885053	34889052	34976573	34980572
51	11	59845081	59849080	59877155	59881154
52	2	68140418	68144417	68359454	68363453
53	2	223303565	223307564	223446605	223450604
54	3	2998200	3002199	3122032	3126031
55	8	47243016	47247015	47283077	47287076
56	19	55428739	55432738	55609242	55613241
57	19	50907983	50911982	50961393	50965392
58	6	13822113	13826112	14071829	14075828
59	2	215170921	215174920	215340487	215344486
60	9	83695523	83699522	83785571	83789570
61	5	76572659	76576658	76721305	76725304
62	1	27967201	27971200	28029816	28033815
63	2	227820025	227824024	227868228	227872227
64	12	25202997	25206996	25256675	25260674
65	7	66301802	66305801	66394672	66398671

66	10	67956414	67960413	68133246	68137245
67	11	78974906	78978905	79148600	79152599
68	16	20348274	20352273	20445723	20449722
69	4	70251253	70255252	70472583	70476582
70	12	45015400	45019399	45083146	45087145
71	16	12330418	12334417	12371828	12375827
72	17	39781054	39785053	39819890	39823889
73	3	157564768	157568767	157610359	157614358
74	20	32234065	32238064	32286179	32290178
75	5	139327529	139331528	139352680	139356679
76	6	13822113	13826112	14012924	14016923
77	5	55879165	55883164	56069490	56073489
78	1	109359721	109363720	109610646	109614645
79	19	50732810	50736809	50961393	50965392
80	8	55801369	55805368	55943044	55947043
81	11	93120899	93124898	93228756	93232755
82	X	70951537	70955536	71214088	71218087
83	11	93065987	93069986	93228756	93232755
84	5	76572659	76576658	76635965	76639964
85	20	4765929	4769928	4886449	4890448
86	3	105278353	105282352	105427102	105431101
87	19	42642160	42646159	42697459	42701458
88	5	76398837	76402836	76572659	76576658
89	2	223208131	223212130	223446605	223450604
90	19	38898768	38902767	39089150	39093149
91	1	17046262	17050261	17194112	17198111
92	5	76419339	76423338	76572659	76576658
93	20	34791202	34795201	34929973	34933972
94	12	8120984	8124983	8339629	8343628
95	17	1285929	1289928	1411119	1415118
96	1	109359721	109363720	109387475	109391474
97	1	187502398	187506397	187608331	187612330
98	11	72470812	72474811	72726493	72730492
99	15	34812915	34816914	34976573	34980572
100	12	32741506	32745505	32989215	32993214
101	8	30146687	30150686	30174557	30178556
102	12	8705596	8709595	8956668	8960667
103	4	146421997	146425996	146576250	146580249
104	20	31418842	31422841	31617245	31621244
105	5	76380782	76384781	76572659	76576658
106	1	150618167	150622166	150756975	150760974
107	8	47283077	47287076	47492229	47496228
108	8	47253108	47257107	47283077	47287076
109	20	46119195	46123194	46312629	46316628
110	11	59838055	59842054	59877155	59881154
111	17	75812320	75816319	75950013	75954012
112	19	51712236	51716235	51827789	51831788
113	4	146576250	146580249	146649239	146653238
114	4	151824478	151828477	151947329	151951328
115	6	136360367	136364366	136475841	136479840
116	3	10094058	10098057	10166865	10170864
117	3	30528054	30532053	30652455	30656454

118	2	74564043	74568042	74592025	74596024
119	7	29859714	29863713	30016615	30020614
120	10	26740934	26744933	26959701	26963700

Table 1.a5

	NESTED PCR PRIMER SET	
no.	probe	Primer ID
1	Hg38_1_112145907_112153217_112262815_112272478_FF	OBD183-261
2	Hg38_1_112145907_112153217_112262815_112272478_FR	OBD183-189
3	Hg38_22_25290566_25299563_25482038_25486782_FR	OBD183-013
4	Hg38_11_93191458_93197121_93228754_93237221_FR	OBD183-321
5	Hg38_12_8956666_8971971_9041253_9052225_RF	OBD183-141
6	Hg38_17_27705007_27714184_27773460_27778067_RF	OBD183-093
7	Hg38_17_27705007_27714184_27860380_27865714_RF	OBD183-117
8	Hg38_19_50837203_50840748_50961391_50964466_FR	OBD183-269
9	Hg38_1_27834284_27836433_28029814_28033207_FR	OBD183-293
10	Hg38_10_101411213_101417434_101485766_101490138_RF	OBD183-025
11	Hg38_11_93057516_93069988_93228754_93237221_RR	OBD183-233
12	Hg38_18_42444488_42452373_42488741_42500135_RR	OBD183-301
13	Hg38_1_99631771_99639876_99708395_99714403_FF	OBD183-1201
14	Hg38_19_34387270_34393741_34499918_34506554_FR	OBD183-1205
15	Hg38_3_196353836_196356776_196593741_196597691_FF	OBD183-389
16	Hg38_1_99659612_99670382_99708395_99714403_FF	OBD183-1209
17	Hg38_11_9685853_9690988_9710140_9716903_RF	OBD183-381
18	Hg38_17_27705007_27714184_27875357_27879509_RF	OBD183-029
19	Hg38_5_76572657_76583168_76676513_76680170_RF	OBD183-069
20	Hg38_6_132703799_132711156_132757539_132761457_FF	OBD183-1213
21	Hg38_4_154217720_154222054_154421614_154428471_FR	OBD183-057
22	Hg38_15_98874707_98883774_99040149_99043892_FF	OBD183-205
23	Hg38_22_25482038_25486782_25613025_25619501_RF	OBD183-113
24	Hg38_11_93178112_93183061_93228754_93237221_FR	OBD183-245
25	Hg38_10_122677780_122685636_122702672_122705534_FF	OBD183-065
26	Hg38_1_99533569_99538124_99618648_99629858_FR	OBD183-273
27	Hg38_11_93198707_93202947_93228754_93237221_RR	OBD183-253
28	Hg38_17_27594551_27602944_27705007_27714184_FR	OBD183-041
29	Hg38_18_42413424_42422256_42488741_42500135_RR	OBD183-281
30	Hg38_3_184235022_184240690_184480439_184482239_FR	OBD183-053
31	Hg38_11_9685853_9690988_9833988_9839719_RF	OBD183-385
32	Hg38_3_184389484_184390857_184480439_184482239_FR	OBD183-185
33	Hg38_17_27609054_27616846_27705007_27714184_RR	OBD183-077
34	Hg38_7_29905017_29911792_30016613_30019069_FR	OBD183-1217
35	Hg38_8_5120591_5125403_5295149_5302540_FF	OBD183-1221
36	Hg38_1_109341939_109348573_109359719_109366704_RR	OBD183-1225
37	Hg38_8_5115633_5120591_5295149_5302540_FF	OBD183-1229
38	Hg38_11_9656772_9663043_9685853_9690988_FR	OBD183-397
39	Hg38_2_223382061_223395131_223446116_223450606_FF	OBD183-237
40	Hg38_22_34722666_34726389_34750116_34757594_RR	OBD183-1233
41	Hg38_22_34696712_34700627_34750116_34757594_RR	OBD183-137
42	Hg38_11_9575436_9577203_9685853_9690988_FR	OBD183-353
43	Hg38_3_196466940_196470869_196593741_196597691_FF	OBD183-349

44	Hg38_3_10166863_10171451_10289864_10293604_RF	OBD183-341
45	Hg38_16_20282299_20286605_20445721_20457266_FR	OBD183-1237
46	Hg38_8_47127019_47130852_47283075_47288879_FR	OBD183-1241
47	Hg38_6_46130577_46139255_46168740_46175484_FF	OBD183-1245
48	Hg38_1_241870739_241874965_242033568_242040771_FF	OBD183-1249
49	Hg38_5_76400222_76402838_76572657_76583168_RR	OBD183-129
50	Hg38_15_34886920_34889054_34974237_34980574_FF	OBD183-1253
51	Hg38_11_59844932_59849082_59873751_59881156_FF	OBD183-033
52	Hg38_2_68140822_68144419_68359452_68365969_FR	OBD183-145
53	Hg38_2_223296739_223307566_223446116_223450606_FF	OBD183-229
54	Hg38_3_2993519_3002201_3121830_3126033_FF	OBD183-125
55	Hg38_8_47239740_47247017_47283075_47288879_FR	OBD183-369
56	Hg38_19_55428737_55436084_55609240_55610480_RR	OBD183-221
57	Hg38_19_50907981_50915866_50961391_50964466_RR	OBD183-225
58	Hg38_6_13822111_13826619_14070076_14075830_RF	OBD183-1257
59	Hg38_2_215168332_215174922_215339857_215344488_FF	OBD183-153
60	Hg38_9_83691585_83699524_83785514_83789572_FF	OBD183-089
61	Hg38_5_76572657_76583168_76717099_76725306_RF	OBD183-201
62	Hg38_1_27966549_27971202_28029814_28033207_FR	OBD183-1261
63	Hg38_2_227820023_227824564_227868226_227874758_RR	OBD183-197
64	Hg38_12_25200007_25206998_25256673_25260057_FR	OBD183-061
65	Hg38_7_66298919_66305803_66392051_66398673_FF	OBD183-1265
66	Hg38_10_67952694_67960415_68133244_68143089_FR	OBD183-309
67	Hg38_11_78974904_78976508_79134716_79152601_RF	OBD183-345
68	Hg38_16_20348272_20352389_20445721_20457266_RR	OBD183-297
69	Hg38_4_70243444_70255254_70475197_70476584_FF	OBD183-045
70	Hg38_12_45013447_45019401_45077155_45087147_FF	OBD183-1269
71	Hg38_16_12325962_12334419_12372790_12375829_FF	OBD183-1273
72	Hg38_17_39781052_39789227_39819888_39822803_RR	OBD183-265
73	Hg38_3_157551093_157568769_157606016_157614360_FF	OBD183-1277
74	Hg38_20_32234511_32238066_32285519_32290180_FF	OBD183-177
75	Hg38_5_139327785_139331530_139355652_139356681_FF	OBD183-133
76	Hg38_6_13822111_13826619_14011144_14016925_RF	OBD183-1281
77	Hg38_5_55874716_55883166_56069488_56074299_FR	OBD183-1285
78	Hg38_1_109359719_109366704_109611657_109614647_RF	OBD183-1289
79	Hg38_19_50732808_50735232_50961391_50964466_RR	OBD183-1293
80	Hg38_8_55800026_55805370_55942582_55947045_FF	OBD183-1297
81	Hg38_11_93115381_93124900_93228754_93237221_FR	OBD183-249
82	Hg38_X_70952076_70955538_71213839_71218089_FF	OBD183-1301
83	Hg38_11_93057516_93069988_93228754_93237221_FR	OBD183-1305
84	Hg38_5_76572657_76583168_76637173_76639966_RF	OBD183-157
85	Hg38_20_4763308_4769930_4885862_4890450_FF	OBD183-1309
86	Hg38_3_105278351_105281788_105425156_105431103_RF	OBD183-305
87	Hg38_19_42642158_42648993_42697457_42701566_RR	OBD183-049
88	Hg38_5_76400222_76402838_76572657_76583168_FR	OBD183-209
89	Hg38_2_223203554_223212132_223446116_223450606_FF	OBD183-317
90	Hg38_19_38895868_38902769_39089148_39091382_FR	OBD183-1313
91	Hg38_1_17044824_17050263_17192218_17198113_FF	OBD183-1317
92	Hg38_5_76420596_76423340_76572657_76583168_FR	OBD183-1321
93	Hg38_20_34791262_34795203_34932162_34933974_FF	OBD183-1325
94	Hg38_12_8119443_8124985_8341969_8343630_FF	OBD183-1329
95	Hg38_17_1287026_1289930_1411117_1412617_FR	OBD183-241

96	Hg38_1_109359719_109366704_109385998_109391476_RF	OBD183-1333
97	Hg38_1_187499122_187506399_187600952_187612332_FF	OBD183-1337
98	Hg38_11_72469497_72474813_72726299_72730494_FF	OBD183-109
99	Hg38_15_34813171_34816916_34974237_34980574_FF	OBD183-103
100	Hg38_12_32741504_32743146_32986666_32993216_RF	OBD183-009
101	Hg38_8_30141432_30150688_30174555_30176773_FR	OBD183-121
102	Hg38_12_8705594_8710071_8956666_8971971_RR	OBD183-1341
103	Hg38_4_146421995_146434783_146576248_146581867_RR	OBD183-017
104	Hg38_20_31418840_31431664_31617243_31621976_RR	OBD183-213
105	Hg38_5_76380998_76384783_76572657_76583168_FR	OBD183-169
106	Hg38_1_150618429_150622168_150754333_150760976_FF	OBD183-1345
107	Hg38_8_47283075_47288879_47486518_47496230_RF	OBD183-361
108	Hg38_8_47250090_47257109_47283075_47288879_FR	OBD183-1349
109	Hg38_20_46117565_46123196_46312844_46316630_FF	OBD183-393
110	Hg38_11_59836753_59842056_59873751_59881156_FF	OBD183-173
111	Hg38_17_75812204_75816321_75950756_75954014_FF	OBD183-333
112	Hg38_19_51712234_51719472_51826457_51831790_RF	OBD183-365
113	Hg38_4_146576248_146581867_146648355_146653240_RF	OBD183-1353
114	Hg38_4_151824476_151828586_151939544_151951330_RF	OBD183-1357
115	Hg38_6_136360365_136366092_136470425_136479842_RF	OBD183-1361
116	Hg38_3_10094056_10097375_10166863_10171451_RR	OBD183-373
117	Hg38_3_30527627_30532055_30652453_30660274_FR	OBD183-005
118	Hg38_2_74566692_74568044_74592023_74597081_FR	OBD183-313
119	Hg38_7_29859712_29867302_30016613_30019069_RR	OBD183-1365
120	Hg38_10_26740932_26742560_26959699_26967983_RR	OBD183-1369

Table 1.a6

	NESTED PCR PRIMER SET		
no.	Primer Sequence	Primer ID	Primer Sequence
1	GCTGCCCTGAAAATGGGAGTCTG	OBD183-263	CTCTCTCCCTTCAGCACAGCCAC
2	TGCCCTGAAAATGGGAGTCTGAGTTA	OBD183-191	GGATGAATGTGACGCTTTCGTTCCCC
3	GAATGCTTCTGGAACACTTCTTCAAG	OBD183-015	CTGTCCCATCTGCCTAAAACCGTTGG
4	GCACACAGTAAGCACGCAATAAAATG	OBD183-323	GGATAAGCCACAAGGCAACTGGTCTG
5	GAAGGTGGCATTCTCTATTGTGTCCA	OBD183-143	ACTGCGGAACTTCAAAGGTCAGGTGC
6	GGGTGACCGAGTGAGATGATGTC	OBD183-097	ACCCTGTAGTCCTGGGCTCAAGAGAT
7	GAGGAACCACCAGGCTTTGGAGC	OBD183-1171	GGTTGGGTTTTCTCAATAATCCATAG
8	AGGGTGAGGGTATGTGGGTAGTG	OBD183-271	CAGCCAGCAGAGACAGGAAGTGC
9	GAGAGTTATTCCTCAAGTGCTCCCAC	OBD183-295	CAGAACACAGTGAACAACCAGGCATT
10	ATTCTAAGTTTTCTCTCCCACCCC	OBD183-027	GAACAGGGATGGGCAGAAGCAGAAAA
11	CAGGGCTACAGATGCTGGCAAAGTTG	OBD183-235	CACAAGGCAACTGGTCTGAATGTTTC
12	CTCTGGCATTGGTCAAGGTCAAAGTA	OBD183-303	ATAGGGCTGGAGAGGAGTAGGCAGAT
13	AGAGCGCACGGAGATCACCGAGCGA	OBD183-1203	GAGGTACTGGAGCCGAGAGGTAAC
14	TCTATCAGATCGGCGACCATTTGT	OBD183-1207	TACGATGCCGCTAAGAACCTCTC
15	GAAGGAAGGTGACTTGCTTGCCCAAC	OBD183-391	ATGAAATCACACCCAAGTCCCTCACT
16	GGTCGTCGCTGACGTTTACACTC	OBD183-1211	TAGTCTCATTATAATCGTTCGCTA
17	GGGAGGAAGACTGTAGTTGGAGACAT	OBD183-383	TGGAGGGCTTGCTATGGTCTGAATGT
18	AGGAGCCTCTGGAGCAAGGTCAG	OBD183-031	GCCATCCCCTACACAGGTTCTCA
19	GTAATCAAGACAGTGCTATGCTGGCA	OBD183-073	CCTGACCCACCAAGACTGAACCA
20	TTCAGGGATTGACCAACACCGGAA	OBD183-1215	AACATCTCACTTGAAGTAATGTAT
21	CTTTACTCTTATGCTCTGCTCTGTGC	OBD183-059	AAACACAGATGAGTTCGGGCGTGGTG

22	TAGGCTGTCCTCCTCCTGTGCCA	OBD183-207	TGGAGACCCCAGGCTAATACAGC
23	GATGGGCTGAGGTGGAGTCTACC	OBD183-1131	CCGCCCATCTGTAAGCCCATCTC
24	TTACCTCAGACATAGAAAGTGACTGC	OBD183-247	GCCACAAGGCAACTGGTCTGAATGTT
25	TCTGTCTTGCTCGTGATAGTAGTTGG	OBD183-067	GTAGGCGTTCATCTTCACGGTAAGGC
26	CCTCAAATCTTGTCGGGAGTTCCTCA	OBD183-275	ACTGTGACCAAAGGAAGGAAAGCCAT
27	GCAACCCCACTGAATGAAACGGACAC	OBD183-255	CACAAGGCAACTGGTCTGAATGTTTC
28	GGTCCCAGAGATGTTGACAGCCTG	OBD183-043	GCCATCCCCTACACAGGTTCTCA
29	GAGTTCTACCTAAGTCAGAGGAGGAA	OBD183-283	ATAGGGCTGGAGAGGAGTAGGCAGAT
30	GGCTCTTGCTCTGCTATGGGTTG	OBD183-055	GGCGATGCCCAGCAAGAGTGAAG
31	TGTTCCATTGTAGACTTCTCGGAGGC	OBD183-387	TGGAGGGCTTGCTATGGTCTGAATGT
32	CCCCTCCCTCATTCCTACCATCA	OBD183-187	GGCGATGCCCAGCAAGAGTGAAG
33	GTGCCACCCTGGGCTGGATGATT	OBD183-081	GCCTCTGGTGCCCTTTTGGGTTG
34	ACGACAGAGTCCGTGCACCTACCA	OBD183-1219	CTGACGCTGCAAAATTTGCAACCAG
35	AACCTCTTTAGTCTAAGTTCAGACT	OBD183-1223	GCAGTCTTCGCGGTAGGTCCTAGTG
36	AGTTGGAAGTTTGTCTAGATCTCAG	OBD183-1227	AGATATCTTTGATGTCGTGATTGG
37	ATTTTGTCACTAGAGGACGCACGCT	OBD183-1231	CTCGAGAGGAGGAGACGTCAGTCC
38	TCAAGTGACCATTGTGACCACCGC	OBD183-399	GGTGGAGGGCTTGCTATGGTCTG
39	CGCATTCTTTTGCCAACACCACATCA	OBD183-239	CTGACCCAGGAAAACCACCCTCATTC
40	AAGGACCCTTGGCCCTCCACCCTT	OBD183-1235	AGGCAGTGTATACTCTTCCATAAA
41	GCCCTCTACTTACCAACTTCTGCCTT	OBD183-139	GCATTCCTGATTGCCTGATTTCAAGT
42	TAGGCAGAACGCTTTGAGAGAAGTAT	OBD183-355	GTGGAGGGCTTGCTATGGTCTGAATG
43	TCAGTCACCCCATCCAGCCTCAT	OBD183-351	TAAGAGGACCTACGCACCCGCAG
44	TCTGTTGCGGGTCTCTTGAGGGC	OBD183-343	TAGTGAAGCCAGGTCCAGGAGCA
45	CGGGCTATTAGTTATGAGGTCCGAA	OBD183-1239	CCGTTACTGTTGGTCGTAGAGCCCA
46	GATTGAAAAAGGTGAGGGAACTCGG	OBD183-1243	GAACGGGTTGGCCAGATGTGCGACA
47	CCGAACGGGAAAGACGGACATCTAG	OBD183-1247	ATATCGCTTAGTCGCTCTTGGGCCG
48	GCAACCTGACCACGGTTGCGCGTCC	OBD183-1251	CGGTGCGCTACCTTGCAGGAATTGA
49	TTACTTTGCCATCTGATTGTGCTTGC	OBD183-131	GACCTCCAGCGAGACCACTCCTAAAT
50	GACCGTCCGTTAATTTCCCTTGCAT	OBD183-1255	AACCGCTCTCTTAGAAGAGAGACAG
51	AGGGAAAGAACTTGGTTTACTGCTGC	OBD183-035	GAGGTGGAGGTGGATTTGCTCGTATG
52	CAGAGGAAACCATCATTGTTAGTAGC	OBD183-147	CCCAGAACAGAGAAAGGGCATTAGGG
53	GGTGGTGTGGGTGTCATTAGTAAACT	OBD183-231	CTGACCCAGGAAAACCACCCTCATTC
54	ACTTCTTTCTCTCTCTGCTGACTGGG	OBD183-127	GGGCTGAAAAGTTTGGGAAGAACAGG
55	CTTGTCCTGTTCCCAGTTTCTGAGGG	OBD183-371	TTACAATCGCCTCAAAGTGCTCAAGC
56	GCCTCCCTCCTCATCACTTCCTC	OBD183-223	CCAGCCCAGCACTCTTGTAACTC
57	CCTCCACCCAACAGAAAATCCTCTTA	OBD183-227	AGACACAGCCAGCAGAGACAGGAAGT
58	ATAGCTTCTTACCGGTGCGCCACCG	OBD183-1259	TAGGCAGTACGATCGCACGCCCCAT
59	CCTAAGGTGAGTAATGTTGACTGGCT	OBD183-155	CACCTGTTGTAATCCTGGCACTCTGG
60	CCTGGGCTCAACCTTGCTGGACT	OBD183-093	GGGTGACCGAGTGAGATGATGTC
61	TCACCCCTCTGCTTCCAGGACAG	OBD183-203	CCTCCAGCGAGACCACTCCTAAA
62	GTGAACGATTGGTAAACCCAGTGTC	OBD183-1263	CTGTGAGCGACAAAAGCTTAAATGG
63	TTTACTGTCTTGAAGGAGGCAGGGTT	OBD183-199	GCACTGAAGAGAACACAGCAAAGCCG
64	GTCCTAAAAGAATCACAGTTATGCCA	OBD183-063	GCAGCGAAGAAGTTGAGAAGTGGACA
65	GAAATACGCGCCCATAACTTGGTGC	OBD183-1267	GAATACGGGTCGTAGCAATGTTCGT
66	CCCTGTGTGTTTCTTCCCTTGGCTGA	OBD183-311	CCCACAAAACTTGACTCTCTTCCATC
67	AGAGGTTCATCGTCTCCAGGTCATAG	OBD183-347	TTCACACAGAGAGGTTGCCTGGATGT
68	TGTCTGTCTGTCCCTGTGACCCT	OBD183-299	CAACTCACCCAGAGACCCCTTGC
69	CCAGGTAGAAGTGGTTTGTTACACAT	OBD183-047	CTCCCTCAAATCCAGACACCTAAAGA
70	CTGACTATGATCTACATATTACAGG	OBD183-1271	CGGTACGTCTGCTTTGGTCAGCCTC
71	TAATGGCTCGTAAGATAGTGCAGCC	OBD183-1275	GCTGGTGATCACTCGATGACCTCGG
72	GTCTTGTGGCTGAAGTGCCCGTT	OBD183-267	CTCTCCTTCCAGCCTTCTTGGGC
73	CTCCCCATTGCAACTACGGGGATTC	OBD183-1279	TTGGAGAGCCAGCTGCGTTCGCTAA

74	GTTTTCCCTGTTGGTATGTAGCCTGG	OBD183-179	ACTACGAATGATAGGCTGGGCACAGT
75	CTTCAGTGTTTCCTTTCAGTGATGGC	OBD183-135	ATGACATTTCGGGCTGGGCACGG
76	TGTGAGGACAGTGTAGTATTAGCAA	OBD183-1283	ACGATAAGTCCCGAACTGGTTGTGA
77	CCTAACGAAAAGTGAACTTCATAAT	OBD183-1287	TCGAATGCAGTGATCTCCCAGGTGC
78	ACGTGCTGTCCCACGCACATGGTAG	OBD183-1291	GAATCAAAAATACTAGGTAACTAGA
79	ATTTGGACAAAATTGAATGGAGTCT	OBD183-1295	GGATTTGCGACGTTCTAAGCGTTGG
80	GATCAACCTTCACACCGATCTAGAA	OBD183-1299	TCCATGTGAATCGCCATCCAGGATC
81	GCCAATGAGCACCACATCACTATTTG	OBD183-251	GGATAAGCCACAAGGCAACTGGTCTG
82	GCAACTCTCCTCCTCAGCAGTCTGG	OBD183-1303	TCCTAGCAACCGGGGGCTGGGAATC
83	TCTATGGAAACTACAGGACTAACCT	OBD183-1307	TGTGACATGAGTCAAGATATTTGCT
84	GACTCATTTCAGTTGTTCAGAGGTCG	OBD183-159	GACCTCCAGCGAGACCACTCCTAAAT
85	CGGTAATCTATGCTCTAGGCATCTA	OBD183-1311	AGGACTCGTGTCAACGCGCAGGCTT
86	GCACAATGCCAGAAACATAGTAGACG	OBD183-307	GGGAAGAATGAATGACGCCGAAGGAC
87	GCCCAGGACATACCACACACCAA	OBD183-051	GCCCTCACTAAAGCCCACAGCGT
88	CCTCCAGCACACACACACTCAGT	OBD183-211	GACCTCCAGCGAGACCACTCCTA
89	TTAGAATGATAGTTACCTGAGACCAG	OBD183-319	CCCAGGAAAACCACCCTCATTCAAAC
90	TGCGAGACAATGCTACCTTACCGGT	OBD183-1315	CATTCCCTCATCACAATTGAACTAA
91	CGGAACTCGATCGGTTGAACTCTAT	OBD183-1319	AGGGCGCGAGACGTATTCCCCGGTT
92	CACGCCTGGTCTTCGAAGTTAGCAC	OBD183-1323	GCTGCTTGGGACCATAAAACCTCAT
93	ATCGAGCGGGCAATATGTACATATT	OBD183-1327	TCACCGCGGAACCCGACTATGCGAC
94	TACCTCTACAATGGATGCGCAAAAA	OBD183-1331	TGGACGGCCTATTTACCGAGAGCTG
95	GGAAGGGCACCTCCACTCATCCA	OBD183-243	CTGGCTGTCATCCAACCACCACT
96	TTCGAAGGCTGGTTGAATACATGGC	OBD183-1335	AGAAGATTGAGGTGTCCTAAACTTA
97	CGCGGCCATAACACCTTAGCCGTCT	OBD183-1339	CGGGGGAATAAGTGACCTATGCACC
98	TATGTGGACCTGATGGGCACCCC	OBD183-1091	TGCTATTATCTGGTGACTGGACTGGG
99	TTTGAAAAGACCGTCGGGTGCGG	OBD183-1031	TGAAGTGGCATCTCTCTCCCGCC
100	CACAAGAAAATAAGTCTCCCAACCTG	OBD183-011	TGACTAAAATGTTATGTGGTGCGTGA
101	GGGTGTTGCGAGCAGCCTGAATG	OBD183-123	GGGCGATAATGCTGGAGACACAG
102	AGACGCCGCTTGCGATTTCGACCAA	OBD183-1343	CAGCGGGAACGGCTGTGCAGTCACA
103	GACTTTGTATGCTTGGCTCTTTTCAA	OBD183-019	CTGCGTGAAGATTGGGAAAATACTCT
104	TGGACAGAGCACCTCCTGATAGC	OBD183-215	CAGTGAGATGATGGGCACCAGGG
105	CTCAGTAGTGGCTCTCCTTCCCC	OBD183-171	CCTCCAGCGAGACCACTCCTAAA
106	CCGCTGTGTAGCGGACAGTCTGAGC	OBD183-1347	TACCCTCTCAAGCACGAGATCTACA
107	CTTCTTGCTTTTCAATCAGGATGCCT	OBD183-363	CCTCCATCTCTTGCCTTCTCCTTAGG
108	GGGCGGGGTAGAAGCCGTCGCTTCG	OBD183-1351	GGTCCATGCGGGGGGTAAAACCCTG
109	TTTCTGATACCATCTGCGAGCCCTGC	OBD183-395	AGTCAGGGAAATAACTCACTGGGAAG
110	CAAGGTGGTCCCCGAGTTGCCAT	OBD183-175	GAGGTGGAGGTGGATTTGCTCGT
111	CCAAGATACTGCCCTGGGTCTCC	OBD183-335	CCCCACCCTGACCAACTGAATCA
112	TCTGGCTTTTGCCTGTCCTTCTGATG	OBD183-367	CCACTCTTGACCTCAGTTTCCCTGTA
113	TTTAAGAGGTCCGGGCAGCATACGC	OBD183-1355	TGTGGTTTATGTGCTACTGTGGAGA
114	GCGGCACCCATCTCTCTTCATTCGC	OBD183-1359	GGGTTTGTGAATCTAGGAGCACAAA
115	TTATTGTGAACGTTCGAAAGCACAA	OBD183-1363	AAAGCGGCGCACTTCAGGCATAAAA
116	GGCAGAATAGTCTCATCCAGCCC	OBD183-375	TGAAGCCAGGTCCAGGAGCAGTG
117	GGTTTCACAGTATGGATTTGGTGTTC	OBD183-007	GCCTGGGTATTCTACTGTCAGAGATT
118	CATTTACGGGAGTGGTGGACAACACA	OBD183-315	TTAGGTCTGGGCTCAGTGACTTATGC
119	GGATGGATTTTTGACAATCCCCGAT	OBD183-1367	AATGCTAGGGAGCAATAAACATAAC
120	GTCCAAGCTATGGTCCCTTAACAGC	OBD183-1371	CATCCACAGTGAATTGATCCGAAGG

Table 1.a7

no.	probe	gene	RPs

121	Hg38_14_94590755_94595046_94660913_94670434_FF	SERPINA3	51602.36278
122	Hg38_2_68146585_68154467_68359452_68365969_RR	PLEK	60673.0528
123	Hg38_19_29696989_29701188_29727590_29730932_FF	PLEKHF1	52817.5742
124	Hg38_10_67996987_68002098_68133244_68143089_FR	SIRT1	65629.85778
125	Hg38_3_172498977_172504898_172612668_172616740_RR	TNFSF10	58221.03427
126	Hg38_11_66660876_66666332_66795521_66799004_FR	SPTBN2	57312.99458
127	Hg38_1_11722709_11729599_11945928_11948525_FF	NPPA	56411.9319
128	Hg38_12_69485433_69494790_69582845_69586465_FF	CCT2	57383.41886
129	Hg38_6_92733887_92741450_92775882_92789490_FF	BACH2	59527.59812
130	Hg38_1_64986326_64990105_65229466_65234378_RF	JAK1	63746.32604
131	Hg38_9_83554932_83574455_83691585_83699524_RF	UBQLN1	61891.82036
132	Hg38_19_50878674_50885130_50961391_50964466_FR	KLK5	62845.36841
133	Hg38_12_8849992_8853563_8956666_8971971_RR	KLRG1	62618.39393
134	Hg38_13_27943964_27948276_28172854_28181281_RR	FLT3	59041.48761
135	Hg38_5_31659980_31666153_31910749_31916612_RR	DROSHA	59449.15028
136	Hg38_3_2897600_2903984_3121830_3126033_FF	IL5RA	57800.99656
137	Hg38_3_170416234_170418115_170607532_170615844_RR	SKIL	63920.31015
138	Hg38_18_55916670_55920381_56075450_56084543_FR	TCF4	64853.46274
139	Hg38_5_76572657_76583168_76698020_76702533_RF	IQGAP2	57619.86752
140	Hg38_12_8913809_8922295_8956666_8971971_RR	KLRG1	61465.60317
141	Hg38_5_74537627_74543794_74656276_74660840_RF	HEXB	62777.03507
142	Hg38_7_37143709_37150477_37190622_37192292_FF	ELMO1	58975.8291
143	Hg38_9_131690419_131696896_131751071_131753768_FR	RAPGEF1	56194.47425
144	Hg38_6_26425345_26428181_26579344_26586907_RR	BTN1A1	61428.23451
145	Hg38_22_28560976_28565084_28753634_28758538_FF	TTC28	62272.87774
146	Hg38_3_187141583_187148120_187202075_187212711_RF	MASP1	68339.73699
147	Hg38_1_193519461_193528788_193673926_193687017_FR	CDC73	59191.22135
148	Hg38_4_154421614_154428471_154600623_154609665_RF	FGA	60226.98349
149	Hg38_16_75703703_75711017_75770470_75776868_RF	KARS	64545.47619
150	Hg38_10_101411213_101417434_101602840_101605496_RF	POLL	57537.34386
151	Hg38_19_7668688_7670794_7738421_7741267_FR	CD209	68536.88075
152	Hg38_2_223262711_223267419_223446116_223450606_FF	AP1S3	64453.33777
153	Hg38_22_25253412_25258650_25482038_25486782_FR	LRP5L	62341.8788
154	Hg38_2_68188547_68193452_68359452_68365969_FR	PLEK	61203.76528
155	Hg38_2_68188547_68193452_68359452_68365969_RR	PLEK	71929.28683
156	Hg38_1_229073105_229082983_229284318_229294264_FR	RAB4A	64881.66358
157	Hg38_9_83554932_83574455_83691585_83699524_FF	UBQLN1	63600.61525
158	Hg38_22_25264413_25271942_25482038_25486782_RR	LRP5L	59608.34156
159	Hg38_1_99618648_99629858_99759006_99763111_RF	AGL	62129.00664
160	Hg38_18_55921930_55924182_56075450_56084543_FR	TCF4	64843.45614
161	Hg38_17_74584319_74586652_74671518_74675232_FF	CD300E	62299.89556
162	Hg38_1_109359719_109366704_109566782_109570200_RF	PSMA5	61137.98638
163	Hg38_1_27834284_27836433_28029814_28033207_RR	SMPDL3B	56542.18928
164	Hg38_5_76572657_76583168_76654480_76657126_RF	IQGAP2	54976.37824
165	Hg38_4_109733192_109734599_109791099_109801176_RF	CFI	62515.30852
166	Hg38_1_70054091_70068840_70318902_70321099_RR	LRRC7	66114.54819
167	Hg38_1_229261740_229263861_229284318_229294264_RR	RAB4A	66865.24279
168	Hg38_14_60530277_60542106_60741580_60746311_FF	SIX1	66165.21408
169	Hg38_11_93198707_93202947_93228754_93237221_FR	MTNR1B	37933.34162
170	Hg38_12_34029969_34035740_34074510_34080992_RF	PKP2	55267.19406
171	Hg38_3_192827117_192831683_192941417_192949607_FR	FGF12	62148.98347
172	Hg38_1_112145907_112153217_112230261_112242505_FR	WNT2B	7382.521556

173	Hg38_5_30065209_30068365_30144494_30156052_FR	DROSHA	29882.79129
174	Hg38_4_177311798_177314753_177426344_177434196_FF	AGA	22347.51822
175	Hg38_8_8573974_8579178_8694304_8696852_RR	MFHAS1	35948.26439
176	Hg38_19_15474784_15476319_15596057_15603844_RR	PGLYRP2	31090.69115
177	Hg38_3_57432399_57444809_57467336_57470926_FR	PDE12	26664.51749
178	Hg38_11_9685853_9690988_9860564_9866955_RF	SWAP70	36242.64198
179	Hg38_12_8803939_8810628_8956666_8971971_FR	KLRG1	36737.01892
180	Hg38_12_8725011_8729420_8956666_8971971_RR	KLRG1	33145.41837
181	Hg38_12_8729585_8733910_8956666_8971971_FR	KLRG1	35411.42703
182	Hg38_1_150313909_150318375_150517096_150519652_FF	ECM1	40526.16555
183	Hg38_8_129814184_129820472_129899083_129904705_RR	FAM49B	40190.71701
184	Hg38_4_70364253_70375913_70475197_70476584_FF	MUC7	39883.20945
185	Hg38_1_219996896_220002127_220133227_220135485_RR	EPRS	38850.69788
186	Hg38_2_85732323_85740233_85782915_85784976_RR	GNLY	41138.40803
187	Hg38_22_25482038_25486782_25521454_25528069_RF	LRP5L	40073.65698
188	Hg38_12_8895119_8900342_8956666_8971971_RR	KLRG1	39969.28595
189	Hg38_5_30065209_30068365_30144494_30156052_RR	DROSHA	41444.33551
190	Hg38_12_8956666_8971971_9003019_9010419_RF	KLRG1	36856.30955
191	Hg38_5_30097465_30100060_30144494_30156052_FR	DROSHA	40796.38683
192	Hg38_11_9564044_9569915_9685853_9690988_FR	SWAP70	39581.10269
193	Hg38_19_42510307_42515066_42619854_42637441_RF	CEACAM1	41746.83799
194	Hg38_3_158515927_158528644_158576893_158580745_FR	MLF1	40688.15116
195	Hg38_12_8895119_8900342_8956666_8971971_FR	KLRG1	41167.33264
196	Hg38_3_138618464_138621485_138761567_138764562_FF	PIK3CB	38579.83331
197	Hg38_7_29905017_29911792_30016613_30019069_RR	WIPF3	43551.56674
198	Hg38_3_48672113_48676996_48843153_48846436_FR	IP6K2	41154.59394
199	Hg38_1_193547269_193555526_193673926_193687017_FR	CDC73	42763.73552
200	Hg38_5_30144494_30156052_30253195_30260049_RF	DROSHA	44527.21156
201	Hg38_22_25264413_25271942_25482038_25486782_FR	LRP5L	42055.91212
202	Hg38_1_27797543_27806064_28029814_28033207_FR	SMPDL3B	42053.26541
203	Hg38_5_30055950_30065209_30144494_30156052_RR	DROSHA	39242.5488
204	Hg38_4_177265268_177272349_177426344_177434196_RF	AGA	44566.05845
205	Hg38_17_27573633_27580584_27705007_27714184_RR	LGALS9	44463.66765
206	Hg38_X_139896828_139900158_140013151_140020699_RF	ATP11C	42988.24933
207	Hg38_1_99460537_99469579_99708395_99714403_FF	AGL	42204.62547
208	Hg38_1_193673926_193687017_193723402_193725340_RF	CDC73	43424.86092
209	Hg38_12_56314794_56317802_56415250_56418662_FR	IL23A	45342.46649
210	Hg38_17_27705007_27714184_27819635_27822792_RF	LGALS9	43050.25058
211	Hg38_1_99641071_99649469_99708395_99714403_FF	AGL	45766.87757
212	Hg38_1_35174790_35177903_35287825_35293685_FR	SFPQ	45003.4861
213	Hg38_5_30008006_30016904_30144494_30156052_RR	DROSHA	44834.65227
214	Hg38_5_67178844_67182260_67213797_67219491_FR	CD180	47184.00069
215	Hg38_1_109359719_109366704_109565116_109566579_RF	PSMA5	49493.46698
216	Hg38_1_219983690_219989585_220133227_220135485_FR	EPRS	42918.44189
217	Hg38_11_78965087_78972317_79119884_79126654_RF	GAB2	49202.3045
218	Hg38_18_539296_550050_584723_586397_RF	COLEC12	50109.23772
219	Hg38_8_8694304_8696852_8726052_8731395_RF	MFHAS1	50973.66001
220	Hg38_1_193528788_193530846_193673926_193687017_RR	CDC73	48989.93916
221	Hg38_3_70749410_70755452_70897303_70900588_FR	FOXP1	42784.88768
222	Hg38_8_24010357_24021429_24161634_24170554_FR	ADAMDEC1	40591.79728
223	Hg38_3_158576893_158580745_158781885_158789582_RF	MLF1	52695.67794
224	Hg38_17_69164151_69180522_69430124_69435332_FR	MAP2K6	47636.4474

225	Hg38_11_65101566_65105117_65228515_65232564_FR	CAPN1	49851.89096
226	Hg38_8_24161634_24170554_24298873_24305051_RF	ADAMDEC1	39385.93102
227	Hg38_13_50104086_50113860_50155566_50162889_RF	TRIM13	49629.8881
228	Hg38_8_8634577_8639077_8694304_8696852_FR	MFHAS1	46854.06025
229	Hg38_8_24119510_24130040_24161634_24170554_FR	ADAMDEC1	41567.6576
230	Hg38_6_31710695_31717311_31846792_31848234_FR	C6orf48	52074.92239
231	Hg38_22_38808896_38820306_38970835_38973283_RF	APOBEC3A	50041.44307
232	Hg38_21_46072387_46079344_46279083_46281797_FF	MCM3AP	49734.38802
233	Hg38_3_105082976_105093952_105278351_105281788_FR	ALCAM	54246.45493
234	Hg38_22_38707803_38709080_38808896_38820306_RR	GTPBP1	48887.48828
235	Hg38_4_154421614_154428471_154574662_154583311_RF	FGA	48300.52211
236	Hg38_20_4736115_4737739_4885862_4890450_FF	RASSF2	52691.03985
237	Hg38_19_55395028_55396801_55609240_55610480_RR	SSC5D	55587.02385
238	Hg38_5_76475531_76481400_76572657_76583168_FR	IQGAP2	55578.78572
239	Hg38_4_163153577_163160533_163215420_163222992_FF	NPY5R	37333.89774
240	Hg38_X_2456239_2461258_2530520_2531841_FR	CD99	51560.88544

Table 1.b1

no.	FC:(class1/class2)	pfp	P.value	CCSs
121	1.186276015	0.000899575	0.000844013	Immune
122	1.186160032	0.000270451	0.000179402	Immune
123	1.186098691	0.00093254	0.000880427	Immune
124	1.185853274	0.000190318	0.0000399446884096558	Immune
125	1.18551634	0.000349576	0.000274843	Immune
126	1.184920048	0.000436269	0.000370491	Immune
127	1.184745946	0.000561947	0.0005041	Immune
128	1.184546219	0.000320976	0.000244508	Immune
129	1.1845323	0.000327812	0.000252608	Immune
130	1.184035394	0.000190318	0.0000540649644882250	Immune
131	1.183997916	0.000291919	0.000207777	Immune
132	1.183983245	0.000190318	0.0000526588772675101	Immune
133	1.183850689	0.000197577	0.0000904587822249505	Immune
134	1.183834593	0.000269965	0.000177859	Immune
135	1.183509166	0.000374731	0.000303169	Immune
136	1.183397205	0.000349576	0.000273026	Immune
137	1.183347956	0.000190318	0.00000984044353433239	Immune
138	1.183297504	0.000191193	0.0000822707196309685	Immune
139	1.182991993	0.000423881	0.000355312	Immune
140	1.182982506	0.000294063	0.000210766	Immune
141	1.182858758	0.000191193	0.0000817229491915916	Immune
142	1.18268215	0.003600958	0.003569185	Immune
143	1.182551034	0.00098659	0.000937261	Immune
144	1.182494488	0.000269965	0.000177167	Immune
145	1.182491457	0.000294063	0.000211778	Immune
146	1.182489201	0.000190318	0.00000942584369787580	Immune
147	1.182342728	0.000456106	0.000393056	Immune
148	1.182263907	0.000459663	0.000397474	Immune
149	1.182179987	0.000190318	0.0000646827516769009	Immune
150	1.181917431	0.001090883	0.001042756	Immune
151	1.181787026	0.000190318	0.0000271915536302691	Immune

152	1.181714874	0.000225914	0.000121603	Immune
153	1.181692991	0.000241232	0.000147415	Immune
154	1.181539128	0.000251226	0.000156647	Immune
155	1.181443607	0.000190318	0.0000187625649334078	Immune
156	1.181393821	0.000190318	0.0000380424235684853	Immune
157	1.181132678	0.000267133	0.000171279	Immune
158	1.181117543	0.000445143	0.000382299	Immune
159	1.181064073	0.000374731	0.000304194	Immune
160	1.180874194	0.000267643	0.000172394	Immune
161	1.180816886	0.000294308	0.00021294	Immune
162	1.180545458	0.000310163	0.000235359	Immune
163	1.180462828	0.00053371	0.000475629	Immune
164	1.180229999	0.001162913	0.001115028	Immune
165	1.180118172	0.000295776	0.000218437	Immune
166	1.180035485	0.000190318	0.00000529624472957508	Immune
167	1.180012151	0.000190318	0.0000369224734285105	Immune
168	1.179979201	0.000190318	0.0000513943071949674	Immune
169	1.231473592	0.000190318	0.0000442795046870757	Cardio
170	1.185406719	0.000498619	0.000439958	Cardio
171	1.182511977	0.000222743	0.000118578	Cardio
172	1.407050346	0.004706404	0.004692561	Immune
173	1.316408041	0.000873288	0.000814213	Immune
174	1.288792142	0.000190585	0.0000774165718372774	Immune
175	1.257269632	0.002829576	0.002779642	Immune
176	1.254791316	0.000190318	0.00000226274582317379	Immune
177	1.254616035	0.000415275	0.000345656	Immune
178	1.238026952	0.000190318	0.0000154626195550073	Immune
179	1.237777926	0.000190318	0.0000194526020666391	Immune
180	1.234793924	0.000566158	0.000509542	Immune
181	1.233163004	0.000270694	0.000186341	Immune
182	1.226641769	0.000190318	0.0000333056536465978	Immune
183	1.225950683	0.000191193	0.0000817422692296585	Immune
184	1.224948599	0.000190318	0.00000645290408133584	Immune
185	1.224615055	0.000197577	0.0000889173516011892	Immune
186	1.224596817	0.000190585	0.0000764443109650074	Immune
187	1.223630226	0.000228221	0.000125122	Immune
188	1.223520931	0.000274554	0.000192995	Immune
189	1.222306449	0.000190585	0.0000705946681282379	Immune
190	1.222262167	0.000537737	0.0004808	Immune
191	1.222169265	0.000190585	0.0000757638297022172	Immune
192	1.221529554	0.000205013	0.000102709	Immune
193	1.221272906	0.000190318	0.0000599671783803023	Immune
194	1.221188551	0.000190585	0.0000744069649443759	Immune
195	1.220281543	0.000225914	0.00012208	Immune
196	1.220202701	0.000477041	0.000416709	Immune
197	1.218733777	0.000191193	0.0000832253187595784	Immune
198	1.218608399	0.000190318	0.0000331236481858035	Immune
199	1.218463012	0.000190318	0.0000572618739883633	Immune
200	1.218446463	0.000190318	0.0000388974841025229	Immune
201	1.217980671	0.000270451	0.000180173	Immune
202	1.21732084	0.000190318	0.0000671169691534999	Immune
203	1.217307806	0.000349576	0.000275548	Immune

204	1.217145751	0.000266211	0.00016834	Immune
205	1.216632744	0.000190318	0.0000393869256653534	Immune
206	1.215123981	0.000236458	0.000138114	Immune
207	1.215110028	0.000295776	0.00021803	Immune
208	1.214128695	0.000190585	0.0000722446171868016	Immune
209	1.213994593	0.000190318	0.0000632827948599299	Immune
210	1.211680597	0.000239248	0.000142845	Immune
211	1.210787095	0.000241232	0.000146519	Immune
212	1.209605762	0.000266673	0.000169416	Immune
213	1.209227903	0.000241232	0.000147551	Immune
214	1.20869455	0.000190318	0.0000208852477395714	Immune
215	1.20814936	0.000190318	0.0000193974481193875	Immune
216	1.20795849	0.000416908	0.000348241	Immune
217	1.207439156	0.000190318	0.0000357234853459895	Immune
218	1.206960097	0.000190318	0.00000304807131114087	Immune
219	1.206874718	0.000190318	0.0000450805994957693	Immune
220	1.206787146	0.000190318	0.0000340624218010891	Immune
221	1.206542696	0.000646854	0.000591681	Immune
222	1.205959387	0.000841008	0.000781643	Immune
223	1.205560226	0.000190318	0.0000278556464488307	Immune
224	1.205304475	0.000205013	0.000102815	Immune
225	1.204318622	0.000197577	0.0000932258801300120	Immune
226	1.204255307	0.001260137	0.001215661	Immune
227	1.204213124	0.000190318	0.0000514895589988928	Immune
228	1.203802599	0.000370996	0.000298979	Immune
229	1.203738557	0.000667821	0.000614788	Immune
230	1.203390916	0.000190318	0.0000557816740020828	Immune
231	1.202416682	0.000190585	0.0000703711063906581	Immune
232	1.202330306	0.000322087	0.000246301	Immune
233	1.201814636	0.000190318	0.0000340316927535055	Immune
234	1.200186232	0.000294063	0.000211898	Immune
235	1.199963105	0.000445143	0.000380385	Immune
236	1.199818633	0.000190318	0.0000621785570704888	Immune
237	1.199815298	0.000190318	0.0000667804940774737	Immune
238	1.199650396	0.000190318	0.0000580280410854067	Immune
239	1.199628952	0.004213528	0.004188743	Immune
240	1.199599769	0.000235024	0.000134691	Immune

Table 1.b2

	Probe sequence	Probe Location
no.	**60 mer**	**Chr**
121	TGATTCAAGCTTGATTCTGGAGCTTGAATCGAACTCCTGATCTTAGGTGATCCATCCACC	14
122	TTAGTTCTTAGATGCTTTGTCATATGCTTCGAACTCCCGACCTCCAGTGGAAGTTCACAC	2
123	TGGCTTTTTAGAAAAACATTTATTGTAATCGAACTCCTGACCACAAATTATCCACCAGAC	19
124	AATGCAAATAATCTCAAGGTCTACAGTTTCGAACTCCTGACCTTATGCAATCCACTTGCC	10
125	ATTCATGTTAGAACTACATGTAGACATTTCGATCTCGTGACCTCTTGATCCTCCCACCTC	3
126	GCCAAATCTTGGTCTTGATCTGTGCCAATCGAACTCCTGACCTCAGGTAATTAGCCCACC	11
127	AGGCACTGTGCCACTCATTTAGGACCCATCGAACTCCTGACCTCAGTGGATCATCAGACT	1
128	GCTTCTAGATTTTTGTTTTGTTTTGTTTTCGAACTCCTGACCTCAGTTCATCCGCCTACC	12

129	TTTTATTTCAATGATTGTATATTATTAGTCGAACTCCTGACTTTAAGTAATCTGCCCACC	6
130	GCCTTAACAACAACAAAATGGAGAGTTATCGAACTCCTGACTTCAGGTGACTCACCCACC	1
131	TTTTTATTTTTTTGTAGACAGGCTGGTCTCGAGGTATCACAAGTGAATGCTGCAAAATGA	9
132	GTTAGCCAGACATCCTTGATAGATATTATCGAACTCCTGACCCTAGGTGATCCTCCTGCT	19
133	AAGAGGAACTAACTAGTCACAAAGGCCATCGAACTCCTGACCTCACGTAATTCTCCCACC	12
134	TTCTGCAGAAAAAGTGTCAACAATGTAGTCGAGACCAGCCTGAGGATCATAACAAAATCG	13
135	ATCCTCTGAGCTTTTGGTTCTTCTCAATTCGAACTCCTGACCTCAAGCTATCCATCTGCC	5
136	TGGATTAATAGATTAGGTCAGTAAAGAATCGAACTCCTGACCTCGTGTTCCCCAGGCCTC	3
137	CTCTTATGCCTCCATTAGAATTTGACATTCGATCTCCTGACTTCGTGATCTGTCCACCTT	3
138	AAATGTAAACTGAGTGTCTATTGTACACTCGAGACCAGCCTGAACAATATAGTGAGACCC	18
139	ATCATAGCTACTGAAGATGTAGGCATTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
140	TTTGTCATTTCAGGGATTTGTGTGTGCTTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
141	TGATCCCTGGGGATACACAAATTGCCATTCGAACTCCTGACCTCAGTCAATCTGCCCACC	5
142	AAAAAATTGTTAACTACATGATGGAAAATCGATCTCTTGACTTCATGATCCACCTGCCTT	7
143	CTATAATAACATTAACAGCTGAAATTTATCGAACTCCTGACCTCAGGTTACCCCCTGCCT	9
144	GCAATTTTCTTATAGTGCTTTGAGAACATCGAACTCCTAACCTCAAGTAATCCACACACT	6
145	CTGCCAAAAGTGAAGATCCCTACTATATTCGAACTCCTGACCTCAGGTAATCTATCCGCC	22
146	TGTCCCTTGCATGGGACACATTGTTTCATCGAACTCCTGACCTTTGGTCATCCACCTGCC	3
147	TTAGGCTTCTCTTCAGAGTTATCTCTGTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
148	AAACACAGTCCATCCATTTCCAGACCCATCGAACTCCTGACCTCAAAAAATCCACCACCT	4
149	CTTAACAAACCAATGATAAGTAATGAGATCGAACTCCTGGCCTCAGATGATACATCTGCT	16
150	TCAAGTTCATCTAGTGCAGCTCTTTTATTCGAACTCCTGACCTCAAGAAATCTACCTGCC	10
151	TTCCCCCAGTCCTCATAATGAGGCTTCATCGAGACCAGCCTAGCGAATGTGGTGAAACCT	19
152	ATTTGTTATTACCTCAATGAGAGCCTAGTCGAACTCCTGACCTACCTCAAGTGATCCATC	2
153	TTAAATTGACATTTGCCAAAGGCTCCACTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
154	GACTAAATACTCAGTATTTACAATCTAGTCGAACTCCCGACCTCCAGTGGAAGTTCACAC	2
155	CCTTTAGTACAGCGAGTAATAGATATATTCGAACTCCCGACCTCCAGTGGAAGTTCACAC	2
156	GTATTTTTTATAGATGTTCTCCATGAAGTCGAACTCCTGACTGAGGTGATCCATCCGCCT	1
157	TATTTCATGGGTCACTGATAAGTTCCATTCGAGACCAGCCTGTCTACAAAAAAATAAAAA	9
158	GTCAATTGCAAGTTGTGACAAACCCACTTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
159	GAATTATTAGATTAAGAAGCAAAGGCACTCGATCTCTTGACCTCATGGTCTCCCACCTCA	1
160	CGGTTTATTCATTATTTAATACATCTCATCGAGACCAGCCTGAACAATATAGTGAGACCC	18
161	TCCCCAGGAACACCTGGAAGCTCAGGATTCGATCTCCTGACCTCATGATTCATCCTCCTT	17
162	ATTAACTATTTAGTACTACCCCTGATTATCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
163	TTGTGGCAACTCAGCACACTTAACAACATCGAACTCCTGACCTCAGGAGTTCCACCCACC	1
164	CCTAGTATTGATAGAGGAAATATTAAATTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
165	AACTTCAATAAAATATGTCATTTCAGTTTCGAACTCCTGACCTCAAGTCATTCCCCTGCC	4
166	ATACCTTAAGAGGAGAATTGATGGAATGTCGATCTCTTGACATCATGATCCACCTGCCTC	1
167	ACAGCATTGATACCCAGGGATTATTCATTCGAACTCCTGACTGAGGTGATCCATCCGCCT	1
168	TTAACAAGTGAAATAAAATAGTACCAATTCGAACTCCTGACCTCGTAATCTACCCGCCTC	14
169	TTATTAAGACAAATATCCAACAAAGTCATCGAACTCCTGACCTTGTAATCTGTCCACCTT	11
170	AACTATTGCTATAGCAATCAAATTGCTTTCGAACTCCTGACCTCAGGTAGTACACCCGTC	12
171	ATAGTGAAAAATATTCAAATTCAGACAATCGAACTCCTGACCTCAAGTTATCCAGCCGTC	3
172	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAGAAAAATACTTTTCTACAGATGTGTCCT	1
173	GACTTTTAACATTTGACTTAGAGAAGATTCGAACTCCTGACCTGATGATCCCCCTACTTG	5
174	CACTTTAAAATTATATTCTTTGATGACTTCGAACTCCTGACCGTTTCTACTAAAAATACA	4
175	AAGTATATTTTGTAGTCTTTGGTATGAATCGAGACCATCCTGGTCAACACTGTGAAAACC	8
176	GGAGTTTCATCATTTTATCAGGGTGGTCTCGAGGAATTTATCCATTTCTTCTAGATTTTC	19
177	ACTTTGGTTCATTTACATCTTTAATTGATCGAACTCCTGACCTCAGATCAGGTGATCTGC	3
178	CATTTCTTAAAAGAAGACATAAAAATGGTCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
179	CACATCTAAACTCCTGAAATTCTTCTGTTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
180	CAAAAATACATTTATCAGAGCTAAAAAATCGAACTCCTGACCTCACGTAATTCTCCCACC	12

181	GATAGATGATAGGTGATTGTTAGATTGATCGAACTCCTGACCTCACGTAATTCTCCCACC	12
182	AGGGAGATTCCGTCTAAAAAAAAAAATGTCGAACTCCTGACCTTATGATCCATCCACCTC	1
183	CAAGACTCTGTCTCAAGCAAAAAAAAAATCGAACTCCTGACACCTCAGGTGATCTACCTG	8
184	GAAAATCTAGAAGAAATGGACAAATTCCTCGAACTCCTGACCTCACATTCCTGTATTTTC	4
185	TAGAGTAGTCTCATCTTCTTATAAAACATCGAACTCCTGACCTCAGGATTTGCCAGCCTC	1
186	GGGAAAAGTTGCAAAAAAAAAAAAGCAATCGAACTCCTGACCTCAACAGATCCTCCTGCT	2
187	AATGCCAACTTCAGATTTTAGTCTCCTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
188	TGTCATCTGTTCATACAATGCTAAAAATTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
189	AATTAAAACATTTTGAAAAATGTAAGCATCGAACTCCTGACCTGATGATCCCCCTACTTG	5
190	GCATATTAATTTCAAGATAGCAGTCAATTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
191	GGCTTTTGATTATTCACACAAGATATGATCGAACTCCTGACCTGATGATCCCCCTACTTG	5
192	TCTACACATTTATTGTGAACTTACCTCTTCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
193	AATTTATGTTATAGCGATTACATCTAGATCGATCTCCTGACCTTGTGTTTCACCTGCCTT	19
194	TCTTCCATCTACAGAATTTTAATTAGAGTCGAACTCCTGATCTCGTGATATGCTGGCCTC	3
195	TAACTCATTTCAGCATTTCTTTTTTTTTTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
196	GTTGCTTTAAGTGACGGAGTCCACAAGATCGAACTCCTGACCTCAAGTAGTTCTTCCACC	3
197	TAGTATTCAGAAATGGGGAGATTATTGTTCGAACTCCTGACCTCAGAAGATTTGCCTGCC	7
198	AGTAGAGACCACTTTGACCAGGCTGGTCTCGAGGAATTTATCCATTTCTTCTAGATTTTC	3
199	CAGATAGGTAAGTTACTAAAGAGGAAAATCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
200	CATTCCATATCTATACCAATGTTTCACTTCGAACTCCTGACCTGATGATCCCCCTACTTG	5
201	AACACCAACTTCAGATTTTAGTCTGCTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT	22
202	TCCCTGAGTTATGCAGCTCTTCCAAATGTCGAACTCCTGACCTCAGGAGTTCCACCCACC	1
203	TTTATTCTTTCTTTGTGTTATAAGCAATTCGAACTCCTGACCTGATGATCCCCCTACTTG	5
204	TGTATTTTTAGTAGAAACGGTCAGGAGTTCGATGGCATATAGTTGTACACTACAGTGATT	4
205	AGCTACCTTTCAGGGGAAATTATTTTTTTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
206	TCATTAGTTGCCTGGAGACAAATTTGAGTCGAACTCCTGACCTCAAGGCCCAGTCAGCCT	X
207	TATTTATATTCCTTAATGATGTAACTTCTCGAGACCAGCCTGACTGATATTGTGAAACCC	1
208	CAAAGGCTCTAGGTGGCTGATTAAAGCATCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
209	AAGAGGAAGTTATAGTTAATGGAGAGTTTCGATCTCCTGACCTTGTCATTCTCCCATCTC	12
210	AGGTGTAAAAAATTATAAAAGTATTAATTCGATCTCCTGACCTAGTGATTGGCCCTCCTC	17
211	ACTGAGGATACCAATGACTCCAGCATTCTCGAGACCAGCCTGACTGATATTGTGAAACCC	1
212	ATCTTAGAAACGGTAAACATCTCAAATATCGAACTCCTGACCTCGCGGTCTACCAGCCTT	1
213	AAAATAAATTAATCCCAAACTTGGTTAGTCGAACTCCTGACCTGATGATCCCCCTACTTG	5
214	GACCTAAGGATTAAGAAGATTAATGGAGTCGATCTCCTGACATCGTGATCTATCCGCCTC	5
215	GAATGAAATGTCATTCTTTTTTGTTTGTTCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
216	TCACCCTATCCAATTTTTACTGCTACATTCGAACTCCTGACCTCAGGATTTGCCAGCCTC	1
217	TAATTTATACAAGTAGAAAAATTCTAGGTCGAACTCCTGACCTCAAAAGATCTGCTCGCT	11
218	GTCTTTTGCCATATTAGTCTGTCTGGTCTCGATGCAAAAATCCTCAATAAAATACTGGCA	18
219	CTAGCACCAAACTTCTCATTTCAGACTTTCGAGACCATCCTGGTCAACACTGTGAAAACC	8
220	TTCACAACTATTCACTGCAGAAAACAAGTCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
221	ACATCTTTTTGCTTTTTTGCATTTAGTGTCGAGGAGTATCTTTGTGATGTTCTCTGTATT	3
222	AGTAATAGACTTAAAGATGAAAAGTCATTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA	8
223	TCCTGTTAAGCATATTATTGATGGGCTTTCGAACTCCTGATCTCGTGATATGCTGGCCTC	3
224	ATTGATTAAAAAAAAAGGGAAGACAACATCGAGACCAGCCTGTCCACCATGGTGGAACCC	17
225	CTCATAATTGGTTAACAATGAGGTTTTTTCGAACTCCTGACCTGAAGGGATCTGTCTGCC	11
226	ATAAACCTTTATTTTAAAATTCTTCTTTTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA	8
227	AAATTAATGGATATTTTCCTTTGAAGGGTCGAACTCCTGAGCTCAAGACCTCCCAAAGTG	13
228	CCATCCATAAGGTTTTTAGGAAAAAAACTCGAGACCATCCTGGTCAACACTGTGAAAACC	8
229	GTTTTGTCACAGTAATAAATCAATCAGTTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA	8
230	TACTAAAAATTATTTTATAGAATGTCCCTCGAGACCAGCCTGGGTAATATTGCAAGACAC	6
231	TGAGATTTTGTCTCAAAAAAAAAAAAAGTCGAACTCCTGACCTCAGATGATTCATCTGCC	22
232	TTCAGGCCACGTGGTCCCAGATGTGAAGTCGAACTCCTGACCTCAGTGTTCCACGCACCT	21

233	CTTTAGAAGCTACTCTTTATATACTCGCTCGAGACCAGACTGGATAACAAGGCAAAACCC	3
234	ACACCATCACTTTTTCTTTTTGATATCATCGAACTCCTGACCTCAGATGATTCATCTGCC	22
235	AGCATAGATCATACTTAGTGAGAGGCTTTCGAACTCCTGACCTCAAAAAATCCACCACCT	4
236	AGCAGAAGAAAATAAGTGAAGTCTAACATCGAACTCATGACCTCAGGTTATCCTCCTGCC	20
237	TTTGCATATTGTGACTATCCAGAGGCATTCGAACTCCTGACTATAGTTGATCCACCCACC	19
238	CAATGTACAAAAAAAGTTTTTTTTTTTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5
239	TGCATTGTACATAGTTAGATCGCAGAGATCGAACTCCTGACCTCATCATTCACCCACCTC	4
240	ACACAAATAAAATAGGAGTCCGGTGACCTCGAGACCATCCTGGCTAATTTGGTGAAACCC	X

Table 1.b3

	Probe Location			
no.	**Start1**	**End1**	**Start2**	**End2**
121	94595015	94595044	94670403	94670432
122	68146587	68146616	68359454	68359483
123	29701157	29701186	29730901	29730930
124	68002067	68002096	68133246	68133275
125	172498979	172499008	172612670	172612699
126	66666301	66666330	66795523	66795552
127	11729568	11729597	11948494	11948523
128	69494759	69494788	69586434	69586463
129	92741419	92741448	92789459	92789488
130	64986328	64986357	65234347	65234376
131	83554934	83554963	83699493	83699522
132	50885099	50885128	50961393	50961422
133	8849994	8850023	8956668	8956697
134	27943966	27943995	28172856	28172885
135	31659982	31660011	31910751	31910780
136	2903953	2903982	3126002	3126031
137	170416236	170416265	170607534	170607563
138	55920350	55920379	56075452	56075481
139	76572659	76572688	76702502	76702531
140	8913811	8913840	8956668	8956697
141	74537629	74537658	74660809	74660838
142	37150446	37150475	37192261	37192290
143	131696865	131696894	131751073	131751102
144	26425347	26425376	26579346	26579375
145	28565053	28565082	28758507	28758536
146	187141585	187141614	187212680	187212709
147	193528757	193528786	193673928	193673957
148	154421616	154421645	154609634	154609663
149	75703705	75703734	75776837	75776866
150	101411215	101411244	101605465	101605494
151	7670763	7670792	7738423	7738452
152	223267388	223267417	223450575	223450604
153	25258619	25258648	25482040	25482069
154	68193421	68193450	68359454	68359483
155	68188549	68188578	68359454	68359483
156	229082952	229082981	229284320	229284349
157	83574424	83574453	83699493	83699522
158	25264415	25264444	25482040	25482069

159	99618650	99618679	99763080	99763109
160	55924151	55924180	56075452	56075481
161	74586621	74586650	74675201	74675230
162	109359721	109359750	109570169	109570198
163	27834286	27834315	28029816	28029845
164	76572659	76572688	76657095	76657124
165	109733194	109733223	109801145	109801174
166	70054093	70054122	70318904	70318933
167	229261742	229261771	229284320	229284349
168	60542075	60542104	60746280	60746309
169	93202916	93202945	93228756	93228785
170	34029971	34030000	34080961	34080990
171	192831652	192831681	192941419	192941448
172	112153186	112153215	112230263	112230292
173	30068334	30068363	30144496	30144525
174	177314722	177314751	177434165	177434194
175	8573976	8574005	8694306	8694335
176	15474786	15474815	15596059	15596088
177	57444778	57444807	57467338	57467367
178	9685855	9685884	9866924	9866953
179	8810597	8810626	8956668	8956697
180	8725013	8725042	8956668	8956697
181	8733879	8733908	8956668	8956697
182	150318344	150318373	150519621	150519650
183	129814186	129814215	129899085	129899114
184	70375882	70375911	70476553	70476582
185	219996898	219996927	220133229	220133258
186	85732325	85732354	85782917	85782946
187	25482040	25482069	25528038	25528067
188	8895121	8895150	8956668	8956697
189	30065211	30065240	30144496	30144525
190	8956668	8956697	9010388	9010417
191	30100029	30100058	30144496	30144525
192	9569884	9569913	9685855	9685884
193	42510309	42510338	42637410	42637439
194	158528613	158528642	158576895	158576924
195	8900311	8900340	8956668	8956697
196	138621454	138621483	138764531	138764560
197	29905019	29905048	30016615	30016644
198	48676965	48676994	48843155	48843184
199	193555495	193555524	193673928	193673957
200	30144496	30144525	30260018	30260047
201	25271911	25271940	25482040	25482069
202	27806033	27806062	28029816	28029845
203	30055952	30055981	30144496	30144525
204	177265270	177265299	177434165	177434194
205	27573635	27573664	27705009	27705038
206	139896830	139896859	140020668	140020697
207	99469548	99469577	99714372	99714401
208	193673928	193673957	193725309	193725338
209	56317771	56317800	56415252	56415281
210	27705009	27705038	27822761	27822790

211	99649438	99649467	99714372	99714401
212	35177872	35177901	35287827	35287856
213	30008008	30008037	30144496	30144525
214	67182229	67182258	67213799	67213828
215	109359721	109359750	109566548	109566577
216	219989554	219989583	220133229	220133258
217	78965089	78965118	79126623	79126652
218	539298	539327	586366	586395
219	8694306	8694335	8731364	8731393
220	193528790	193528819	193673928	193673957
221	70755421	70755450	70897305	70897334
222	24021398	24021427	24161636	24161665
223	158576895	158576924	158789551	158789580
224	69180491	69180520	69430126	69430155
225	65105086	65105115	65228517	65228546
226	24161636	24161665	24305020	24305049
227	50104088	50104117	50162858	50162887
228	8639046	8639075	8694306	8694335
229	24130009	24130038	24161636	24161665
230	31717280	31717309	31846794	31846823
231	38808898	38808927	38973252	38973281
232	46079313	46079342	46281766	46281795
233	105093921	105093950	105278353	105278382
234	38707805	38707834	38808898	38808927
235	154421616	154421645	154583280	154583309
236	4737708	4737737	4890419	4890448
237	55395030	55395059	55609242	55609271
238	76481369	76481398	76572659	76572688
239	163160502	163160531	163222961	163222990
240	2461227	2461256	2530522	2530551

Table 1.b4

	4 kb Sequence Location				
no.	**Chr**	**Start1**	**End1**	**Start2**	**End2**
121	14	94591045	94595044	94666433	94670432
122	2	68146587	68150586	68359454	68363453
123	19	29697187	29701186	29726931	29730930
124	10	67998097	68002096	68133246	68137245
125	3	172498979	172502978	172612670	172616669
126	11	66662331	66666330	66795523	66799522
127	1	11725598	11729597	11944524	11948523
128	12	69490789	69494788	69582464	69586463
129	6	92737449	92741448	92785489	92789488
130	1	64986328	64990327	65230377	65234376
131	9	83554934	83558933	83695523	83699522
132	19	50881129	50885128	50961393	50965392
133	12	8849994	8853993	8956668	8960667
134	13	27943966	27947965	28172856	28176855
135	5	31659982	31663981	31910751	31914750
136	3	2899983	2903982	3122032	3126031

137	3	170416236	170420235	170607534	170611533
138	18	55916380	55920379	56075452	56079451
139	5	76572659	76576658	76698532	76702531
140	12	8913811	8917810	8956668	8960667
141	5	74537629	74541628	74656839	74660838
142	7	37146476	37150475	37188291	37192290
143	9	131692895	131696894	131751073	131755072
144	6	26425347	26429346	26579346	26583345
145	22	28561083	28565082	28754537	28758536
146	3	187141585	187145584	187208710	187212709
147	1	193524787	193528786	193673928	193677927
148	4	154421616	154425615	154605664	154609663
149	16	75703705	75707704	75772867	75776866
150	10	101411215	101415214	101601495	101605494
151	19	7666793	7670792	7738423	7742422
152	2	223263418	223267417	223446605	223450604
153	22	25254649	25258648	25482040	25486039
154	2	68189451	68193450	68359454	68363453
155	2	68188549	68192548	68359454	68363453
156	1	229078982	229082981	229284320	229288319
157	9	83570454	83574453	83695523	83699522
158	22	25264415	25268414	25482040	25486039
159	1	99618650	99622649	99759110	99763109
160	18	55920181	55924180	56075452	56079451
161	17	74582651	74586650	74671231	74675230
162	1	109359721	109363720	109566199	109570198
163	1	27834286	27838285	28029816	28033815
164	5	76572659	76576658	76653125	76657124
165	4	109733194	109737193	109797175	109801174
166	1	70054093	70058092	70318904	70322903
167	1	229261742	229265741	229284320	229288319
168	14	60538105	60542104	60742310	60746309
169	11	93198946	93202945	93228756	93232755
170	12	34029971	34033970	34076991	34080990
171	3	192827682	192831681	192941419	192945418
172	1	112149216	112153215	112230263	112234262
173	5	30064364	30068363	30144496	30148495
174	4	177310752	177314751	177430195	177434194
175	8	8573976	8577975	8694306	8698305
176	19	15474786	15478785	15596059	15600058
177	3	57440808	57444807	57467338	57471337
178	11	9685855	9689854	9862954	9866953
179	12	8806627	8810626	8956668	8960667
180	12	8725013	8729012	8956668	8960667
181	12	8729909	8733908	8956668	8960667
182	1	150314374	150318373	150515651	150519650
183	8	129814186	129818185	129899085	129903084
184	4	70371912	70375911	70472583	70476582
185	1	219996898	220000897	220133229	220137228
186	2	85732325	85736324	85782917	85786916
187	22	25482040	25486039	25524068	25528067
188	12	8895121	8899120	8956668	8960667

189	5	30065211	30069210	30144496	30148495
190	12	8956668	8960667	9006418	9010417
191	5	30096059	30100058	30144496	30148495
192	11	9565914	9569913	9685855	9689854
193	19	42510309	42514308	42633440	42637439
194	3	158524643	158528642	158576895	158580894
195	12	8896341	8900340	8956668	8960667
196	3	138617484	138621483	138760561	138764560
197	7	29905019	29909018	30016615	30020614
198	3	48672995	48676994	48843155	48847154
199	1	193551525	193555524	193673928	193677927
200	5	30144496	30148495	30256048	30260047
201	22	25267941	25271940	25482040	25486039
202	1	27802063	27806062	28029816	28033815
203	5	30055952	30059951	30144496	30148495
204	4	177265270	177269269	177430195	177434194
205	17	27573635	27577634	27705009	27709008
206	X	139896830	139900829	140016698	140020697
207	1	99465578	99469577	99710402	99714401
208	1	193673928	193677927	193721339	193725338
209	12	56313801	56317800	56415252	56419251
210	17	27705009	27709008	27818791	27822790
211	1	99645468	99649467	99710402	99714401
212	1	35173902	35177901	35287827	35291826
213	5	30008008	30012007	30144496	30148495
214	5	67178259	67182258	67213799	67217798
215	1	109359721	109363720	109562578	109566577
216	1	219985584	219989583	220133229	220137228
217	11	78965089	78969088	79122653	79126652
218	18	539298	543297	582396	586395
219	8	8694306	8698305	8727394	8731393
220	1	193528790	193532789	193673928	193677927
221	3	70751451	70755450	70897305	70901304
222	8	24017428	24021427	24161636	24165635
223	3	158576895	158580894	158785581	158789580
224	17	69176521	69180520	69430126	69434125
225	11	65101116	65105115	65228517	65232516
226	8	24161636	24165635	24301050	24305049
227	13	50104088	50108087	50158888	50162887
228	8	8635076	8639075	8694306	8698305
229	8	24126039	24130038	24161636	24165635
230	6	31713310	31717309	31846794	31850793
231	22	38808898	38812897	38969282	38973281
232	21	46075343	46079342	46277796	46281795
233	3	105089951	105093950	105278353	105282352
234	22	38707805	38711804	38808898	38812897
235	4	154421616	154425615	154579310	154583309
236	20	4733738	4737737	4886449	4890448
237	19	55395030	55399029	55609242	55613241
238	5	76477399	76481398	76572659	76576658
239	4	163156532	163160531	163218991	163222990
240	X	2457257	2461256	2530522	2534521

Table 1.b5

	NESTED PCR PRIMER SET	
no.	probe	Primer ID
121	Hg38_14_94590755_94595046_94660913_94670434_FF	OBD183-181
122	Hg38_2_68146585_68154467_68359452_68365969_RR	OBD183-021
123	Hg38_19_29696989_29701188_29727590_29730932_FF	OBD183-1373
124	Hg38_10_67996987_68002098_68133244_68143089_FR	OBD183-285
125	Hg38_3_172498977_172504898_172612668_172616740_RR	OBD183-1377
126	Hg38_11_66660876_66666332_66795521_66799004_FR	OBD183-149
127	Hg38_1_11722709_11729599_11945928_11948525_FF	OBD183-325
128	Hg38_12_69485433_69494790_69582845_69586465_FF	OBD183-161
129	Hg38_6_92733887_92741450_92775882_92789490_FF	OBD183-037
130	Hg38_1_64986326_64990105_65229466_65234378_RF	OBD183-377
131	Hg38_9_83554932_83574455_83691585_83699524_RF	OBD183-1381
132	Hg38_19_50878674_50885130_50961391_50964466_FR	OBD183-289
133	Hg38_12_8849992_8853563_8956666_8971971_RR	OBD183-337
134	Hg38_13_27943964_27948276_28172854_28181281_RR	OBD183-193
135	Hg38_5_31659980_31666153_31910749_31916612_RR	OBD183-001
136	Hg38_3_2897600_2903984_3121830_3126033_FF	OBD183-1385
137	Hg38_3_170416234_170418115_170607532_170615844_RR	OBD183-1389
138	Hg38_18_55916670_55920381_56075450_56084543_FR	OBD183-1393
139	Hg38_5_76572657_76583168_76698020_76702533_RF	OBD183-329
140	Hg38_12_8913809_8922295_8956666_8971971_RR	OBD183-357
141	Hg38_5_74537627_74543794_74656276_74660840_RF	OBD183-277
142	Hg38_7_37143709_37150477_37190622_37192292_FF	OBD183-257
143	Hg38_9_131690419_131696896_131751071_131753768_FR	OBD183-1397
144	Hg38_6_26425345_26428181_26579344_26586907_RR	OBD183-097
145	Hg38_22_28560976_28565084_28753634_28758538_FF	OBD183-165
146	Hg38_3_187141583_187148120_187202075_187212711_RF	OBD183-085
147	Hg38_1_193519461_193528788_193673926_193687017_FR	OBD183-217
148	Hg38_4_154421614_154428471_154600623_154609665_RF	OBD183-105
149	Hg38_16_75703703_75711017_75770470_75776868_RF	OBD183-073
150	Hg38_10_101411213_101417434_101602840_101605496_RF	OBD183-081
151	Hg38_19_7668688_7670794_7738421_7741267_FR	OBD183-1401
152	Hg38_2_223262711_223267419_223446116_223450606_FF	OBD183-1405
153	Hg38_22_25253412_25258650_25482038_25486782_FR	OBD183-1409
154	Hg38_2_68188547_68193452_68359452_68365969_FR	OBD183-1413
155	Hg38_2_68188547_68193452_68359452_68365969_RR	OBD183-1417
156	Hg38_1_229073105_229082983_229284318_229294264_FR	OBD183-1421
157	Hg38_9_83554932_83574455_83691585_83699524_FF	OBD183-1425
158	Hg38_22_25264413_25271942_25482038_25486782_RR	OBD183-1429
159	Hg38_1_99618648_99629858_99759006_99763111_RF	OBD183-1433
160	Hg38_18_55921930_55924182_56075450_56084543_FR	OBD183-1437
161	Hg38_17_74584319_74586652_74671518_74675232_FF	OBD183-1441
162	Hg38_1_109359719_109366704_109566782_109570200_RF	OBD183-1445
163	Hg38_1_27834284_27836433_28029814_28033207_RR	OBD183-1449
164	Hg38_5_76572657_76583168_76654480_76657126_RF	OBD183-1453
165	Hg38_4_109733192_109734599_109791099_109801176_RF	OBD183-1457
166	Hg38_1_70054091_70068840_70318902_70321099_RR	OBD183-1461

167	Hg38_1_229261740_229263861_229284318_229294264_RR	OBD183-1465
168	Hg38_14_60530277_60542106_60741580_60746311_FF	OBD183-1469
169	Hg38_11_93198707_93202947_93228754_93237221_FR	OBD183-1473
170	Hg38_12_34029969_34035740_34074510_34080992_RF	OBD183-1477
171	Hg38_3_192827117_192831683_192941417_192949607_FR	OBD183-1481
172	Hg38_1_112145907_112153217_112230261_112242505_FR	OBD183-1485
173	Hg38_5_30065209_30068365_30144494_30156052_FR	OBD183-1489
174	Hg38_4_177311798_177314753_177426344_177434196_FF	OBD183-1493
175	Hg38_8_8573974_8579178_8694304_8696852_RR	OBD183-1497
176	Hg38_19_15474784_15476319_15596057_15603844_RR	OBD183-1501
177	Hg38_3_57432399_57444809_57467336_57470926_FR	OBD183-1505
178	Hg38_11_9685853_9690988_9860564_9866955_RF	OBD183-1509
179	Hg38_12_8803939_8810628_8956666_8971971_FR	OBD183-1513
180	Hg38_12_8725011_8729420_8956666_8971971_RR	OBD183-1517
181	Hg38_12_8729585_8733910_8956666_8971971_FR	OBD183-1521
182	Hg38_1_150313909_150318375_150517096_150519652_FF	OBD183-1525
183	Hg38_8_129814184_129820472_129899083_129904705_RR	OBD183-1529
184	Hg38_4_70364253_70375913_70475197_70476584_FF	OBD183-1533
185	Hg38_1_219996896_220002127_220133227_220135485_RR	OBD183-1537
186	Hg38_2_85732323_85740233_85782915_85784976_RR	OBD183-1541
187	Hg38_22_25482038_25486782_25521454_25528069_RF	OBD183-1545
188	Hg38_12_8895119_8900342_8956666_8971971_RR	OBD183-1549
189	Hg38_5_30065209_30068365_30144494_30156052_RR	OBD183-1553
190	Hg38_12_8956666_8971971_9003019_9010419_RF	OBD183-1557
191	Hg38_5_30097465_30100060_30144494_30156052_FR	OBD183-1561
192	Hg38_11_9564044_9569915_9685853_9690988_FR	OBD183-1565
193	Hg38_19_42510307_42515066_42619854_42637441_RF	OBD183-1569
194	Hg38_3_158515927_158528644_158576893_158580745_FR	OBD183-1573
195	Hg38_12_8895119_8900342_8956666_8971971_FR	OBD183-1577
196	Hg38_3_138618464_138621485_138761567_138764562_FF	OBD183-1581
197	Hg38_7_29905017_29911792_30016613_30019069_RR	OBD183-1585
198	Hg38_3_48672113_48676996_48843153_48846436_FR	OBD183-1589
199	Hg38_1_193547269_193555526_193673926_193687017_FR	OBD183-1593
200	Hg38_5_30144494_30156052_30253195_30260049_RF	OBD183-1597
201	Hg38_22_25264413_25271942_25482038_25486782_FR	OBD183-1601
202	Hg38_1_27797543_27806064_28029814_28033207_FR	OBD183-1605
203	Hg38_5_30055950_30065209_30144494_30156052_RR	OBD183-1609
204	Hg38_4_177265268_177272349_177426344_177434196_RF	OBD183-1613
205	Hg38_17_27573633_27580584_27705007_27714184_RR	OBD183-1617
206	Hg38_X_139896828_139900158_140013151_140020699_RF	OBD183-1621
207	Hg38_1_99460537_99469579_99708395_99714403_FF	OBD183-1625
208	Hg38_1_193673926_193687017_193723402_193725340_RF	OBD183-1629
209	Hg38_12_56314794_56317802_56415250_56418662_FR	OBD183-1633
210	Hg38_17_27705007_27714184_27819635_27822792_RF	OBD183-1637
211	Hg38_1_99641071_99649469_99708395_99714403_FF	OBD183-1641
212	Hg38_1_35174790_35177903_35287825_35293685_FR	OBD183-1645
213	Hg38_5_30008006_30016904_30144494_30156052_RR	OBD183-1649
214	Hg38_5_67178844_67182260_67213797_67219491_FR	OBD183-1653
215	Hg38_1_109359719_109366704_109565116_109566579_RF	OBD183-1657
216	Hg38_1_219983690_219989585_220133227_220135485_FR	OBD183-1661
217	Hg38_11_78965087_78972317_79119884_79126654_RF	OBD183-1665
218	Hg38_18_539296_550050_584723_586397_RF	OBD183-1669

219	Hg38_8_8694304_8696852_8726052_8731395_RF	OBD183-1673
220	Hg38_1_193528788_193530846_193673926_193687017_RR	OBD183-1677
221	Hg38_3_70749410_70755452_70897303_70900588_FR	OBD183-1681
222	Hg38_8_24010357_24021429_24161634_24170554_FR	OBD183-1685
223	Hg38_3_158576893_158580745_158781885_158789582_RF	OBD183-1689
224	Hg38_17_69164151_69180522_69430124_69435332_FR	OBD183-1693
225	Hg38_11_65101566_65105117_65228515_65232564_FR	OBD183-1697
226	Hg38_8_24161634_24170554_24298873_24305051_RF	OBD183-1701
227	Hg38_13_50104086_50113860_50155566_50162889_RF	OBD183-1705
228	Hg38_8_8634577_8639077_8694304_8696852_FR	OBD183-1709
229	Hg38_8_24119510_24130040_24161634_24170554_FR	OBD183-1713
230	Hg38_6_31710695_31717311_31846792_31848234_FR	OBD183-1717
231	Hg38_22_38808896_38820306_38970835_38973283_RF	OBD183-1721
232	Hg38_21_46072387_46079344_46279083_46281797_FF	OBD183-1725
233	Hg38_3_105082976_105093952_105278351_105281788_FR	OBD183-1729
234	Hg38_22_38707803_38709080_38808896_38820306_RR	OBD183-1733
235	Hg38_4_154421614_154428471_154574662_154583311_RF	OBD183-1737
236	Hg38_20_4736115_4737739_4885862_4890450_FF	OBD183-1741
237	Hg38_19_55395028_55396801_55609240_55610480_RR	OBD183-1745
238	Hg38_5_76475531_76481400_76572657_76583168_FR	OBD183-1749
239	Hg38_4_163153577_163160533_163215420_163222992_FF	OBD183-1753
240	Hg38_X_2456239_2461258_2530520_2531841_FR	OBD183-1757

Table 1.b6

	NESTED PCR PRIMER SET		
no.	Primer Sequence	Primer ID	Primer Sequence
121	GCCAAAACAAAGTGTCCTCATCTGGG	OBD183-183	AAGGGTATGGGAAAACAGGCATCTGC
122	GAGTCTCACTTAGAACCTGCTACTGT	OBD183-023	CCCAGAACAGAGAAAGGGCATTAGGG
123	GGGTCGGCATCGGAAGCTTGAAATT	OBD183-1375	GAGAAGCGGGGAGTTACCGGTCAAT
124	AACACCAACTCCTTCCCCATTCTAAT	OBD183-287	GGACCCACAAAACTTGACTCTCTTCC
125	ACGAGCATACAGACAATCGTCGTCG	OBD183-1379	ATACTCTCCAGCCGACTGAAAACGG
126	ATGGGAACTCCAGACACCAATGGCTG	OBD183-151	AAACCTACCGCTTTGACCTCACAGAA
127	TCTCACCCCTACTCCCACCTCAC	OBD183-327	GAAGACACAGCAGAGGACACAGC
128	CCAGAGTGAGTCAAGGAGGCACG	OBD183-163	TTTCAGGCGTCCCTTTCCCTTGC
129	CTGACCCATTTTCCCTCTCCTGTGAT	OBD183-039	GCAGGAACAACAGAAAGTAGAAACAG
130	AGGGATGGTGGCTCAATGCTGCC	OBD183-379	CCTGGAGAAAACTTGCTGCCGAG
131	GAGAAAAAACCACTGGAAATGGCAG	OBD183-1383	TACCAGCTCGACATTCGCGTGCCCC
132	TCCTGGACAGTCAGCAAACCTGC	OBD183-291	CAGCCAGCAGAGACAGGAAGTGC
133	GTCAGAGGCAAGGAGGAAGGACC	OBD183-339	GCGGAACTTCAAAGGTCAGGTGC
134	TCAGACAGCCTTCCCAAGCCCTG	OBD183-195	ACACACTTTCACTCCCTGTCCCC
135	TCTGTAACACCAAGTGGAAAGCAGTG	OBD183-003	TAAAAGCAGGAACTGGCTGGGCGTG
136	CGGCCAACCGTTCATTGGAGCAATA	OBD183-1387	GCTAGGCAACAGCTGGATCTACAGA
137	AGTGGATGGATGAGCGCCACATGTA	OBD183-1391	AGCGCGATTGTCGGGCACATTAGAT
138	TTGCCTAATGGGCCTCTTTGGTCAT	OBD183-1395	TAAGTCACAGTGACAGCTTCTACTT
139	CCTTAGGATTTTCTCAACAAGCCATT	OBD183-331	CCTCCAGCGAGACCACTCCTAAATAA
140	CACCTCAACTCCAAGAAGGCGGG	OBD183-359	GCGGAACTTCAAAGGTCAGGTGC
141	CCAGATGCTCCCAATCCCAGTCA	OBD183-279	TAGTGGATTCCTGGCTGGGCACG
142	AACCCAACCGTCCAGAGTCCACG	OBD183-259	CCTGTGGAAGGTGGGACTATGAG
143	GGCTAGGTCGTCGTGCGCTCCGTCT	OBD183-1399	GTACGCAGGGGACCAGTCGATAGCT
144	ACCCTGTAGTCCTGGGCTCAAGAGAT	OBD183-099	TGCCCAATAAAAGAAACCATCAAGGG

145	GGGAGGCACAGGAAGGGAAGTTG	OBD183-167	GCTGCCTAAGGGTCTCTTTGGTC
146	GAGCAGAGTGAGGACTGGAATCC	OBD183-089	CCTGGGCTCAACCTTGCTGGACT
147	GTATCAGAGGTAATCAAGTAACCAAG	OBD183-219	ATTACCTCATTTATGCCTCACACCAT
148	GCTACGGTTCACAAGGTGCTTAGAAA	OBD183-1051	GGGAAGGAAAAGAGGGCAAGTCC
149	CCTGACCCACCAAGACTGAACCA	OBD183-077	GTGCCACCCTGGGCTGGATGATT
150	GCCTCTGGTGCCCTTTTGGGTTG	OBD183-085	GAGCAGAGTGAGGACTGGAATCC
151	AGGCTACCTTGACGCTCACCCTG	OBD183-1403	GGAGTAGGTGGAGCCCAAAGGAT
152	CACCAGGGTATTTCCCAGCAGCC	OBD183-1407	CTGACCCAGGAAAACCACCCTCA
153	GACCTTCAATACCCAAAGTAAGCCTT	OBD183-1411	CTGTCCCATCTGCCTAAAACCGTTGG
154	CATCTCCCTCCCCTCCTTTCAGC	OBD183-1415	GCTGTCACTCCCAAGAGAAGCCT
155	AATCTTGCTACTGCCCATTAGAAAGG	OBD183-1419	CCCAGAACAGAGAAAGGGCATTAGGG
156	GGGATGTCCTTGCTTGTTCCTGAT	OBD183-1423	GATTCCAAAGGTCCGAAAGCAACGGG
157	CCATCTGCTCCAGGTATGACCCT	OBD183-1427	CCTGGGCTCAACCTTGCTGGACT
158	GGACCTGAATCTTCCACTCTGTCTTT	OBD183-1431	CTGTCCCATCTGCCTAAAACCGTTGG
159	TACCTCTCCTCTCCCCGCAAAACACT	OBD183-1435	ACTGTGACCAAAGGAAGGAAAGCCAT
160	GGCAGTGAATAACCTGTGGAAAGATT	OBD183-1439	CACCCAGTCACCCAGGCTTGTGTA
161	ACAGCCCCATCTCAGGGATAGGTTC	OBD183-1443	ATAAAAGTGGTTGTATTGGCTGGGCG
162	GCATCCTAAGAAAGTCACTATGTGCT	OBD183-1447	GTCACCTTTCGTCTTTTCCATTTCCC
163	CACATCTCAGGTCTACGCCTCTCAAG	OBD183-1451	CAGAACACAGTGAACAACCAGGCATT
164	GATGTGGTCAGTTGTAGGAGCAGACT	OBD183-1455	CCTCCAGCGAGACCACTCCTAAATAA
165	GACAAGATAGTTTTGGATTGCCACCA	OBD183-1459	GGGAAGAAAAGATGGAAGTGGGTCAT
166	GGTGGTAAACATTTGGCTTTTCCCAG	OBD183-1463	AATACAGCGGAGTCAGGGAGGCAAGA
167	GTTACCAGCAAATCTTCCATCAGTTC	OBD183-1467	GATTCCAAAGGTCCGAAAGCAACGGG
168	CTCAAGTCAAGAGAGGAGACAGCCAT	OBD183-1471	CCAGAGACAGGTTGAGGAGTAGAAAG
169	TGTCAAGCGGGGGCCTCAAGTTAT	OBD183-1475	GAAGGACGGAAACCAGAATTACT
170	CGCGGCATCTAATTTTAGTGTATT	OBD183-1479	TTGACTGCGAGTTCGCTACTAGT
171	CCGACTGCCCTTGTCCAATGGTGG	OBD183-1483	ACCCGATGAGTTGCCGACTTTTAGG
172	GCTGCCCTGAAAATGGGAGTCTG	OBD183-1487	GGCAGATGGGAAGCAGCGTCCTA
173	GCGTGATAGACTATGCACTAGGGTC	OBD183-1491	ACGGCCTATTTACCGAGAGCTGTT
174	TTCAGAGCCGGTAGATGTATGGC	OBD183-1495	GAAGGCTGGTTGAATACATGGCAG
175	TACGTGTACGAGCTCCTGCAGGA	OBD183-1499	AGATTGAGGTGTCCTAAACTTAC
176	TCAAATCGCATCCGCCGTGCACA	OBD183-1503	CGGCCATAACACCTTAGCCGTCTC
177	GAGATCGGGCACAGATGTGACTTCT	OBD183-1507	GGGGAATAAGTGACCTATGCACCAG
178	GCGCACGACGTCCTGATCCACCC	OBD183-1511	CGCCGCTTGCGATTTCGACCAAC
179	ATTCCGCCTATACGGATGCGTTC	OBD183-1515	GCGGGAACGGCTGTGCAGTCACA
180	CATACCTATCCCGAATGCTTAAGT	OBD183-1519	CGCTGTGTAGCGGACAGTCTGAG
181	AGGGAGTTACAGGCTTTCAGTAA	OBD183-1523	TACCCTCTCAAGCACGAGATCTAC
182	CTTAAAGTGATGCAGGTACATCCAT	OBD183-1527	GGGCGGGGTAGAAGCCGTCGCTT
183	GTGGAGTGTTTAACACTACCTTCC	OBD183-1531	GGGTCCATGCGGGGGGTAAAACC
184	GGTGTCTCGTGCACACCCTGGTAGC	OBD183-1535	TGTTTAAGAGGTCCGGGCAGCATA
185	ACCTGGAAACCCTCCTGCTGAAATAG	OBD183-1539	AAATCTGGACTCTGCCTTCTTGGAGC
186	CCGCTCTCTCTTCTGTGTCTTGG	OBD183-1543	GGTCAGTGTGGCAAAGTGGGAGC
187	CCCTGCTACAGATGATGCTGCCTG	OBD183-1547	CAGGGTCTGTCCCATCTGCCTAA
188	CCCAGCAGCAACTGTTTATCAGCAAT	OBD183-1551	ACTGCGGAACTTCAAAGGTCAGGTGC
189	GCGCGGCACCCATCTCTCTTCATT	OBD183-1555	AAAAAAGCGGCGCACTTCAGGCAT
190	GCTTATTGTGAACGTTCGAAAGC	OBD183-1559	AAAGGATGGATTTTTGACAATCC
191	CAATGTGGTTTATGTGCTACTGT	OBD183-1563	CGATGTCCAAGCTATGGTCCCTT
192	GAGAGGGTTTGTGAATCTAGGAGCA	OBD183-1567	ACAGCAATGCTAGGGAGCAATAA
193	CCGTGCTTTGAAAATCCCCAGATGTC	OBD183-1571	ATTCTCACTCCCCTACCTTCAGTCTG
194	CGTCGATACTCTCCAGCCGACTGAA	OBD183-1575	ACAGAAGCGCGATTGTCGGGCACAT
195	ACGGGAGAAAAAACCACTGGAAA	OBD183-1579	AGATTATAGTGTTGAAAAAGTCCTT
196	GGCAGTACCAGCTCGACATTCGCGT	OBD183-1583	TTCGACGGCGTGGGGAGTCTCTCCA

197	CCCCCGGCCAACCGTTCATTGGAG	OBD183-1587	CGTGATTTACGGACGCGAATTTA
198	AATAAGTGGATGGATGAGCGCCAC	OBD183-1591	ACATAAGTCACAGTGACAGCTTC
199	TGTATTGCCTAATGGGCCTCTTT	OBD183-1595	ACTTGGCTAGGTCGTCGTGCGCTCC
200	GTCATGCTAGGCAACAGCTGGATC	OBD183-1599	TCTGTACGCAGGGGACCAGTCGATA
201	CCCTGCTACAGATGATGCTGCCTG	OBD183-1603	CAGGGTCTGTCCCATCTGCCTAA
202	CTGCTCCTATAGGGCGTAATGACA	OBD183-1607	CTTCTTGTTGGGACGGCTTTCGTT
203	CCACATATCACGTGGTACAAGGT	OBD183-1611	AGACGTTCTCTTTCCATTTGGATCA
204	ATTCGTGTCCGCGGGCACCTTGAA	OBD183-1615	TTCGGACCGCTTCCGTGGCCGTGAG
205	CCTGGCAAAGCCTTGGGATACAGC	OBD183-1619	GCCATCCCCTACACAGGTTCTCA
206	CATCACCGGCCGGTGCTAAAACCA	OBD183-1623	CGCAGCTTCAGTTACGGGGGCGAAT
207	AAGTTGTGGCCCATACTCGTTTAC	OBD183-1627	GTAACTCCACCACAGAGTACGAC
208	GGGTGACCTGGGCGGAGGCTGCCCT	OBD183-1631	ATTTGCGATGGAACTTGGAGTCTA
209	CGTTGACGCAATATAGGAGAGGAAA	OBD183-1635	GAGGGTTTCCTAACGTGCCTTGC
210	CTGGTATAGAGATTTTGCAGGTA	OBD183-1639	TGTAGCTACCTGACAGGAACTGA
211	GATGCTGCTGGGCAGTCACCCTCC	OBD183-1643	TCCTCGGTCGTAGCCCTTATATT
212	ACACCCCACGATACAAAAACAAGT	OBD183-1647	GCTCAGTACGATTGACGTTTGCTC
213	ACCGCACAATCTTAGGGGATACTTC	OBD183-1651	CGGTTTGTAACGGTGCGGATACC
214	GTTGCTCTAGGACACCGAGCAAA	OBD183-1655	GACAACTCCATCTGCTTCTTCCGT
215	TTGACAACGGGCCGTTGGGAGCAAA	OBD183-1659	CGTGGCAAACATGAAACAAGCTCCA
216	CCCCACCGAGACACTTGTGACTC	OBD183-1663	TCTGGACTCTGCCTTCTTGGAGC
217	AGATTTCAAGTCCGTAGGCTCAG	OBD183-1667	CGTATTCCGGGTCCTGTCGGTAGG
218	CTTTAAAGACTGCACTACTAGTCA	OBD183-1671	TTCTAGCCTACCCTTAAGCTTGT
219	TGTATCCATGGTATCTGTACGTTTG	OBD183-1675	GTGTGCGTACTCGTTGAAGGTGGG
220	TATCAGAAGCCCCCGAAACTAGGT	OBD183-1679	TGAGGATCAACAGACCTCTGTAT
221	CCGCTTGCGACCGTTTAGATGTTTC	OBD183-1683	ACCGAGGGCAGCACCGTGTAACTTC
222	GAACAGGGCTGTTCGCGTGATAC	OBD183-1687	AGGACATCTATGGGGATACATAGG
223	TCGTAAACCTAGATAGTCAACCATG	OBD183-1691	TATGGAGGTCAAGTGCTGTAATTT
224	CTAGTATTTGTCACGTCCTGTATGA	OBD183-1695	ATTCACTTGGCGTCCCCGTTGCG
225	CAGTTTTGATTTCCTTTTCTGACCTC	OBD183-1699	GTTCTGTTTCTTGACCAGTGTGTTGA
226	AAAGATGTCGTGCTACTCCATAC	OBD183-1703	AGGCCTCCACCTACCGATACATGAG
227	CGGGAGATCTAGTAAAGGATGAAAT	OBD183-1707	TGTCCCCTCCCGCATGCAAGCGAT
228	AAATGGGGCGAAATTACGCTGCC	OBD183-1711	ATAGGAATTCAGAGGCTTTAAGGTG
229	TGCTCGTCCTACGAGTGGTAGAGTT	OBD183-1715	GTGGCGCGTTTTTAAACACCGTCC
230	CGTGTAACCCCGACCCAGCAACGT	OBD183-1719	CAGTCGGCCTACCGTCCGCTCCCAA
231	TATTTAGCAGGAGTCGCACTCAG	OBD183-1723	TATGTTACTGTCAGAGGGGCACA
232	GGTTAATGATGGGTTCAGCTCTAA	OBD183-1727	TAATAATATACGGGGCATAGTATA
233	CTTGACAGCCCTCTTTGTGGTTACTC	OBD183-1731	GAATGACGCCGAAGGACTTTGTATCC
234	TAGTCTGTTACGCTGGCCTCTATAT	OBD183-1735	TGACTTCTAGCGCACGACGTCCTGA
235	GAAGTATTCGCATGCGCAACCCCAC	OBD183-1739	CCACCCCATTCCGCCTATACGGATG
236	AGCCAAGCGTGGTTGTACTTCGCCA	OBD183-1743	GTTCCCATACCTATCCCGAATGC
237	ACCTGTCCTTGTGGTTTGCCTAAC	OBD183-1747	TAAGTAAGGGAGTTACAGGCTTTCA
238	AGTACCTGCAGTTTAGTATTAACT	OBD183-1751	TAATCTTAAAGTGATGCAGGTACAT
239	CGAATGCTACGCCGTTACCTCAGC	OBD183-1755	CATCGTGGAGTGTTTAACACTACC
240	TTGGTACATGCAGCAAACACTCAGT	OBD183-1759	TCCTGGTGTCTCGTGCACACCCTGG

Table 1.b7

no.	probe	gene	RPs
241	Hg38_1_238263911_238275028_238361690_238365165_FF	ZP4	48737.12973
242	Hg38_18_60381033_60390027_60592857_60596411_FF	PMAIP1	51696.53899
243	Hg38_22_38732684_38735694_38808896_38820306_RR	GTPBP1	51041.21585

244	Hg38_8_8653178_8657570_8694304_8696852_FR	MFHAS1	53321.30992
245	Hg38_11_102793985_102796912_102892680_102896888_FF	MMP1	51501.90071
246	Hg38_1_193673926_193687017_193848403_193851226_FR	CDC73	55872.3905
247	Hg38_19_42434303_42437498_42510307_42515066_FR	CEACAM1	53501.44381
248	Hg38_8_129814184_129820472_129899083_129904705_FR	FAM49B	55342.69733
249	Hg38_19_41359498_41360630_41453565_41456813_RF	ATP5SL	56454.72932
250	Hg38_1_193673926_193687017_193926526_193929941_RF	CDC73	52504.51484
251	Hg38_12_46821759_46827269_46865284_46879162_FF	PCED1B	52444.49409
252	Hg38_22_28598306_28600429_28753634_28758538_FF	TTC28	53389.05472
253	Hg38_11_9477640_9482033_9685853_9690988_RR	SWAP70	50697.26673
254	Hg38_22_28554668_28559386_28753634_28758538_FF	TTC28	53965.86326
255	Hg38_17_1411117_1412617_1634184_1635993_RF	CRK	53185.52889
256	Hg38_5_74325511_74329920_74537627_74543794_FR	HEXB	58046.45799
257	Hg38_12_14611683_14620949_14668390_14673240_FR	HIST4H4	59701.44705
258	Hg38_X_2345279_2349126_2530520_2531841_FR	CD99	54408.43105
259	Hg38_18_56075450_56084543_56148926_56154674_RF	TCF4	50818.57391
260	Hg38_19_17318586_17321060_17372677_17376287_RR	PLVAP	50867.38498
261	Hg38_12_122518390_122523625_122683979_122688903_FF	HCAR2	67212.53389
262	Hg38_4_4146074_4152493_4280585_4285296_FF	LYAR	54078.12648
263	Hg38_11_118323848_118335396_118462783_118464333_RR	CD3D	57954.67302
264	Hg38_15_72172047_72177812_72350397_72358464_RF	PKM	53340.62932
265	Hg38_12_8956666_8971971_9052225_9059010_RF	A2M	58456.59878
266	Hg38_1_160202241_160208034_160387699_160390980_FR	NCSTN	54296.30822
267	Hg38_22_34722666_34726389_34750116_34757594_FR	TOM1	44837.84123
268	Hg38_18_8623206_8633807_8834563_8839858_RR	RAB12	57961.35429
269	Hg38_3_10166863_10171451_10267732_10269649_RF	IRAK2	58264.83493
270	Hg38_22_37732067_37737457_37944696_37945909_FF	ANKRD54	54981.71707
271	Hg38_11_47310703_47316087_47405431_47407603_RF	SPI1	59891.07706
272	Hg38_10_73661598_73666900_73900120_73903402_RF	CAMK2G	59699.3964
273	Hg38_11_78798294_78806874_78965087_78972317_RR	GAB2	55159.38443
274	Hg38_15_65465777_65469194_65573794_65596385_RF	DPP8	58682.0863
275	Hg38_1_193655980_193663241_193673926_193687017_FR	CDC73	57777.81756
276	Hg38_5_30107211_30110692_30144494_30156052_RR	DROSHA	58365.69232
277	Hg38_18_427721_433761_539296_550050_FR	COLEC12	58064.51858
278	Hg38_12_15684229_15699647_15801742_15806686_FF	EPS8	56946.45375
279	Hg38_19_33180896_33182661_33328178_33332893_FF	CEBPA	61202.44274
280	Hg38_11_78848038_78857286_78965087_78972317_FR	GAB2	58769.84406
281	Hg38_Y_20386719_20398884_20504300_20520750_FR	KDM5D	48417.46255
282	Hg38_20_31369843_31372347_31617243_31621976_RR	DEFB118	59843.41938
283	Hg38_1_147709076_147716288_147799500_147802923_RF	ACP6	53821.33874
284	Hg38_17_30923923_30926868_31150085_31156746_RF	NF1	57251.74647
285	Hg38_9_94033256_94043963_94058786_94067185_FF	BARX1	59735.75802
286	Hg38_5_31866962_31870685_31910749_31916612_RR	GOLPH3	60050.7893
287	Hg38_10_114529344_114531737_114712352_114726311_RF	ABLIM1	55746.96154
288	Hg38_12_64438849_64448996_64463496_64470612_RF	TBK1	61881.88104
289	Hg38_17_35998435_36002770_36030367_36035489_FR	CCL15	65006.71327
290	Hg38_3_154848097_154855651_154966860_154974838_FR	MME	56265.31231
291	Hg38_1_193673926_193687017_193882412_193889924_RF	CDC73	60988.03841
292	Hg38_3_158501077_158507758_158576893_158580745_FR	MLF1	57524.99311
293	Hg38_17_63801674_63804028_64026936_64033184_FF	CD79B	64531.91532
294	Hg38_17_31302844_31307239_31324781_31330350_RR	EVI2B	64284.82246
295	Hg38_17_31224131_31234469_31324781_31330350_RR	EVI2B	60367.16409

296	Hg38_19_42697457_42701566_42762015_42770764_RF	CEACAM8	58661.04435
297	Hg38_8_8422737_8427114_8694304_8696852_RR	MFHAS1	59120.0054
298	Hg38_2_9540565_9545891_9601867_9603721_FR	ADAM17	61151.65322
299	Hg38_6_136360365_136366092_136518089_136523843_RF	MAP3K5	62837.60702
300	Hg38_X_70970170_70972174_71213839_71218089_FF	IL2RG	55780.88443
301	Hg38_5_111518564_111524189_111570082_111578257_FR	CAMK4	53895.56742
302	Hg38_3_87150717_87152334_87167991_87177284_FF	POU1F1	64124.1068
303	Hg38_5_74394031_74404922_74537627_74543794_RR	HEXB	65086.74306
304	Hg38_16_57311821_57315910_57359852_57364698_FR	CCL22	65988.63889
305	Hg38_X_2530520_2531841_2565626_2568771_RF	CD99	59592.42497
306	Hg38_4_104772558_104786165_104802495_104808042_FR	TET2	62339.16643
307	Hg38_16_57156886_57158385_57359852_57364698_RR	CCL22	62836.77792
308	Hg38_14_30757124_30766270_31037033_31039641_RR	COCH	59487.29689
309	Hg38_2_68135773_68139581_68359452_68365969_RR	PLEK	64241.20036
310	Hg38_16_2330922_2335048_2522663_2525074_RF	ATP6V0C	57154.64158
311	Hg38_15_63964667_63969673_64105032_64108785_FF	DAPK2	61998.74552
312	Hg38_22_38681470_38688482_38808896_38820306_RR	GTPBP1	65196.99376
313	Hg38_7_100032804_100034042_100078292_100082051_FR	ZNF3	59483.99451
314	Hg38_3_70698156_70700092_70796347_70803301_FR	FOXP1	50093.92319
315	Hg38_2_120597115_120611528_120697175_120701136_RR	GLI2	64773.43449
316	Hg38_19_48331809_48333020_48561743_48564039_FF	KDELR1	63102.10432
317	Hg38_3_70698156_70700092_70796347_70803301_RR	FOXP1	50518.81561
318	Hg38_5_58504296_58515741_58568633_58574449_FF	GAPT	64526.10527
319	Hg38_1_7824282_7826917_7994232_7998947_FF	PARK7	66312.10271
320	Hg38_X_77765454_77772092_77954363_77959007_RR	ATP7A	65901.89086
321	Hg38_3_158501077_158507758_158576893_158580745_RR	MLF1	64995.94624
322	Hg38_1_193673926_193687017_193851226_193858598_RF	CDC73	67151.59303
323	Hg38_12_116931027_116934300_116959223_116967078_RF	TESC	67895.68024
324	Hg38_17_7665587_7668453_7811362_7813705_FF	EFNB3	68021.43322
325	Hg38_12_87675372_87683936_87811804_87814408_FF	C12orf29	59072.48374
326	Hg38_12_46746378_46756718_46865284_46879162_FF	PCED1B	56348.34876
327	Hg38_12_56269538_56273851_56415250_56418662_FR	IL23A	58735.67365
328	Hg38_7_26158147_26166959_26344790_26347647_FF	SNX10	67515.79006
329	Hg38_4_40800075_40804237_41041101_41047221_RR	RBM47	63952.65387
330	Hg38_5_101857205_101863977_102113262_102119968_RR	SLCO4C1	54021.35936
331	Hg38_22_38970835_38973283_39095838_39099483_FR	APOBEC3A	65531.89713
332	Hg38_5_55874716_55883166_56069488_56074299_RR	IL31RA	62997.34802
333	Hg38_5_30097465_30100060_30144494_30156052_RR	DROSHA	62532.2281
334	Hg38_3_30481415_30486448_30652453_30660274_RR	TGFBR2	62959.29829
335	Hg38_19_49754688_49759950_49902219_49904931_RR	AKT1S1	64821.01619
336	Hg38_10_26780453_26788708_26959699_26967983_RR	ABI1	54431.98717
337	Hg38_8_129796093_129803717_129899083_129904705_RR	FAM49B	57906.95109
338	Hg38_5_30008006_30016904_30144494_30156052_FR	DROSHA	65273.34565
339	Hg38_11_65076105_65079526_65228515_65232564_RR	CAPN1	64028.9213
340	Hg38_19_51523072_51524696_51712234_51719472_FR	SIGLEC14	64127.44789

Table 1.c1

no.	FC:(class1/class2)	pfp	P.value	CCSs
241	1.199199629	0.000272499	0.00019075	Immune
242	1.198713718	0.000190318	0.0000653656727182565	Immune

243	1.19837051	0.000270662	0.000183447	Immune
244	1.197935801	0.000190318	0.0000608052374842399	Immune
245	1.197701976	0.000190318	0.0000671711653133743	Immune
246	1.197665727	0.000190318	0.0000442671934832564	Immune
247	1.197042331	0.000236458	0.000140484	Immune
248	1.196532286	0.000211794	0.000110258	Immune
249	1.195802366	0.000190318	0.0000317827878994666	Immune
250	1.195754196	0.000241232	0.000148167	Immune
251	1.195236301	0.000190318	0.0000582936227176780	Immune
252	1.195155906	0.000211794	0.000109982	Immune
253	1.195084632	0.000412196	0.00034188	Immune
254	1.19473551	0.000262232	0.000165052	Immune
255	1.194662754	0.000270694	0.000188378	Immune
256	1.194570441	0.000190318	0.0000212317180631082	Immune
257	1.194388741	0.000190318	0.0000306671752919555	Immune
258	1.194096109	0.000339175	0.000263359	Immune
259	1.194065862	0.000190585	0.0000747757753947329	Immune
260	1.19390711	0.000236458	0.000140202	Immune
261	1.193203867	0.000595529	0.000538726	Immune
262	1.193183504	0.000203616	0.0000994698869072441	Immune
263	1.193086823	0.000190318	0.0000103911256241961	Immune
264	1.193068914	0.00053272	0.000473181	Immune
265	1.192890687	0.000194259	0.0000868450140076460	Immune
266	1.192862248	0.000190585	0.0000707744116667950	Immune
267	1.191959549	0.001980022	0.001933434	Immune
268	1.191727576	0.000190318	0.0000359457512660268	Immune
269	1.19169403	0.000190318	0.0000335943375029530	Immune
270	1.191457327	0.000190318	0.0000158474036584351	Immune
271	1.190917338	0.000190318	0.0000326879590582544	Immune
272	1.19084303	0.000197577	0.0000935587232378213	Immune
273	1.190744302	0.000275396	0.000194397	Immune
274	1.190504767	0.000190318	0.0000437088524676218	Immune
275	1.190493985	0.000190318	0.0000563295687585460	Immune
276	1.19047063	0.000197577	0.0000926461908220582	Immune
277	1.190369905	0.00103073	0.000982226	Immune
278	1.190186142	0.000190318	0.0000510419758068525	Immune
279	1.189884825	0.000190318	0.0000293967331790486	Immune
280	1.189598135	0.000190318	0.0000456676257843592	Immune
281	1.189191627	0.000915634	0.000861773	Immune
282	1.188928982	0.000190318	0.0000312730642451933	Immune
283	1.188579442	0.000236458	0.000136615	Immune
284	1.188149935	0.00035878	0.000285442	Immune
285	1.188067975	0.000190585	0.0000748475195308771	Immune
286	1.187779274	0.000235024	0.000132037	Immune
287	1.187507007	0.000249741	0.000154252	Immune
288	1.187477184	0.000190318	0.0000880730560530041	Immune
289	1.18733157	0.000190318	0.0000871589813800604	Immune
290	1.187294832	0.000190318	0.0000314803990143427	Immune
291	1.187269786	0.000190585	0.0000742593635192758	Immune
292	1.18676595	0.000508992	0.000450607	Immune
293	1.186090957	0.000190318	0.0000259097607038396	Immune
294	1.185876603	0.000190318	0.0000149849967692310	Immune

295	1.185799969	0.000235024	0.000131543	Immune
296	1.185573628	0.000270662	0.000182572	Immune
297	1.185403394	0.000295776	0.000218048	Immune
298	1.185337077	0.000190318	0.0000275866796060454	Immune
299	1.185296999	0.000190318	0.0000649958849316886	Immune
300	1.185190065	0.000595824	0.000541499	Immune
301	1.184813122	0.000595529	0.00053948	Immune
302	1.184689343	0.000190318	0.0000454574347085092	Immune
303	1.184668406	0.000190318	0.0000306627837990256	Immune
304	1.18465428	0.000190318	0.0000114317814228455	Immune
305	1.184410724	0.000435221	0.000367378	Immune
306	1.184302874	0.000836477	0.000774971	Immune
307	1.18428889	0.000190318	0.0000423498295566599	Immune
308	1.184242905	0.000190318	0.0000618657822531731	Immune
309	1.18418235	0.000190585	0.0000759141215873654	Immune
310	1.184026398	0.00061716	0.000562705	Immune
311	1.183975176	0.000190318	0.0000249364153221289	Immune
312	1.183284508	0.000197577	0.0000911214806116341	Immune
313	1.183113527	0.000193014	0.0000845857046560968	Immune
314	1.183036403	0.000781416	0.00072166	Immune
315	1.183020166	0.000191193	0.0000816939975838714	Immune
316	1.18279674	0.000190318	0.0000491079068843566	Immune
317	1.182516616	0.000877054	0.000820303	Immune
318	1.182098422	0.000190318	0.0000267430121371497	Immune
319	1.181843928	0.000190318	0.00000545416265005265	Immune
320	1.181837185	0.000190318	0.0000147870595709615	Immune
321	1.18179292	0.000191193	0.0000826680452022867	Immune
322	1.181711187	0.000190318	0.0000311694933960318	Immune
323	1.181481439	0.000190318	0.0000455553597333304	Immune
324	1.181451408	0.000190318	0.0000156118300475227	Immune
325	1.181422328	0.000349894	0.000276828	Immune
326	1.181382308	0.000492539	0.000433145	Immune
327	1.181296054	0.001179304	0.001134213	Immune
328	1.181133151	0.000190318	0.0000200707508534575	Immune
329	1.181131206	0.000480329	0.000420995	Immune
330	1.181018432	0.001509728	0.001465324	Immune
331	1.181002423	0.000190318	0.0000311940307351719	Immune
332	1.18088206	0.000235024	0.000134191	Immune
333	1.180627075	0.0002944	0.000213873	Immune
334	1.180573942	0.000190318	0.0000657555359683606	Immune
335	1.180542127	0.000190318	0.0000555388677613243	Immune
336	1.180416072	0.000656661	0.000602583	Immune
337	1.180322929	0.000298508	0.000223881	Immune
338	1.180072895	0.000228221	0.000125521	Immune
339	1.180011257	0.000190585	0.0000763617548573175	Immune
340	1.179876337	0.000203616	0.0000981567903264230	Immune

Table 1.c2

	Probe sequence	Probe Location
no.	**60 mer**	**Chr**

241	TTTAATGGGCAACTCTGAAGGATTATGTTCGAACTCCTGACCTTGTGTTCAACCCACCTC	1
242	ATAAAAATTAAATTTAGTCACAGTACATTCGAACTCCTGACCTCAGGTGCTTCACCTGCT	18
243	AAAAAGAAAAAGAAAAACAGAACAAACATCGAACTCCTGACCTCAGATGATTCATCTGCC	22
244	ATGATGGGGGAAATAATTCAAAACTGACTCGAGACCATCCTGGTCAACACTGTGAAAACC	8
245	TCCATCAACTGTGATGCAGTTTCCCTCTTCGATCTCCTGACCTCAAGATCCACCAACCTC	11
246	GGAACACTTCTCTAAGAACCTGAATTATTCGATCTCTTGGCCTCATGATCCATCAGCCTT	1
247	GTCAGCTACTGGCTCTGTCACTTAACTGTCGATCTCCTGACCTTGTGTTTCACCTGCCTT	19
248	GCCTCTGCTGTGTAACTTCAGAGGAAATTCGAACTCCTGACACCTCAGGTGATCTACCTG	8
249	ATTAGGCACTGTAGAATCTAGCAGCATCTCGAGACCATCCTGGCCAACATTCTGAAACCC	19
250	CCTTAATAAAATAAACTTTCTAAATTGATCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
251	TTTAGTTATGATAGAGGAAATCACGCTATCGACTTCTTCCTGGTTTAGTCTTAGGAGGGT	12
252	GCTTCAAAAAATAAAACTAAAAATATGTTCGAACTCCTGACCTCAGGTAATCTATCCGCC	22
253	GGTATTGATATAAAATAGTGATTTTATATCGATCTCCTGATCTCGTGATCTACCTTCCTT	11
254	CAGTAACTTCAGTTTTTTATTTACTCATTCGAACTCCTGACCTCAGGTAATCTATCCGCC	22
255	GTCACACTCTTACCAAGCTAAAACTCTTTCGATCTCCTGACCTCGTGATTACAGGTGTGA	17
256	TTCCAAAATTCTGAGATTCTTAATTATGTCGAACTCCTGACCTCAGTCAATCTGCCCACC	5
257	AAGAATTAAGAGTAAAAATTATGTGAGGTCGAACTGCTGACCTCGTTATCCACCCACTTC	12
258	TCCTCAAAAAAATTAAAAATAGAACTACTCGAGACCATCCTGGCTAATTTGGTGAAACCC	X
259	AATTTTAGACCAACATCCCTGATGAACATCGAGACCAGCCTGAACAATATAGTGAGACCC	18
260	GGTGGGTGGATCACTTCAAGTCAGGAGTTCGATCTCCTGACCTAGTGATCCACCCACCTC	19
261	ACGGAATCTGGATTGAATAAATAGGGAATCGATCTCTTGACCTCGTGATCCAATCACCTT	12
262	AATAGAGACCATATTGGCCAGGATGGTCTCGAGGGTAGTCATGTTTTCCTTCCTGAGGAT	4
263	TACCAGGGATGTCTGAAGGAACTAAGAGTCGATCTCCTGACTTTGTGATCCTCCCACGTC	11
264	CTTGGAAGACAGAAAAATACCTAATCTTTCGAACTCCTGACCTTATAATCCCCCTGCCTT	15
265	AGCTGGGGTTAAATTCATTTAAATGAGTTCGAACTCCTGACCTCACGTAATTCTCCCACC	12
266	AGCAACTCTTAATCTTCAGGCTTCCTTCTCGATTTTAGATCTTTCCTGCTTTCTCTTGTG	1
267	CCTTACAAAAAGTTCTAAAGGGAGTTGTTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT	22
268	TCTCTAAACATAAATTGTGAAGATTCCATCGAACTCCCGACCTCAGAGGATCTGTCTGCC	18
269	GAGCCCAGTAGTTCAAGGTTTCAGTGAGTCGAACTCCTGACCTCATGTGATTTGGCCGCT	3
270	GAGGCAGGCAAATCACGAGCTCAGGAGATCGAACTCCTGACCTCATGATTTGCCTGCCTC	22
271	TGGCTGATTTCCAGAGAAGAATACAAACTCGAGACCAGCCTTGACCAATATGGTGAAATC	11
272	TGAGAACAGATTCTCTAGAAAAGTCGCCTCGAGACCAGCCTAGATAACTTGGTGAAACTC	10
273	AAAGCCCTGTTATCAAATTAGGTCACAATCGAACTCCTGACCTCAAAAGATCTGCTCGCT	11
274	ATGTTGTAACCAAAAGAACTTAAACATTTCGATCTCCTGACCTTGTCATCCACCTACCTC	15
275	TTTTCCCTTCTCACAGGTATTGTGTTGTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
276	CTCCTTACTTCATTATGACTGGATTTGATCGAACTCCTGACCTGATGATCCCCCTACTTG	5
277	GAAAGCCAAGCTGGGTGGACTCAGGAGTTCGATGCAAAAATCCTCAATAAAATACTGGCA	18
278	AGTCACACATACAACTTTAGTGTACCATTCGATCTCCAGACCTTGTGATTTGCCTGCCTT	12
279	TTAATACAAAAAACTAATTAAAATTTAATCGAACTCCTGACCCCAGGTGTTCTACCCGCC	19
280	AGCGGTTTTTTTGTGATGTTAGAGATGTTCGAACTCCTGACCTCAAAAGATCTGCTCGCT	11
281	GTGGAGACCCTAACTGCTTTTAGGGAGATCGAGGAATTTATCCATTTCTTCTAGATTTTC	Y
282	TGTACAAGCATATTCATTGATGTCTTGTTCGAACTCCTTGACCTCAGGTGATCTACCTGC	20
283	TGGATCATGGGAGGCCTAGGTCGGGAGTTCGATGGTCTTTACAATTTGGCTTGTTTTTGC	1
284	ATTTCTTTCTTCTTCCCATTTTCTAAAATCGAACTCCTGACCTTGGGTAATCCACCCTCC	17
285	TTGTCTTTGCACCTTTTTCAAAAATTAGTCGAACTCCTGATCTTATGATCCACCCACCTC	9
286	CCTGAACCTTTTGGGCTGAACTTCACCTTCGAACTCCTGACCTCAAGCTATCCATCTGCC	5
287	CTATTCTTGCATTGCTACAAAGAAACATTCGATCTCTTGAACTCATGATCGCCTGCCTCA	10
288	AAATACTTTGTTATATATAAAATGGAGTTCGAACTCTTGACCTCAAGTGATCACCCATCT	12
289	GGTGTTCACCATATTAGTCAGGTTGGTCTCGAGGCTTCTCTGGGTTCATTTCCTTTAAAT	17
290	AATTTTAGACCAATATGCCTGATGAACATCGAACTCCTGACCTGGGCCTTCCAAAGTGCT	3
291	GAGAGTATAAGTGTTATGATTGGCCACTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
292	ATTTTCACCAAAACCTTTTAATAAGAATTCGAACTCCTGATCTCGTGATATGCTGGCCTC	3

293	AATTTGAATATAGTAGGAGCTATTTAAGTCGAACCCCTGACCTCATGATCTTCCCACCTT	17
294	ATGTATTCTTCAAAGTTAGTACTTTTGTTCGAACTCCTGGCCTTATGTAACCCACCTGCC	17
295	TCAAGAGGTGAAACCCTTATTGGAGGAATCGAACTCCTGGCCTTATGTAACCCACCTGCC	17
296	CCATTTGTTTGTATCCTCTTTTATTTCATCGATCTCCTGACCTCGTGCGCAAGAGCAATG	19
297	AACTGAAGGAGCTCTTAATGGCCAAAACTCGAGACCATCCTGGTCAACACTGTGAAAACC	8
298	GGTGAGAGAATTGCTTGACCCAAGGAGTTCGATCTCCTGACCTCAGATGATTTGCCTGCC	2
299	CAAAAATTGCCAAAAATAAGTAGGTTTTTCGAACTCCTGACTTCGGTGATCTACCTGCCG	6
300	CTCAAAGAACTTAAAACAAAATTACCATTCGAAGTCCTGACCTCAGGTAATCCTGCTGCC	X
301	CTAAACCAGTAAATGTTTAATAAAAAGATCGAGGGGTATCTTTGTGGCATTCTCTGTATT	5
302	TGTTTTCATTTTAAGATGAAGACAGCCTTCGAGACCATCCTGGCTAACATGATGAAATCC	3
303	ATGTGTTGTTCTCAATTTTGCACTTGCTTCGAACTCCTGACCTCAGTCAATCTGCCCACC	5
304	GATGGGCAGATTACTTGAAGTCAAGAGTTCGAACTCCTGACCTCAAGTGAAACTCCCATC	16
305	ATACAAGAGTCATGTACAAGACCTTGCTTCGAGACCATCCTGGCTAATTTGGTGAAACCC	X
306	CCAAGTAAAATGTTGTTCACTTTTGTGCTCGATGCAAAAATCCTCAATAAAATACTGGCA	4
307	AATGTTCTCTTATGAACATCATTTAAGTTCGAACTCCTGACCTCAAGTGAAACTCCCATC	16
308	ACCTGAAGAAACATTGTTTTCTTAAAAATCGATCTCTTGACCTTCTGATCTGCCTGCCTC	14
309	AGAAGTTTAAGCTACAAAATAAAATGTTTCGAACTCCCGACCTCCAGTGGAAGTTCACAC	2
310	TCTCTCTGGCCACTTATTTATTTATTTTTCGATCTCCTGACCTGGAACATCACCCTTTTG	16
311	GGCAAGTGGATAGATTGAGCCCAGGAAGTCGAACTCCTGACCTAAGGTGATCTGTCCACC	15
312	TACAACAGGCTCCAAGACAACACTTTATTCGAACTCCTGACCTCAGATGATTCATCTGCC	22
313	ACCTGATTTTGCATCGGAGAATTCACACTCGAGACCAGCCTGGCCAGGATGATGAAACCC	7
314	AGAATAAGAAGGGAAGATAAGGACAGAATCGAACTTCCTCCTTTAGCTCGGAGAAGTTTG	3
315	CCTTACGATGGGGTCCCAGCTGGACACCTCGAGACCAGCCTGAGAAATACGGTGAAACCC	2
316	GAGCTAAATCGCTTTGATTGGCTGTTCATCGATCTCCTGACTTCGTGATCAACCCACCTC	19
317	AATGTAAAGCATTACATGGAAACAGTACTCGAACTTCCTCCTTTAGCTCGGAGAAGTTTG	3
318	TTGCTGACTCTGGAGAGTCCAGGTGGTCTCGAGGACTATCTTTGTGGCGTTCTCTGTATT	5
319	TCTGAGAAACTTTTTTGTGAGAAACTGATCGAACTCCTGATCTCAGGAGATCCACCCACC	1
320	TTTCTCTAAGGTATGTTAAAACTCTTGTTCGAACTCCTGACCTCATTATCTGCCCACCTT	X
321	GAAATCAAGATAGGAATTTAAAAATTCTTCGAACTCCTGATCTCGTGATATGCTGGCCTC	3
322	CCAAAACAAAAATAGCACTGACAAAAGATCGATCTCTTGACCTCGTACTCTGCCTGCCTT	1
323	TGACAAAGAAAAAGTATGCAAAAAGAAGTCGAACTCCTGGCTTCAAGTAAGAGTTCACTT	12
324	CAGCAAAGTTTTATTGTAAAATAAGAGATCGAACTCCTGACCTCCAGTCATCCACCCGCG	17
325	TCCAACATTCAGAGTTTATTTATTTGAATCGATCTCTTGACTTCATGATCCACCTGACTT	12
326	CAAAAAAATGAACAGTACTTTTTTCTTATCGACTTCTTCCTGGTTTAGTCTTAGGAGGGT	12
327	GTATTCTCAGTAGAAATTCTTTTATTTTTCGATCTCCTGACCTTGTCATTCTCCCATCTC	12
328	GAATAAATGAAAGGCCTAGCTAAAGCAGTCGAACTCCTGACCTCAAGTAATCCAACCACC	7
329	TGAATGTCTTGGTAGTAATTTGACAATATCGATCTCCTGATCTTGTGATTCCCCCACCTT	4
330	TCATCTATATTTTCTTCTCTTAGGTATTTCGATGTTCATCAGGGATGTTGGTTTAAAATT	5
331	TGAGATTTTGTCTCAAAAAAAAAAAAAAGTCGAACTCCTGACCTCAGGTCATCAGCCTGCC	22
332	AAGTTCAACAAGGTTGCCAATTACCAAATCGAACTCCTGACCTCAGGCAGTCACCTTCTT	5
333	TCTGTCTTTGCTTTTGCAGTTTTCCTCATCGAACTCCTGACCTGATGATCCCCCTACTTG	5
334	CACAGGGTGACAGGAGACAGAATGAGAGTCGAACTCCTGACCTCAGGTGAATAACCTGCC	3
335	TTATTTAGGAATGGTTTCCTTTAGCACTTCGAACTCCTGACTTCGGGTGATCCCTCCCAT	19
336	AAGATCGTTATTGCTTGAGCCCAGGAGTTCGAACTCCTGACCTCAAGAGATCTGTCCTCC	10
337	GTACCTGGGGGACAGAAATTGCAGTGAGTCGAACTCCTGACACCTCAGGTGATCTACCTG	8
338	CTGTTTTCTATCCTTCCTGATATTTCACTCGAACTCCTGACCTGATGATCCCCCTACTTG	5
339	TTCAAAAGACAAAAAAGACAACCAAAAGTCGAACTCCTGACCTGAAGGGATCTGTCTGCC	11
340	AGTTACTGAGATAAGAGTTTTTAAAAAATCGAACTCGTGACCTCAAGTGGTCTCCCTGCC	19

Table 1.c3

	Probe Location			
no.	**Start1**	**End1**	**Start2**	**End2**
241	238274997	238275026	238365134	238365163
242	60389996	60390025	60596380	60596409
243	38732686	38732715	38808898	38808927
244	8657539	8657568	8694306	8694335
245	102796881	102796910	102896857	102896886
246	193686986	193687015	193848405	193848434
247	42437467	42437496	42510309	42510338
248	129820441	129820470	129899085	129899114
249	41359500	41359529	41456782	41456811
250	193673928	193673957	193929910	193929939
251	46827238	46827267	46879131	46879160
252	28600398	28600427	28758507	28758536
253	9477642	9477671	9685855	9685884
254	28559355	28559384	28758507	28758536
255	1411119	1411148	1635962	1635991
256	74329889	74329918	74537629	74537658
257	14620918	14620947	14668392	14668421
258	2349095	2349124	2530522	2530551
259	56075452	56075481	56154643	56154672
260	17318588	17318617	17372679	17372708
261	122523594	122523623	122688872	122688901
262	4152462	4152491	4285265	4285294
263	118323850	118323879	118462785	118462814
264	72172049	72172078	72358433	72358462
265	8956668	8956697	9058979	9059008
266	160208003	160208032	160387701	160387730
267	34726358	34726387	34750118	34750147
268	8623208	8623237	8834565	8834594
269	10166865	10166894	10269618	10269647
270	37737426	37737455	37945878	37945907
271	47310705	47310734	47407572	47407601
272	73661600	73661629	73903371	73903400
273	78798296	78798325	78965089	78965118
274	65465779	65465808	65596354	65596383
275	193663210	193663239	193673928	193673957
276	30107213	30107242	30144496	30144525
277	433730	433759	539298	539327
278	15699616	15699645	15806655	15806684
279	33182630	33182659	33332862	33332891
280	78857255	78857284	78965089	78965118
281	20398853	20398882	20504302	20504331
282	31369845	31369874	31617245	31617274
283	147709078	147709107	147802892	147802921
284	30923925	30923954	31156715	31156744
285	94043932	94043961	94067154	94067183
286	31866964	31866993	31910751	31910780
287	114529346	114529375	114726280	114726309
288	64438851	64438880	64470581	64470610
289	36002739	36002768	36030369	36030398
290	154855620	154855649	154966862	154966891

291	193673928	193673957	193889893	193889922
292	158507727	158507756	158576895	158576924
293	63803997	63804026	64033153	64033182
294	31302846	31302875	31324783	31324812
295	31224133	31224162	31324783	31324812
296	42697459	42697488	42770733	42770762
297	8422739	8422768	8694306	8694335
298	9545860	9545889	9601869	9601898
299	136360367	136360396	136523812	136523841
300	70972143	70972172	71218058	71218087
301	111524158	111524187	111570084	111570113
302	87152303	87152332	87177253	87177282
303	74394033	74394062	74537629	74537658
304	57315879	57315908	57359854	57359883
305	2530522	2530551	2568740	2568769
306	104786134	104786163	104802497	104802526
307	57156888	57156917	57359854	57359883
308	30757126	30757155	31037035	31037064
309	68135775	68135804	68359454	68359483
310	2330924	2330953	2525043	2525072
311	63969642	63969671	64108754	64108783
312	38681472	38681501	38808898	38808927
313	100034011	100034040	100078294	100078323
314	70700061	70700090	70796349	70796378
315	120597117	120597146	120697177	120697206
316	48332989	48333018	48564008	48564037
317	70698158	70698187	70796349	70796378
318	58515710	58515739	58574418	58574447
319	7826886	7826915	7998916	7998945
320	77765456	77765485	77954365	77954394
321	158501079	158501108	158576895	158576924
322	193673928	193673957	193858567	193858596
323	116931029	116931058	116967047	116967076
324	7668422	7668451	7813674	7813703
325	87683905	87683934	87814377	87814406
326	46756687	46756716	46879131	46879160
327	56273820	56273849	56415252	56415281
328	26166928	26166957	26347616	26347645
329	40800077	40800106	41041103	41041132
330	101857207	101857236	102113264	102113293
331	38973252	38973281	39095840	39095869
332	55874718	55874747	56069490	56069519
333	30097467	30097496	30144496	30144525
334	30481417	30481446	30652455	30652484
335	49754690	49754719	49902221	49902250
336	26780455	26780484	26959701	26959730
337	129796095	129796124	129899085	129899114
338	30016873	30016902	30144496	30144525
339	65076107	65076136	65228517	65228546
340	51524665	51524694	51712236	51712265

Table 1.c4

	4 kb Sequence Location				
no.	**Chr**	**Start1**	**End1**	**Start2**	**End2**
241	1	238271027	238275026	238361164	238365163
242	18	60386026	60390025	60592410	60596409
243	22	38732686	38736685	38808898	38812897
244	8	8653569	8657568	8694306	8698305
245	11	102792911	102796910	102892887	102896886
246	1	193683016	193687015	193848405	193852404
247	19	42433497	42437496	42510309	42514308
248	8	129816471	129820470	129899085	129903084
249	19	41359500	41363499	41452812	41456811
250	1	193673928	193677927	193925940	193929939
251	12	46823268	46827267	46875161	46879160
252	22	28596428	28600427	28754537	28758536
253	11	9477642	9481641	9685855	9689854
254	22	28555385	28559384	28754537	28758536
255	17	1411119	1415118	1631992	1635991
256	5	74325919	74329918	74537629	74541628
257	12	14616948	14620947	14668392	14672391
258	X	2345125	2349124	2530522	2534521
259	18	56075452	56079451	56150673	56154672
260	19	17318588	17322587	17372679	17376678
261	12	122519624	122523623	122684902	122688901
262	4	4148492	4152491	4281295	4285294
263	11	118323850	118327849	118462785	118466784
264	15	72172049	72176048	72354463	72358462
265	12	8956668	8960667	9055009	9059008
266	1	160204033	160208032	160387701	160391700
267	22	34722388	34726387	34750118	34754117
268	18	8623208	8627207	8834565	8838564
269	3	10166865	10170864	10265648	10269647
270	22	37733456	37737455	37941908	37945907
271	11	47310705	47314704	47403602	47407601
272	10	73661600	73665599	73899401	73903400
273	11	78798296	78802295	78965089	78969088
274	15	65465779	65469778	65592384	65596383
275	1	193659240	193663239	193673928	193677927
276	5	30107213	30111212	30144496	30148495
277	18	429760	433759	539298	543297
278	12	15695646	15699645	15802685	15806684
279	19	33178660	33182659	33328892	33332891
280	11	78853285	78857284	78965089	78969088
281	Y	20394883	20398882	20504302	20508301
282	20	31369845	31373844	31617245	31621244
283	1	147709078	147713077	147798922	147802921
284	17	30923925	30927924	31152745	31156744
285	9	94039962	94043961	94063184	94067183
286	5	31866964	31870963	31910751	31914750
287	10	114529346	114533345	114722310	114726309
288	12	64438851	64442850	64466611	64470610
289	17	35998769	36002768	36030369	36034368
290	3	154851650	154855649	154966862	154970861

291	1	193673928	193677927	193885923	193889922
292	3	158503757	158507756	158576895	158580894
293	17	63800027	63804026	64029183	64033182
294	17	31302846	31306845	31324783	31328782
295	17	31224133	31228132	31324783	31328782
296	19	42697459	42701458	42766763	42770762
297	8	8422739	8426738	8694306	8698305
298	2	9541890	9545889	9601869	9605868
299	6	136360367	136364366	136519842	136523841
300	X	70968173	70972172	71214088	71218087
301	5	111520188	111524187	111570084	111574083
302	3	87148333	87152332	87173283	87177282
303	5	74394033	74398032	74537629	74541628
304	16	57311909	57315908	57359854	57363853
305	X	2530522	2534521	2564770	2568769
306	4	104782164	104786163	104802497	104806496
307	16	57156888	57160887	57359854	57363853
308	14	30757126	30761125	31037035	31041034
309	2	68135775	68139774	68359454	68363453
310	16	2330924	2334923	2521073	2525072
311	15	63965672	63969671	64104784	64108783
312	22	38681472	38685471	38808898	38812897
313	7	100030041	100034040	100078294	100082293
314	3	70696091	70700090	70796349	70800348
315	2	120597117	120601116	120697177	120701176
316	19	48329019	48333018	48560038	48564037
317	3	70698158	70702157	70796349	70800348
318	5	58511740	58515739	58570448	58574447
319	1	7822916	7826915	7994946	7998945
320	X	77765456	77769455	77954365	77958364
321	3	158501079	158505078	158576895	158580894
322	1	193673928	193677927	193854597	193858596
323	12	116931029	116935028	116963077	116967076
324	17	7664452	7668451	7809704	7813703
325	12	87679935	87683934	87810407	87814406
326	12	46752717	46756716	46875161	46879160
327	12	56269850	56273849	56415252	56419251
328	7	26162958	26166957	26343646	26347645
329	4	40800077	40804076	41041103	41045102
330	5	101857207	101861206	102113264	102117263
331	22	38969282	38973281	39095840	39099839
332	5	55874718	55878717	56069490	56073489
333	5	30097467	30101466	30144496	30148495
334	3	30481417	30485416	30652455	30656454
335	19	49754690	49758689	49902221	49906220
336	10	26780455	26784454	26959701	26963700
337	8	129796095	129800094	129899085	129903084
338	5	30012903	30016902	30144496	30148495
339	11	65076107	65080106	65228517	65232516
340	19	51520695	51524694	51712236	51716235

Table 1.c5

	NESTED PCR PRIMER SET	
no.	probe	Primer ID
241	Hg38_1_238263911_238275028_238361690_238365165_FF	OBD183-1761
242	Hg38_18_60381033_60390027_60592857_60596411_FF	OBD183-1765
243	Hg38_22_38732684_38735694_38808896_38820306_RR	OBD183-1769
244	Hg38_8_8653178_8657570_8694304_8696852_FR	OBD183-1773
245	Hg38_11_102793985_102796912_102892680_102896888_FF	OBD183-1777
246	Hg38_1_193673926_193687017_193848403_193851226_FR	OBD183-1781
247	Hg38_19_42434303_42437498_42510307_42515066_FR	OBD183-1785
248	Hg38_8_129814184_129820472_129899083_129904705_FR	OBD183-1789
249	Hg38_19_41359498_41360630_41453565_41456813_RF	OBD183-1793
250	Hg38_1_193673926_193687017_193926526_193929941_RF	OBD183-1797
251	Hg38_12_46821759_46827269_46865284_46879162_FF	OBD183-1801
252	Hg38_22_28598306_28600429_28753634_28758538_FF	OBD183-1805
253	Hg38_11_9477640_9482033_9685853_9690988_RR	OBD183-1809
254	Hg38_22_28554668_28559386_28753634_28758538_FF	OBD183-1813
255	Hg38_17_1411117_1412617_1634184_1635993_RF	OBD183-1817
256	Hg38_5_74325511_74329920_74537627_74543794_FR	OBD183-1821
257	Hg38_12_14611683_14620949_14668390_14673240_FR	OBD183-1825
258	Hg38_X_2345279_2349126_2530520_2531841_FR	OBD183-1829
259	Hg38_18_56075450_56084543_56148926_56154674_RF	OBD183-1833
260	Hg38_19_17318586_17321060_17372677_17376287_RR	OBD183-1837
261	Hg38_12_122518390_122523625_122683979_122688903_FF	OBD183-1841
262	Hg38_4_4146074_4152493_4280585_4285296_FF	OBD183-1845
263	Hg38_11_118323848_118335396_118462783_118464333_RR	OBD183-1849
264	Hg38_15_72172047_72177812_72350397_72358464_RF	OBD183-1853
265	Hg38_12_8956666_8971971_9052225_9059010_RF	OBD183-1857
266	Hg38_1_160202241_160208034_160387699_160390980_FR	OBD183-1861
267	Hg38_22_34722666_34726389_34750116_34757594_FR	OBD183-1865
268	Hg38_18_8623206_8633807_8834563_8839858_RR	OBD183-1869
269	Hg38_3_10166863_10171451_10267732_10269649_RF	OBD183-1873
270	Hg38_22_37732067_37737457_37944696_37945909_FF	OBD183-1877
271	Hg38_11_47310703_47316087_47405431_47407603_RF	OBD183-1881
272	Hg38_10_73661598_73666900_73900120_73903402_RF	OBD183-1885
273	Hg38_11_78798294_78806874_78965087_78972317_RR	OBD183-1889
274	Hg38_15_65465777_65469194_65573794_65596385_RF	OBD183-1893
275	Hg38_1_193655980_193663241_193673926_193687017_FR	OBD183-1897
276	Hg38_5_30107211_30110692_30144494_30156052_RR	OBD183-1901
277	Hg38_18_427721_433761_539296_550050_FR	OBD183-1905
278	Hg38_12_15684229_15699647_15801742_15806686_FF	OBD183-1909
279	Hg38_19_33180896_33182661_33328178_33332893_FF	OBD183-1913
280	Hg38_11_78848038_78857286_78965087_78972317_FR	OBD183-1917
281	Hg38_Y_20386719_20398884_20504300_20520750_FR	OBD183-1921
282	Hg38_20_31369843_31372347_31617243_31621976_RR	OBD183-1925
283	Hg38_1_147709076_147716288_147799500_147802923_RF	OBD183-1929
284	Hg38_17_30923923_30926868_31150085_31156746_RF	OBD183-1933
285	Hg38_9_94033256_94043963_94058786_94067185_FF	OBD183-1937
286	Hg38_5_31866962_31870685_31910749_31916612_RR	OBD183-1941
287	Hg38_10_114529344_114531737_114712352_114726311_RF	OBD183-1945
288	Hg38_12_64438849_64448996_64463496_64470612_RF	OBD183-1949

289	Hg38_17_35998435_36002770_36030367_36035489_FR	OBD183-1953
290	Hg38_3_154848097_154855651_154966860_154974838_FR	OBD183-1957
291	Hg38_1_193673926_193687017_193882412_193889924_RF	OBD183-1961
292	Hg38_3_158501077_158507758_158576893_158580745_FR	OBD183-1965
293	Hg38_17_63801674_63804028_64026936_64033184_FF	OBD183-1969
294	Hg38_17_31302844_31307239_31324781_31330350_RR	OBD183-1973
295	Hg38_17_31224131_31234469_31324781_31330350_RR	OBD183-1977
296	Hg38_19_42697457_42701566_42762015_42770764_RF	OBD183-1981
297	Hg38_8_8422737_8427114_8694304_8696852_RR	OBD183-1985
298	Hg38_2_9540565_9545891_9601867_9603721_FR	OBD183-1989
299	Hg38_6_136360365_136366092_136518089_136523843_RF	OBD183-1993
300	Hg38_X_70970170_70972174_71213839_71218089_FF	OBD183-1997
301	Hg38_5_111518564_111524189_111570082_111578257_FR	OBD183-2001
302	Hg38_3_87150717_87152334_87167991_87177284_FF	OBD183-2005
303	Hg38_5_74394031_74404922_74537627_74543794_RR	OBD183-2009
304	Hg38_16_57311821_57315910_57359852_57364698_FR	OBD183-2013
305	Hg38_X_2530520_2531841_2565626_2568771_RF	OBD183-2017
306	Hg38_4_104772558_104786165_104802495_104808042_FR	OBD183-2021
307	Hg38_16_57156886_57158385_57359852_57364698_RR	OBD183-2025
308	Hg38_14_30757124_30766270_31037033_31039641_RR	OBD183-2029
309	Hg38_2_68135773_68139581_68359452_68365969_RR	OBD183-2033
310	Hg38_16_2330922_2335048_2522663_2525074_RF	OBD183-2037
311	Hg38_15_63964667_63969673_64105032_64108785_FF	OBD183-2041
312	Hg38_22_38681470_38688482_38808896_38820306_RR	OBD183-2045
313	Hg38_7_100032804_100034042_100078292_100082051_FR	OBD183-2049
314	Hg38_3_70698156_70700092_70796347_70803301_FR	OBD183-2053
315	Hg38_2_120597115_120611528_120697175_120701136_RR	OBD183-2057
316	Hg38_19_48331809_48333020_48561743_48564039_FF	OBD183-2061
317	Hg38_3_70698156_70700092_70796347_70803301_RR	OBD183-2065
318	Hg38_5_58504296_58515741_58568633_58574449_FF	OBD183-2069
319	Hg38_1_7824282_7826917_7994232_7998947_FF	OBD183-2073
320	Hg38_X_77765454_77772092_77954363_77959007_RR	OBD183-2077
321	Hg38_3_158501077_158507758_158576893_158580745_RR	OBD183-2081
322	Hg38_1_193673926_193687017_193851226_193858598_RF	OBD183-2085
323	Hg38_12_116931027_116934300_116959223_116967078_RF	OBD183-2089
324	Hg38_17_7665587_7668453_7811362_7813705_FF	OBD183-2093
325	Hg38_12_87675372_87683936_87811804_87814408_FF	OBD183-2097
326	Hg38_12_46746378_46756718_46865284_46879162_FF	OBD183-2101
327	Hg38_12_56269538_56273851_56415250_56418662_FR	OBD183-2105
328	Hg38_7_26158147_26166959_26344790_26347647_FF	OBD183-2109
329	Hg38_4_40800075_40804237_41041101_41047221_RR	OBD183-2113
330	Hg38_5_101857205_101863977_102113262_102119968_RR	OBD183-2117
331	Hg38_22_38970835_38973283_39095838_39099483_FR	OBD183-2121
332	Hg38_5_55874716_55883166_56069488_56074299_RR	OBD183-2125
333	Hg38_5_30097465_30100060_30144494_30156052_RR	OBD183-2129
334	Hg38_3_30481415_30486448_30652453_30660274_RR	OBD183-2133
335	Hg38_19_49754688_49759950_49902219_49904931_RR	OBD183-2137
336	Hg38_10_26780453_26788708_26959699_26967983_RR	OBD183-2141
337	Hg38_8_129796093_129803717_129899083_129904705_RR	OBD183-2145
338	Hg38_5_30008006_30016904_30144494_30156052_FR	OBD183-2149
339	Hg38_11_65076105_65079526_65228515_65232564_RR	OBD183-2153
340	Hg38_19_51523072_51524696_51712234_51719472_FR	OBD183-2157

Table 1.c6

	NESTED PCR PRIMER SET		
no.	Primer Sequence	Primer ID	Primer Sequence
241	AAAGCGGGGTGTCAAGCGGGGGCC	OBD183-1763	AGCCGTAGTACCTGCGGCAGGCACA
242	CAAGTTATGCGCGGCATCTAATTTT	OBD183-1767	TCACTATCCATATACGAGGTGGC
243	GTGTATTGCCGACTGCCCTTGTC	OBD183-1771	GATGTTCCGTTTGGTCTATAGCA
244	AATGGTGGAGAAGGACGGAAACCA	OBD183-1775	GTGTGTTGTCTCTCATTTCTGCTTA
245	AATTACTATTGACTGCGAGTTCGCT	OBD183-1779	ACCTTGGTGGCGCCCCGTACGCCGT
246	CTAGTGACCCGATGAGTTGCCGA	OBD183-1783	CAGGTAGCTGCCCTCACGGGACT
247	TTTTAGGTGCGTGATAGACTATG	OBD183-1787	GCACTTTACACTGGTATAGGGAC
248	ACTAGGGTCCTTCAGAGCCGGTAG	OBD183-1791	GTGTGTAGCCGAGCTAATAAAACG
249	TGTATGGCATACGTGTACGAGCT	OBD183-1795	TGCGTGCTAACGGAACGCTTCAGGC
250	CTGCAGGAATCAAATCGCATCCGC	OBD183-1799	ATCGAAATTATGGTACCGAGAGGC
251	GTGCACATGAGATCGGGCACAGAT	OBD183-1803	AGCACCAGGCATTCGTTTCATAAC
252	CCCCGCTACCTAAGAGGCTAAGG	OBD183-1807	GCTGCCTAAGGGTCTCTTTGGTC
253	GGTGATGCCCCAAACAGTTTGTTAT	OBD183-1811	GAACAGTCGGGCTTTCTAGGGCG
254	CTCAGTCTCCAAAGAATCCGAAAGTA	OBD183-1815	GGCTGCCTAAGGGTCTCTTTGGTCTA
255	GAGGAGAGTGGCAGAAGGACCAA	OBD183-1819	CCTGGCTGTCATCCAACCACCAC
256	GCCTCACAGAGCCTCATTTCCAC	OBD183-1823	TAGTGGATTCCTGGCTGGGCACG
257	AATCCTTTAACGGTCCTCGTGCGAT	OBD183-1827	ACTTATACCCACGTACCCAACATGT
258	CTCCAGAAGCCGTCTTATGTGGGC	OBD183-1831	GATGTCGATGAGCAAAAGTGGGTGG
259	ACGCGACGTTACTCTGATGGCAA	OBD183-1835	GCTCGGGAACTGCCTGGACGCCCTC
260	GTATTCATCATGATAATGCGTAGG	OBD183-1839	CGTGTATACATAAAGACTGTACGGT
261	GCACTACCAGTTGCCGTTACACTA	OBD183-1843	CATTTACACTGGGGTGAGATACG
262	GCCTTGCGAGGGCCATCCTATTT	OBD183-1847	TGAGAGGAAAAATATATCGTTAGT
263	CTCGGTGGGTTAAATATGATTTGG	OBD183-1851	AAGAACTTAGTTTTGAGATTATCCC
264	GGACGAGACGCGCATGGGGTGAC	OBD183-1855	GCGTAAGTTCAACTATGATTCTATT
265	GCCCCACCTGGTCCACAGAAATC	OBD183-1859	GCGGAACTTCAAAGGTCAGGTGC
266	CAGCCTGTCCTGCAATGAGGAATAT	OBD183-1863	ATCTACGAGCTGCCCTCCCTATAC
267	ACAGAATTCGAAACATCTGGGGATT	OBD183-1867	CGCAGGGCCGTAAGTTACGCTCAGA
268	TTTATGACTTACATCTCTATAGG	OBD183-1871	TCAACTGCCCTTGGGAGACCAATGC
269	ATACAACTAGGACTAGGGCGCACG	OBD183-1875	AACCTCCATGTGTTCGGCTAAAAG
270	TTAGGCCCGTATGTACAGTCACCG	OBD183-1879	CCATGCATTTCTTAATCCTTTGTC
271	CTTGAGCTCGGAGAAATTACAGTC	OBD183-1883	CCGAAATTGTTTATGACTTAGTA
272	CAGTGACAAATTCTTGCCACGCGGT	OBD183-1887	CACCCTCCAAAAGAGCAGCAGAT
273	CGAGAGTCCAATTCACTTGTTAG	OBD183-1891	TTTGGGCGTAGCTGTGTCGAGTGC
274	CCGCAGCAACTACACTCAGCCTT	OBD183-1895	ATAATGGACTGGGCTGGGCGTGG
275	ATAGGGCCGTGTAGAGGATCTCAAA	OBD183-1899	CCGTCTCGCTGTACTAACTCGCA
276	AAAAAGGAAACAGCCGTCGCCTTGA	OBD183-1903	TCAAGCGAGCACGTTTTTTGCAGT
277	GCCGAGAACATTCACCGCTTTCC	OBD183-1907	TACCAGCTCGAGGTGTTAATACC
278	AAGTCAATGCGTCGATGACGTGGGT	OBD183-1911	ATTGCAGAAACGTCACGTCCTGGCC
279	CGCACCACATTTTATTTCCTACAGTC	OBD183-1915	TGTGACTGTGCTACCACCAACTACGG
280	CCCGGGCCCACTTGTTTTTACCCAT	OBD183-1919	TCGAATATCGAGCTCCATCAGGCT
281	AAGCACATTAGGCTCAATGTGTACA	OBD183-1923	CGCAGTATGCAACGCTTGCGGACCG
282	CAATGAGGGCAGAGGAATAGAGGAAT	OBD183-1927	TGAGATGATGGGCACCAGGGTAATGG
283	CATTCCTGGGATTATTAGGCGTGGC	OBD183-1931	CGTCCGCAGACATGTCTCTTCGGTA
284	GTTGTCCCAGCCCTAAGTAGATGATA	OBD183-1935	AGTGCTGTGACATTGGTGGTAGTGGC
285	TAAGCTTTCTAGGAGTCATCAAG	OBD183-1939	CGGCCCTATCCTGAGATTGGTATT
286	CCACGGCATTTACTGTGCTCCAG	OBD183-1943	AAAGCAGGAACTGGCTGGGCGTG

287	GATAGTTCTTTAGTAGCGCACTC	OBD183-1947	ACACACGTCGTTGTATCATCAATGT
288	TTATTCGCTCAGCGTCATCGAAA	OBD183-1951	GTCTTCATAGCGAGGACTACGCTGA
289	CCGTTCAGACGGCTAGACTCAGCAG	OBD183-1955	TGTTTAAAAAGGTGCCCGAGTGCG
290	AAAACTGACGGGTCGAACTCTGCT	OBD183-1959	ATGCTACCAAGAGCCTAATGGGAT
291	TCCTGCTCTCGTCCATGGTATTCGC	OBD183-1963	GCAGGAATACTTGTGGGTGCGCAC
292	AGGTCACCTAAGAAGGGTTGCAT	OBD183-1967	CCTGCACCGGTTATATGAACTACA
293	TGAAAAGAGTGCTCCTGCGATAAAT	OBD183-1971	AGAGAGCCTTTAGAAACACACCG
294	GTTCTCTATGCGCAGGTCCCCTTCG	OBD183-1975	CTGTAAGGAAGTTAGTCAAGACGTA
295	CTTCTCTATCTTCCACAACCTCACCA	OBD183-1979	TAAATGGGAGCAGCCACAGTGAGGAC
296	TTGAATCGTAGAATACCAGTAGTTT	OBD183-1983	GGGTCCATGCGAAGGGTGGCAGACC
297	GTGTTTACCAATGTTCCACCCCC	OBD183-1987	GTTTTATAAAGTGAGGACGGACCG
298	CGCGCCTTTTGGGAAGCTCACGT	OBD183-1991	GTAGTGGCCACCCTCTTCAAGCT
299	AATACCTACCCTTGCCCTTCCCACCA	OBD183-1995	AATCTCTCTCGGTGTTTTAGCCGTCA
300	AGTGCCTTCAAGACCCCCAAGATC	OBD183-1999	GGAAAGTGAGTATATTGCTAGGG
301	CCACCAACACCACTTTCAAACCCGCA	OBD183-2003	CAAACTACATCCTGTGAGCCAAACTA
302	AATTCTCACGGGCAAAGCAGATG	OBD183-2007	ATGGCGAGTCGCGCTTTCCGTAAT
303	CCCTGAGGTAGCACAACAGAACC	OBD183-2011	TAGTGGATTCCTGGCTGGGCACG
304	CCCCTAACTTCCTCTTCTCACCC	OBD183-2015	GATAGTGAGCCCAGAGCAGTGGC
305	CTTGCCCGCTCCTGGACAGGTGGTC	OBD183-2019	TACGATGTGACAGAGCCGGTCCCG
306	TTAAAAAGACGAACACTCTGGGTT	OBD183-2023	TTTATTTTAGCGTCTAGGGCCTGAG
307	TAAAAATCTGTCAAGCCAGTTAG	OBD183-2027	TTCATCCAAGCTCCAAGCTACGA
308	AGCGTACACGAGCGACAACGACGC	OBD183-2031	TAAAGACTTAGAGTTCCGGCCCAC
309	CCTCTGACGCAATGAGCCGCAAG	OBD183-2035	CTGTATACTGCCACACATTAGAG
310	CTCCGTGAGTCCTCTTAGCCCCT	OBD183-2039	CAAGCCAAGGTTCAAGCCCTGAC
311	AAATCGGGCCCTACTGCTACTGGCA	OBD183-2043	GCGTCACCCGGCTCCGAAAATATG
312	TCTCCTATACACTTGTGTACCCTAG	OBD183-2047	CGATGCTCTCTATGGTTCAATCC
313	GTATAAGAAGATGCGTCGGTGCT	OBD183-2051	TCGACAACCAGTATGGTGATTCCT
314	TTCGGCCTTGCAGGCTGGCACAC	OBD183-2055	ATCCCCTAGTCGAGATGCATGTGA
315	AAGGAGTTCCACCCTCCGAAGGATC	OBD183-2059	CGATTTTCGGGCGAAGGGGTTTGTA
316	GAACACGGAGAGGTATCCCGCCCG	OBD183-2063	AGGACACTGTGTAACGTAACTGTA
317	TTCATCGTACCGTATCTGCCGTTA	OBD183-2067	GAGTACAGATAATTGTGGAGAACGT
318	TGAGTCCAACGCGTAGGCTAGAA	OBD183-2071	GGTGGCTAGGCTGTCTTGACCCAAT
319	TGTAGACAGTGTGCACTAGACACT	OBD183-2075	GCTTTGGCGCGTAAAGGTAACCCA
320	TGTGAAAAAACTCCCCTCAGCCATC	OBD183-2079	CGGACTTCGGTTATGAAGGGTGAAA
321	TCGGATGGTGACTGGAGCGTTAT	OBD183-2083	GGCACTCTCGTACAAAAGCGTTT
322	ACAGGATCCCAGCCTTAGCGGCCT	OBD183-2087	TGCGGTGCGTGTATTCGCAGTCGAA
323	AACTGGAATCCCGCATTGCGGTAGC	OBD183-2091	ACACATGCACCTCGAGTGGTTCT
324	GAAAACTCGTGGAGTTGGTCCGCG	OBD183-2095	AACCAACTGGCTTTCTCGGTCGG
325	TAGCGAATACGAGTGTACCGAAC	OBD183-2099	CCAACCGTAGTTATCTTCGTAACA
326	ACAGGAACCATGATCAATTGACC	OBD183-2103	TCTAGTTACCCCACCAGAAGGAC
327	GCCGAACGGATTCTGATCATAGT	OBD183-2107	AACCTGTCAAACGACGCCACTTCG
328	TCTCCATCCCTCCTCCTCCAGAT	OBD183-2111	TTACGCCACCACACTTCAGCCCC
329	TGAAGCAAAGTTCTGACGGCTAT	OBD183-2115	CCAGTTGAGACTCTCGGACTACAAC
330	CGCAGTTTCCACGGAACTAGATTGC	OBD183-2119	GTCCTAAGTAGAGGATTCCAAGGCG
331	TTCGTGTGCAGAATAGCGGCATCG	OBD183-2123	TACGGGCTCGTCTTAACGGGAAT
332	CTTTGGCTGTTTTCTCACATCGTGG	OBD183-2127	GTTAGTGGGGACACGGCGAACCACT
333	CTAACTCGAACATTAGACGTGCT	OBD183-2131	TGCAGCGTCGATGCATGGGTGGTC
334	GTCCGACATGGTTGAAGTTTTCCTA	OBD183-2135	CTGTCGATCGTCGCCGCAATGGC
335	TCCGGTGAGATGGAGGCATTGGTCT	OBD183-2139	GACACTGCCAAGATCAGTCTGGC
336	CCTCATGTATCGAGGCAGATGGGG	OBD183-2143	CCACAGATTCTTTAAACATACCCT
337	ACTCTAGTACAAGTCATCTCGAGCC	OBD183-2147	ACTATTCTATGGCAAGTGCTGAG
338	TCGCGTGATGAACCGCTTCGAGCGC	OBD183-2151	GTCTGAATCTTATGTGGAAACCC

339	AAATAAATGGGCGTGGTGGCACATA	OBD183-2155	GTTCTGTTTCTTGACCAGTGTGTTGA
340	CTACATCCAGTATCTTCAGAAAACAC	OBD183-2159	CCACTCTTGACCTCAGTTTCCCTGTA

Table 1.c7

	qPCR PRIMER SET	
no.	probe	qPCR Primer ID
13	Hg38_1_99631771_99639876_99708395_99714403_FF	OBD183-q765
14	Hg38_19_34387270_34393741_34499918_34506554_FR	OBD183-q425
16	Hg38_1_99659612_99670382_99708395_99714403_FF	OBD183-q709
20	Hg38_6_132703799_132711156_132757539_132761457_FF	OBD183-q537
34	Hg38_7_29905017_29911792_30016613_30019069_FR	OBD183-q733
35	Hg38_8_5120591_5125403_5295149_5302540_FF	OBD183-q753
36	Hg38_1_109341939_109348573_109359719_109366704_RR	OBD183-q481
37	Hg38_8_5115633_5120591_5295149_5302540_FF	OBD183-q785
40	Hg38_22_34722666_34726389_34750116_34757594_RR	OBD183-q521
45	Hg38_16_20282299_20286605_20445721_20457266_FR	OBD183-q457
46	Hg38_8_47127019_47130852_47283075_47288879_FR	OBD183-q677
47	Hg38_6_46130577_46139255_46168740_46175484_FF	OBD183-q685
48	Hg38_1_241870739_241874965_242033568_242040771_FF	OBD183-q569
50	Hg38_15_34886920_34889054_34974237_34980574_FF	OBD183-q693
58	Hg38_6_13822111_13826619_14070076_14075830_RF	OBD183-q609
62	Hg38_1_27966549_27971202_28029814_28033207_FR	OBD183-q713
65	Hg38_7_66298919_66305803_66392051_66398673_FF	OBD183-q797
70	Hg38_12_45013447_45019401_45077155_45087147_FF	OBD183-q517
71	Hg38_16_12325962_12334419_12372790_12375829_FF	OBD183-q637
73	Hg38_3_157551093_157568769_157606016_157614360_FF	OBD183-q621
76	Hg38_6_13822111_13826619_14011144_14016925_RF	OBD183-q721
77	Hg38_5_55874716_55883166_56069488_56074299_FR	OBD183-q441
78	Hg38_1_109359719_109366704_109611657_109614647_RF	OBD183-q541
79	Hg38_19_50732808_50735232_50961391_50964466_RR	OBD183-q573
80	Hg38_8_55800026_55805370_55942582_55947045_FF	OBD183-q741
82	Hg38_X_70952076_70955538_71213839_71218089_FF	OBD183-q773
83	Hg38_11_93057516_93069988_93228754_93237221_FR	OBD183-q597
85	Hg38_20_4763308_4769930_4885862_4890450_FF	OBD183-q581
90	Hg38_19_38895868_38902769_39089148_39091382_FR	OBD183-q789
91	Hg38_1_17044824_17050263_17192218_17198113_FF	OBD183-q761
92	Hg38_5_76420596_76423340_76572657_76583168_FR	OBD183-q505
93	Hg38_20_34791262_34795203_34932162_34933974_FF	OBD183-q653
94	Hg38_12_8119443_8124985_8341969_8343630_FF	OBD183-q625
96	Hg38_1_109359719_109366704_109385998_109391476_RF	OBD183-q501
97	Hg38_1_187499122_187506399_187600952_187612332_FF	OBD183-q473

Table 2.a

	qPCR PRIMER SET		
no.	Sequence	qPCR Primer ID	qPCR Reverse Seq
13	CCACTAAATGGAGCAGTTGTTTGACCTC	OBD183-q767	GGAGAGGACGAGGAGGTCAGTTCAGAG
14	GTGCCCACTGCCCACAGGACGCA	OBD183-q427	CCGCAGGTGGCAACGACGACACAGTAGG
16	CACACTTAGGGTCTCCTTCTATGTCCCC	OBD183-q711	GGAGAGGACGAGGAGGTCAGTTCAGAG
20	GGCGTTGTGCGGTTTTGAGAATAGTTCC	OBD183-q539	TCGTTGCTAAAAGAGCCTACTTCCTAAT
34	CCCACATAGAAGAATGAAGTTGGACCCC	OBD183-q735	GCTGGTCTAAACAGAAGGAAGAGAGGTG

35	GCGTGTATTTCTGATTCTTGCCACCTCC	OBD183-q755	GAAAAGTGTGTAGGTCAGGTGTAGTGGC
36	CCCCTCCGTGGGACAGGAACAGTT	OBD183-q483	GAGTCACCTTTCGTCTTTTCCATTTCCC
37	CAAGAGCAAGCCACGGGAGGTAGGGC	OBD183-q787	GAAAAGTGTGTAGGTCAGGTGTAGTGGC
40	GGTGAAAGGAAGGTGTGTGAAGTGAACC	OBD183-q523	ACATTCTTTCATCTACTCTTCCGTCTGC
45	GGCAGAGAAGCCAGAGTGAGCCAAGAC	OBD183-q459	CACGAGGCAACTCACCCAGAGACCCC
46	AGAAAGTCCCAACTCTGAAGAAGTCCTA	OBD183-q679	GCTGTTCCTCCATCTCTTGCCTTCTCCT
47	AATCATCATCTCTGGAGCCTCTGAAAGC	OBD183-q687	CTCTGCTGGGTGTCATTCCTTTTCCCTC
48	GTGTTCATTGTGAGATGTGTGACTTGAC	OBD183-q571	GCCCCGCCTGTCTGATTTCTTATTGTTG
50	CCACTCCTTCTCTACAACTTCACCAGAT	OBD183-q695	TTTGAAAAGACCGTCGGGTGCGG
58	GGAAGAAGGGACAGGTCAGAGAGGTGAG	OBD183-q611	GGTGTCTCGCTCTGTCGCCAGGCTTCAG
62	CCCCATACTCCTCTCCCCTGTGGTTCAG	OBD183-q715	CAGTGCCCTGGTGAAGCAGAGGTTCTC
65	TAAGACCTGTAAACTGGGAGAGCCC	OBD183-q799	GGTGCCCAGGAAACAGCAGTGAACAAGG
70	GCCAATAAAACAAATAAAAGCCCCTCAC	OBD183-q519	GCCCTGTGTTCTGTCTTATCTCTCCATC
71	GCACACCGCCAAGGAACTCGCTTAGC	OBD183-q639	TCTCTCTCCAGGGTCTCTCCCAGGCTGC
73	GGTCTTATTCATTCTGTGGGTTGGCTCT	OBD183-q623	CCATCAGGTTTGGTGTCTGGTGGAGGC
76	CGGCTCCCTCCAGGCTCTGCTCA	OBD183-q723	GGTGTCTCGCTCTGTCGCCAGGCTTCAG
77	GCATCCTTCTCTCACTGGGTATTCCTTT	OBD183-q443	ATAACCAGCCACAGTTCTCACTTTGAAT
78	CCTGGGTTGCTGGTGTCTGTGTTTCCTC	OBD183-q543	GAGTCACCTTTCGTCTTTTCCATTTCCC
79	CTTGCTTAGAAAACCATCTGTGCCTGGG	OBD183-q575	GAGACAGGCTGAGGGAGAACCCAAGC
80	GTAGTAGACGCATTCTGTGGAGTTGGAG	OBD183-q743	GCCGCTGGCAACCTCCGCTCTTTCTG
82	TAAACAGGTTCATCCAGGTTGTGAGGTA	OBD183-q775	CTGGGACAGAAGGAGAGGGAAAGAGTTG
83	CAGACCGATGGAATGGAACCGAGAGCCC	OBD183-q599	GCCACAAGGCAACTGGTCTGAATGTTTC
85	CTGACGAGGTGTCTGCTCCATTGCCTG	OBD183-q583	GTGCCTGGCTTCCTTCATCTACCAAGAC
90	CATCTGCTTTTGTATGGTTGTGAGC	OBD183-q791	GGAATGTTTCTGCTAAATCCAAAAGTAG
91	GCCTGTGGGATGACTGTGGTTACCTGC	OBD183-q763	GGAGGGCAGGAAGGTTGGTGATGGGCAG
92	CCAGGCAATGCTACGCCAGGCTTTGTGC	OBD183-q507	CCTCTTGACCTCCAGCGAGACCACTCC
93	GGGTTCATCCTCGGTAGAGCGGCAAAGC	OBD183-q655	CCCCACCCAATGCTGTCCTTCCTTTGAT
94	CTGTGAAGGTGTGGAGAGCACTTAGGGA	OBD183-q627	CCACACACACCACCCAGGAGCCCAGTG
96	CACTGAAGCAAGTTCTGGAGGTGGTAGT	OBD183-q503	GAGTCACCTTTCGTCTTTTCCATTTCCC
97	GCTGATGCTTCTGGCACCTGGACCAC	OBD183-q475	TTGAACATTAGGCTGGGCACGGTGTCTC

Table 2.b

	qPCR PRIMER SET	
no.	Probe ID	Probe Sequence
13	OBD183-p765	TCAATTCCACAAATCATCGAGACCAGCCTGACTG
14	OBD183-p425	ACAACTTCGAACTCCTGACCGAAGCGATGATCC
16	OBD183-p709	AGCACTTGAACTTACATTAAGTCATCGAGACCAGC
20	OBD183-p537	TGTGAATCGAACTCCTGACCTCAAATAATTCGCC
34	OBD183-p733	AATGAATCGAACTCCTGACCTCAGAAGATTTGCC
35	OBD183-p753	ACTCCCAAGCCATTGTGTTGTCTAAATCGAACTCC
36	OBD183-p481	TACATGTCGAACTCCTGACCTCAGGTAATCTTCC
37	OBD183-p785	ATGTTGTCGAACTCCTGACCTCAACTGATTTGTC
40	OBD183-p521	ACTGAAATTCGAGGAGTATCTTTGTGGCTTTCTC
45	OBD183-p457	ACCATTTGTCTAACCAATCAATCGAACTCCTGACC
46	OBD183-p677	TGACTGAAATTATCTTCGAACTCCTGATCTCAGG
47	OBD183-p685	ATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGC
48	OBD183-p569	TCCACTAGAAGACTTCGAACTCCTGACCTTGTGC
50	OBD183-p693	ATAAATTCGATCTCTTGACCTTGTGACTCACCCG
58	OBD183-p609	TCAAAATCGATCTCCTTACCTCGTAATCTGCCTG
62	OBD183-p713	AGGCACAGTCAGTTTTACATTCGAACTCCTGACC

65	OBD183-p797	AGGGCTATTTCGAACTCCTGACTTGAGGTGATTC
70	OBD183-p517	TTCAAATCGAACTCCTGACCTCATTACCCACCC
71	OBD183-p637	AATCATCCCCGGGTGCATTCGAACTCCTGACC
73	OBD183-p621	TGTGATGTGAGGTAAGAGTTCGATCTCCTGACC
76	OBD183-p721	TGCCTTAGTCGATCTCCTTACCTCGTAATCTGC
77	OBD183-p441	ACACACTTCGAACTCCTGACCTCAGGCAGTCAC
78	OBD183-p541	AGCCAAGGTGGAGAACTACTGAGGTCGAACTCC
79	OBD183-p573	TCCATTTCATCGAACTCCTGACCCTAGGTGATCC
80	OBD183-p741	ACCTAGATACATCGAACTCCTGACCACAGGTG
82	OBD183-p773	AGAGCAACAGCCATCGAAGTCCTGACCTCAGG
83	OBD183-p597	AGGGAAGTTTTATCGAACTCCTGACCTTGTAATC
85	OBD183-p581	AGTCTATCGAACTCATGACCTCAGGTTATCCTCC
90	OBD183-p789	TGCACTGACACAGCAGAGTCGAACTCCTGACC
91	OBD183-p761	TCTAAGTCGAACTCCTGACCTCAGGTTATCCATC
92	OBD183-p505	TGGTGCTTGGTCGAACTCCTGACTTCAGGAAATC
93	OBD183-p653	TGCATGATCGAACTCCTGACCTTACGATCCACC
94	OBD183-p625	TCATAACTCGAACTCCTGACCTCATGATTTCCTG
96	OBD183-p501	TGTGCTGTAGATGAGGAATCGAACTCCTGACCTC
97	OBD183-p473	AGTTATACAGAGATAAAATAAGTCGAACTCCTGG

Table 2.c

	qPCR PRIMER SET	
no.	Probe ID	Probe Sequence
13	OBD183-p767	TCAGTCAGGCTGGTCTCGATGATTTGTGGAATTG
14	OBD183-p427	TCGCTTCGGTCAGGAGTTCGAAGTTGTCAAAACC
16	OBD183-p711	AGGCTGGTCTCGATGACTTAATGTAAGTTCAAGTG
20	OBD183-p539	AGGTCAGGAGTTCGATTCACATACTTCTTTCTGA
34	OBD183-p735	TCTTCTGAGGTCAGGAGTTCGATTCATTTTGAGT
35	OBD183-p755	AGGAGTTCGATTTAGACAACACAATGGCTTGGGAG
36	OBD183-p483	AGATTACCTGAGGTCAGGAGTTCGACATGTAAA
37	OBD183-p787	TCAGTTGAGGTCAGGAGTTCGACAACATTAGTAAG
40	OBD183-p523	AGAGAAAGCCACAAAGATACTCCTCGAATTTCAG
45	OBD183-p459	AGGTCAGGAGTTCGATTGATTGGTTAGACAAATGG
46	OBD183-p679	ACCTGAGATCAGGAGTTCGAAGATAATTTCAGTC
47	OBD183-p687	TGCGAATCACAAAGTCAGGAGTTCGAAAGGCTTA
48	OBD183-p571	AGCACAAGGTCAGGAGTTCGAAGTCTTCTAGTGG
50	OBD183-p695	TGAGTCACAAGGTCAAGAGATCGAATTTATGG
58	OBD183-p611	AGGCAGATTACGAGGTAAGGAGATCGATTTTGA
62	OBD183-p715	AGGTCAGGAGTTCGAATGTAAAACTGACTGTGCC
65	OBD183-p799	TGAATCACCTCAAGTCAGGAGTTCGAAATAGCCC
70	OBD183-p519	TGGGTGGGTAATGAGGTCAGGAGTTCGATTTGAA
71	OBD183-p639	ATTTGAGGTCAGGAGTTCGAATGCACCCGGG
73	OBD183-p623	AGGTCAGGAGATCGAACTCTTACCTCACATCAC
76	OBD183-p723	AGGCAGATTACGAGGTAAGGAGATCGACTAAGG
77	OBD183-p443	TGACTGCCTGAGGTCAGGAGTTCGAAGTGTGT
78	OBD183-p543	AGGAGTTCGACCTCAGTAGTTCTCCACCTTGGC
79	OBD183-p575	ACCTAGGGTCAGGAGTTCGATGAAATGGATGGG
80	OBD183-p743	TCACCTGTGGTCAGGAGTTCGATGTATCTAGG
82	OBD183-p775	ACCTGAGGTCAGGACTTCGATGGCTGTTGCTC
83	OBD183-p599	AGATTACAAGGTCAGGAGTTCGATAAAACTTCCC
85	OBD183-p583	AGGAGGATAACCTGAGGTCATGAGTTCGATAGACT
90	OBD183-p791	AGGTCAGGAGTTCGACTCTGCTGTGTCAGTGC

91	OBD183-p763	ACCTGAGGTCAGGAGTTCGACTTAGATATTCAGTG
92	OBD183-p507	AGATTTCCTGAAGTCAGGAGTTCGACCAAGCACC
93	OBD183-p655	TGGATCGTAAGGTCAGGAGTTCGATCATGCAA
94	OBD183-p627	AGGAAATCATGAGGTCAGGAGTTCGAGTTATG
96	OBD183-p503	TGAGGTCAGGAGTTCGATTCCTCATCTACAGCAC
97	OBD183-p475	TCCAGGAGTTCGACTTATTTTATCTCTGTATAAC

Table 2.d

no.	probe	gene	RPs
1	Hg38_12_57452982_57456003_57739419_57741914_FR	ARHGAP9	20695.53197
2	Hg38_12_8219310_8221338_8341969_8343630_RR	CLEC4A	22476.39239
3	Hg38_12_57452982_57456003_57601753_57604119_FR	ARHGAP9	26019.28963
4	Hg38_3_194096425_194098698_194154195_194165166_FF	CPN2	36563.85323
5	Hg38_12_57452982_57456003_57739419_57741914_FF	ARHGAP9	39468.24142
6	Hg38_3_194044420_194052936_194096425_194098698_RF	CPN2	41488.61576
7	Hg38_19_55711882_55714266_55776223_55778463_RF	NLRP9	47528.20138
8	Hg38_3_194096425_194098698_194189178_194197532_FF	CPN2	41354.35321
9	Hg38_1_121333642_121342053_121403378_121413898_FF	FCGR1B	53004.08958
10	Hg38_22_24148514_24151453_24244877_24251612_FR	SUSD2	39791.5111
11	Hg38_20_48471129_48476648_48496455_48503402_RF	PREX1	46296.68446
12	Hg38_2_11008274_11010451_11159160_11162827_FR	ROCK2	60658.80582
13	Hg38_17_7929728_7931226_8055790_8058200_RF	TRAPPC1	64657.79207
14	Hg38_1_203176687_203182913_203364177_203368484_FF	CHI3L1	59766.30883
15	Hg38_1_203071961_203079830_203176687_203182913_RF	ADORA1	57174.38857
16	Hg38_22_42578934_42580470_42682810_42685060_FR	CYB5R3	53123.90834
17	Hg38_6_88165452_88168090_88188008_88196988_RF	CNR1	63654.72943
18	Hg38_17_7929728_7931226_7944762_7946565_RF	TRAPPC1	52010.98025
19	Hg38_19_55674838_55678632_55776223_55778463_RF	NLRP9	60382.50989
20	Hg38_1_203176687_203182913_203223882_203229092_FF	CHI3L1	61234.27208
21	Hg38_16_85802241_85804577_86052797_86054069_RR	IRF8	60406.66065
22	Hg38_16_85802241_85804577_85995087_85996356_RR	IRF8	58149.21291
23	Hg38_2_47522457_47530546_47595212_47601970_FF	MSH2	57045.54636
24	Hg38_2_47354005_47355988_47522457_47530546_RF	EPCAM	57499.77068
25	Hg38_1_203176687_203182913_203350351_203352113_FR	CHI3L1	65021.94766
26	Hg38_2_11008274_11010451_11142335_11148573_FF	ROCK2	65585.09004
27	Hg38_2_1633514_1641369_1669637_1675007_RF	PXDN	68553.52952
28	Hg38_5_75334371_75336800_75362869_75366450_FR	COL4A3BP	59160.03332
29	Hg38_3_194096425_194098698_194189178_194197532_FR	CPN2	56698.06689
30	Hg38_20_48373933_48385139_48496455_48503402_RF	PREX1	55522.20115
31	Hg38_5_140633075_140635001_140734427_140740603_RR	CD14	54888.93545
32	Hg38_11_59792208_59794193_59978140_59991387_RR	TCN1	74005.01033
33	Hg38_11_5689507_5691245_5788110_5795433_FF	TRIM22	88583.0796
34	Hg38_6_1238869_1247003_1325058_1328459_RR	FOXC1	82994.49164
35	Hg38_19_55694907_55697956_55776223_55778463_RF	NLRP9	64771.6835
36	Hg38_8_30132536_30134220_30177058_30181551_RR	DCTN6	74556.42789
37	Hg38_11_63903088_63909160_64170615_64174763_FF	OTUB1	63195.39089
38	Hg38_5_140633075_140635001_140703783_140710933_RR	CD14	58926.91739
39	Hg38_5_75334371_75336800_75421277_75426441_FR	COL4A3BP	64569.86308
40	Hg38_1_203176687_203182913_203381983_203386317_FR	CHI3L1	65019.22414
41	Hg38_14_87760445_87771456_87814113_87820852_FF	GPR65	52190.12812

42	Hg38_X_1815902_1820657_1830879_1832345_RR	AKAP17A	91544.03603
43	Hg38_18_28150489_28152101_28322522_28342464_RR	AQP4	72068.78058
44	Hg38_19_55104500_55106500_55175439_55177687_FR	TNNI3	77938.82926
45	Hg38_1_201489507_201495563_201554857_201559521_RF	TNNI1	95434.40565
46	Hg38_1_159614098_159617749_159863199_159866609_RF	CRP	86219.89409
47	Hg38_1_201387330_201388480_201554857_201559521_RF	TNNI1	88125.35913
48	Hg38_12_110242070_110251176_110379081_110380448_RR	ATP2A2	89868.81994
49	Hg38_2_53751287_53756935_53865030_53869534_FR	GPR75	98485.8466
50	Hg38_1_159708294_159713893_159863199_159866609_RF	CRP	104796.2151
51	Hg38_12_8119443_8124985_8219310_8221338_FR	CLEC4A	17037.22852
52	Hg38_12_8083961_8090020_8219310_8221338_FR	CLEC4A	18859.97781
53	Hg38_12_8219310_8221338_8280556_8285132_RR	CLEC4A	22456.54994
54	Hg38_12_8219310_8221338_8280556_8285132_RF	CLEC4A	24421.30275
55	Hg38_12_8219310_8221338_8360776_8364742_RR	CLEC4A	24631.85253
56	Hg38_12_8163206_8167779_8219310_8221338_FR	CLEC4A	26120.50389
57	Hg38_12_8219310_8221338_8328073_8331432_RR	CLEC4A	26483.91688
58	Hg38_12_8219310_8221338_8255950_8259013_RR	CLEC4A	26177.66647
59	Hg38_X_1815902_1820657_1862592_1866142_RR	AKAP17A	75133.70138
60	Hg38_3_196593741_196597691_196703167_196707250_FR	NRROS	74115.71314
61	Hg38_5_75334371_75336800_75481806_75484209_FF	COL4A3BP	57905.16147
62	Hg38_2_161723651_161741319_161918005_161924903_FF	DPP4	62589.08218
63	Hg38_6_123594_131362_212545_213965_RF	DUSP22	75804.29568
64	Hg38_1_27649538_27652259_27797543_27806064_RF	IFI6	66756.33102
65	Hg38_X_133714472_133717449_133849575_133858877_FR	GPC3	73268.76653
66	Hg38_3_55467637_55470328_55535014_55543312_RF	WNT5A	72517.34766
67	Hg38_4_145148297_145150633_145243015_145254513_FF	ABCE1	68632.72477
68	Hg38_19_55633863_55635586_55776223_55778463_RF	NLRP9	75169.9172
69	Hg38_5_75334371_75336800_75398018_75402594_FR	COL4A3BP	68717.29379
70	Hg38_12_57452982_57456003_57579684_57582438_FF	ARHGAP9	56735.59546
71	Hg38_17_7811362_7813705_7929728_7931226_RR	KDM6B	64335.59006
72	Hg38_12_54361590_54362896_54554738_54558191_FR	GPR84	77977.99646
73	Hg38_19_55562835_55568514_55776223_55778463_FF	NLRP9	68297.20436
74	Hg38_11_71580341_71586157_71832412_71840897_FR	DEFB108B	77867.08944
75	Hg38_6_88188008_88196988_88297132_88306521_FF	CNR1	66691.60404
76	Hg38_6_29569885_29574451_29588494_29591069_FR	UBD	70449.91197
77	Hg38_5_75334371_75336800_75441359_75447695_FR	COL4A3BP	64955.57945
78	Hg38_1_6450603_6452273_6528747_6530250_RR	TNFRSF25	71701.08408
79	Hg38_1_203176687_203182913_203266998_203270781_FF	CHI3L1	73183.63882
80	Hg38_5_100903133_100904261_100940255_100954422_FR	SLCO4C1	71609.32595
81	Hg38_13_52856863_52871994_53051233_53054182_RR	OLFM4	71949.72778
82	Hg38_13_52856863_52871994_52963892_52968641_RR	OLFM4	68520.61362
83	Hg38_3_105173425_105200082_105366513_105369025_FR	ALCAM	66104.48917
84	Hg38_11_71704758_71706689_71832412_71840897_FR	DEFB108B	64412.60339
85	Hg38_5_53482717_53490284_53612898_53621230_RR	FST	77444.92065
86	Hg38_1_20178914_20185415_20244434_20247937_FR	PLA2G2F	62651.6697
87	Hg38_7_44346974_44354823_44468808_44471840_RF	CAMK2B	66580.98176
88	Hg38_2_47522457_47530546_47606707_47620212_FF	MSH2	72271.33277
89	Hg38_16_85802241_85804577_85911952_85914037_RR	IRF8	74094.77992
90	Hg38_16_85802241_85804577_86036135_86037752_RR	IRF8	77409.18625
91	Hg38_8_143703137_143706882_143989689_143994132_RR	SCRIB	73024.49729
92	Hg38_19_38110009_38116645_38359207_38361549_RF	SIPA1L3	72414.84672
93	Hg38_15_53421523_53422709_53572546_53588481_FR	ONECUT1	74543.21657

94	Hg38_16_85802241_85804577_85867011_85868324_RR	IRF8	76315.72288
95	Hg38_13_52856863_52871994_52977238_52983123_RR	OLFM4	85912.11333
96	Hg38_19_11340579_11345804_11410807_11412077_FR	RAB3D	65883.23259
97	Hg38_6_88064644_88073249_88188008_88196988_RF	AKIRIN2	76118.52573
98	Hg38_14_87632983_87637573_87760445_87771456_RF	GPR65	60903.03466
99	Hg38_6_31492265_31495553_31621846_31623705_RF	AIF1	64391.76277
100	Hg38_1_203176687_203182913_203386317_203394696_FF	CHI3L1	84256.99019
101	Hg38_6_31621846_31623705_31710695_31717311_FR	BAG6	76086.53763
102	Hg38_7_156960823_156963130_157154305_157160294_RR	MNX1	67505.74102
103	Hg38_2_47522457_47530546_47563847_47570151_FR	MSH2	82371.47843
104	Hg38_1_203176687_203182913_203318340_203323344_FF	CHI3L1	79022.09419
105	Hg38_1_87788995_87790981_87818262_87826752_RF	LMO4	86647.00466
106	Hg38_2_1263661_1274578_1419778_1424769_RF	PXDN	71442.26485
107	Hg38_16_19856577_19858875_20038454_20045219_FR	GPRC5B	75834.09114
108	Hg38_17_7929728_7931226_8091106_8097573_RR	TRAPPC1	72855.19388
109	Hg38_14_24307628_24311588_24485793_24490540_RR	LTB4R	94399.28713
110	Hg38_14_87841922_87846485_88021020_88026181_FR	GPR65	64229.78661
111	Hg38_1_164748288_164754002_164931877_164940038_FR	PBX1	72147.73599
112	Hg38_1_39655161_39659067_39836323_39843028_FF	PPIE	78015.47867
113	Hg38_1_121080942_121088798_121289281_121293407_RF	FCGR1B	69362.97632
114	Hg38_1_87818262_87826752_87928072_87933012_FF	LMO4	86699.02543
115	Hg38_1_87725315_87731896_87818262_87826752_RF	LMO4	82370.32264
116	Hg38_6_31621846_31623705_31760827_31764995_FR	BAG6	64487.05815
117	Hg38_20_30175888_30181348_30407864_30413511_RR	DEFB115	78526.88029
118	Hg38_6_88188008_88196988_88297132_88306521_FR	CNR1	79295.45848

Table 3.a1

no.	FC:(class1/class2)	pfp	P.value	CCSs
1	-1.273955346	0.005801433	0.005727997	Immune
2	-1.257925344	0.003678786	0.003275206	Immune
3	-1.251537985	0.003591299	0.003182164	Immune
4	-1.219963576	0.001529047	0.000920221	Immune
5	-1.20992116	0.002056946	0.001478485	Immune
6	-1.204270443	0.001905941	0.001319886	Immune
7	-1.20352041	0.000548965	0.0000854501245417827	Immune
8	-1.20265895	0.0025339	0.002063472	Immune
9	-1.197079593	0.001529047	0.00092259	Immune
10	-1.195746952	0.005042802	0.004913289	Immune
11	-1.185895106	0.002250025	0.001670904	Immune
12	-1.183435224	0.000520629	0.0000699049196474862	Cardio
13	-1.183434809	0.001364867	0.000760179	Immune
14	-1.181127512	0.00048383	0.0000459179356058606	Immune
15	-1.180302978	0.000693008	0.00020761	Immune
16	-1.178910824	0.001087752	0.000477881	Immune
17	-1.178597726	0.002297443	0.001781961	Immune
18	-1.177395452	0.001369925	0.000768776	Immune
19	-1.175238807	0.000691883	0.000188452	Immune
20	-1.174498675	0.000691883	0.000204354	Immune
21	-1.174476154	0.00048383	0.0000364444423340785	Immune
22	-1.174324323	0.000580521	0.000141879	Immune

23	-1.173818675	0.002056946	0.001467992	Immune
24	-1.173804774	0.002172138	0.001594735	Immune
25	-1.172308346	0.000548965	0.000115314	Immune
26	-1.171668875	0.000786846	0.000252322	Cardio
27	-1.171515589	0.001905941	0.001326921	Immune
28	-1.171289424	0.001303562	0.000704034	Immune
29	-1.170754835	0.002297443	0.001765408	Immune
30	-1.169480391	0.002305285	0.001809211	Immune
31	-1.169390122	0.004420249	0.004159137	Immune
32	-1.168763954	0.00048383	0.0000328398262035424	Immune
33	-1.168388858	0.002316153	0.001827513	Immune
34	-1.168128163	0.00092227	0.00031414	Immune
35	-1.167926895	0.00063478	0.000168739	Immune
36	-1.167913965	0.005042802	0.004887801	Immune
37	-1.167215962	0.00092227	0.000315206	Immune
38	-1.166183201	0.003576526	0.003150581	Immune
39	-1.166029994	0.001303562	0.000699267	Immune
40	-1.165357971	0.001038693	0.000436752	Immune
41	-1.164160024	0.003576526	0.003153983	Immune
42	-1.163643176	0.001256517	0.000635032	Immune
43	-1.161997248	0.000548965	0.000109155	Immune
44	-1.144590291	0.003077496	0.002610028	Cardio
45	-1.144176303	0.001042455	0.00045305	Cardio
46	-1.143933829	0.000548965	0.00011352	Immune
47	-1.140546879	0.000691883	0.000199948	Cardio
48	-1.140518988	0.000548965	0.000103344	Cardio
49	-1.139661805	0.000520629	0.0000724926837099582	Cardio
50	-1.134523619	0.000439511	0.0000222537163232683	Immune
51	-1.291886788	0.004735379	0.004479108	Immune
52	-1.276607983	0.005042802	0.004915136	Immune
53	-1.258007859	0.004367629	0.004084773	Immune
54	-1.245249491	0.004313719	0.004004296	Immune
55	-1.242984819	0.00604682	0.00604682	Immune
56	-1.242567483	0.003834101	0.00346781	Immune
57	-1.237550281	0.004735694	0.004515894	Immune
58	-1.237318061	0.005042802	0.004853215	Immune
59	-1.185115992	0.001735668	0.001164435	Immune
60	-1.184021602	0.003517821	0.003042841	Immune
61	-1.177773137	0.001038693	0.000435011	Immune
62	-1.174455561	0.000548965	0.000112646	Immune
63	-1.168790651	0.000439511	0.0000202371768844078	Immune
64	-1.16673532	0.001014024	0.000363933	Immune
65	-1.166592129	0.000959795	0.000340181	Immune
66	-1.16579207	0.000548965	0.0000919355625947195	Immune
67	-1.161957027	0.001889671	0.001291674	Immune
68	-1.161756615	0.000548965	0.000102232	Immune
69	-1.161687815	0.001256517	0.000624724	Immune
70	-1.161219868	0.006007073	0.005981727	Immune
71	-1.161116734	0.000959795	0.000338831	Immune
72	-1.160957348	0.000508234	0.0000540392644924905	Immune
73	-1.160376317	0.001256517	0.000628074	Immune
74	-1.1596609	0.00048383	0.0000469539791565224	Immune

75	-1.159541181	0.001087752	0.000501372	Immune
76	-1.159137231	0.001687588	0.001103697	Immune
77	-1.158036372	0.004074156	0.003713155	Immune
78	-1.157946235	0.00592368	0.005873691	Immune
79	-1.157617797	0.001038693	0.000427764	Immune
80	-1.157435731	0.001660717	0.001079116	Immune
81	-1.156728084	0.000548965	0.000103051	Immune
82	-1.155458775	0.001038693	0.000399475	Immune
83	-1.155306024	0.001038693	0.000419393	Immune
84	-1.155297894	0.001523301	0.000897002	Immune
85	-1.155073798	0.00048383	0.0000419685608857737	Immune
86	-1.154967103	0.002294852	0.001733243	Immune
87	-1.154518586	0.001386154	0.000789582	Immune
88	-1.154279434	0.001660717	0.00106681	Immune
89	-1.154128129	0.00060994	0.000156989	Immune
90	-1.153773794	0.00048383	0.0000304928532924081	Immune
91	-1.153622734	0.002297443	0.001793362	Immune
92	-1.153379263	0.000520629	0.0000669248704817302	Immune
93	-1.152793154	0.000439511	0.0000221399983527453	Immune
94	-1.152700501	0.000548965	0.000103767	Immune
95	-1.152626951	0.000211853	0.00000273860631884956	Immune
96	-1.152618451	0.001555148	0.000948832	Immune
97	-1.152145384	0.001038693	0.000418922	Immune
98	-1.151874288	0.004367629	0.004091197	Immune
99	-1.151161423	0.001794515	0.001211487	Immune
100	-1.151012921	0.000520629	0.0000713253832841399	Immune
101	-1.150617051	0.000548965	0.000106987	Immune
102	-1.150577287	0.004266767	0.003924706	Immune
103	-1.149458647	0.001014024	0.000375521	Immune
104	-1.149204947	0.001256975	0.000641747	Immune
105	-1.149093467	0.001183842	0.000569443	Immune
106	-1.149018322	0.001319233	0.00072363	Immune
107	-1.148871477	0.003207085	0.002746997	Immune
108	-1.148855684	0.001256517	0.000635169	Immune
109	-1.14852207	0.000130185	0.00000109860999870066	Immune
110	-1.147938237	0.002345377	0.00188026	Immune
111	-1.147750151	0.001605895	0.000990951	Immune
112	-1.147573915	0.001303562	0.000685373	Immune
113	-1.147511427	0.001306826	0.000711311	Immune
114	-1.147428692	0.000944817	0.000326899	Immune
115	-1.14732136	0.001303562	0.000694322	Immune
116	-1.14690098	0.002606229	0.002155362	Immune
117	-1.146873351	0.000580521	0.000141801	Immune
118	-1.146790056	0.000749172	0.000229144	Immune

Table 3.a2

	Probe sequence	Probe Location
no.	**60 mer**	**Chr**
1	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGACTGTCCCAAAGTGAACTTGGAAAATGTT	12
2	AATTAATGAAGCGCAAATCAAAGGGGACTCGAGCTTCCCAGACATGCTCATGCTAGATTA	12

3	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGTAGGCTCTTTCTGACCCTCAGAAATAC	12
4	TACAGCTGCAGGAAAACCCCGTTCTTATTCGACATATGCTTTCAGTTCTCTTGGGTAAAT	3
5	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGGTAAGAGAAAGGTCAGCCCTCAACTTG	12
6	TACAGCTGCAGGAAAACCCCGTTCTTATTCGAGAGTCATTTTATCCTCAAGCACTATTGC	3
7	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGAGGTTCAGGCTCCTCAGTGTTTTGCAGGC	19
8	TACAGCTGCAGGAAAACCCCGTTCTTATTCGATGATAGTAATCTTCAAAGAATAGTCACA	3
9	TGACCCCAAGCATTCTGGCCTGAACGATTCGATTTCCCACAAATAAATCCAGTAATCTTG	1
10	TTTTAGGGACCAGGGGTCAGAAGATGGATCGACAGATAGGCCAGATAGCTAGACAAAGAG	22
11	CCTCCCTGGGTCACCAGCTTCGTGACCCTCGATGTTCTTTATACCTTGCCCATATTGTAC	20
12	AGAGAGCTCAATGTGTTTCGGCTTTAGTTCGATGGTGAAGACCCCCATAGCTTTTGTTCT	2
13	GGTGGACCGACGAGGCTCAAAATCAAGATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
14	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATCACATCACTCTTTCCTGTTTTTTTTCC	1
15	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAGAAGTCTCTGTGAAACTCCTGTGCAAAA	1
16	CACATCCCTGTCTAGTCCTATCTGTTCATCGAGCCAGAGTGTCACTCTGTCACCTAGGCT	22
17	TTGTGGTGAGAACGATACAGGAGACAGCTCGATGTATTTCCCTGGGAAGACTTAGCTGCT	6
18	CTGTGTGGTACAAACATGACAACCTAGGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
19	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGAGGCCTTCCCTGCTTGCGCGGTGCCCTTC	19
20	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAGGAGTCCTGTCAGACCCTAGGTCTCCA	1
21	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAATAAATAGAAATATAGAATAAATAGACA	16
22	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGGTGCCAGCTGCTAAGAGGGGTCTCGCT	16
23	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGCAACCCCTGAGAATAAGGTGGCTCAAT	2
24	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGTGTAACTCACTAGCACGTTGTCTCTC	2
25	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAAGTTTCCAGGACTGCCACACTATCAGC	1
26	AGAGAGCTCAATGTGTTTCGGCTTTAGTTCGATGCTCATATTGTCCCAAATTTAGGCTGG	2
27	CAGCGCGCAGCCAAACCGTCGGGAACACTCGAGCAGCGGGAATGTTTGTCTTGGGATTAG	2
28	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGAAGTATGCTCCTACGCTAGGTAAGTCTTG	5
29	TACAGCTGCAGGAAAACCCCGTTCTTATTCGACAGAGACCTCCCCAGGATGAGTAAACCT	3
30	CCTCCCTGGGTCACCAGCTTCGTGACCCTCGACTCAAAGGAGAAAAATGCATGTCCCCCT	20
31	TCCGGAGCTCAGAGGTTCGGAAGACTTATCGAAAAGACTTTAACATATTTGAATACCAAT	5
32	CACGCCAAACCTCAAGTACATACTAATTTCGACTCATGCTCTTGAAAATAGTAAGAAAAA	11
33	AAGACTCCTGTCTCAAGAGCCGAGCTCCTCGAAGCCATTTATAAGGGTTAGAACTAACTT	11
34	GTGGGCAGATTGGACAATCGTGAGAAGATCGAGCACATGCAATTCCCTCTGCTCCATGAC	6
35	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGACCTGGACTCGCTGGTGAGCCGGCCGGGC	19
36	GGAGCGGGACTGACTGATTGCCAGCAATTCGAAAATGGGAAGAAAATTGCTTATTGTGTT	8
37	AACTGCCGCGGCTCTCTCTCAACGGGGTTCGAGACCAGGCTGGCCGACATTGCAAAACCT	11
38	TCCGGAGCTCAGAGGTTCGGAAGACTTATCGAAAGCTAAGGCTTTATAGAAATGAAGGCT	5
39	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATACCTTATTTCCCTTCTTTGATTAAATG	5
40	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATCCCATCTCCTGTCTACTTGGGACCTTT	1
41	CGCCCTCCCAGGAGATCCCCACAACTAATCGACTTAAGGAAAGAAAAAGTCATATGCTGA	14
42	AAGCGAGCGGATCACCTCGGCCAGGAGTTCGAGACAAGCCTGGCCAACATGGTGAAACCC	X
43	GTGAACATTCACTGTCTTCCTGACAGCTTCGATAGATAGATACTATTTTATTTTATTTTT	18
44	CTTGTCAGCACTTGGAGCTATCCAATGGTCGAAGCGAACAGTTGGGGGAACTCAAATGGG	19
45	AGGTGAGAAGCTTTGTCCGAGATGATGGTCGAAGAAAGGGAAATGACTTCTTCTCAGTAG	1
46	CGGATTCTGGTTACAGAGAGGGATGAGATCGAATGGACTCCGCTAAGTGTGTTGGCTTGA	1
47	AGGTGAGAAGCTTTGTCCGAGATGATGGTCGATATATTGCACTTCCAAGGTATCATCTGA	1
48	AGAACTCACCATATTGCCAGGGCTGGTCTCGAACTCCTGACGTCAGGTGTTCCACCCGCC	12
49	CAGGCTAAGTGCCTGGGGTTCATCCTAATCGAGCAATCCATCAGGTCATTGGTTAGGTTC	2
50	CGGATTCTGGTTACAGAGAGGGATGAGATCGAAGTTGAGAATTGCTGGCCTAGAGTCCCT	1
51	CCCCCATCATTTGACAAAATATCATAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT	12
52	TCAAAAGGGAAGACTGCCTATATCAAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT	12
53	AATTAATGAAGCGCAAATCAAAGGGGACTCGACTATAAGAGAGAGGTACGCTCCGGGGGG	12
54	AGGCTCCGTTCCAGTTCTTGATCCACACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT	12

55	AATTAATGAAGCGCAAATCAAAGGGGACTCGAAGATCCAGAAAATTGGCCTGGTGCAGTA	12
56	CAGTCCTTGCCTCCTCAGAAGAAAGAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT	12
57	AATTAATGAAGCGCAAATCAAAGGGGACTCGACTTTCAAACCTTTCTCCACAACAGGGCC	12
58	AATTAATGAAGCGCAAATCAAAGGGGACTCGAATCCCTGGGCTGAAGTGATCCACTTGCC	12
59	AAGCGAGCGGATCACCTCGGCCAGGAGTTCGAGAGCAGCCTGGCCACATGGGAGGGAGGG	X
60	GACAGTTGGACTACCTGAGGTCAGGAGTTCGAGACATAATTTATATAGCTCAGTATATAC	3
61	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATGTTACCATGAGGCTTTCAAATAACAAG	5
62	ACAGTCCTCCGCTCTACCAACTGAGCTATCGAAACCTGATGATATGGCTTCTCCATTCAT	2
63	CAGAAAGAAGACAAGGGGCATCTGAATGTCGAATCAAGTTTATAATTTTAAAATAATTGG	6
64	TCCCTGAGTTATGCAGCTCTTCCAAATGTCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG	1
65	ACCACACCCTGGTCCTGGTAGTTAAAGATCGACCACTTTCAAATCTTTTCCACCTGGTAA	X
66	GGAGACAGGGTTACATCAGCCAGTAACATCGATGTTTGTTTTTTAAACCAGTGAAATATA	3
67	GTTGTCTTACTCCTGAAGGATGCTGCAGTCGAGGCATTTTAACTAAATTATCTGCTTCAC	4
68	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGACCTCCCAAATTGTTGGGATTACAGGCGT	19
69	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGAAAATAAATAAGTAAAATTAAAAAAAAAT	5
70	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGAAAAAGTTTCTGCAGCCCCTCACCAAG	12
71	TAACTCACAAAGGCAAGATTAGTTGATGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
72	CAAAGCAGAGGAACACAGCAAAACACATTCGAGTTCACATTCTGCCCTAACAATTACAAC	12
73	AATGACACGCTAAAAGGAAAAAGGAACGTCGAACCTCTCAGCTTGCTCCTTCCTATTCTG	19
74	GTTTTTGGCTACCAGTCCTTCACCTGCGTCGACCTTTATAGACGCTATCAAGGAAGCACC	11
75	TTGTGGTGAGAACGATACAGGAGACAGCTCGAAATGGTTCATAGATTTAAGTGTAAAAGT	6
76	ATTTTGTCTGTGAGGTCCCAGCTCTAATTCGACTCTCCTGTGAAGACACCTCCTACAATG	6
77	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGACAAACTATGCATTTCTCAGAATGCATCT	5
78	GTATGAGGTGCAAGGCCCCACCCATTCTTCGAGCAAGAAGAGGAGGGCCAAGCCCAGGCC	1
79	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAACTCATCCATTCCAAAGATGGCTCAGGG	1
80	GCAGGGACACTTTTCAAGAGTTCTGTGTTCGAGATATTAAACAAGACATTCAATTGGTTC	5
81	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGGGACCAAATCTCCAACTTTTTTTTCCC	13
82	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGGGTTGCTTTTCTTTTTCAAGAAAAATT	13
83	TTCTCATGTTAATAAACATGAAAAATGGTCGATTTTTAAACCTCAGCGAGGGTGGGTGGG	3
84	AGGTGACCGTCTTCCAGAGGAGAGCGGATCGACCTTTATAGACGCTATCAAGGAAGCACC	11
85	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAAAATAAAACAACTACGTTTGCTGTACAA	5
86	GCCAGGATAGGGAAGAAGCAGATTGATATCGAGGATGATAGATCCCAAGGAGAGAGTGAC	1
87	CAAACCAGAGATGAAGCAACAGGTCTAATCGAGTCCTTTGCCCATATTTTGATTGGATTG	7
88	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGGCTTTTCAGGACTGGAGTGACTGATG	2
89	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAACACTTTGGACAGCAGTCTTTTAAATGG	16
90	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGTTGGTCACCTGAGCCTATTATTGACGG	16
91	CAACCAACCAGAAAACACAGGAAACAACTCGATTTGGGAACTAAAGGATTAGGCTTCTTG	8
92	ACGCTGAGGAGGAAGATTCGGGCTGGATTCGAGGAAGTGTTTCTGGCCATGGTGAGGCCT	19
93	CTGCCTTCCTAACCATGTCCTGAGAAACTCGAAAAGCACAATCCATGAAAGAAAAAAATT	15
94	GAGAGGCCGTTCTAAAAGCACATTTGTATCGATCTGTCACATACCTAGAAATACAGGGAC	16
95	GTTGGAAGGAATCCAGGGTAAGGGATATTCGATACTGCTTGAACATAAAATGAAATGTAG	13
96	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAAAAGAATGTGAGACATACCTCAGGAAAA	19
97	TTGTGGTGAGAACGATACAGGAGACAGCTCGATTTGTAGCTGATGCATCGCAAACTAAAA	6
98	CGCCCTCCCAGGAGATCCCCACAACTAATCGACACCCTCTGATTTCATCCCTGACCAGTC	14
99	GCCATCAGATCTCCCACATGAGGCATTTTCGACTTTGTCTCCATCCAAGGACGCTATGGC	6
100	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAGCCTGCAGTCTCTGCTACTCAGGAGGCT	1
101	GCCATCAGATCTCCCACATGAGGCATTTTCGACTTCACCATCCAGCTGGCCTCCAGCAGC	6
102	CCCAGCTCCTGCAAAACTCCTCCTGACTTCGAGATTCTGTCTAAAAAAAAAAGATAAAAG	7
103	CGGAGGGTATAATAACTGCTGTTGTGTATCGACGCGGAGGCCCTTGGGCATAGTCAAGAC	2
104	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAAGGACCTGTCTCTGCCCATAAGAGGGC	1
105	AGCTGTTCCTTTAATCTTCCCAGCACTATCGATGAACACTTCTTTCCAAAAAAAGTTTAC	1
106	TTCTAGATGCCGGGATACAGAGATGAGTTCGACATGTACGGCCTGGCTCAGCATTGCCTT	2

107	AGGAAATGTACTAACTGTTAAGGAAAACTCGAAGCTCTTTAAAAGTATTCCAACCCCATC	16
108	CTTATCCTCCGAGACCTTTACCTCATCCTCGATGACTCTTGGAGGATGCTGGGAGCCTGA	17
109	CACTCCATGGTCTCTCCCTCATCCCTAATCGATACAGAAAAATTTCAAGAAAAATTTCAT	14
110	ATGAGGCTGTGGAAGAGCAAAATGAGTTTCGACATGGTGGTATACCATGGTGGTGATACT	14
111	AGTACTCTTTGTTGTCATTTAGTATGTATCGAGGTCAATGTCGCATAGCTAATAAGACCT	1
112	AAACTAGAGGGATCTACCAGAGGAGGTGTCGATTTGTTGAATGTTCTTCAGGGATAGCCT	1
113	AGCAAGGAACATAATTATGGCTGTGCTTTCGATGATGCAGTTGCTTTTGAAACTCTTTAA	1
114	AGCTGTTCCTTTAATCTTCCCAGCACTATCGAGTGCCACTATTTTTAAACAGATCTTAAA	1
115	AGCTGTTCCTTTAATCTTCCCAGCACTATCGATCATAAATTAGTAAATTGAAAGATCAAG	1
116	GCCATCAGATCTCCCACATGAGGCATTTTCGACCTCAACCAGGTCAAAGGGAACAAAGGG	6
117	ATTCAGGGCGGGGGTCCTCTTGCCAAGATCGATAGACCACTAGCAAGACTAATAAAGAAG	20
118	TTGTGGTGAGAACGATACAGGAGACAGCTCGAATGTGCAAAGTATAACAAAAAGATAGGT	6

Table 3.a3

	Probe Location			
no.	**Start1**	**End1**	**Start2**	**End2**
1	57455972	57456001	57739421	57739450
2	8219312	8219341	8341971	8342000
3	57455972	57456001	57601755	57601784
4	194098667	194098696	194165135	194165164
5	57455972	57456001	57741883	57741912
6	194044422	194044451	194098667	194098696
7	55711884	55711913	55778432	55778461
8	194098667	194098696	194197501	194197530
9	121342022	121342051	121413867	121413896
10	24151422	24151451	24244879	24244908
11	48471131	48471160	48503371	48503400
12	11010420	11010449	11159162	11159191
13	7929730	7929759	8058169	8058198
14	203182882	203182911	203368453	203368482
15	203071963	203071992	203182882	203182911
16	42580439	42580468	42682812	42682841
17	88165454	88165483	88196957	88196986
18	7929730	7929759	7946534	7946563
19	55674840	55674869	55778432	55778461
20	203182882	203182911	203229061	203229090
21	85802243	85802272	86052799	86052828
22	85802243	85802272	85995089	85995118
23	47530515	47530544	47601939	47601968
24	47354007	47354036	47530515	47530544
25	203182882	203182911	203350353	203350382
26	11010420	11010449	11148542	11148571
27	1633516	1633545	1674976	1675005
28	75336769	75336798	75362871	75362900
29	194098667	194098696	194189180	194189209
30	48373935	48373964	48503371	48503400
31	140633077	140633106	140734429	140734458
32	59792210	59792239	59978142	59978171
33	5691214	5691243	5795402	5795431
34	1238871	1238900	1325060	1325089

35	55694909	55694938	55778432	55778461
36	30132538	30132567	30177060	30177089
37	63909129	63909158	64174732	64174761
38	140633077	140633106	140703785	140703814
39	75336769	75336798	75421279	75421308
40	203182882	203182911	203381985	203382014
41	87771425	87771454	87820821	87820850
42	1815904	1815933	1830881	1830910
43	28150491	28150520	28322524	28322553
44	55106469	55106498	55175441	55175470
45	201489509	201489538	201559490	201559519
46	159614100	159614129	159866578	159866607
47	201387332	201387361	201559490	201559519
48	110242072	110242101	110379083	110379112
49	53756904	53756933	53865032	53865061
50	159708296	159708325	159866578	159866607
51	8124954	8124983	8219312	8219341
52	8089989	8090018	8219312	8219341
53	8219312	8219341	8280558	8280587
54	8219312	8219341	8285101	8285130
55	8219312	8219341	8360778	8360807
56	8167748	8167777	8219312	8219341
57	8219312	8219341	8328075	8328104
58	8219312	8219341	8255952	8255981
59	1815904	1815933	1862594	1862623
60	196597660	196597689	196703169	196703198
61	75336769	75336798	75484178	75484207
62	161741288	161741317	161924872	161924901
63	123596	123625	213934	213963
64	27649540	27649569	27806033	27806062
65	133717418	133717447	133849577	133849606
66	55467639	55467668	55543281	55543310
67	145150602	145150631	145254482	145254511
68	55633865	55633894	55778432	55778461
69	75336769	75336798	75398020	75398049
70	57455972	57456001	57582407	57582436
71	7811364	7811393	7929730	7929759
72	54362865	54362894	54554740	54554769
73	55568483	55568512	55778432	55778461
74	71586126	71586155	71832414	71832443
75	88196957	88196986	88306490	88306519
76	29574420	29574449	29588496	29588525
77	75336769	75336798	75441361	75441390
78	6450605	6450634	6528749	6528778
79	203182882	203182911	203270750	203270779
80	100904230	100904259	100940257	100940286
81	52856865	52856894	53051235	53051264
82	52856865	52856894	52963894	52963923
83	105200051	105200080	105366515	105366544
84	71706658	71706687	71832414	71832443
85	53482719	53482748	53612900	53612929
86	20185384	20185413	20244436	20244465

87	44346976	44347005	44471809	44471838
88	47530515	47530544	47620181	47620210
89	85802243	85802272	85911954	85911983
90	85802243	85802272	86036137	86036166
91	143703139	143703168	143989691	143989720
92	38110011	38110040	38361518	38361547
93	53422678	53422707	53572548	53572577
94	85802243	85802272	85867013	85867042
95	52856865	52856894	52977240	52977269
96	11345773	11345802	11410809	11410838
97	88064646	88064675	88196957	88196986
98	87632985	87633014	87771425	87771454
99	31492267	31492296	31623674	31623703
100	203182882	203182911	203394665	203394694
101	31623674	31623703	31710697	31710726
102	156960825	156960854	157154307	157154336
103	47530515	47530544	47563849	47563878
104	203182882	203182911	203323313	203323342
105	87788997	87789026	87826721	87826750
106	1263663	1263692	1424738	1424767
107	19858844	19858873	20038456	20038485
108	7929730	7929759	8091108	8091137
109	24307630	24307659	24485795	24485824
110	87846454	87846483	88021022	88021051
111	164753971	164754000	164931879	164931908
112	39659036	39659065	39842997	39843026
113	121080944	121080973	121293376	121293405
114	87826721	87826750	87932981	87933010
115	87725317	87725346	87826721	87826750
116	31623674	31623703	31760829	31760858
117	30175890	30175919	30407866	30407895
118	88196957	88196986	88297134	88297163

Table 3.a4

	4 kb Sequence Location				
no.	**Chr**	**Start1**	**End1**	**Start2**	**End2**
1	12	57452002	57456001	57739421	57743420
2	12	8219312	8223311	8341971	8345970
3	12	57452002	57456001	57601755	57605754
4	3	194094697	194098696	194161165	194165164
5	12	57452002	57456001	57737913	57741912
6	3	194044422	194048421	194094697	194098696
7	19	55711884	55715883	55774462	55778461
8	3	194094697	194098696	194193531	194197530
9	1	121338052	121342051	121409897	121413896
10	22	24147452	24151451	24244879	24248878
11	20	48471131	48475130	48499401	48503400
12	2	11006450	11010449	11159162	11163161

13	17	7929730	7933729	8054199	8058198
14	1	203178912	203182911	203364483	203368482
15	1	203071963	203075962	203178912	203182911
16	22	42576469	42580468	42682812	42686811
17	6	88165454	88169453	88192987	88196986
18	17	7929730	7933729	7942564	7946563
19	19	55674840	55678839	55774462	55778461
20	1	203178912	203182911	203225091	203229090
21	16	85802243	85806242	86052799	86056798
22	16	85802243	85806242	85995089	85999088
23	2	47526545	47530544	47597969	47601968
24	2	47354007	47358006	47526545	47530544
25	1	203178912	203182911	203350353	203354352
26	2	11006450	11010449	11144572	11148571
27	2	1633516	1637515	1671006	1675005
28	5	75332799	75336798	75362871	75366870
29	3	194094697	194098696	194189180	194193179
30	20	48373935	48377934	48499401	48503400
31	5	140633077	140637076	140734429	140738428
32	11	59792210	59796209	59978142	59982141
33	11	5687244	5691243	5791432	5795431
34	6	1238871	1242870	1325060	1329059
35	19	55694909	55698908	55774462	55778461
36	8	30132538	30136537	30177060	30181059
37	11	63905159	63909158	64170762	64174761
38	5	140633077	140637076	140703785	140707784
39	5	75332799	75336798	75421279	75425278
40	1	203178912	203182911	203381985	203385984
41	14	87767455	87771454	87816851	87820850
42	X	1815904	1819903	1830881	1834880
43	18	28150491	28154490	28322524	28326523
44	19	55102499	55106498	55175441	55179440
45	1	201489509	201493508	201555520	201559519
46	1	159614100	159618099	159862608	159866607
47	1	201387332	201391331	201555520	201559519
48	12	110242072	110246071	110379083	110383082
49	2	53752934	53756933	53865032	53869031
50	1	159708296	159712295	159862608	159866607
51	12	8120984	8124983	8219312	8223311
52	12	8086019	8090018	8219312	8223311
53	12	8219312	8223311	8280558	8284557
54	12	8219312	8223311	8281131	8285130
55	12	8219312	8223311	8360778	8364777
56	12	8163778	8167777	8219312	8223311
57	12	8219312	8223311	8328075	8332074
58	12	8219312	8223311	8255952	8259951
59	X	1815904	1819903	1862594	1866593
60	3	196593690	196597689	196703169	196707168
61	5	75332799	75336798	75480208	75484207
62	2	161737318	161741317	161920902	161924901
63	6	123596	127595	209964	213963
64	1	27649540	27653539	27802063	27806062

65	X	133713448	133717447	133849577	133853576
66	3	55467639	55471638	55539311	55543310
67	4	145146632	145150631	145250512	145254511
68	19	55633865	55637864	55774462	55778461
69	5	75332799	75336798	75398020	75402019
70	12	57452002	57456001	57578437	57582436
71	17	7811364	7815363	7929730	7933729
72	12	54358895	54362894	54554740	54558739
73	19	55564513	55568512	55774462	55778461
74	11	71582156	71586155	71832414	71836413
75	6	88192987	88196986	88302520	88306519
76	6	29570450	29574449	29588496	29592495
77	5	75332799	75336798	75441361	75445360
78	1	6450605	6454604	6528749	6532748
79	1	203178912	203182911	203266780	203270779
80	5	100900260	100904259	100940257	100944256
81	13	52856865	52860864	53051235	53055234
82	13	52856865	52860864	52963894	52967893
83	3	105196081	105200080	105366515	105370514
84	11	71702688	71706687	71832414	71836413
85	5	53482719	53486718	53612900	53616899
86	1	20181414	20185413	20244436	20248435
87	7	44346976	44350975	44467839	44471838
88	2	47526545	47530544	47616211	47620210
89	16	85802243	85806242	85911954	85915953
90	16	85802243	85806242	86036137	86040136
91	8	143703139	143707138	143989691	143993690
92	19	38110011	38114010	38357548	38361547
93	15	53418708	53422707	53572548	53576547
94	16	85802243	85806242	85867013	85871012
95	13	52856865	52860864	52977240	52981239
96	19	11341803	11345802	11410809	11414808
97	6	88064646	88068645	88192987	88196986
98	14	87632985	87636984	87767455	87771454
99	6	31492267	31496266	31619704	31623703
100	1	203178912	203182911	203390695	203394694
101	6	31619704	31623703	31710697	31714696
102	7	156960825	156964824	157154307	157158306
103	2	47526545	47530544	47563849	47567848
104	1	203178912	203182911	203319343	203323342
105	1	87788997	87792996	87822751	87826750
106	2	1263663	1267662	1420768	1424767
107	16	19854874	19858873	20038456	20042455
108	17	7929730	7933729	8091108	8095107
109	14	24307630	24311629	24485795	24489794
110	14	87842484	87846483	88021022	88025021
111	1	164750001	164754000	164931879	164935878
112	1	39655066	39659065	39839027	39843026
113	1	121080944	121084943	121289406	121293405
114	1	87822751	87826750	87929011	87933010
115	1	87725317	87729316	87822751	87826750
116	6	31619704	31623703	31760829	31764828

117	20	30175890	30179889	30407866	30411865
118	6	88192987	88196986	88297134	88301133

Table 3.a5

no.	probe	Primer ID
1	Hg38_12_57452982_57456003_57739419_57741914_FR	OBD183-1149
2	Hg38_12_8219310_8221338_8341969_8343630_RR	OBD183-1109
3	Hg38_12_57452982_57456003_57601753_57604119_FR	OBD183-1137
4	Hg38_3_194096425_194098698_194154195_194165166_FF	OBD183-2161
5	Hg38_12_57452982_57456003_57739419_57741914_FF	OBD183-1185
6	Hg38_3_194044420_194052936_194096425_194098698_RF	OBD183-1189
7	Hg38_19_55711882_55714266_55776223_55778463_RF	OBD183-1025
8	Hg38_3_194096425_194098698_194189178_194197532_FF	OBD183-1169
9	Hg38_1_121333642_121342053_121403378_121413898_FF	OBD183-1061
10	Hg38_22_24148514_24151453_24244877_24251612_FR	OBD183-1129
11	Hg38_20_48471129_48476648_48496455_48503402_RF	OBD183-1073
12	Hg38_2_11008274_11010451_11159160_11162827_FR	OBD183-2165
13	Hg38_17_7929728_7931226_8055790_8058200_RF	OBD183-1005
14	Hg38_1_203176687_203182913_203364177_203368484_FF	OBD183-1081
15	Hg38_1_203071961_203079830_203176687_203182913_RF	OBD183-1045
16	Hg38_22_42578934_42580470_42682810_42685060_FR	OBD183-2169
17	Hg38_6_88165452_88168090_88188008_88196988_RF	OBD183-1173
18	Hg38_17_7929728_7931226_7944762_7946565_RF	OBD183-1001
19	Hg38_19_55674838_55678632_55776223_55778463_RF	OBD183-1017
20	Hg38_1_203176687_203182913_203223882_203229092_FF	OBD183-1077
21	Hg38_16_85802241_85804577_86052797_86054069_RR	OBD183-2173
22	Hg38_16_85802241_85804577_85995087_85996356_RR	OBD183-1021
23	Hg38_2_47522457_47530546_47595212_47601970_FF	OBD183-2177
24	Hg38_2_47354005_47355988_47522457_47530546_RF	OBD183-2181
25	Hg38_1_203176687_203182913_203350351_203352113_FR	OBD183-1069
26	Hg38_2_11008274_11010451_11142335_11148573_FF	OBD183-1161
27	Hg38_2_1633514_1641369_1669637_1675007_RF	OBD183-1153
28	Hg38_5_75334371_75336800_75362869_75366450_FR	OBD183-1117
29	Hg38_3_194096425_194098698_194189178_194197532_FR	OBD183-1181
30	Hg38_20_48373933_48385139_48496455_48503402_RF	OBD183-1193
31	Hg38_5_140633075_140635001_140734427_140740603_RR	OBD183-1113
32	Hg38_11_59792208_59794193_59978140_59991387_RR	OBD183-1125
33	Hg38_11_5689507_5691245_5788110_5795433_FF	OBD183-2185
34	Hg38_6_1238869_1247003_1325058_1328459_RR	OBD183-1037
35	Hg38_19_55694907_55697956_55776223_55778463_RF	OBD183-1013
36	Hg38_8_30132536_30134220_30177058_30181551_RR	OBD183-2189
37	Hg38_11_63903088_63909160_64170615_64174763_FF	OBD183-2193
38	Hg38_5_140633075_140635001_140703783_140710933_RR	OBD183-1141
39	Hg38_5_75334371_75336800_75421277_75426441_FR	OBD183-1057
40	Hg38_1_203176687_203182913_203381983_203386317_FR	OBD183-1105
41	Hg38_14_87760445_87771456_87814113_87820852_FF	OBD183-1121
42	Hg38_X_1815902_1820657_1830879_1832345_RR	OBD183-2197
43	Hg38_18_28150489_28152101_28322522_28342464_RR	OBD183-1009
44	Hg38_19_55104500_55106500_55175439_55177687_FR	OBD183-2201
45	Hg38_1_201489507_201495563_201554857_201559521_RF	OBD183-1165

46	Hg38_1_159614098_159617749_159863199_159866609_RF	OBD183-1085
47	Hg38_1_201387330_201388480_201554857_201559521_RF	OBD183-1101
48	Hg38_12_110242070_110251176_110379081_110380448_RR	OBD183-2205
49	Hg38_2_53751287_53756935_53865030_53869534_FR	OBD183-1049
50	Hg38_1_159708294_159713893_159863199_159866609_RF	OBD183-1093
51	Hg38_12_8119443_8124985_8219310_8221338_FR	OBD183-2209
52	Hg38_12_8083961_8090020_8219310_8221338_FR	OBD183-2213
53	Hg38_12_8219310_8221338_8280556_8285132_RR	OBD183-2217
54	Hg38_12_8219310_8221338_8280556_8285132_RF	OBD183-2221
55	Hg38_12_8219310_8221338_8360776_8364742_RR	OBD183-2225
56	Hg38_12_8163206_8167779_8219310_8221338_FR	OBD183-2229
57	Hg38_12_8219310_8221338_8328073_8331432_RR	OBD183-2233
58	Hg38_12_8219310_8221338_8255950_8259013_RR	OBD183-2237
59	Hg38_X_1815902_1820657_1862592_1866142_RR	OBD183-2241
60	Hg38_3_196593741_196597691_196703167_196707250_FR	OBD183-2245
61	Hg38_5_75334371_75336800_75481806_75484209_FF	OBD183-2249
62	Hg38_2_161723651_161741319_161918005_161924903_FF	OBD183-2253
63	Hg38_6_123594_131362_212545_213965_RF	OBD183-2257
64	Hg38_1_27649538_27652259_27797543_27806064_RF	OBD183-2261
65	Hg38_X_133714472_133717449_133849575_133858877_FR	OBD183-2265
66	Hg38_3_55467637_55470328_55535014_55543312_RF	OBD183-2269
67	Hg38_4_145148297_145150633_145243015_145254513_FF	OBD183-2273
68	Hg38_19_55633863_55635586_55776223_55778463_RF	OBD183-1053
69	Hg38_5_75334371_75336800_75398018_75402594_FR	OBD183-2277
70	Hg38_12_57452982_57456003_57579684_57582438_FF	OBD183-1177
71	Hg38_17_7811362_7813705_7929728_7931226_RR	OBD183-1029
72	Hg38_12_54361590_54362896_54554738_54558191_FR	OBD183-1145
73	Hg38_19_55562835_55568514_55776223_55778463_FF	OBD183-1197
74	Hg38_11_71580341_71586157_71832412_71840897_FR	OBD183-2281
75	Hg38_6_88188008_88196988_88297132_88306521_FF	OBD183-2285
76	Hg38_6_29569885_29574451_29588494_29591069_FR	OBD183-2289
77	Hg38_5_75334371_75336800_75441359_75447695_FR	OBD183-2293
78	Hg38_1_6450603_6452273_6528747_6530250_RR	OBD183-2297
79	Hg38_1_203176687_203182913_203266998_203270781_FF	OBD183-1097
80	Hg38_5_100903133_100904261_100940255_100954422_FR	OBD183-1157
81	Hg38_13_52856863_52871994_53051233_53054182_RR	OBD183-1033
82	Hg38_13_52856863_52871994_52963892_52968641_RR	OBD183-1041
83	Hg38_3_105173425_105200082_105366513_105369025_FR	OBD183-2301
84	Hg38_11_71704758_71706689_71832412_71840897_FR	OBD183-2305
85	Hg38_5_53482717_53490284_53612898_53621230_RR	OBD183-1133
86	Hg38_1_20178914_20185415_20244434_20247937_FR	OBD183-1089
87	Hg38_7_44346974_44354823_44468808_44471840_RF	OBD183-2309
88	Hg38_2_47522457_47530546_47606707_47620212_FF	OBD183-2313
89	Hg38_16_85802241_85804577_85911952_85914037_RR	OBD183-2317
90	Hg38_16_85802241_85804577_86036135_86037752_RR	OBD183-2321
91	Hg38_8_143703137_143706882_143989689_143994132_RR	OBD183-2325
92	Hg38_19_38110009_38116645_38359207_38361549_RF	OBD183-2329
93	Hg38_15_53421523_53422709_53572546_53588481_FR	OBD183-2333
94	Hg38_16_85802241_85804577_85867011_85868324_RR	OBD183-2337
95	Hg38_13_52856863_52871994_52977238_52983123_RR	OBD183-2341
96	Hg38_19_11340579_11345804_11410807_11412077_FR	OBD183-2345
97	Hg38_6_88064644_88073249_88188008_88196988_RF	OBD183-2349

98	Hg38_14_87632983_87637573_87760445_87771456_RF	OBD183-2353
99	Hg38_6_31492265_31495553_31621846_31623705_RF	OBD183-1065
100	Hg38_1_203176687_203182913_203386317_203394696_FF	OBD183-2357
101	Hg38_6_31621846_31623705_31710695_31717311_FR	OBD183-2361
102	Hg38_7_156960823_156963130_157154305_157160294_RR	OBD183-2365
103	Hg38_2_47522457_47530546_47563847_47570151_FR	OBD183-2369
104	Hg38_1_203176687_203182913_203318340_203323344_FF	OBD183-2373
105	Hg38_1_87788995_87790981_87818262_87826752_RF	OBD183-2377
106	Hg38_2_1263661_1274578_1419778_1424769_RF	OBD183-2381
107	Hg38_16_19856577_19858875_20038454_20045219_FR	OBD183-2385
108	Hg38_17_7929728_7931226_8091106_8097573_RR	OBD183-2389
109	Hg38_14_24307628_24311588_24485793_24490540_RR	OBD183-2393
110	Hg38_14_87841922_87846485_88021020_88026181_FR	OBD183-2397
111	Hg38_1_164748288_164754002_164931877_164940038_FR	OBD183-2401
112	Hg38_1_39655161_39659067_39836323_39843028_FF	OBD183-2405
113	Hg38_1_121080942_121088798_121289281_121293407_RF	OBD183-2409
114	Hg38_1_87818262_87826752_87928072_87933012_FF	OBD183-2413
115	Hg38_1_87725315_87731896_87818262_87826752_RF	OBD183-2417
116	Hg38_6_31621846_31623705_31760827_31764995_FR	OBD183-2421
117	Hg38_20_30175888_30181348_30407864_30413511_RR	OBD183-2425
118	Hg38_6_88188008_88196988_88297132_88306521_FR	OBD183-2429

Table 3.a6

no.	Primer Sequence	Primer ID	Primer Sequence
1	GGCAAAGAGCAGACAGGGAAAGG	OBD183-115	CTCTCCCTTCTCTCCTACCCTGC
2	TGACAGCAGAAGGAGCAGGACCACAA	OBD183-111	AGGATGGTGACCCTTGTATCAGTTAG
3	ACAGGGAAAGGGAGGCAGAAGGG	OBD183-1139	GTCCATCTGTCCAGTCAGGTCCT
4	ATTGATGATCTCGCGAGACGCTTT	OBD183-2163	AAAGGCGTCCAGTCTCGTGTATAAG
5	AAAGAGCAGACAGGGAAAGGGAGGCA	OBD183-1187	TATTCTTTCCCAGAGTCCCATCTTGG
6	GACGCAGGAATGGAAGGGAAAGG	OBD183-119	CTCCATCTCCCACAGCATCCAGC
7	TGAGGCGTGTCCGATGTGGGAAT	OBD183-1027	ACGACATCGCCGCAGCACTCATC
8	GAGGGAGAAAGGAATGAAGGCTGC	OBD183-117	GGTTGGGTTTTCTCAATAATCCATAG
9	CATAGTGGATTGAAACAGGGTGGAGC	OBD183-1063	GGAGAAGAGGACTGTAGAAGGAGACA
10	CCCCACAAGCCCACAAAAGCCAT	OBD183-113	CCGCCCATCTGTAAGCCCATCTC
11	ACAAGACCTCTCCTCCCTGAGTC	OBD183-1075	GCTGTTCCTGCCTCTCTGCTACG
12	CTCGCCTGACAGACGTTATTGTCT	OBD183-2167	CACAGGCAAAAATGTAACTTTCC
13	AGGTGGAGCCCATCAAGCGGTAT	OBD183-1007	TGAAGTGGCATCTCTCTCCCGCC
14	TGACCTTCCCCGCAGACAGTGCT	OBD183-1083	GTTTGGTAGTGGCTGTCTGGAGC
15	GAGACAGGCAGGTGAGAGAAAGG	OBD183-1047	ATCCGCCTCCACACACCCACACT
16	GGACAGTTTCCATAACTGCTGGC	OBD183-2171	TAACGCCCATCTACACTTAGCTATA
17	GAGGTGCTGGAGTGTGGCTGTGA	OBD183-1175	CGCTTGAGTTGGTGCTGAATGCC
18	TTGGCTGACCTTGGGTGTGGTGT	OBD183-1003	TGAAGTGGCATCTCTCTCCCGCC
19	TGAGGCGTGTCCGATGTGGGAAT	OBD183-1019	TGGGAGAGCACTCGGGAACCTCA
20	GAGACAGGCAGGTGAGAGAAAGG	OBD183-1079	CCTTTCCGCTACCTGGCTGTGGT
21	AAATCGAATCACTTCATCGAATTCT	OBD183-2175	TTGAACACTCGGTCGAAGGCGCTCG
22	AGCAAGGTGAGGTGACAGGGAGC	OBD183-1023	CCTGGAAGATGTGGGAGGCTGTT
23	TAGAGTACGTGTCCCAACTGTTGC	OBD183-2179	GCACGCTACTGTTACGAGATTCCT
24	TAAGCGCGCGTACAGTAGGGCGA	OBD183-2183	CCGAAGAAAAGTTAAGCCCCTCG
25	GATGGGAGACAGGCAGGTGAGAG	OBD183-107	CTCTGGCTTGACCTTCTCCACTG
26	AGACATCCTGAGAGACCAGAGGG	OBD183-1163	GCCTGGAGCAACTTCCTGTGCCA

27	AGGAGGAGCAGCACCAGCACTGT	OBD183-1155	CCTTCCTCTGGGCTCTCTGTAAC
28	TACAGGTTTGAGGTGCCCGTCGC	OBD183-1119	GGCTTCCAGTGTAGAGGTTACCC
29	GAGGGACGCAGGAATGGAAGGGA	OBD183-1183	GTGTGTTTTGAGGAGCACCCAGC
30	ACAAGACCTCTCCTCCCTGAGTC	OBD183-1195	CCTGGTGGACTTGGCTTCGTTCC
31	GTGCCGCTGTGTAGGAAAGAAGC	OBD183-1115	GGTGTTGAGGTCCAGTCTTCCGC
32	ATGGACAACCAGGTGGCAGGAAAGGT	OBD183-1127	AAAGTATGTAGCAAAGCACCCCACTG
33	AAGGTAACCATCGGAGCCCGTGA	OBD183-2187	CTGGCATGAAATACTACGGGCCTTC
34	TACCAAGAGGGTGGCACTGGGCT	OBD183-1039	CGTGTGGTTATGGAATCAGGGTGC
35	CTGAGGCGTGTCCGATGTGGGAA	OBD183-1015	AAGGACTTGAGCAGGTGATGGGC
36	CCCAACATAAGGCAACTCATGCG	OBD183-2191	ATGATTGCCGCATTTTCACGGTTGC
37	GGATACACATGCGCCTCGGTCCGA	OBD183-2195	TCATCAAGCCCGCCAACGGGTTAG
38	CGGGTGCCGCTGTGTAGGAAAGA	OBD183-1143	GGAGTCCTTCACCACACAGTCAC
39	ACACAAGAGAGAGAGACGCAGGTGAC	OBD183-1059	CAGCCAGGTAGAAATGAATACAGGGT
40	GATGGGAGACAGGCAGGTGAGAG	OBD183-1107	GCAGACAAAGGCTGAGAGAGAGG
41	CTGCCAATGAGAGTGTCAGCCCG	OBD183-1123	CAGTGGATGGTGGAAACCCTGGA
42	GGAACGAATATGAGGCAGACTCTCA	OBD183-2199	ATCGCTATCTGTCCGTAACGTCG
43	AAGGCAGAGAACAAAACACAGAGGTG	OBD183-1011	GCAGGAAAGACTCAAGCACTCTGGAC
44	CACAGAAGGCGTGCGAGCACCAATG	OBD183-2203	CTATCATCGGTCACTTGTGTTAGGT
45	GACTGGGAGCAGGGTTTTGATGG	OBD183-1167	GCCTCACTGTCTCAGCCCTGCTA
46	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-1087	TGTCCCCTTCTACTACCCCACCT
47	GACTGGGAGCAGGGTTTTGATGG	OBD183-1103	CCCCAAGCAGGCTCTGGCACATA
48	TACCAAAGCTGAGAGTCGTCTATC	OBD183-2207	TATCTTCTAATAGTACCTCTATTAA
49	CATTGCCACTCCCAGTCGGGCTA	OBD183-105	GGGAAGGAAAAGAGGGCAAGTCC
50	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-1095	GGTCCACTGGCAATCACCCTACT
51	ATTGAGTTGTTGACCCTACAAGCA	OBD183-2211	TAAGCCGACAGGACCGAACGGTCA
52	ATCGTCGTCGCTCCTCAAACTTG	OBD183-2215	TGTGGCGTTCACGATTCAGGCAT
53	CGCTCTATCAACTCTAGAATGTTGT	OBD183-2219	ATACAAGGCCAATCGTGCGGATGCG
54	GTGCTCAGGACGACAGTCTGGGA	OBD183-2223	AGCAGAAGGAGCAGGACCACAAG
55	CAGGGGCCCTTCTAACGAAGCGGG	OBD183-2227	TGCTGGATATCCTAGTGAGCGCGA
56	GCTGCTTGCTTGTGGGACTTGCC	OBD183-2231	AGCAGAAGGAGCAGGACCACAAG
57	CAAGTCGCAGCTCGGGGCAGATCTT	OBD183-2235	ATGGGAACTAAGGGTGAGTAGTA
58	ATGGGCGCTCTTACTCCGTTGGGC	OBD183-2239	AGCATGTGGGACGTAGTCGGAGAG
59	CTTAAAGACTGTCCATTTGACAACA	OBD183-2243	ATTTTCACGTAGATCATAACCGGT
60	TCATCGGCGGGAGGCGGTCCCAGGC	OBD183-2247	TCTCAGAAAAGCTCTGGAGCCACCC
61	CCAAATCGCAGCGTAGGGCTAGGA	OBD183-2251	CCTCTCTGAGAGTCGGATCTCGC
62	TCCAGTAAAGGGCCGGGAGGTTAT	OBD183-2255	GAAACTGTTCAGCTCTGGCAAGA
63	AACCGCACATAGTAAATAGCTCA	OBD183-2259	CGTACCAAATTCCGTTTTATAAGG
64	GGTGATGAGCAAAGAAGTGGAAA	OBD183-2263	GAAATAAGCAGGTCCCGTTACCTC
65	GCTTTAGTGTTGAAATCTCCCTTG	OBD183-2267	AATTGGCTTAACTGTAGCATGCACA
66	CAGTTTCTGACCGGCCGTGGGCC	OBD183-2271	ATCCAAACACAAATCGCTGTGGCA
67	TCGCGATGAATGGGGTGAGCGGGA	OBD183-2275	ATATGTCCTCGTTACTATTGGTT
68	CTGAGGCGTGTCCGATGTGGGAA	OBD183-1055	GTTTGCTGTCCTCCATCCTCCCA
69	CGCGAAGGAGGTGCAAGGCCCAAAG	OBD183-2279	AAGGGGTCAAGGACCTACATCAA
70	ACAGGGAAAGGGAGGCAGAAGGG	OBD183-1179	TTACCACGCCAATCCCAGCCCTT
71	GATGGAGCAGAACAGGAAGTTGGG	OBD183-103	TGAAGTGGCATCTCTCTCCCGCC
72	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-1147	CCCTGCCTCTTCACAAAGCAAGC
73	GGATGGATGTGGGAATGGATGGG	OBD183-1199	CTGAGGCGTGTCCGATGTGGGAA
74	TATCTCAGGTATCTTGAAAGATT	OBD183-2283	TGGAAGAGACTATACTCAGGTTA
75	CACCCGTGCTAGTGTCGTATACTG	OBD183-2287	TCAAATCTAGATGTATCATGCGCAA
76	GAAATAGAGGGCTTACTATATGTT	OBD183-2291	CTCGCTTAAGCAGGTGCGTGCTT
77	ATCAAAATCGTAGCCGCATGGCA	OBD183-2295	GGGCCATTTAAAGAAAGAGGAACAG
78	CGGTCCCGCAGCTCCGGTTAACGCT	OBD183-2299	AGTATCAGTTCGCCTGTGAGCAGC

79	GATGGGAGACAGGCAGGTGAGAG	OBD183-1099	TGTCACCTCTTCCACCCTCTCAG
80	TCACCTCTCCTCCGTCCCACCATTTT	OBD183-1159	ACAATCTCTCCACTAAGCAAACCCTG
81	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-1035	CACATACAAAGCATCATTCCAGGTGC
82	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-1043	CCTCAGGGAAAGGGAAAACCAAGAGT
83	TCCTAACTGGATTGCCACACTTGGTG	OBD183-2303	CCCTGGGACTAACACTTTCTGTGATG
84	GCTAATACCTGTAAGAGGTAGTT	OBD183-2307	ACCCCGTCATTCATACCGAGAACC
85	TGAGTGAGCAGTGAGCGGTGGCA	OBD183-1135	CCAAAAGAAAACTGACCCCTTAGAGG
86	CTTTTGAGAATGCCGAGGTAATGGGC	OBD183-109	TGCTATTATCTGGTGACTGGACTGGG
87	AGAATCACCTACTCAGGGACACACTG	OBD183-2311	GAAAGGTTATCCAGAATACAGAAGGG
88	GCCCTAAGGCTCTCTGGAGCGGAGT	OBD183-2315	ATAACTGACACATTGTTACAAAA
89	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2319	GCTCTCCCTTGTAGCCTGTTAGG
90	ACAGCAAGGTGAGGTGACAGGGA	OBD183-2323	TGGCAGCATCGCACCATCCCCAT
91	GCGCGGAAAAGTCAATAGAAGAT	OBD183-2327	TGCTATTGGCTAAAATTAGAAAG
92	GGGAGGACTCTGGTCTCAGGGAT	OBD183-2331	CAAGGAATGCCCGAGTCAGGTGA
93	TCTCTTACCATCAATTGACATCTTT	OBD183-2335	ATACCTGCAACCCCGCAACTGTCCT
94	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2339	AAGAGTAGGAAACCCCTGGCAGC
95	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2343	GAACATCTACTTCAACCTCCTGCCCA
96	GTTCCCGCCTTCCTCCATCTTGC	OBD183-2347	CCCCTTGCCTCTTGTTTGAAGCC
97	CTCCCCGAGACCGATAAGCAATCAG	OBD183-2351	TGAAGGTGTAATCAGTTTGAGTA
98	ACAGGTGGGTCCGCACAGTCGCC	OBD183-2355	TCCTGTCCCGACAATGCGGGTGGCA
99	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-1067	GTTTTCAGTGGAATAGAGAGATGTGT
100	CCAGTCGATTGATAAGGCGGCGCAC	OBD183-2359	AACGCCAACCTTGTGCTAAGCACC
101	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2363	AATGCTCCTCCTTTCCTTCAGTCCCC
102	TCCCAACATTTGCCACCACCTACTCC	OBD183-2367	GAGAAAATAATGGTGGGAAGTTAGGG
103	AGTCGTCCGGAGACGTGGTTCCT	OBD183-2371	TAAAGCCTCGTTATTGATCCGGTT
104	GATGGGAGACAGGCAGGTGAGAG	OBD183-2375	TTCTCCTGTGACAACTCCCTGGG
105	GCTGTCTTCCCCGTCACACATCC	OBD183-2379	CCAAGGCAAAGCACGAAGGATGC
106	GAAGACCAGGAGAGGCATCAACTG	OBD183-2383	GCCTTTCTTTGCCCAGTATTAGC
107	CGCAATGACTGGAACGGGATTCTCTA	OBD183-2387	CACTTGGAGTTGATGACTTGCCTGAC
108	TGAAGTGGCATCTCTCTCCCGCC	OBD183-2391	TCCACTGCCCTGCTTCTCACCAA
109	TCTCCTGCTCCCCACTCCACAGT	OBD183-2395	CCAGCACAGAGTGTCCGTTTCCA
110	TCAGCAGGGCAGGAACACAGTGG	OBD183-2399	CACAGCAGAGGACCTATTCCCAG
111	TGGCAGGAGTAGCCGTGAAAGGC	OBD183-2403	GGCTGGGACTGTGAAACCTGGAA
112	GGGCAGACAGGCAGAAGGACAGA	OBD183-2407	GACAGATGGCACTACAGAAGGGC
113	AGGCGACAGGGTTCGGGCTTTATTCT	OBD183-2411	CTCTGATAACATCTTCCCTCTACACG
114	CCCGTCACACATCCAAACAAGAGCAT	OBD183-2415	GAACCTATGAAGGACCACTAAGGAGC
115	CCCCGTCACACATCCAAACAAGAGCA	OBD183-2419	CATTTACTTTTACCTCTCCTTCCAGC
116	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2423	TTATCCCCTTCCTCAATCCCACCTCC
117	TCACCCCGCTCGTGTAGAACAGCG	OBD183-2427	AAAACGAACACCGAGAATGCAGAA
118	TAGAGAACAAGAGGTGCTGGAGTGTG	OBD183-2431	TCACATCCTCCTTGAACTATTCTGTA

Table 3.a7

no.	probe	gene	RPs
119	Hg38_5_44708519_44718992_44785151_44789520_RF	FGF10	87836.34591
120	Hg38_19_49705556_49707798_49902219_49904931_RR	AKT1S1	98290.50026
121	Hg38_7_156960823_156963130_156997451_157002320_RR	MNX1	71687.00739
122	Hg38_5_53482717_53490284_53547734_53551656_RR	FST	88679.68983
123	Hg38_12_54361590_54362896_54476649_54480906_FF	GPR84	88026.9097
124	Hg38_1_203176687_203182913_203216286_203223882_FF	CHI3L1	83735.49887
125	Hg38_1_222313331_222325139_222441386_222443155_RF	MIA3	87164.68193

126	Hg38_1_121248861_121256803_121333642_121342053_RF	FCGR1B	75416.59036
127	Hg38_11_62592659_62593709_62832564_62835574_RR	TMEM179B	82225.58952
128	Hg38_12_54361590_54362896_54554738_54558191_FF	GPR84	91177.99339
129	Hg38_1_20049001_20056499_20178914_20185415_RF	PLA2G2D	77018.95665
130	Hg38_6_31446120_31450854_31621846_31623705_RF	AIF1	67251.16575
131	Hg38_15_50130724_50136085_50246566_50252745_FR	ATP8B4	84971.7205
132	Hg38_3_55535014_55543312_55612203_55618906_FF	WNT5A	88723.8519
133	Hg38_10_30369802_30374526_30437454_30440597_RF	MAP3K8	87279.79485
134	Hg38_5_75258048_75262845_75334371_75336800_RF	COL4A3BP	84526.94398
135	Hg38_6_33314273_33315676_33463232_33466480_FF	TAPBP	67876.06938
136	Hg38_20_23532159_23546814_23621720_23626001_FF	CST3	88568.20301
137	Hg38_1_153390496_153396692_153513973_153518338_RR	S100A7	83780.77149
138	Hg38_13_52856863_52871994_52883407_52889776_RR	OLFM4	85453.44397
139	Hg38_17_7665587_7668453_7929728_7931226_FR	EFNB3	74941.58463
140	Hg38_7_50286505_50295259_50544402_50549189_FR	IKZF1	85006.69353
141	Hg38_13_52856863_52871994_52892346_52898772_RR	OLFM4	97547.21362
142	Hg38_1_27610668_27612988_27649538_27652259_RR	FGR	79412.98785
143	Hg38_8_22681793_22682820_22815485_22819827_FR	EGR3	82717.07453
144	Hg38_19_11340579_11345804_11529780_11532285_FF	ECSIT	70032.18988
145	Hg38_19_11340579_11345804_11460171_11462756_FR	RAB3D	74325.76416
146	Hg38_6_26251913_26253832_26447582_26451332_RF	BTN2A2	74530.3491
147	Hg38_1_19972751_19977472_20178914_20185415_RF	PLA2G2A	74314.40789
148	Hg38_6_88146572_88149296_88188008_88196988_RF	CNR1	81860.02161
149	Hg38_22_42372891_42375481_42578934_42580470_RF	NFAM1	73010.50576
150	Hg38_8_64551143_64558219_64578198_64580985_RR	CYP7B1	88305.87208
151	Hg38_22_42405467_42408113_42578934_42580470_RF	NFAM1	80338.79435
152	Hg38_11_114241978_114246699_114439739_114443191_FR	ZBTB16	85996.62695
153	Hg38_5_76793348_76797693_76897248_76903956_RF	F2RL1	85235.48486
154	Hg38_1_27649538_27652259_27838007_27841075_RF	IFI6	83318.9954
155	Hg38_16_22513299_22515891_22559024_22570518_FF	POLR3E	83027.21437
156	Hg38_5_53482717_53490284_53554764_53563025_RR	FST	92529.50484
157	Hg38_17_7889503_7895357_7929728_7931226_FR	TRAPPC1	84835.85238
158	Hg38_2_47522457_47530546_47595212_47601970_FR	MSH2	78163.52614
159	Hg38_1_36461525_36463186_36575866_36579237_RF	CSF3R	77121.89746
160	Hg38_16_86372874_86378933_86513165_86515439_RR	FOXF1	79942.3235
161	Hg38_8_53298881_53306504_53518003_53523754_RF	OPRK1	94581.09623
162	Hg38_6_31588788_31590397_31621846_31623705_RF	AIF1	68435.03959
163	Hg38_2_219136508_219146735_219271447_219273060_FR	NHEJ1	86467.33636
164	Hg38_14_96122093_96130378_96263508_96266492_RF	BDKRB1	86504.3109
165	Hg38_10_73661598_73666900_73777774_73781187_RR	SEC24C	89527.307
166	Hg38_6_31621846_31623705_31693387_31703142_FR	BAG6	78489.59358
167	Hg38_2_47522457_47530546_47666116_47672220_FR	MSH2	83025.74574
168	Hg38_1_191729725_191732129_191869196_191881753_FR	RGS1	87903.89085
169	Hg38_7_104953069_104957259_105015558_105026847_RR	KMT2E	123658.9696
170	Hg38_12_54173791_54182056_54361590_54362896_RF	GPR84	96202.26462
171	Hg38_6_27860135_27864160_28014483_28022084_FR	HIST1H3I	82308.28752
172	Hg38_5_75236091_75239565_75334371_75336800_FF	COL4A3BP	92507.98272
173	Hg38_6_31817301_31818773_31878016_31881028_RF	HSPA1A	78213.14494
174	Hg38_17_7811362_7813705_7929728_7931226_RF	KDM6B	92203.46121
175	Hg38_14_24307628_24311588_24511833_24515792_RR	LTB4R	108316.2481
176	Hg38_1_121333642_121342053_121413898_121422150_FR	FCGR1B	75415.05882
177	Hg38_20_1589686_1605075_1636521_1641313_FR	SIRPB1	78259.09721

178	Hg38_5_100903133_100904261_100940255_100954422_FF	SLCO4C1	88801.69101
179	Hg38_4_145148297_145150633_145295262_145303638_FR	ABCE1	71043.23202
180	Hg38_17_7861815_7869138_7929728_7931226_FR	TRAPPC1	82177.5641
181	Hg38_16_85802241_85804577_85933137_85934694_RR	IRF8	90446.47069
182	Hg38_1_121052779_121056014_121248861_121256803_RR	FCGR1B	76230.75824
183	Hg38_6_106106013_106107198_106244728_106262141_RR	ATG5	77094.90975
184	Hg38_17_7861815_7869138_7929728_7931226_RR	TRAPPC1	82404.478
185	Hg38_1_121289281_121293407_121403378_121413898_FF	FCGR1B	78301.51501
186	Hg38_12_49954074_49960858_50101385_50107364_FF	RACGAP1	103477.8303
187	Hg38_6_32178822_32181952_32282603_32287434_RR	AGER	92115.75296
188	Hg38_11_6164440_6172634_6399479_6402059_RF	APBB1	89050.5491
189	Hg38_20_177034_181274_305424_309823_FR	DEFB128	76150.09639
190	Hg38_17_7929728_7931226_7944762_7946565_FF	TRAPPC1	90240.21925
191	Hg38_3_55535014_55543312_55612203_55618906_FR	WNT5A	97085.63511
192	Hg38_2_8571790_8576812_8640383_8646383_FF	ID2	96139.64242
193	Hg38_6_32934293_32937112_33060957_33074774_FF	HLA-DMA	88786.60149
194	Hg38_3_187569317_187579639_187726556_187727893_FR	BCL6	101438.3337
195	Hg38_1_39655161_39659067_39769500_39772730_FR	PPIE	84545.84627
196	Hg38_12_55953308_55956138_56112355_56115503_RR	PA2G4	99642.94851
197	Hg38_8_53448228_53464529_53518003_53523754_FF	OPRK1	88339.66075
198	Hg38_X_72208498_72213408_72340340_72345964_FF	CITED1	103970.4648
199	Hg38_5_60437025_60452736_60528868_60530657_RF	PDE4D	94525.29468
200	Hg38_6_27860135_27864160_27892394_27893632_FR	HIST1H3I	77795.67217
201	Hg38_19_11340579_11345804_11418077_11420873_FF	RAB3D	75158.23965
202	Hg38_6_31621846_31623705_31658615_31662274_FR	BAG6	73476.96162
203	Hg38_6_27833806_27836574_27892394_27893632_FF	HIST1H3I	87306.02454
204	Hg38_10_30369802_30374526_30437454_30440597_RR	MAP3K8	99482.11373
205	Hg38_1_36421193_36424970_36575866_36579237_RF	CSF3R	88238.80531
206	Hg38_19_18333551_18335634_18573351_18575967_FR	UBA52	101798.2618
207	Hg38_4_137465162_137478589_137647185_137649115_FR	SLC7A11	104516.3011
208	Hg38_2_47522457_47530546_47552565_47559543_FF	EPCAM	82019.4599
209	Hg38_11_128362004_128366353_128529463_128539984_RR	ETS1	95196.97394
210	Hg38_1_20161773_20167840_20178914_20185415_RF	PLA2G2F	71067.54178
211	Hg38_1_121333642_121342053_121433689_121438873_FF	FCGR1B	74438.73456
212	Hg38_19_11261901_11265731_11340579_11345804_RF	RAB3D	81266.52708
213	Hg38_1_159779096_159781322_159863199_159866609_RF	FCRL6	102134.347
214	Hg38_14_87618180_87629304_87841922_87846485_RF	GPR65	72699.81319
215	Hg38_2_215339857_215344488_215450480_215454642_FF	FN1	96409.36325
216	Hg38_12_54361590_54362896_54482792_54487121_FF	GPR84	100643.6652
217	Hg38_1_121333642_121342053_121465918_121472610_FR	FCGR1B	75113.82198
218	Hg38_19_14087074_14088724_14138048_14139567_FF	PRKACA	100867.5092
219	Hg38_3_55486659_55489812_55535014_55543312_RF	WNT5A	101340.9799
220	Hg38_X_133584341_133592788_133714472_133717449_RF	GPC3	89298.90821
221	Hg38_6_41533263_41541541_41639865_41645770_FF	TFEB	83891.12372
222	Hg38_20_23532159_23546814_23581107_23587842_FR	CST9	103099.2686
223	Hg38_7_6241289_6247872_6305163_6306814_FR	RAC1	96671.96879
224	Hg38_8_85458958_85464677_85620981_85632239_FR	CA2	94553.62101
225	Hg38_1_39655161_39659067_39891844_39898103_FF	PPIE	85073.55945
226	Hg38_1_121080942_121088798_121333642_121342053_RF	FCGR1B	81524.31487
227	Hg38_19_50382303_50383705_50507414_50511937_FR	NR1H2	91360.83698
228	Hg38_6_27728784_27735060_27860135_27864160_RF	HIST1H3H	82074.91985
229	Hg38_13_52856863_52871994_53037034_53038116_RR	OLFM4	100019.3414

230	Hg38_19_55646678_55648748_55776223_55778463_FF	NLRP9	90744.99246
231	Hg38_3_107828110_107834026_107847362_107853810_FF	CD47	86522.95908
232	Hg38_1_121302597_121312167_121333642_121342053_RF	FCGR1B	75746.22226
233	Hg38_6_33032719_33045940_33181270_33183497_RF	HLA-DPA1	86309.24088
234	Hg38_6_108163024_108164102_108359267_108371469_RR	OSTM1	102519.1724
235	Hg38_11_6268414_6277518_6399479_6402059_RF	APBB1	88516.17938
236	Hg38_19_38359207_38361549_38528221_38534565_FF	RASGRP4	92074.97165
237	Hg38_1_203176687_203182913_203223882_203229092_FR	CHI3L1	92883.913

Table 3.b1

no.	FC:(class1/class2)	pfp	P.value	CCSs
119	-1.146766869	0.001734234	0.001156156	Immune
120	-1.146610946	0.001523301	0.000899584	Immune
121	-1.146187181	0.004081719	0.00373727	Immune
122	-1.146140194	0.00048383	0.0000468050353447332	Immune
123	-1.146033669	0.000876094	0.000288335	Immune
124	-1.145584041	0.001042044	0.00044712	Immune
125	-1.14558036	0.000508234	0.0000588758584735151	Immune
126	-1.145394787	0.001087752	0.000504864	Immune
127	-1.14525572	0.001042044	0.000448475	Immune
128	-1.145085484	0.000548965	0.000115815	Immune
129	-1.145048997	0.001256517	0.000633498	Immune
130	-1.144585667	0.002297443	0.00178706	Immune
131	-1.144362485	0.002056946	0.001484126	Immune
132	-1.144178863	0.00063478	0.000166288	Immune
133	-1.144123651	0.001038693	0.000423895	Immune
134	-1.144027903	0.001303562	0.000690728	Immune
135	-1.143809831	0.00223996	0.001653979	Immune
136	-1.143798281	0.000568148	0.000127054	Immune
137	-1.14358087	0.002114975	0.001543843	Immune
138	-1.143441535	0.000548965	0.0000893216847399948	Immune
139	-1.14340434	0.001660717	0.00107298	Immune
140	-1.143184548	0.00048383	0.0000318248708495281	Immune
141	-1.142263822	0.000508234	0.0000598961205249950	Immune
142	-1.142222301	0.002297443	0.00175262	Immune
143	-1.142218474	0.000691883	0.000204278	Immune
144	-1.142194183	0.002718332	0.002259542	Immune
145	-1.141901437	0.001937994	0.001363993	Immune
146	-1.141806893	0.002581943	0.002121453	Immune
147	-1.141779212	0.002100898	0.001524702	Immune
148	-1.141767242	0.001613021	0.0010209	Immune
149	-1.141697254	0.003808064	0.003422437	Immune
150	-1.141664358	0.000691883	0.000196547	Immune
151	-1.141650335	0.001608284	0.001011115	Immune
152	-1.141519846	0.000580521	0.000144718	Immune
153	-1.141503061	0.000691883	0.000192651	Immune
154	-1.141362141	0.001257335	0.000652541	Immune
155	-1.141312609	0.001087752	0.000500407	Immune
156	-1.141306493	0.000508234	0.0000600445239743399	Immune
157	-1.141090521	0.000780545	0.000247008	Immune

158	-1.141005717	0.004288867	0.00396313	Immune
159	-1.14081435	0.001638666	0.001044045	Immune
160	-1.140775221	0.004735379	0.004495613	Immune
161	-1.140725713	0.000691883	0.000197463	Immune
162	-1.140707987	0.003576526	0.003111556	Immune
163	-1.140700468	0.001038693	0.00039895	Immune
164	-1.140699319	0.001038693	0.000412663	Immune
165	-1.140696831	0.000568148	0.0001253	Immune
166	-1.140678683	0.001087752	0.000499089	Immune
167	-1.140529444	0.003808064	0.003417198	Immune
168	-1.140487352	0.001087752	0.000496518	Immune
169	-1.14035827	0.001038693	0.000438267	Immune
170	-1.140295487	0.000580521	0.000143875	Immune
171	-1.14019275	0.001375885	0.000777927	Immune
172	-1.140190056	0.000749172	0.000233919	Immune
173	-1.140090269	0.003207085	0.002739994	Immune
174	-1.140013979	0.000558904	0.000120271	Immune
175	-1.139869101	0.000065499968332877	0.000000276371174400325	Immune
176	-1.139864017	0.001803063	0.001224865	Immune
177	-1.139617942	0.002297443	0.00177739	Immune
178	-1.139591682	0.001038693	0.000392403	Immune
179	-1.139263741	0.003054479	0.002573073	Immune
180	-1.139248288	0.001257335	0.000647292	Immune
181	-1.139203035	0.000580521	0.000136699	Immune
182	-1.139134604	0.002035483	0.001442874	Immune
183	-1.138925048	0.005042802	0.004913944	Immune
184	-1.138898567	0.001711945	0.00112685	Immune
185	-1.138557886	0.001716439	0.00113705	Immune
186	-1.138453619	0.001256517	0.000636211	Immune
187	-1.138262072	0.000539173	0.0000773497255719469	Immune
188	-1.138220841	0.001038693	0.000435859	Immune
189	-1.13809959	0.001496732	0.000858884	Immune
190	-1.137929608	0.000548965	0.00011276	Immune
191	-1.137921067	0.000855596	0.000277978	Immune
192	-1.137875489	0.00048383	0.0000393432820729938	Immune
193	-1.137744871	0.000548965	0.0000879018239273439	Immune
194	-1.137699742	0.00043607	0.0000128796904422608	Immune
195	-1.137631552	0.001937994	0.001365591	Immune
196	-1.137625783	0.001905941	0.001313269	Immune
197	-1.137573687	0.001183842	0.000558133	Immune
198	-1.137537352	0.000520629	0.0000640139738392802	Immune
199	-1.137338682	0.001087752	0.000485637	Immune
200	-1.1371575	0.002321293	0.001841364	Immune
201	-1.13712068	0.003576526	0.003131998	Immune
202	-1.137103255	0.003361092	0.002893092	Immune
203	-1.137039484	0.001555148	0.000951462	Immune
204	-1.136815419	0.00088347	0.00029449	Immune
205	-1.136790428	0.001014024	0.000376515	Immune
206	-1.136702764	0.000439511	0.0000206619043902302	Immune
207	-1.136652217	0.000439511	0.0000171493725559236	Immune
208	-1.136614547	0.005174643	0.005065473	Immune
209	-1.136581836	0.000508234	0.0000593109590109667	Immune

210	-1.136555095	0.005716634	0.005620151	Immune
211	-1.136552516	0.002418599	0.001959371	Immune
212	-1.136518191	0.001509078	0.000872336	Immune
213	-1.136412937	0.000211853	0.00000357558179302948	Immune
214	-1.136228821	0.003834101	0.003478193	Immune
215	-1.136198655	0.00048383	0.0000361196907837401	Immune
216	-1.135931381	0.000580521	0.000144351	Immune
217	-1.135913696	0.002324775	0.001853935	Immune
218	-1.135824779	0.001183842	0.000566503	Immune
219	-1.135789691	0.000580521	0.000146967	Immune
220	-1.135560291	0.001529047	0.00090994	Immune
221	-1.135554297	0.001523301	0.00089984	Immune
222	-1.135513678	0.001605895	0.001002837	Immune
223	-1.135505139	0.000548965	0.0000886915157204148	Immune
224	-1.135279349	0.00048383	0.0000383401233932096	Immune
225	-1.135212221	0.002387363	0.001923993	Immune
226	-1.13504303	0.001364867	0.000755679	Immune
227	-1.134973957	0.001014024	0.00037646	Immune
228	-1.13496699	0.002266378	0.001702174	Immune
229	-1.134941098	0.000399267	0.0000101080167303500	Immune
230	-1.134914024	0.002900401	0.00242312	Immune
231	-1.134693113	0.003054479	0.002577619	Immune
232	-1.134660959	0.002581943	0.002124384	Immune
233	-1.134546677	0.001605895	0.001000896	Immune
234	-1.134543655	0.000336555	0.00000710031793491449	Immune
235	-1.134518179	0.002251343	0.001681383	Immune
236	-1.134382464	0.000749172	0.000233645	Immune
237	-1.134282194	0.001183842	0.000564588	Immune

Table 3.b2

	Probe sequence	Probe Location
no.	**60 mer**	**Chr**
119	TTGCCCCAGTGACTGTTTGAGCAGTGCCTCGAATGATTATAACATATAGGTAAGTAAAAT	5
120	GATCTCACTACGTTGCCCTAGGCTGGTCTCGAACTCCTGACTTCGGGTGATCCCTCCCAT	19
121	CCCAGCTCCTGCAAAACTCCTCCTGACTTCGACACTGAAAACCTGTGTATGAAGTCACCG	7
122	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAGCAACAAAGGGCCATAGGGTGACTGTAT	5
123	CAAAGCAGAGGAACACAGCAAAACACATTCGAAAGAAAGCATAATAGAAGTTAAAACATC	12
124	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATGTTCGGGGGTAGAAAGTGCTCTGGATG	1
125	GACAGCTGGCTCTTCATCACAATCATTCTCGATATTTCACTCTTGGGGCTTATAATCTAG	1
126	TGACCCCAAGCATTCTGGCCTGAACGATTCGAGTATGAACGGAAAATTGACTAGCCCTCA	1
127	TGCTGCTTCAGGATCCTCAAGGCCAGTCTCGATATCTTCGGCGCCTGAGGGGACGACGAG	11
128	CAAAGCAGAGGAACACAGCAAAACACATTCGAGAAGCTGGGAACACACTGAAGAAGTGGG	12
129	GCCAGGATAGGGAAGAAGCAGATTGATATCGAATTCAAAGCTTATTTAAAGGTTATATAT	1
130	GCCATCAGATCTCCCACATGAGGCATTTTCGATAGTCTACTAAACATGCCATGATTAAAT	6
131	GCAATTCCATTTGGATCCCCTGATTGAGTCGATGAAATGCCCAAGCTAAGGTAGGAGCTA	15
132	GGAGACAGGGTTACATCAGCCAGTAACATCGAGAAAGGATAGCTGGGTCTTCCCATGATG	3
133	TCTGGCTCTATCAAGCTCTATTTAATAGTCGAATTTACAGCTGGCTAACAGAGGCCCAGA	10
134	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATGTGAAAATCCTCAGTAAAATACTGTCA	5
135	TGCCCTGCATGTCCAAGGGAAGGAGCGGTCGAGGTTCGCAAACCTCAGTTTTTGACTTCT	6
136	GAGAAGGGGAAACACAATGTGTCTGTTATCGATGATTTCACGTTGGTGAAGTTGGTCAGA	20

137	GAGCTGGAGAAAGCCTTGAACTCTATCATCGACTCTATTGTTTTTCTTATTGTTTTCTTC	1
138	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGACCTAGATAGGTCCTCCTTTTACCATG	13
139	CAGCAAAGTTTTATTGTAAAATAAGAGATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
140	GGAGGGGCAACTGCTAAGTGTATGATTATCGATTCCAACTTTAATGACAAACACTGGTCC	7
141	GTTGGAAGGAATCCAGGGTAAGGGATATTCGATTGTTATGGAAGGGATTTATACTTGAAT	13
142	GTGTGGTTTAGTGCAAGTTTTTCACCTCTCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG	1
143	GCCAAGAGGGGAAAGGACTCATGTTCTCTCGAGGTCTAGAATCTGAGACCTAAATGAATT	8
144	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAGTTTGGTTTGTCTTGAATAAACTGAGGT	19
145	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGACACCTGTTCTTCACATGCACATCCAACC	19
146	AAGGGGAGCTCATTTAGTTCATAAGCGGTCGACCATCACCTCCAGGGAGATCCAGACAGC	6
147	GCCAGGATAGGGAAGAAGCAGATTGATATCGACCAGTATTTCCCAATTGGGGTTCATGGG	1
148	TTGTGGTGAGAACGATACAGGAGACAGCTCGATTCTAAGCTAAGCAATTTGGTTTTGTTT	6
149	CACATCCCTGTCTAGTCCTATCTGTTCATCGAAATATTTCATTAACATCCACACACACAC	22
150	TTAAAAATTCCCAAGATGGAAAAAGAGATCGATCCTTCGCCCTTCAAATGTCCACTTCGG	8
151	CACATCCCTGTCTAGTCCTATCTGTTCATCGAGAGATACCCTACTTGCTATCATCATGGG	22
152	AGGAGTTCACCAGGGAGAAAAGAAGAAATCGAGCCCGTCCTGGGAGAGCGTTGGGGGTCT	11
153	TGTTAGTAGAGACCATGTTAGGCTGGTCTCGAACTCCCAGCCTCAGGTAATCTGCTCTCC	5
154	GAACCTCACAAGCCTCAGCAAATTCCCATCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG	1
155	CGTCTCAATGGCTCCCAACTCTTTTGCCTCGAGCCTGGTTTGTGTGTTTTATCCAGAAGT	16
156	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAGGAGAGAAAACAAGGTGTGAAAGATCCA	5
157	CCATCCCAAAGTGCCCCGTGCTGAAGGGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
158	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGCACAGGTAATTTGCCCAAGGTTACAC	2
159	ACAGGAGGCTCCTCTAACACATCTCCTCTCGACTGTTCCGGTCTCATCACAGGGAGGGCA	1
160	GCGTGAGTGAAGACCTTGCTGTATAACCTCGAGGTATAACCGTCGGCAGAAGAAAAGGGT	16
161	GCATCTCCGTGAGAGGCATTTGCATAGCTCGAGTTCTCATTTAGCTTTCACTTATAAATG	8
162	GCCATCAGATCTCCCACATGAGGCATTTTCGAGCCTCCGTTCAAATTGATCATCATCAAA	6
163	AATTTTCTTCAAATGGTTCTGTCTTCAATCGAGCGCCCAACCTACACCAACCTCAATCGC	2
164	GTGTTGTGTGAATTTACTCTGATAATGCTCGACTTGAAAACAAGCACTGCCTCACTGCAA	14
165	GAGTTTCACCAAGTTATCTAGGCTGGTCTCGAACTCCTGAGCTCAGGTGATTCACTTGCC	10
166	GCCATCAGATCTCCCACATGAGGCATTTTCGACTGGCCAGCTCCGGAAGTCAAAGTTGTA	6
167	CGGAGGGTATAATAACTGCTGTTGTGTATCGATTAACTTCTGCTCCAGCTCAGAGACAGC	2
168	GCCCCCTGCTCAACGGCGCGCAGTCCCATCGACCACATGTTTACATTTTGAAGACATTTG	1
169	GGTTGGAGGATCACCTGAGCCCGAGAGGTCGAGGCTGGAGACATGAATACCTATTTGGAA	7
170	CAAAGCAGAGGAACACAGCAAAACACATTCGAGTCTGGGCTCCTTCTTCTGTTCCCCCGC	12
171	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGATTCATATGAATGCTGTGGTATTATAGGT	6
172	GTTGAAACACCATTGAAATAAATGTTATTCGATGACTGAAAGCTCAGTTACTAGCGCGGG	5
173	GGGTCTCCTGCTCACCTTGTTGTCTAAGTCGAGCGCATGGTGCAGGAGGCGGAGAAGTAC	6
174	AAAGAGACACTTCTGATCCCCGCAAACATCGACATCAACTAATCTTGCCTTTGTGAGTTA	17
175	CACTCCATGGTCTCTCCCTCATCCCTAATCGAGTTGGCAGGTATAAAACACCTAGAAACT	14
176	TGACCCCAAGCATTCTGGCCTGAACGATTCGAGGTAACTCCTATCTAATGGGTTTTTCTT	1
177	GGCAGAGGGTTTGGCTACAAAAGGACCATCGATAAACAGGAGACATGACTGAGATGACAA	20
178	GCAGGGACACTTTTCAAGAGTTCTGTGTTCGATCATAACTCACTGTGGCCTTGATCTTCC	5
179	GTTGTCTTACTCCTGAAGGATGCTGCAGTCGAATGTGATAACTATGAAGGGAGAGATTTT	4
180	TGATGGTTTAGAATGCAGCTACCAATTATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
181	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGTGGCTGCTGCCTGCAGCTAAGTATTTT	16
182	TCCTAGATAAATAGCTTAAATTTTAGGATCGAGTATGAACGGAAAATTGACTAGCCCTCA	1
183	CCGGGGGCTCATACTACTGCAAATGCAATCGATCATCAGTTGTATCCCTTGTGCATAGCA	6
184	GGAAGCCACTGAAGAAGCTAAGGAAAGTTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG	17
185	AGCAAGGAACATAATTATGGCTGTGCTTTCGATTTCCCACAAATAAATCCAGTAATCTTG	1
186	TGCAAAGACTGACTGACAGAAACAGATTTCGAGGACATTTTCTGAAAACCACTCTTCTCT	12
187	GTTCCTAAGACCTTTCTTTCCACAGATCTCGATTAAATTTGATACCCCTTCATGCTAAAA	6
188	GACTCTGATGCTGGATGAACTCCCACCCTCGATGTGATACGTTATATCAACAGAATGAAG	11

189	AGGTTTTTGTATCTCTGTTCTAGGGACATCGACCAACAGAACTATGCAGAGTTTGGCTGG	20
190	AAAGAGACACTTCTGATCCCCGCAAACATCGACCTAGGTTGTCATGTTTGTACCACACAG	17
191	GGAGACAGGGTTACATCAGCCAGTAACATCGAGTCTACACACTGGCTTGTGAACATGTTG	3
192	GATGATTCCGTGCAGTCATTTAAACAGTTCGATTCTGGAAGACAAAACAAAGGATCAACC	2
193	CACTTCGCTGTCTACCATGTACCATGTATCGATGTCTCAGGTAATTTATTTTTACAGTAG	6
194	AATTTTTTTTATTCTTAGAAGATGAATGTCGAGTCACTAAGCAAAGACAAGACAGGGTTA	3
195	AAACTAGAGGGATCTACCAGAGGAGGTGTCGAGAAACACAGTGAGGAACTGATCTGTTTT	1
196	CAAGGAACATTGGTGATTTCCTTACCAATCGAAATATCCATATTGCTTTCACGCCATTGT	12
197	AATTTTCTCCCAGAGGATGGGGAACCAATCGAGCTATGCAAATGCCTCTCACGGAGATGC	8
198	AAAATGATCGGGATATAAATCCAGGCATTCGAGCTTGTAATCCAGCACTTTGGGAGACTG	X
199	ACTCCCTGCTACATGGCGCCCAGTCCCATCGACCACTCTAGATGTGTGACCTCAACACAA	5
200	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGAACTCCAGGTCCCTAGAGATTTCTCCCCT	6
201	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAAAGTCACAAGAAGCACCGTCGCTCTCGG	19
202	GCCATCAGATCTCCCACATGAGGCATTTTCGATGGCTCAGATCCTGAGATCCAAGGAACA	6
203	ATAGATGCTCAGAAAGATTCAATTGAACTCGATGAGATGCCGGTGTCGGGGTGGACTTGC	6
204	TCTGGGCCTCTGTTAGCCAGCTGTAAATTCGAGAGAGGTTACGTTACTTGCTCAACGTCA	10
205	ACAGGAGGCTCCTCTAACACATCTCCTCTCGAAAGAACAAAGCCCAAATTGTTTACCACC	1
206	ATACAAGTGGCTGGACAGCGAGAGGACGTCGAGCCCAGTGACACCATTGAGAATGTCAAA	19
207	CCCAGTCACGTACCCTCTGCTTGCTCAATCGATCCAATTAAAATAACATACATTATAGAC	4
208	CGGAGGGTATAATAACTGCTGTTGTGTATCGAAGTGCAGCAAAGAGGTAATTTCTGTCAA	2
209	TCACACTGCTCATAGCGTTTGTTTATTCTCGAAGTAGAGTATTGCTCTCTGCACTTTGTT	11
210	GCCAGGATAGGGAAGAAGCAGATTGATATCGAGGACAGTAGGCTTTCCCAGAGAGAGTCT	1
211	TGACCCCAAGCATTCTGGCCTGAACGATTCGAATCTTCCTTGCATCTCAAGGATAAGTCC	1
212	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAGGGGTTTCAAACGCCACCAAGGAGCCCA	19
213	CGGATTCTGGTTACAGAGAGGGATGAGATCGAGCTGGATATCAAGGAGGCAAAGAAGGAG	1
214	ATGAGGCTGTGGAAGAGCAAAATGAGTTTCGATTAATGGCCTGCAATTGTCATTGTTGCC	14
215	GGCACGTAGATGACTTGAGCTCAGGAGTTCGAGACCAAACAGCTCCTCCTAGTTGTCATT	2
216	CAAAGCAGAGGAACACAGCAAAACACATTCGAAAGAAAAAAGAAAAAAAAAGGCTCAAGG	12
217	TGACCCCAAGCATTCTGGCCTGAACGATTCGAAAAGTAAAATAAAAACTGTGCCACTGCT	1
218	CTCCGGGAATCCAGCCTCAGTAAAATATTCGATTTTTTAACAGCTAAAAAGAATTTTTCT	19
219	GGAGACAGGGTTACATCAGCCAGTAACATCGATGTTCTCAGAGCAAAAGGAAAGTCGTCA	3
220	ACCACACCCTGGTCCTGGTAGTTAAAGATCGACCCTCCAAGGAGTTCACTGTTATTTGGA	X
221	GACCATAATACCCAAATATCCACTACAATCGAGAGTGACAGGGAGAATCAAAGGGACAGT	6
222	GAGAAGGGGAAACACAATGTGTCTGTTATCGAGCTCTGAATTTCTTTTTCCTACTAGTTT	20
223	AGGGCTTACCATGGTTCCCAGGCTGGTCTCGAACTCCAAACCTCAGATGAACCACCCACC	7
224	TCTGATTTCCGAGTTTTCCCTTCATCTCTCGAAAAATACCAAATATATGGAAATCAAACA	8
225	AAACTAGAGGGATCTACCAGAGGAGGTGTCGATTTGTATATATCTAAATTGGAAAAATGT	1
226	TGACCCCAAGCATTCTGGCCTGAACGATTCGATGATGCAGTTGCTTTTGAAACTCTTTAA	1
227	CCTGAAGGAGCTGAATGAGCAATTCCAATCGACCACCTGATCTCCCCCTTTCAACCCATC	19
228	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGAGATTAGGAAATATCCAAAACCCAGAAAT	6
229	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAATTTCCAAGTGAGTTATTACAGCTGTCC	13
230	CAATTTAGGGCTTCAGCTTCCTTTTCCTTCGAACCTCTCAGCTTGCTCCTTCCTATTCTG	19
231	TTACCAAGCCCGATGTTCTCCACGTGACTCGAGGACAGGAACTAAATTATATGCAGTATT	3
232	TGACCCCAAGCATTCTGGCCTGAACGATTCGAAATCAGGACATACAGATTGATACAATAC	1
233	GACACACAGGAAGTAGCCATGAGAAATATCGAGAAATTTGTCTTTTTTTTTTTTGACAGG	6
234	AGCCTAAAACGCAGGGAAGGTTCTTTTATCGAAAGGTTGATATATAACTAGAAAGAAGGA	6
235	GACTCTGATGCTGGATGAACTCCCACCCTCGATTTTATCTAAATCTGCTTGGCTGTGATG	11
236	ACGCTGAGGAGGAAGATTCGGGCTGGATTCGATGTATCTCCTGTACCTAGCACGGGGCTA	19
237	GTCCCAAGTGGCATGAGAGGTAGACTCATCGACATCACCAGGGGCACATGGACACCCTAG	1

Table 3.b3

	Probe Location			
no.	**Start1**	**End1**	**Start2**	**End2**
119	44708521	44708550	44789489	44789518
120	49705558	49705587	49902221	49902250
121	156960825	156960854	156997453	156997482
122	53482719	53482748	53547736	53547765
123	54362865	54362894	54480875	54480904
124	203182882	203182911	203223851	203223880
125	222313333	222313362	222443124	222443153
126	121248863	121248892	121342022	121342051
127	62592661	62592690	62832566	62832595
128	54362865	54362894	54558160	54558189
129	20049003	20049032	20185384	20185413
130	31446122	31446151	31623674	31623703
131	50136054	50136083	50246568	50246597
132	55543281	55543310	55618875	55618904
133	30369804	30369833	30440566	30440595
134	75258050	75258079	75336769	75336798
135	33315645	33315674	33466449	33466478
136	23546783	23546812	23625970	23625999
137	153390498	153390527	153513975	153514004
138	52856865	52856894	52883409	52883438
139	7668422	7668451	7929730	7929759
140	50295228	50295257	50544404	50544433
141	52856865	52856894	52892348	52892377
142	27610670	27610699	27649540	27649569
143	22682789	22682818	22815487	22815516
144	11345773	11345802	11532254	11532283
145	11345773	11345802	11460173	11460202
146	26251915	26251944	26451301	26451330
147	19972753	19972782	20185384	20185413
148	88146574	88146603	88196957	88196986
149	42372893	42372922	42580439	42580468
150	64551145	64551174	64578200	64578229
151	42405469	42405498	42580439	42580468
152	114246668	114246697	114439741	114439770
153	76793350	76793379	76903925	76903954
154	27649540	27649569	27841044	27841073
155	22515860	22515889	22570487	22570516
156	53482719	53482748	53554766	53554795
157	7895326	7895355	7929730	7929759
158	47530515	47530544	47595214	47595243
159	36461527	36461556	36579206	36579235
160	86372876	86372905	86513167	86513196
161	53298883	53298912	53523723	53523752
162	31588790	31588819	31623674	31623703
163	219146704	219146733	219271449	219271478
164	96122095	96122124	96266461	96266490
165	73661600	73661629	73777776	73777805
166	31623674	31623703	31693389	31693418
167	47530515	47530544	47666118	47666147
168	191732098	191732127	191869198	191869227

169	104953071	104953100	105015560	105015589
170	54173793	54173822	54362865	54362894
171	27864129	27864158	28014485	28014514
172	75239534	75239563	75336769	75336798
173	31817303	31817332	31880997	31881026
174	7811364	7811393	7931195	7931224
175	24307630	24307659	24511835	24511864
176	121342022	121342051	121413900	121413929
177	1605044	1605073	1636523	1636552
178	100904230	100904259	100954391	100954420
179	145150602	145150631	145295264	145295293
180	7869107	7869136	7929730	7929759
181	85802243	85802272	85933139	85933168
182	121052781	121052810	121248863	121248892
183	106106015	106106044	106244730	106244759
184	7861817	7861846	7929730	7929759
185	121293376	121293405	121413867	121413896
186	49960827	49960856	50107333	50107362
187	32178824	32178853	32282605	32282634
188	6164442	6164471	6402028	6402057
189	181243	181272	305426	305455
190	7931195	7931224	7946534	7946563
191	55543281	55543310	55612205	55612234
192	8576781	8576810	8646352	8646381
193	32937081	32937110	33074743	33074772
194	187579608	187579637	187726558	187726587
195	39659036	39659065	39769502	39769531
196	55953310	55953339	56112357	56112386
197	53464498	53464527	53523723	53523752
198	72213377	72213406	72345933	72345962
199	60437027	60437056	60530626	60530655
200	27864129	27864158	27892396	27892425
201	11345773	11345802	11420842	11420871
202	31623674	31623703	31658617	31658646
203	27836543	27836572	27893601	27893630
204	30369804	30369833	30437456	30437485
205	36421195	36421224	36579206	36579235
206	18335603	18335632	18573353	18573382
207	137478558	137478587	137647187	137647216
208	47530515	47530544	47559512	47559541
209	128362006	128362035	128529465	128529494
210	20161775	20161804	20185384	20185413
211	121342022	121342051	121438842	121438871
212	11261903	11261932	11345773	11345802
213	159779098	159779127	159866578	159866607
214	87618182	87618211	87846454	87846483
215	215344457	215344486	215454611	215454640
216	54362865	54362894	54487090	54487119
217	121342022	121342051	121465920	121465949
218	14088693	14088722	14139536	14139565
219	55486661	55486690	55543281	55543310
220	133584343	133584372	133717418	133717447

221	41541510	41541539	41645739	41645768
222	23546783	23546812	23581109	23581138
223	6247841	6247870	6305165	6305194
224	85464646	85464675	85620983	85621012
225	39659036	39659065	39898072	39898101
226	121080944	121080973	121342022	121342051
227	50383674	50383703	50507416	50507445
228	27728786	27728815	27864129	27864158
229	52856865	52856894	53037036	53037065
230	55648717	55648746	55778432	55778461
231	107833995	107834024	107853779	107853808
232	121302599	121302628	121342022	121342051
233	33032721	33032750	33183466	33183495
234	108163026	108163055	108359269	108359298
235	6268416	6268445	6402028	6402057
236	38361518	38361547	38534534	38534563
237	203182882	203182911	203223884	203223913

Table 3.b4

	4 kb Sequence Location				
no.	**Chr**	**Start1**	**End1**	**Start2**	**End2**
119	5	44708521	44712520	44785519	44789518
120	19	49705558	49709557	49902221	49906220
121	7	156960825	156964824	156997453	157001452
122	5	53482719	53486718	53547736	53551735
123	12	54358895	54362894	54476905	54480904
124	1	203178912	203182911	203219881	203223880
125	1	222313333	222317332	222439154	222443153
126	1	121248863	121252862	121338052	121342051
127	11	62592661	62596660	62832566	62836565
128	12	54358895	54362894	54554190	54558189
129	1	20049003	20053002	20181414	20185413
130	6	31446122	31450121	31619704	31623703
131	15	50132084	50136083	50246568	50250567
132	3	55539311	55543310	55614905	55618904
133	10	30369804	30373803	30436596	30440595
134	5	75258050	75262049	75332799	75336798
135	6	33311675	33315674	33462479	33466478
136	20	23542813	23546812	23622000	23625999
137	1	153390498	153394497	153513975	153517974
138	13	52856865	52860864	52883409	52887408
139	17	7664452	7668451	7929730	7933729
140	7	50291258	50295257	50544404	50548403
141	13	52856865	52860864	52892348	52896347
142	1	27610670	27614669	27649540	27653539
143	8	22678819	22682818	22815487	22819486
144	19	11341803	11345802	11528284	11532283
145	19	11341803	11345802	11460173	11464172
146	6	26251915	26255914	26447331	26451330
147	1	19972753	19976752	20181414	20185413

148	6	88146574	88150573	88192987	88196986
149	22	42372893	42376892	42576469	42580468
150	8	64551145	64555144	64578200	64582199
151	22	42405469	42409468	42576469	42580468
152	11	114242698	114246697	114439741	114443740
153	5	76793350	76797349	76899955	76903954
154	1	27649540	27653539	27837074	27841073
155	16	22511890	22515889	22566517	22570516
156	5	53482719	53486718	53554766	53558765
157	17	7891356	7895355	7929730	7933729
158	2	47526545	47530544	47595214	47599213
159	1	36461527	36465526	36575236	36579235
160	16	86372876	86376875	86513167	86517166
161	8	53298883	53302882	53519753	53523752
162	6	31588790	31592789	31619704	31623703
163	2	219142734	219146733	219271449	219275448
164	14	96122095	96126094	96262491	96266490
165	10	73661600	73665599	73777776	73781775
166	6	31619704	31623703	31693389	31697388
167	2	47526545	47530544	47666118	47670117
168	1	191728128	191732127	191869198	191873197
169	7	104953071	104957070	105015560	105019559
170	12	54173793	54177792	54358895	54362894
171	6	27860159	27864158	28014485	28018484
172	5	75235564	75239563	75332799	75336798
173	6	31817303	31821302	31877027	31881026
174	17	7811364	7815363	7927225	7931224
175	14	24307630	24311629	24511835	24515834
176	1	121338052	121342051	121413900	121417899
177	20	1601074	1605073	1636523	1640522
178	5	100900260	100904259	100950421	100954420
179	4	145146632	145150631	145295264	145299263
180	17	7865137	7869136	7929730	7933729
181	16	85802243	85806242	85933139	85937138
182	1	121052781	121056780	121248863	121252862
183	6	106106015	106110014	106244730	106248729
184	17	7861817	7865816	7929730	7933729
185	1	121289406	121293405	121409897	121413896
186	12	49956857	49960856	50103363	50107362
187	6	32178824	32182823	32282605	32286604
188	11	6164442	6168441	6398058	6402057
189	20	177273	181272	305426	309425
190	17	7927225	7931224	7942564	7946563
191	3	55539311	55543310	55612205	55616204
192	2	8572811	8576810	8642382	8646381
193	6	32933111	32937110	33070773	33074772
194	3	187575638	187579637	187726558	187730557
195	1	39655066	39659065	39769502	39773501
196	12	55953310	55957309	56112357	56116356
197	8	53460528	53464527	53519753	53523752
198	X	72209407	72213406	72341963	72345962
199	5	60437027	60441026	60526656	60530655

200	6	27860159	27864158	27892396	27896395
201	19	11341803	11345802	11416872	11420871
202	6	31619704	31623703	31658617	31662616
203	6	27832573	27836572	27889631	27893630
204	10	30369804	30373803	30437456	30441455
205	1	36421195	36425194	36575236	36579235
206	19	18331633	18335632	18573353	18577352
207	4	137474588	137478587	137647187	137651186
208	2	47526545	47530544	47555542	47559541
209	11	128362006	128366005	128529465	128533464
210	1	20161775	20165774	20181414	20185413
211	1	121338052	121342051	121434872	121438871
212	19	11261903	11265902	11341803	11345802
213	1	159779098	159783097	159862608	159866607
214	14	87618182	87622181	87842484	87846483
215	2	215340487	215344486	215450641	215454640
216	12	54358895	54362894	54483120	54487119
217	1	121338052	121342051	121465920	121469919
218	19	14084723	14088722	14135566	14139565
219	3	55486661	55490660	55539311	55543310
220	X	133584343	133588342	133713448	133717447
221	6	41537540	41541539	41641769	41645768
222	20	23542813	23546812	23581109	23585108
223	7	6243871	6247870	6305165	6309164
224	8	85460676	85464675	85620983	85624982
225	1	39655066	39659065	39894102	39898101
226	1	121080944	121084943	121338052	121342051
227	19	50379704	50383703	50507416	50511415
228	6	27728786	27732785	27860159	27864158
229	13	52856865	52860864	53037036	53041035
230	19	55644747	55648746	55774462	55778461
231	3	107830025	107834024	107849809	107853808
232	1	121302599	121306598	121338052	121342051
233	6	33032721	33036720	33179496	33183495
234	6	108163026	108167025	108359269	108363268
235	11	6268416	6272415	6398058	6402057
236	19	38357548	38361547	38530564	38534563
237	1	203178912	203182911	203223884	203227883

Table 3.b5

no.	probe	Primer ID
119	Hg38_5_44708519_44718992_44785151_44789520_RF	OBD183-2433
120	Hg38_19_49705556_49707798_49902219_49904931_RR	OBD183-2437
121	Hg38_7_156960823_156963130_156997451_157002320_RR	OBD183-2441
122	Hg38_5_53482717_53490284_53547734_53551656_RR	OBD183-2445
123	Hg38_12_54361590_54362896_54476649_54480906_FF	OBD183-2449
124	Hg38_1_203176687_203182913_203216286_203223882_FF	OBD183-2453
125	Hg38_1_222313331_222325139_222441386_222443155_RF	OBD183-2457
126	Hg38_1_121248861_121256803_121333642_121342053_RF	OBD183-2461
127	Hg38_11_62592659_62593709_62832564_62835574_RR	OBD183-2465

128	Hg38_12_54361590_54362896_54554738_54558191_FF	OBD183-2469
129	Hg38_1_20049001_20056499_20178914_20185415_RF	OBD183-2473
130	Hg38_6_31446120_31450854_31621846_31623705_RF	OBD183-2477
131	Hg38_15_50130724_50136085_50246566_50252745_FR	OBD183-2481
132	Hg38_3_55535014_55543312_55612203_55618906_FF	OBD183-2485
133	Hg38_10_30369802_30374526_30437454_30440597_RF	OBD183-2489
134	Hg38_5_75258048_75262845_75334371_75336800_RF	OBD183-2493
135	Hg38_6_33314273_33315676_33463232_33466480_FF	OBD183-2497
136	Hg38_20_23532159_23546814_23621720_23626001_FF	OBD183-2501
137	Hg38_1_153390496_153396692_153513973_153518338_RR	OBD183-2505
138	Hg38_13_52856863_52871994_52883407_52889776_RR	OBD183-2509
139	Hg38_17_7665587_7668453_7929728_7931226_FR	OBD183-2513
140	Hg38_7_50286505_50295259_50544402_50549189_FR	OBD183-2517
141	Hg38_13_52856863_52871994_52892346_52898772_RR	OBD183-2521
142	Hg38_1_27610668_27612988_27649538_27652259_RR	OBD183-2525
143	Hg38_8_22681793_22682820_22815485_22819827_FR	OBD183-2529
144	Hg38_19_11340579_11345804_11529780_11532285_FF	OBD183-2533
145	Hg38_19_11340579_11345804_11460171_11462756_FR	OBD183-2537
146	Hg38_6_26251913_26253832_26447582_26451332_RF	OBD183-2541
147	Hg38_1_19972751_19977472_20178914_20185415_RF	OBD183-2545
148	Hg38_6_88146572_88149296_88188008_88196988_RF	OBD183-2549
149	Hg38_22_42372891_42375481_42578934_42580470_RF	OBD183-2553
150	Hg38_8_64551143_64558219_64578198_64580985_RR	OBD183-2557
151	Hg38_22_42405467_42408113_42578934_42580470_RF	OBD183-2561
152	Hg38_11_114241978_114246699_114439739_114443191_FR	OBD183-2565
153	Hg38_5_76793348_76797693_76897248_76903956_RF	OBD183-2569
154	Hg38_1_27649538_27652259_27838007_27841075_RF	OBD183-2573
155	Hg38_16_22513299_22515891_22559024_22570518_FF	OBD183-2577
156	Hg38_5_53482717_53490284_53554764_53563025_RR	OBD183-2581
157	Hg38_17_7889503_7895357_7929728_7931226_FR	OBD183-2585
158	Hg38_2_47522457_47530546_47595212_47601970_FR	OBD183-2589
159	Hg38_1_36461525_36463186_36575866_36579237_RF	OBD183-2593
160	Hg38_16_86372874_86378933_86513165_86515439_RR	OBD183-2597
161	Hg38_8_53298881_53306504_53518003_53523754_RF	OBD183-2601
162	Hg38_6_31588788_31590397_31621846_31623705_RF	OBD183-2605
163	Hg38_2_219136508_219146735_219271447_219273060_FR	OBD183-2609
164	Hg38_14_96122093_96130378_96263508_96266492_RF	OBD183-2613
165	Hg38_10_73661598_73666900_73777774_73781187_RR	OBD183-2617
166	Hg38_6_31621846_31623705_31693387_31703142_FR	OBD183-2621
167	Hg38_2_47522457_47530546_47666116_47672220_FR	OBD183-2625
168	Hg38_1_191729725_191732129_191869196_191881753_FR	OBD183-2629
169	Hg38_7_104953069_104957259_105015558_105026847_RR	OBD183-2633
170	Hg38_12_54173791_54182056_54361590_54362896_RF	OBD183-2637
171	Hg38_6_27860135_27864160_28014483_28022084_FR	OBD183-2641
172	Hg38_5_75236091_75239565_75334371_75336800_FF	OBD183-2645
173	Hg38_6_31817301_31818773_31878016_31881028_RF	OBD183-2649
174	Hg38_17_7811362_7813705_7929728_7931226_RF	OBD183-2653
175	Hg38_14_24307628_24311588_24511833_24515792_RR	OBD183-2657
176	Hg38_1_121333642_121342053_121413898_121422150_FR	OBD183-2661
177	Hg38_20_1589686_1605075_1636521_1641313_FR	OBD183-2665
178	Hg38_5_100903133_100904261_100940255_100954422_FF	OBD183-2669
179	Hg38_4_145148297_145150633_145295262_145303638_FR	OBD183-2673

180	Hg38_17_7861815_7869138_7929728_7931226_FR	OBD183-2677
181	Hg38_16_85802241_85804577_85933137_85934694_RR	OBD183-2681
182	Hg38_1_121052779_121056014_121248861_121256803_RR	OBD183-2685
183	Hg38_6_106106013_106107198_106244728_106262141_RR	OBD183-2689
184	Hg38_17_7861815_7869138_7929728_7931226_RR	OBD183-2693
185	Hg38_1_121289281_121293407_121403378_121413898_FF	OBD183-2697
186	Hg38_12_49954074_49960858_50101385_50107364_FF	OBD183-2701
187	Hg38_6_32178822_32181952_32282603_32287434_RR	OBD183-2705
188	Hg38_11_6164440_6172634_6399479_6402059_RF	OBD183-2709
189	Hg38_20_177034_181274_305424_309823_FR	OBD183-2713
190	Hg38_17_7929728_7931226_7944762_7946565_FF	OBD183-2717
191	Hg38_3_55535014_55543312_55612203_55618906_FR	OBD183-2721
192	Hg38_2_8571790_8576812_8640383_8646383_FF	OBD183-2725
193	Hg38_6_32934293_32937112_33060957_33074774_FF	OBD183-2729
194	Hg38_3_187569317_187579639_187726556_187727893_FR	OBD183-2733
195	Hg38_1_39655161_39659067_39769500_39772730_FR	OBD183-2737
196	Hg38_12_55953308_55956138_56112355_56115503_RR	OBD183-2741
197	Hg38_8_53448228_53464529_53518003_53523754_FF	OBD183-2745
198	Hg38_X_72208498_72213408_72340340_72345964_FF	OBD183-2749
199	Hg38_5_60437025_60452736_60528868_60530657_RF	OBD183-2753
200	Hg38_6_27860135_27864160_27892394_27893632_FR	OBD183-2757
201	Hg38_19_11340579_11345804_11418077_11420873_FF	OBD183-2761
202	Hg38_6_31621846_31623705_31658615_31662274_FR	OBD183-2765
203	Hg38_6_27833806_27836574_27892394_27893632_FF	OBD183-2769
204	Hg38_10_30369802_30374526_30437454_30440597_RR	OBD183-2773
205	Hg38_1_36421193_36424970_36575866_36579237_RF	OBD183-2777
206	Hg38_19_18333551_18335634_18573351_18575967_FR	OBD183-2781
207	Hg38_4_137465162_137478589_137647185_137649115_FR	OBD183-2785
208	Hg38_2_47522457_47530546_47552565_47559543_FF	OBD183-2789
209	Hg38_11_128362004_128366353_128529463_128539984_RR	OBD183-2793
210	Hg38_1_20161773_20167840_20178914_20185415_RF	OBD183-2797
211	Hg38_1_121333642_121342053_121433689_121438873_FF	OBD183-2801
212	Hg38_19_11261901_11265731_11340579_11345804_RF	OBD183-2805
213	Hg38_1_159779096_159781322_159863199_159866609_RF	OBD183-2809
214	Hg38_14_87618180_87629304_87841922_87846485_RF	OBD183-2813
215	Hg38_2_215339857_215344488_215450480_215454642_FF	OBD183-2817
216	Hg38_12_54361590_54362896_54482792_54487121_FF	OBD183-2821
217	Hg38_1_121333642_121342053_121465918_121472610_FR	OBD183-2825
218	Hg38_19_14087074_14088724_14138048_14139567_FF	OBD183-2829
219	Hg38_3_55486659_55489812_55535014_55543312_RF	OBD183-2833
220	Hg38_X_133584341_133592788_133714472_133717449_RF	OBD183-2837
221	Hg38_6_41533263_41541541_41639865_41645770_FF	OBD183-2841
222	Hg38_20_23532159_23546814_23581107_23587842_FR	OBD183-2845
223	Hg38_7_6241289_6247872_6305163_6306814_FR	OBD183-2849
224	Hg38_8_85458958_85464677_85620981_85632239_FR	OBD183-2853
225	Hg38_1_39655161_39659067_39891844_39898103_FF	OBD183-2857
226	Hg38_1_121080942_121088798_121333642_121342053_RF	OBD183-2861
227	Hg38_19_50382303_50383705_50507414_50511937_FR	OBD183-2865
228	Hg38_6_27728784_27735060_27860135_27864160_RF	OBD183-2869
229	Hg38_13_52856863_52871994_53037034_53038116_RR	OBD183-2873
230	Hg38_19_55646678_55648748_55776223_55778463_FF	OBD183-2877
231	Hg38_3_107828110_107834026_107847362_107853810_FF	OBD183-2881

232	Hg38_1_121302597_121312167_121333642_121342053_RF	OBD183-2885
233	Hg38_6_33032719_33045940_33181270_33183497_RF	OBD183-2889
234	Hg38_6_108163024_108164102_108359267_108371469_RR	OBD183-2893
235	Hg38_11_6268414_6277518_6399479_6402059_RF	OBD183-2897
236	Hg38_19_38359207_38361549_38528221_38534565_FF	OBD183-2901
237	Hg38_1_203176687_203182913_203223882_203229092_FR	OBD183-2905

Table 3.b6

no.	Primer Sequence	Primer ID	Primer Sequence
119	CCTTTACCCTAATATTTTGTGCC	OBD183-2435	GAATCATAAGCAAAAGCACTGGTG
120	CGTCACAGCTCTATTCGACGGTG	OBD183-2439	GGTGGCGATCCCTAAGAAGGTGTG
121	ATGTCCACACCCACTGCCACGAT	OBD183-2443	TGGGAGGGCTGAGAGGTGAGGAA
122	TTCTTCGCTTGACGGAGCCAGCAGTT	OBD183-2447	CTATCCTGGTCAAACTGGGACATACA
123	CCAGGTGAGGTTGGCAGCAAGCAT	OBD183-2451	GGGAATAGTTTAGGCTTTGGGAAATC
124	GATGGGAGACAGGCAGGTGAGAG	OBD183-2455	AGTGCGTCTCTGTGTCTGGGCTA
125	TCCATCTAAACATCACCGTGCTCCAG	OBD183-2459	GGGAACCATCTTTCTCTTCTGTCAT
126	GGTGGAAGCAGCAAGGGAAGACC	OBD183-2463	CCCAGTCAGGGAATGAGAGGGTA
127	CACCTCTTACTCCCCTCTCCCTT	OBD183-2467	CGGCAGGGAAGATGAGACCACAG
128	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-2471	GCACAGGAGGAGTCTGAAAGCAG
129	GAACGCGGTAGCTTTCTTCAGCTAA	OBD183-2475	GGCATTCGAATAATGGTATTAAG
130	AAGAGTCCTTGCCACCTGGAAGCG	OBD183-2479	ACCAGGTATGGCCATCGGCGCTA
131	GCGTGGATACTTTCCTCTTCCGAACT	OBD183-2483	GGGAATGGTTGGTGGAGGTTACAAGT
132	GGAGGAGTAAGGCTGAAATAACAGGG	OBD183-2487	TCCCACCACCATCATTACTGTCCTGA
133	GTGCTGAATGAGTGCGGAGTCCAGAA	OBD183-2491	GGTAACTGGCGAAGCACTCAATAAAC
134	TATTGTCCATTAGGCCCCACAAGGG	OBD183-2495	GTTAAGTACCCAGATATTCGCTGG
135	GGGTTCTGTATGATTACCGTCGT	OBD183-2499	CTCGGGGTCTATGGATGCCCGGTAG
136	CTGAAACGCAGACTGGTGGGTGC	OBD183-2503	CCCAGGAATGAGGACCACAGTCT
137	GAGCCATAGCCATCTGCTGGTTTGGT	OBD183-2507	GTGGTATCCTAAAACCTGACCTCAAC
138	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2511	GACCAAGAATAGTCCAACTCCAACAG
139	GTTCACCCCTCAGACACACAGGT	OBD183-2515	TGAAGTGGCATCTCTCTCCCGCC
140	GGTCCAGAGCATTTTGGTGGTGC	OBD183-2519	AAGGGCAGAGGCAGGACTTGGAC
141	ACCAAAGCACCTCTGAAGGACAAAGA	OBD183-2523	CAAAAGTGTCCCTTCCCTGCTCCCTA
142	GCCTGGTGTGAATCCTGCCTCCA	OBD183-2527	TCACCATCTCCTCAGGCACAAGG
143	ATTCCCCACCAGTATGAGGCGAAT	OBD183-2531	GTTGTCTGGTATATTAACGTGCC
144	GTGGCTCAGAACTTTACCTTTGCCTC	OBD183-2535	CATCACCTCTCTGGTATTCTTCCTGG
145	GTGGCTCAGAACTTTACCTTTGCCTC	OBD183-2539	GAGCCTACAGGATTTAGAGTGGGTTG
146	GCTTCAGATGAGGCTCCACCTTGTTA	OBD183-2543	CCATAGAATACAGCAGCACCCAGCAT
147	AGTAGGACTCGGGCAGGGAGGAT	OBD183-2547	TTCACAGACCAGCATCGCCCCAT
148	AGAGGTGCTGGAGTGTGGCTGTGATT	OBD183-2551	CCCCAACCCCATACAGTGTGATA
149	GCCAGCGAGACACTCACACAACT	OBD183-2555	GGGTGCCTCCAAATCGCATCTCC
150	GCACTAAGTCCTGCTAACATCAG	OBD183-2559	ATGTCTGACTTAGTTCTCCAGCCAGC
151	GCCAGCGAGACACTCACACAACT	OBD183-2563	CCTCCCTGCTTCGGCTTTTCCCA
152	GGAACTAAAGGGAAGCGTCCACG	OBD183-2567	ACCTGCCACACCTGAGACCCAGA
153	GCGTATAAAATTAGTAACGGCTAGA	OBD183-2571	GGACCGGGAGTCCGATAGACCTAC
154	CCAGCACACGGCACTTTCTTGGG	OBD183-2575	TCACCATCTCCTCAGGCACAAGG
155	CAGTTCGTGTTCTGACGGCAGGC	OBD183-2579	GGAGGCAGTCATTCTGGTGTTCC
156	TTCTTCGCTTGACGGAGCCAGCAGTT	OBD183-2583	GCGAACAGGACTGGAGAAAAGTATCA
157	CCTTGTGGGACCCCTATCTTCTC	OBD183-2587	TGAAGTGGCATCTCTCTCCCGCC
158	GTCACTACTGAGGACTGAAAATGCGG	OBD183-2591	CTGTTTGTTGAATGGACTCTGGACCC
159	CAGCCCACACACGAGATACACAC	OBD183-2595	CCAGGGCTGACTGACACCAAAGC

160	TCCCAAGGAACTATGGAGGCAGG	OBD183-2599	TGAGGAAGGAGGTGCCAACCGCA
161	TATGAGCCGGGTTCATCTTTGCGC	OBD183-2603	CCACTTCGGAGAAATGAGGCGCAA
162	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2607	GCTTGGGTCCCTGAACACTGTCATTC
163	CACCTGGAAAGAGGAAGTAGGGC	OBD183-2611	GGCAGGCTCAAAGCAGGCATTGG
164	GAGGAGAATGGACAGGCTGGGTC	OBD183-2615	CCCCTTGTCCAGAGTTTCCACAC
165	ACGGAGCGTATGTGAAAAGAAGTA	OBD183-2619	AAGCGGTACAAAATTGTACCGTA
166	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2623	AGGTGTTGTTGAGGGTGGGTAGGAGA
167	GTTATAGTACCGTCGTTTTAGGTGC	OBD183-2627	CATTAGTAACATTTTGGCACGGTGT
168	ACTTCTATGTTACACCCTCGGTC	OBD183-2631	TATTATGGGTGTGTATATCGCCGT
169	CAGTCTGGGCAACATAGCAGGAGTGT	OBD183-2635	TTAGATTACCACAACATCAGCCTGGG
170	CAGGTGAGGTTGGCAGCAAGCAT	OBD183-2639	TGTCCTCTGGCTCTGTTTGGGCG
171	TTACGGCTTTGGTGCTCTCGGACACA	OBD183-2643	ATACTTCCCTTTTCCCACCTCTGGAT
172	AAGGCAGGAGCCAACCCAGCACA	OBD183-2647	TTACAGGTTTGAGGTGCCCGTCG
173	ACTTCCCAGAGGCTCCTGAAAGC	OBD183-2651	GGCGTTCTTGGCTGACACCCTCT
174	CTCGTAGTAATGGAGTTTGTAACGGC	OBD183-2655	GAGATGGAGCAGAACAGGAAGTTGGG
175	TCTCCTGCTCCCCACTCCACAGT	OBD183-2659	TGCGAGGGCAAACACAGAGTGAG
176	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2663	GCCTCTCCCTCATTCAAAAGAAAGAA
177	AAGCCGTGGGACTCGCAGGTGAA	OBD183-2667	CTGGTCGTCACCTCTTCCAACCT
178	CACCTCTCCTCCGTCCCACCATT	OBD183-2671	CACTTTGGGAGACTGAGAGCGGA
179	CTGAGACTGTGACCCTGAAGAATGAC	OBD183-2675	ATTGTTCTGAGCACTGAGGACACAGC
180	GCTCGTAACTCAGGTTGTGAATCTTC	OBD183-2679	AGATGAGCGGCAGGTTTGGCTGAGA
181	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2683	CACACAGAGTAGGCAGGCGGATA
182	GACGCAGTCTCACACACTTTGGG	OBD183-2687	CCCAGTCAGGGAATGAGAGGGTATG
183	GAATCCATACCCACTATCCCCAACC	OBD183-2691	GGGTAAGAAAAGTGTGTCTCATTGAT
184	GGGTGTTGCGAGATGAGCCTGAT	OBD183-2695	TGAAGTGGCATCTCTCTCCCGCC
185	AGGCGACAGGGTTCGGGCTTTATTCT	OBD183-2699	GAAGAGGACTGTAGAAGGAGACAAGA
186	TGGCAGAGGGAGAGGGTCAGAGA	OBD183-2703	CAAGGAGATGCCCAGGCTAATGG
187	GTGTTAATCGTCCGGGGACCAATTT	OBD183-2707	TCTTCGTTAAGAAATATTTCCGTT
188	GAGTTACTCGTTACGGTGCTTCG	OBD183-2711	TCCACGACCGCCACAGGAAAGGTAC
189	GGACGCTGAATGTTGTCAAGTGTTTT	OBD183-2715	GGTTTTCCCCTGGAGTTGGACTGTTC
190	GTGGGCGTCTCGTAGTAATGGAG	OBD183-2719	GCTGACCTTGGGTGTGGTGTCCA
191	GGGAGTGGAGGAGTAAGGCTGAA	OBD183-2723	CTGCCACTTTGAGACTGCCCCTC
192	TACCGTGCTGTGTGACCTCAGAC	OBD183-2727	CCGTCTTCAGCCCTCAGTGTAGG
193	TCCCATTTCCCCATTCTGGTCCTAAG	OBD183-2731	GAGAGATTCTGTTATTAGTGCTTTGC
194	GGAGGTGACAACAGTATCATAAAGTG	OBD183-2735	AAACCCTACAAGTGTGACCGCTGCCA
195	GCGAGAACGGAGGCTAAGTTGAT	OBD183-2739	CCCCACGCCACCATAGATGTGCGC
196	CTGAATCCCTAGGTCATGGGTGTGG	OBD183-2743	TCCCTAACCGTAAAAACATGCAGG
197	TGTATACTCAAAGCCATCATAAGTG	OBD183-2747	CATAGTGCTAGTCCATTCCATAAC
198	GTATATACGATAAGTGATCAATTG	OBD183-2751	AGCCACACCTGCGCCCGGAACCC
199	AAATCCCCCAGGGCTAGCTCGCTT	OBD183-2755	TTGTGGTCGACACACATGATAAGTT
200	GCTTTGGTGCTCTCGGACACAGC	OBD183-2759	GCGGTGGTTTATGCGTCCTTAGC
201	CCCCTAGCCGTTTAATAGTATACA	OBD183-2763	TTTTTCGGCCTAGATAAGATTCCAC
202	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2767	TGAGGGCACTGCTCTTGGATTCACCA
203	TCCCATTTAGGAGAGTGCCTGGC	OBD183-2771	GTGCTCTTTCACTCTCCTCCGCC
204	GGTAACTGGCGAAGCACTCAATAAAC	OBD183-2775	ACCCAGCCATCTGCCTCTCAGTGAAT
205	CCACACACGAGATACACACACCC	OBD183-2779	TTGCTGGCAGAGACTCGCCTGGA
206	ACTCCCGCCTTCGTGCCCAAATA	OBD183-2783	CAGCCCTACTCACCCTCCTTGTC
207	TGAACCCACTGCTAATACCAACCG	OBD183-2787	CAGTGCGGGGGTGGGTCGGCCGAT
208	TCAGTCTCCATACACCTTGGAGT	OBD183-2791	CCTTTGTCTAGGAGCTGTTGACATG
209	ACGAGCAAAGGTGAGAAAGCAAATGC	OBD183-2795	CCCCTCAGAACTCAGGAGAAATCAT
210	GCATGACTGGCAACGGCTCGCCCTG	OBD183-2799	GTAGTAGACGATGTGCGCAGTCGGA
211	AAGTAAATCCTCGGAGCTGAGACG	OBD183-2803	ATAAGCAGCCTCAACTGCCTTCCGA

212	GTTCCCGCCTTCCTCCATCTTGC	OBD183-2807	AGGCTCCAGGCTCTGAGATTTGG
213	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-2811	TCCCTACCCTCCTATGTGCTCCT
214	TCAGCAGGGCAGGAACACAGTGG	OBD183-2815	CTGCCCTGGAAGCCTATGTGACT
215	CACCTGTTGTAATCCTGGCACTCTGG	OBD183-2819	GATACACAGACCTTGAGGCAACAATG
216	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-2823	GGAGTGGGAAAGGAAGCGACAGA
217	AAACGTTACCCAGGCCACTACTCAT	OBD183-2827	CAAAATTCCGGCTCTCGCATGGGTT
218	ACTTAGTTTCTCACGTTGTCACA	OBD183-2831	TTTACAGTGGACGCTTCCGGAAAAC
219	GGGAGTGGAGGAGTAAGGCTGAA	OBD183-2835	CCTCCATTTCCCCAACCGCCTGA
220	TGTAGTCTTAGAACCCCCGTACGT	OBD183-2839	GAGTACCCCTAATGCCGGGTACAGT
221	GGTCACAGAAGGAAGCCTACTGC	OBD183-2843	CGCAGTCCGATGCTCTATCTCCC
222	AATATCCATCCCCCGGAACTTGCT	OBD183-2847	GAAAGTTGAGTTCCAGGACCTTGA
223	AGTTTTGTTGTTTCTTTTCTTCA	OBD183-2851	GCACTCTGTTGGGATTGCCAGGGA
224	GTCCGTGCCCAGTGCTTTGGCGTCG	OBD183-2855	CCTTTAAGGGCCCAAGCTGGGTC
225	GCAGACAGGCAGAAGGACAGAAC	OBD183-2859	GCTGGTGCTTGGGAAGGTAGGAG
226	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2863	CTCTGATAACATCTTCCCTCTACACG
227	AATCCTTCCTGCCCCTGTGCCAG	OBD183-2867	ATGTGGGAAGCCTGGCACTGATG
228	GCTTTGGTGCTCTCGGACACAGC	OBD183-2871	GCCTGAACGAGGGACCTATCAAC
229	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2875	GCCTTTTGTGCCATCCCTTTCCTAAG
230	TTACCGACTCATGACGGCGATTCTC	OBD183-2879	AGGAACCTATACCTATGCTGCTCTG
231	CTTATCGTCCGCCTTCATTCCTATGC	OBD183-2883	CCCAGACATCCTACCACCAGTAAAAC
232	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2887	GCATAATCTTGGACTTTCGTTTGCCA
233	GATTAGCGCTGGACCTTGTTGTCCA	OBD183-2891	CTTCCATGCTGGGTACCAATATGAA
234	CTAAACAGGTTCAGACATAGCCCCTA	OBD183-2895	TGGACAGGGCAGGCAATAACAGGGAT
235	CTATATTGTGTGATGTCAGCATGTC	OBD183-2899	GTGGTCCCGCCGTTTGCAAGTGT
236	TCTCACAAGGGGTAGGGTCACTCCA	OBD183-2903	GCATCATCGAGCCCCCTATTCAC
237	GATGGGAGACAGGCAGGTGAGAG	OBD183-2907	GGCTCCCCAGGTCTTTACTAACC

Table 3.b7

	qPCR PRIMER SET	
no.	probe	qPCR Primer ID
4	Hg38_3_194096425_194098698_194154195_194165166_FF	OBD183-q969
12	Hg38_2_11008274_11010451_11159160_11162827_FR	OBD183-q909
16	Hg38_22_42578934_42580470_42682810_42685060_FR	OBD183-q981
21	Hg38_16_85802241_85804577_86052797_86054069_RR	OBD183-q829
23	Hg38_2_47522457_47530546_47595212_47601970_FF	OBD183-q865
24	Hg38_2_47354005_47355988_47522457_47530546_RF	OBD183-q905
33	Hg38_11_5689507_5691245_5788110_5795433_FF	OBD183-q809
37	Hg38_11_63903088_63909160_64170615_64174763_FF	OBD183-q997
42	Hg38_X_1815902_1820657_1830879_1832345_RR	OBD183-q993
44	Hg38_19_55104500_55106500_55175439_55177687_FR	OBD183-q861
48	Hg38_12_110242070_110251176_110379081_110380448_RR	OBD183-q881
143	Hg38_8_22681793_22682820_22815485_22819827_FR	OBD183-q805

Table 4.a

	qPCR PRIMER SET		
no.	Sequence	qPCR Primer ID	qPCR Reverse Seq

4	CGGAGAGAGGGACGCAGGAATGGAAGGG	OBD183-q971	CGAACCCACCACACACACACACCAGAC
12	GAAGCCCAGGGAGGTGTGTGAGGACTGC	OBD183-q911	CTCCTCCTGCCAGCCTCCTGAGC
16	CAGGTCCCCTCCCAGACACCAGC	OBD183-q983	AGAGGAGGCGAGACGAAGAGGTGGGAGC
21	GCACAGCAAGGTGAGGTGACAGGGAGC	OBD183-q831	TTAGGCTTCCTTGCGGGTGCTCCTCAGG
23	GGACTGGACACTTGAGAGGGCACTGGGC	OBD183-q867	AAGGCAGCAGCCAGAGCCCCAGC
24	GGACTGGACACTTGAGAGGGCACTGGGC	OBD183-q907	CACAGGTGCCCAGCCCAGTGGAC
33	CTCTGAAGGTCCAGTCACAGGGAACTTG	OBD183-q811	TCAAGGCTGCTCATACAACATCCATTCT
37	GTGGTGGGCAGTGGCGGCAACGACAAAG	OBD183-q999	GGAGCCTGGAAAACAGAGGATGCCCC
42	GGTGGACCTGACACGGATGCCTGCTGAC	OBD183-q995	CCTCGTGAATCCGCCTGCCTTGGC
44	CCTCTTTGGTGTGGGCTCCGACCTC	OBD183-q863	CCCTGGGCACTACTGACTCCTGGGCTGT
48	GGCTCACTGACCTCCCAGGCTCAAGCGA	OBD183-q883	CTCAGGGATGCGGTTGAATAGTCCGTCC
143	CAGGAAGCAGGCAACAGCCCGATGACAC	OBD183-q807	GTGAGTGTTCAGCAGGAAGCGGCAGCG

Table 4.b

	qPCR PRIMER SET	
no.	Probe ID	Probe Sequence
4	OBD183-p969	AGCTGCAGGAAAACCCCGTTCTTATTCGACATAT
12	OBD183-p909	TGTTTCGGCTTTAGTTCGATGGTGAAGACCCC
16	OBD183-p981	TCCCTGTCTAGTCCTATCTGTTCATCGAGCCAG
21	OBD183-p829	AGGCCGTTCTAAAAGCACATTTGTATCGAATAA
23	OBD183-p865	TGTGTATCGAGCAACCCCTGAGAATAAGGTGGC
24	OBD183-p905	ACTGCTGTTGTGTATCGAGGTGTAACTCACTAGC
33	OBD183-p809	TCCTGTCTCAAGAGCCGAGCTCCTCGAAGCCATT
37	OBD183-p997	GGGGCATCCTCTGTTTTCCAGGCTCC
42	OBD183-p993	AGGAGTTCGAGACAAGCCTGGCCAACATGGTG
44	OBD183-p861	TGTCAGCACTTGGAGCTATCCAATGGTCGAAGCG
48	OBD183-p881	TCACCATATTGCCAGGGCTGGTCTCGAACTCC
143	OBD183-p805	AGGACTCATGTTCTCTCGAGGTCTAGAATCTGAG

Table 4.c

	qPCR PRIMER SET	
no.	Probe ID	Probe Sequence
4	OBD183-p971	AGAGAACTGAAAGCATATGTCGAATAAGAACGGG
12	OBD183-p911	ACCATCGAACTAAAGCCGAAACACATTGAGCTCT
16	OBD183-p983	TCTGGCTCGATGAACAGATAGGACTAGACAGGG
21	OBD183-p831	TTATTCGATACAAATGTGCTTTTAGAACGGCCTC

23	OBD183-p867	TTGCTCGATACACAACAGCAGTTATTATACCC
24	OBD183-p907	TGCTAGTGAGTTACACCTCGATACACAACAGCAG
33	OBD183-p811	AATGGCTTCGAGGAGCTCGGCTCTTGAGACAG
37	OBD183-p999	AGCCTGGTCTCGAACCCCGTTGAGAGAGAG
42	OBD183-p995	ACCATGTTGGCCAGGCTTGTCTCGAACTCCTG
44	OBD183-p863	TCGCTTCGACCATTGGATAGCTCCAAGTGCTGAC
48	OBD183-p883	AGGAGTTCGAGACCAGCCCTGGCAATATGGTG
143	OBD183-p807	AGACCTCGAGAGAACATGAGTCCTTTCCCCTC

Table 4.d

	#term ID	term description
1	CL:3634	interleukin-1-mediated signaling pathway, and TIR domain
2	CL:13762	Proteasome
3	CL:3628	mixed, incl. NF-kappa B signaling pathway, and Death-like domain superfamily
4	CL:13746	Degradation of DVL, and TNF receptor superfamily (TNFSF) members mediating non-canonical NF-kB pathway
5	CL:3637	mixed, incl. IkBA variant leads to EDA-ID, and death-inducing signaling complex assembly
6	CL:141	mixed, incl. phosphatidylinositol-4,5-bisphosphate 3-kinase activity, and RET signaling
7	CL:327	mixed, incl. PDGF/VEGF domain, and vascular endothelial growth factor-activated receptor activity
8	CL:13763	Proteasome
9	CL:4137	interleukin-6 receptor complex, and Alpha-1B-glycoprotein/leukocyte immunoglobulin-like receptor
10	CL:2190	mixed, incl. regulation of TOR signaling, and MAPK targets/ Nuclear events mediated by MAP kinases
11	CL:3430	PI3K p85/p55 subunit, and PI3-kinase family, p85-binding domain
12	CL:4488	Antigen activates B Cell Receptor (BCR) leading to generation of second messengers
13	CL:329	PDGF/VEGF domain, and vascular endothelial growth factor-activated receptor activity
14	CL:13764	Proteasome subunit, and proteasome regulatory particle, base subcomplex
15	CL:4341	mixed, incl. TNFs bind their physiological receptors, and T cell costimulation
16	CL:4444	mixed, incl. T cell receptor complex, and Antigen activates B Cell Receptor (BCR) leading to generation of second messengers
17	CL:4343	mixed, incl. TNFs bind their physiological receptors, and Cytotoxic T-lymphocyte protein 4/CD28
18	CL:3906	Jak-STAT signaling pathway
19	CL:2526	mixed, incl. protein kinase C activity, and CREB3 factors activate genes
20	CL:2562	histone H3-T6 phosphorylation, and calcium-independent protein kinase C activity
21	CL:3422	Inositol phosphate metabolism, and inositol hexakisphosphate 1-kinase activity

22	CL:3641	IkBA variant leads to EDA-ID
23	CL:369	CSF1-CSF1R complex, and flt3 ligand
24	CL:4506	phosphorylation-dependent protein binding, and Bcr-Abl oncoprotein oligomerisation
25	CL:331	VEGF binds to VEGFR leading to receptor dimerization
26	CL:13804	Proteasome subunit, and 26S Proteasome regulatory subunit 6A
27	CL:2195	Energy dependent regulation of mTOR by LKB1-AMPK, and RSK activation
28	CL:2680	Ras GTPase-activating protein
29	CL:10672	mixed, incl. Serine proteases, trypsin family, histidine active site, and serine-type endopeptidase inhibitor activity
30	CL:2402	mixed, incl. MAPK targets/ Nuclear events mediated by MAP kinases, and bZIP transcription factor
31	CL:13765	Proteasome alpha-type subunit, and proteasome regulatory particle
32	CL:2191	mixed, incl. regulation of TOR signaling, and Translocation of SLC2A4 (GLUT4) to the plasma membrane
33	CL:3710	IRAK4 deficiency (TLR2/4), and interleukin-1 receptor complex
34	CL:4344	T cell costimulation, and natural killer cell tolerance induction
35	CL:2583	Oncogenic MAPK signaling, and RasGEF N-terminal motif
36	CL:5867	mixed, incl. Repression of WNT target genes, and B Cell Lymphoma 9
37	CL:142	mixed, incl. RET signaling, and ERBB2 Regulates Cell Motility
38	CL:7364	CXC Chemokine domain, and dendritic cell chemotaxis

Table 5.a1

	observed gene count	background gene count	strength	false discovery rate
1	8	60	1.43	5.69E-07
2	6	28	1.63	1.73E-06
3	9	116	1.19	1.73E-06
4	7	63	1.35	2.34E-06
5	5	22	1.66	5.46E-06
6	8	119	1.13	5.80E-06
7	5	26	1.58	8.17E-06
8	4	21	1.58	9.14E-05
9	3	5	2.08	9.14E-05

10	8	196	0.91	0.00011
11	3	6	2	0.00012
12	3	14	1.63	0.00089
13	3	15	1.6	0.001
14	3	16	1.57	0.0012
15	4	51	1.19	0.0017
16	4	56	1.15	0.0022
17	3	24	1.4	0.0029
18	5	122	0.91	0.0039
19	3	28	1.33	0.0041
20	2	5	1.9	0.0041
21	4	69	1.06	0.0041
22	2	5	1.9	0.0041
23	2	5	1.9	0.0041
24	2	5	1.9	0.0041
25	2	6	1.82	0.0048
26	2	7	1.76	0.006
27	3	36	1.22	0.0065
28	2	8	1.7	0.007

Table 5.a2

	matching proteins in your network (IDs)
1	9606.ENSP00000162749,9606.ENSP00000263464,9606.ENSP00000302569,9606.ENSP00000358983,9606.ENSP00000363089,9606.ENSP00000398698,9606.ENSP00000401399,9606.ENSP00000430684
2	9606.ENSP00000044462,9606.ENSP00000157812,9606.ENSP00000215071,9606.ENSP00000216455,9606.ENSP00000271308,9606.ENSP00000481029
3	9606.ENSP00000162749,9606.ENSP00000263464,9606.ENSP00000280357,9606.ENSP00000302569,9606.ENSP00000358983,9606.ENSP00000363089,9606.ENSP00000398698,9606.ENSP00000401399,9606.ENSP00000430684
4	9606.ENSP00000044462,9606.ENSP00000157812,9606.ENSP00000215071,9606.ENSP00000216455,9606.ENSP00000271308,9606.ENSP00000410481,9606.ENSP00000481029
5	9606.ENSP00000162749,9606.ENSP00000263464,9606.ENSP00000358983,9606.ENSP00000398698,9606.ENSP00000430684
6	9606.ENSP00000241453,9606.ENSP00000265404,9606.ENSP00000282397,9606.ENSP00000380432,9606.ENSP00000403459,9606.ENSP00000469613,9606.ENSP00000478570,9606.ENSP00000480043
7	9606.ENSP00000241453,9606.ENSP00000282397,9606.ENSP00000469613,9606.ENSP00000478570,9606.ENSP00000480043
8	9606.ENSP00000044462,9606.ENSP00000215071,9606.ENSP00000216455,9606.ENSP00000271308

9	9606.ENSP00000354952,9606.ENSP00000370698,9606.ENSP00000385675
10	9606.ENSP00000215832,9606.ENSP00000225577,9606.ENSP00000263025,9606.ENSP00000268184,9606.ENSP00000298552,9606.ENSP00000305355,9606.ENSP00000344220,9606.ENSP00000408695
11	9606.ENSP00000222254,9606.ENSP00000289153,9606.ENSP00000428056
12	9606.ENSP00000085219,9606.ENSP00000224337,9606.ENSP00000428924
13	9606.ENSP00000282397,9606.ENSP00000478570,9606.ENSP00000480043
14	9606.ENSP00000044462,9606.ENSP00000216455,9606.ENSP00000271308
15	9606.ENSP00000266557,9606.ENSP00000324890,9606.ENSP00000368450,9606.ENSP00000378856
16	9606.ENSP00000085219,9606.ENSP00000224337,9606.ENSP00000256447,9606.ENSP00000428924
17	9606.ENSP00000266557,9606.ENSP00000324890,9606.ENSP00000378856
18	9606.ENSP00000263851,9606.ENSP00000354394,9606.ENSP00000354952,9606.ENSP00000370698,9606.ENSP00000385675
19	9606.ENSP00000268184,9606.ENSP00000305355,9606.ENSP00000408695
20	9606.ENSP00000305355,9606.ENSP00000408695
21	9606.ENSP00000222254,9606.ENSP00000289153,9606.ENSP00000331103,9606.ENSP00000428056
22	9606.ENSP00000398698,9606.ENSP00000430684
23	9606.ENSP00000241453,9606.ENSP00000469613
24	9606.ENSP00000085219,9606.ENSP00000428924
25	9606.ENSP00000282397,9606.ENSP00000480043
26	9606.ENSP00000157812,9606.ENSP00000481029
27	9606.ENSP00000215832,9606.ENSP00000225577,9606.ENSP00000298552
28	9606.ENSP00000341905,9606.ENSP00000351015
29	9606.ENSP00000233735,9606.ENSP00000314151,9606.ENSP00000337733,9606.ENSP00000363001
30	9606.ENSP00000263025,9606.ENSP00000268184,9606.ENSP00000305355,9606.ENSP00000408695
31	9606.ENSP00000216455,9606.ENSP00000271308
32	9606.ENSP00000215832,9606.ENSP00000225577,9606.ENSP00000298552,9606.ENSP00000344220
33	9606.ENSP00000363089,9606.ENSP00000401399
34	9606.ENSP00000324890,9606.ENSP00000378856
35	9606.ENSP00000251849,9606.ENSP00000341905,9606.ENSP00000351015
36	9606.ENSP00000265165,9606.ENSP00000340347
37	9606.ENSP00000265404,9606.ENSP00000380432,9606.ENSP00000403459
38	9606.ENSP00000246657,9606.ENSP00000427279

Table 5.a3

	matching proteins in your network (labels)
1	TNFRSF1A,BIRC3,CLEC7A,NFKB2,TLR4,TNF,MYD88,IKBKB
2	PSMA4,PSMC4,PSMD8,PSMA3,PSMA5,PSMC3
3	TNFRSF1A,BIRC3,IL18,CLEC7A,NFKB2,TLR4,TNF,MYD88,IKBKB
4	PSMA4,PSMC4,PSMD8,PSMA3,PSMA5,LTB,PSMC3
5	TNFRSF1A,BIRC3,NFKB2,TNF,IKBKB
6	FLT3,STAP1,FLT1,INS,GRB7,FLT3LG,VEGFA,VEGFC
7	FLT3,FLT1,FLT3LG,VEGFA,VEGFC
8	PSMA4,PSMD8,PSMA3,PSMA5
9	GAB2,IL6ST,IL6
10	MAPK1,RPS6KB1,MAPK3,CRTC3,TSC1,PRKCB,PDPK1,PRKCA
11	PIK3R2,PIK3CB,PIK3R1
12	CD22,BLNK,LYN
13	FLT1,VEGFA,VEGFC
14	PSMA4,PSMA3,PSMA5
15	CD27,CD28,CD83,LGALS9
16	CD22,BLNK,CD180,LYN
17	CD27,CD28,LGALS9
18	IL7,STAT1,GAB2,IL6ST,IL6
19	CRTC3,PRKCB,PRKCA
20	PRKCB,PRKCA
21	PIK3R2,PIK3CB,IP6K2,PIK3R1
22	TNF,IKBKB
23	FLT3,FLT3LG
24	CD22,LYN
25	FLT1,VEGFC
26	PSMC4,PSMC3
27	MAPK1,RPS6KB1,TSC1
28	RASAL3,NF1

29	REG1A,KLK3,KLK5,SMPDL3B
30	MAPK3,CRTC3,PRKCB,PRKCA
31	PSMA3,PSMA5
32	MAPK1,RPS6KB1,TSC1,PDPK1
33	TLR4,MYD88
34	CD28,LGALS9
35	RAF1,RASAL3,NF1
36	LEF1,TCF7
37	STAP1,INS,GRB7
38	CCR7,CXCL2

Table 5.a4

	Score	Name	# Genes	# Matched Genes
1	11.61169272	Abatacept	6	2
2	18.50139978	Actinomycin D	349	10
3	14.76555719	Afelimomab	2	2
4	13.93486038	Angiotensin II	49	4
5	14.66046277	Anti-Bacterial Agents	43	4
6	14.10196715	Anti-Infective Agents	94	5
7	13.09968284	Anti-Inflammatory Agents	57	4
8	18.09129783	Antibodies	94	6
9	21.01447232	Antirheumatic Agents	66	6
10	13.60602326	Antiviral Agents	52	4
11	14.64533985	Atorvastatin	144	6
12	12.77358999	Avastin	4	2
13	18.93443533	Bortezomib	134	7
14	15.97337065	Bryostatin 1	34	4
15	30.08723672	Calcitriol	194	11
16	27.02012675	Calcium	2384	31
17	14.756574	Carboplatin	142	6
18	12.1337483	Carboxyamidotriazole	5	2
19	26.20261877	CCL3	63	7
20	12.46406717	CCL4	64	4
21	14.32144141	Celecoxib	91	5
22	14.92591721	Ciglitazone	41	4
23	28.41653326	Cisplatin	489	15
24	31.20593759	Curcumin	180	11

25	58.65533446	Dexamethasone	717	27
26	27.41844557	Doxorubicin	362	13
27	29.62772409	Etoposide	256	12
28	25.0122012	Everolimus	41	6
29	15.28349555	Fludarabine	79	5
30	14.1742854	Gefitinib	93	5
31	17.21493721	Gemcitabine	161	7
32	15.54354092	GSK2126458	12	3
33	14.59114466	GSK2636771	15	3
34	13.97744008	Heparin	504	10
35	22.45767829	Hydrocortisone	139	8
36	12.25952711	Hydroxymethylglutaryl-CoA Reductase Inhibitors	26	3
37	21.14169926	Ifn-alpha	65	6
38	22.84919914	IL 10	53	6
39	17.93632651	IL-12	24	4
40	44.89671219	Imatinib	172	14
41	22.7760577	Imiquimod	27	5
42	18.09129783	Immunoglobulins	94	6
43	24.33619615	Immunologic Factors	117	8
44	27.86382672	Immunosuppressive Agents	85	8
45	16.72981772	Infliximab	64	5
46	12.77679795	Lenalidomide	23	3
47	13.59964922	Lenalidomide, Bevacizumab	3	2
48	12.77679795	Nintedanib	23	3
49	29.84816928	Paclitaxel	314	13
50	11.94768588	Pembrolizumab	28	3
51	49.4150375	Pge2	418	20
52	15.33951451	Prednisolone	132	6
53	16.93094061	Quercetin	166	7
54	39.31262432	RANTES	230	14
55	66.21801226	Rapamycin	311	22
56	11.38755003	Regorafenib	32	3
57	18.00053022	Resveratrol	148	7
58	39.9655449	Retinoic Acid	935	24
59	11.45781534	Rituximab	77	4
60	22.93692352	Rosiglitazone	133	8
61	11.61169272	Ruboxistaurin	6	2
62	21.00621408	Simvastatin	159	8

63	22.27029358	Sophoretin	29	5
64	29.87089939	Sorafenib	71	8
65	23.5258192	Sorafenib Tosylate	9	4
66	20.0039058	Sunitinib	40	5
67	29.85870063	Tacrolimus	197	11
68	22.07482585	TGF Beta1	144	8
69	18.72668459	Thalidomide	87	6
70	25.45624607	Trastuzumab	68	7
71	11.83631766	Troglitazone	132	5
72	14.76555719	Ulixertinib	2	2
73	19.30137851	Vildagliptin	5	3
74	14.92665908	Vincristine	139	6

Table 6.a1

	Matched Genes (Symbols)
1	IL6, TNF
2	RPS6KB1, IL6, STAT1, BIRC3, MYC, CCL3, VEGFA, TNF, TLR4, MAPK1
3	IL6, TNF
4	IL6ST, VEGFA, MAPK3, MAPK1
5	FLT3, NF1, LTB, TNF
6	FLT3, IL6, MYC, LTB, TNF
7	NF1, STK11, TNF, TLR4
8	FLT3, CD28, IL6, CCR7, CD22, TNF
9	CD28, IL6, MYC, NF1, CD22, TNF
10	FLT3, IL6, MYC, TNF
11	IL6, IL18, DPP4, VEGFA, TNF, TLR4
12	VEGFC, VEGFA
13	FLT3, PSMC3, IKBKB, IL6, MYC, PSMA5, VEGFA
14	MYC, PRKCA, PRKCB, TNF
15	IL6, STAT1, MYC, FCER2, PRKCA, PRKCB, TNF, PIK3CB, TLR4, KLK3, CD83
16	CXCL2, FLT1, RPS6KB1, CD28, GRB7, CCR7, PIK3R1, BIRC3, IL18, NF1, FCER2, IL6ST, PRKCA, CD27, LGALS9, DPP4, VEGFC, RPS6, CCL3, DMBT1, PRKCB, STK11, REG1A, PDPK1, PIK3CB, IL7, LYN, BLNK, TLR4, MAPK3, MAPK1
17	PRKCA, STK11, VEGFA, RAF1, TNF, KLK3
18	VEGFA, KLK3
19	CXCL2, IL6, CCR7, IL18, CCL3, TNF, TLR4
20	CXCL2, CCR7, CCL3, IL7
21	PIK3R1, CCL3, VEGFA, PDPK1, MAPK1
22	IL6, STAT1, TNF, MAPK1

23	FLT1, RPS6KB1, LEF1, STAT1, BIRC3, IL18, MYC, PRKCA, PRKCB, VEGFA, RAF1, LYN, TLR4, MAPK3, MAPK1
24	IKBKB, IL6, STAT1, BIRC3, IL18, MYC, VEGFA, RAF1, TNF, MAPK3, MAPK1
25	CXCL2, RPS6KB1, IKBKB, CD28, IL6, STAT1, PIK3R1, BIRC3, H4-16, IL18, MYC, FCER2, IL6ST, VEGFC, CCL3, INS, STK11, VEGFA, RAF1, TNF, IL7, CLEC7A, TLR4, KLK3, CD83, MAPK3, MAPK1
26	FLT3, FLT1, STAT1, BIRC3, IL18, MYC, PRKCA, DPP4, VEGFA, RAF1, TNF, IL7, KLK3
27	FLT3, IKBKB, STAT1, PIK3R1, BIRC3, H4-16, MYC, PRKCA, CCL3, PIK3CB, KLK3, MAPK3
28	RPS6KB1, TSC1, PIK3R1, MYC, NF1, VEGFA
29	FLT3, CD28, STAT1, BIRC3, CD22
30	IKBKB, VEGFA, KLK3, MAPK3, MAPK1
31	BIRC3, MYC, PRKCA, PRKCB, VEGFA, RAF1, TNF
32	PIK3R2, PIK3R1, PIK3CB
33	PIK3R2, PIK3R1, PIK3CB
34	FLT1, IL6, DPP4, VEGFC, RPS6, CCL3, VEGFA, RAF1, IL7, MAPK3
35	FLT1, IL6, FCER2, CCL3, INS, TNF, IL7, KLK3
36	IL6, NF1, TLR4
37	IL6, STAT1, IL18, TAP1, IL6ST, TLR4
38	IL6, IL18, CCL3, TNF, IL7, TLR4
39	IL6, IL18, TNF, IL7
40	FLT3, FLT1, CCR7, STAT1, PIK3R1, MYC, PRKCA, RPS6, VEGFA, GAB2, RAF1, PDPK1, LYN, MAPK1
41	IL6, STAT1, IL18, TNF, TLR4
42	FLT3, CD28, IL6, CCR7, CD22, TNF
43	FLT3, TSC1, CD28, MYC, NF1, DPP4, CD22, TNF
44	FLT3, TSC1, CD28, MYC, NF1, DPP4, CD22, TNF
45	IL6, IL18, VEGFA, TNF, TLR4
46	VEGFC, VEGFA, TNF
47	VEGFC, VEGFA
48	FLT3, FLT1, LYN
49	FLT1, RPS6KB1, IKBKB, BIRC3, MYC, PRKCA, PRKCB, VEGFA, RAF1, TLR4, KLK3, MAPK3, MAPK1
50	STK11, TNF, TLR4
51	CXCL2, IKBKB, IL6, CCR7, STAT1, IL18, FCER2, IL6ST, PRKCA, VEGFC, CCL3, PRKCB, VEGFA, RAF1, TNF, IL7, TLR4, CD83, MAPK3, MAPK1
52	IL6, IL18, MYC, IL6ST, CCL3, TNF
53	PIK3R2, PIK3R1, RAF1, PIK3CB, LYN, MAPK3, MAPK1
54	CXCL2, IKBKB, IL6, CCR7, STAT1, IL18, MYD88, DPP4, CCL3, LTB, TNF, IL7, TLR4, MAPK3
55	FLT3, FLT1, RPS6KB1, TSC1, CD28, STAT1, PIK3R1, IL18, MYC, NF1, PRKCA, RPS6, PRKCB, INS, STK11, VEGFA, RAF1, PDPK1, PIK3CB, IL7, MAPK3, MAPK1
56	FLT1, VEGFA, RAF1
57	RPS6KB1, PRKCA, RPS6, VEGFA, RAF1, MAPK3, MAPK1
58	FLT3, RPS6KB1, IL6, STAT1, H4-16, IL18, MYC, NF1, FCER2, IL6ST, PRKCA, DPP4, VEGFC, RPS6, CCL3, PRKCB, MUC7, RAF1, TNF, IL7, LYN, TLR4, MAPK3, MAPK1
59	IL6, MYC, RAF1, TNF
60	RPS6KB1, IL6, STAT1, IL18, DPP4, INS, TNF, MAPK1

61	PRKCA, PRKCB
62	IL6, IL18, CCL3, VEGFA, LTB, TNF, TLR4, MAPK3
63	PIK3R2, PIK3R1, PRKCA, PRKCB, PIK3CB
64	FLT3, FLT1, BIRC3, NF1, VEGFA, RAF1, TNF, MAPK1
65	FLT1, VEGFC, VEGFA, RAF1
66	FLT3, FLT1, NF1, VEGFA, RAF1
67	RPS6KB1, CD28, CCR7, IL18, MYC, CCL3, INS, RAF1, TNF, IL7, TLR4
68	FLT3, FLT1, IL6, IL18, CCL3, TNF, TLR4, MAPK3
69	IL6, BIRC3, IL18, VEGFA, TNF, KLK3
70	PIK3R1, H4-16, VEGFC, CCL3, VEGFA, RAF1, MAPK1
71	IL6, INS, PDPK1, TNF, MAPK1
72	MAPK3, MAPK1
73	DPP4, INS, TNF
74	MYC, PRKCA, RAF1, TNF, KLK3, MAPK3

Table 6.a2

	Array_Marker_Type	Probe	gene
1	Mild	Hg38_8_30132536_30134220_30177058_30181551_RR	DCTN6
2	ICU	HG38_1_109341939_109348573_109359719_109366704_RR	PSMA5
3	Mild	Hg38_19_55694907_55697956_55776223_55778463_RF	NLRP9
4	ICU	HG38_6_46130577_46139255_46168740_46175484_FF	ENPP4
5	ICU	HG38_2_223382061_223395131_223446116_223450606_FF	AP1S3
6	ICU	HG38_5_76572657_76583168_76676513_76680170_RF	IQGAP2

Table 7a

	RPs	FC:(class1/class2)	pfp	P.value	CCSs
1	74556.42789	-1.167913965	0.005042802	0.004887801	Immune
2	48297.45591	1.211313728	0.000190318	2.73916E-05	Immune
3	64771.6835	-1.167926895	0.00063478	0.000168739	Immune
4	46958.78429	1.208676033	0.000190318	5.85964E-05	Immune
5	36942.13688	1.210848175	0.001762385	0.001715734	Immune
6	42674.08273	1.220877422	0.000190318	2.56474E-05	Immune

Table 7b

	Probe sequence	**Probe Location**
	60 mer	**Chr**
1	GGAGCGGGACTGACTGATTGCCAGCAATTCGAAAATGGGAAGAAAATTGCTTATTGTGTT	8
2	AGCTTTGAGCAGCTTTTATTTTTACATGTCGAACTCCTGACCTCAGGTAATCTTCCCACA	1
3	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGACCTGGACTCGCTGGTGAGCCGGCCGGGC	19
4	GTGTCTGCATCTATTTTTATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGCAAAATAT	6
5	TTGATTGGGATGACATTAAATGTATAGGTCGAACTCCTGACCTACCTCAAGTGATCCATC	2

6	GTTAGACATAAAGACTAATGGGATAGAATCGAACTCCTGACTTCAGGAAATCTGCCCGTC	5

Table 7c

					4 kb Sequence Location		
	Start1	End1	Start2	End2	Chr	Start1	End1
1	30132538	30132567	30177060	30177089	8	30132538	30136537
2	109341941	109341970	109359721	109359750	1	109341941	109345940
3	55694909	55694938	55778432	55778461	19	55694909	55698908
4	46139224	46139253	46175453	46175482	6	46135254	46139253
5	223395100	223395129	223450575	223450604	2	223391130	223395129
6	76572659	76572688	76680139	76680168	5	76572659	76576658

Table 7d

	Start2	End2
1	30177060	30181059
2	109359721	109363720
3	55774462	55778461
4	46171483	46175482
5	223446605	223450604
6	76676169	76680168

Table 7e

5

	qPCR PRIMER SET	
	Array_Marker_Type	probe
1	Mild	Hg38_8_30132536_30134220_30177058_30181551_RR
2	ICU	HG38_1_109341939_109348573_109359719_109366704_RR
3	Mild	Hg38_19_55694907_55697956_55776223_55778463_RF
4	ICU	HG38_6_46130577_46139255_46168740_46175484_FF
5	ICU	HG38_2_223382061_223395131_223446116_223450606_FF
6	ICU	HG38_5_76572657_76583168_76676513_76680170_RF

Table 7f

	qPCR PRIMER SET		
	qPCR Primer ID	Sequence	qPCR Primer ID
1	OBD183-q805	ATTTCAGGCTCGTGTTCAAGGGTCCAGT	OBD183-q807
2	OBD183-q481	CCCCTCCGTGGGACAGGAACAGTT	OBD183-q483
3	OBD183-q837	GACCTGAGGCGTGTCCGATGTGGG	OBD183-q839
4	OBD183-q685	AATCATCATCTCTGGAGCCTCTGAAAGC	OBD183-q687
5	OBD183-q617	CGCATTCTTTTGCCAACACCACATCATC	OBD183-q619
6	OBD183-q565	GCAGTAATCAAGACAGTGCTATGCTGGC	OBD183-q567

Table 7g

	qPCR PRIMER SET	
	qPCR Reverse Seq	Probe ID
1	GGATACAACAGCCAACTTCAAACACATT	OBD183-p805
2	GAGTCACCTTTCGTCTTTTCCATTTCCC	OBD183-p481
3	CCAGAGACACGGAGTGGAGTCAGTGGCG	OBD183-p837
4	CTCTGCTGGGTGTCATTCCTTTTCCCTC	OBD183-p685
5	CACTGACCCAGGAAAACCACCCTCATTC	OBD183-p617
6	CCTCTTGACCTCCAGCGAGACCACTCC	OBD183-p565

Table 7h

	qPCR PRIMER SET	
	Probe Sequence	Probe ID
1	AGCGGGACTGACTGATTGCCAGCAATTCGAAAAT	OBD183-p807
2	TACATGTCGAACTCCTGACCTCAGGTAATCTTCC	OBD183-p483
3	TAGGAAGGAGCAAGCTGAGAGGTTCGACCTGG	OBD183-p839
4	ATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGC	OBD183-p687
5	TGGGATGACATTAAATGTATAGGTCGAACTCCTG	OBD183-p619
6	ATAGAATCGAACTCCTGACTTCAGGAAATCTGCCC	OBD183-p567

Table 7i

	qPCR PRIMER SET
	Probe Sequence
1	ATTTTCGAATTGCTGGCAATCAGTCAGTCCCGC
2	AGATTACCTGAGGTCAGGAGTTCGACATGTAAA
3	TCCAGGTCGAACCTCTCAGCTTGCTCCTTCCT
4	TGCGAATCACAAAGTCAGGAGTTCGAAAGGCTTA

5	TCAGGAGTTCGACCTATACATTTAATGTCATCCC
6	TCCTGAAGTCAGGAGTTCGATTCTATCCCATTAG

Table 7j

	qPCR PRIMER SET
	Modifications Seq
1	/56-FAM/AGC GGG ACT /ZEN/GAC TGA TTG CCA GCA ATT CGA AAA T/3IABkFQ/
2	/56-FAM/TAC ATG TCG /ZEN/AAC TCC TGA CCT CAG GTA ATC TTC C/3IABkFQ/
3	/56-FAM/TAG GAA GGA /ZEN/GCA AGC TGA GAG GTT CGA CCT GG/3IABkFQ/
4	/56-FAM/ATT AAG CCT /ZEN/TTC GAA CTC CTG ACT TTG TGA TTC GC/3IABkFQ/
5	/56-FAM/TGG GAT GAC /ZEN/ATT AAA TGT ATA GGT CGA ACT CCT G/3IABkFQ/
6	/56-FAM/ATA GAA TCG /ZEN/AAC TCC TGA CTT CAG GAA ATC TGC CC/3IABkFQ/

Table 7k

	probe	gene	RPs
1	Hg38_1_112145907_112153217_112262815_112272478_FF	WNT2B	6632.327399
2	Hg38_1_112145907_112153217_112262815_112272478_FR	WNT2B	6615.221985
3	Hg38_22_25290566_25299563_25482038_25486782_FR	LRP5L	28171.7163
4	Hg38_11_93191458_93197121_93228754_93237221_FR	MTNR1B	30854.43895
5	Hg38_12_8956666_8971971_9041253_9052225_RF	KLRG1	32830.14986
6	Hg38_17_27705007_27714184_27773460_27778067_RF	LGALS9	31710.89437
7	Hg38_17_27705007_27714184_27860380_27865714_RF	NOS2	32302.86692
8	Hg38_19_50837203_50840748_50961391_50964466_FR	KLK3	41082.56724
9	Hg38_1_27834284_27836433_28029814_28033207_FR	SMPDL3B	34252.74921
10	Hg38_10_101411213_101417434_101485766_101490138_RF	POLL	33830.59298
11	Hg38_11_93057516_93069988_93228754_93237221_RR	MTNR1B	38697.48465
12	Hg38_18_42444488_42452373_42488741_42500135_RR	PIK3C3	36961.50644
13	Hg38_1_99631771_99639876_99708395_99714403_FF	AGL	39107.43986
14	Hg38_19_34387270_34393741_34499918_34506554_FR	GPI	38265.62504
15	Hg38_3_196353836_196356776_196593741_196597691_FF	RNF168	38295.8272
16	Hg38_1_99659612_99670382_99708395_99714403_FF	AGL	38478.96973
17	Hg38_11_9685853_9690988_9710140_9716903_RF	SWAP70	39606.72308
18	Hg38_17_27705007_27714184_27875357_27879509_RF	NOS2	39888.90639
19	Hg38_5_76572657_76583168_76676513_76680170_RF	IQGAP2	42674.08273
20	Hg38_6_132703799_132711156_132757539_132761457_FF	VNN1	41891.67247
21	Hg38_4_154217720_154222054_154421614_154428471_FR	FGB	41672.67989
22	Hg38_15_98874707_98883774_99040149_99043892_FF	IGF1R	42502.98791
23	Hg38_22_25482038_25486782_25613025_25619501_RF	LRP5L	45257.16951
24	Hg38_11_93178112_93183061_93228754_93237221_FR	MTNR1B	40589.83763
25	Hg38_10_122677780_122685636_122702672_122705534_FF	DMBT1	47360.38753
26	Hg38_1_99533569_99538124_99618648_99629858_FR	AGL	45455.75237

27	Hg38_11_93198707_93202947_93228754_93237221_RR	MTNR1B	44085.15403
28	Hg38_17_27594551_27602944_27705007_27714184_FR	LGALS9	45673.11179
29	Hg38_18_42413424_42422256_42488741_42500135_RR	PIK3C3	40889.09224
30	Hg38_3_184235022_184240690_184480439_184482239_FR	EIF2B5	44523.82545
31	Hg38_11_9685853_9690988_9833988_9839719_RF	SWAP70	44637.16946
32	Hg38_3_184389484_184390857_184480439_184482239_FR	EIF2B5	46450.621
33	Hg38_17_27609054_27616846_27705007_27714184_RR	LGALS9	43991.22324
34	Hg38_7_29905017_29911792_30016613_30019069_FR	WIPF3	41863.49514
35	Hg38_8_5120591_5125403_5295149_5302540_FF	ANGPT2	46856.24945
36	Hg38_1_109341939_109348573_109359719_109366704_RR	PSMA5	48297.45591
37	Hg38_8_5115633_5120591_5295149_5302540_FF	ANGPT2	43978.91795
38	Hg38_11_9656772_9663043_9685853_9690988_FR	SWAP70	44994.92012
39	Hg38_2_223382061_223395131_223446116_223450606_FF	AP1S3	36942.13688
40	Hg38_22_34722666_34726389_34750116_34757594_RR	TOM1	35013.59465
41	Hg38_22_34696712_34700627_34750116_34757594_RR	TOM1	42265.79077
42	Hg38_11_9575436_9577203_9685853_9690988_FR	SWAP70	44448.90982
43	Hg38_3_196466940_196470869_196593741_196597691_FF	RNF168	46109.70739
44	Hg38_3_10166863_10171451_10289864_10293604_RF	IRAK2	46779.70177
45	Hg38_16_20282299_20286605_20445721_20457266_FR	UMOD	54241.62999
46	Hg38_8_47127019_47130852_47283075_47288879_FR	PRKDC	48044.37065
47	Hg38_6_46130577_46139255_46168740_46175484_FF	ENPP4	46958.78429
48	Hg38_1_241870739_241874965_242033568_242040771_FF	EXO1	47180.45513
49	Hg38_5_76400222_76402838_76572657_76583168_RR	IQGAP2	45337.39374
50	Hg38_15_34886920_34889054_34974237_34980574_FF	ACTC1	49743.84856

Table 8.a1

	FC:(class1/class2)	pfp	P.value	CCSs
1	1.432700804	0.005113164	0.005113164	Immune
2	1.432377731	0.00216811	0.002123472	Immune
3	1.261392393	0.00019327	8.52662E-05	Immune
4	1.24933454	0.000190318	6.00479E-05	Cardio
5	1.248199493	0.000191193	8.21396E-05	Immune
6	1.248110436	0.000190318	4.07352E-05	Immune
7	1.244388651	0.000190318	6.08132E-05	Immune
8	1.239284032	0.000190318	2.48894E-05	Immune
9	1.238018648	0.000190318	6.60302E-05	Immune
10	1.237745489	0.000232634	0.000129254	Immune
11	1.232468734	0.000190585	6.79703E-05	Cardio
12	1.230563488	0.000270694	0.000185233	Immune
13	1.228138328	0.000226279	0.000123122	Immune
14	1.227970267	0.000250933	0.000155726	Immune
15	1.227284759	0.000194259	8.66473E-05	Immune
16	1.227283877	0.000236458	0.00014024	Immune
17	1.226172597	0.000190318	1.7589E-05	Immune

18	1.223195987	0.000190318	6.32774E-05	Immune
19	1.220877422	0.000190318	2.56474E-05	Immune
20	1.220844426	0.000197577	9.24207E-05	Immune
21	1.220594126	0.000295776	0.000219223	Immune
22	1.219932467	0.000217426	0.000113829	Immune
23	1.219326086	0.000190318	3.14883E-05	Immune
24	1.218547015	0.00029559	0.000215607	Cardio
25	1.218546484	0.000225914	0.000122259	Immune
26	1.217793578	0.000190585	7.27088E-05	Immune
27	1.217634455	0.000190318	5.58785E-05	Cardio
28	1.214995239	0.000190318	2.61731E-05	Immune
29	1.214925448	0.000445143	0.000381491	Immune
30	1.21420253	0.000221256	0.000117135	Immune
31	1.213208971	0.000232634	0.000129317	Immune
32	1.212777042	0.000190318	6.55571E-05	Immune
33	1.212729895	0.000191193	8.04439E-05	Immune
34	1.212672171	0.000471617	0.000410584	Immune
35	1.212339076	0.000190585	7.8309E-05	Immune
36	1.211313728	0.000190318	2.73916E-05	Immune
37	1.210971319	0.000270694	0.000188689	Immune
38	1.210935714	0.000203616	0.000100216	Immune
39	1.210848175	0.001762385	0.001715734	Immune
40	1.210759976	0.003185687	0.003148208	Immune
41	1.210755417	0.000460206	0.000399296	Immune
42	1.210288615	0.000266947	0.000170375	Immune
43	1.209957577	0.000236458	0.000138509	Immune
44	1.209213182	0.000235024	0.000134793	Immune
45	1.209175245	0.000190318	2.47322E-05	Immune
46	1.20891203	0.000203616	0.00010061	Immune
47	1.208676033	0.000190318	5.85964E-05	Immune
48	1.208555322	0.000190318	6.62673E-05	Immune
49	1.207074623	0.000235024	0.000133546	Immune
50	1.204960402	0.000190585	7.84762E-05	Cardio

Table 8.a2

	Probe sequence
	60 mer
1	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAGGTGACAGATTTTGTAGACACTTTATGG
2	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAAAGAGGGAGACCAATAGCAAAAGGAACA
3	ACTGAATATCTCTATCTATGAATAGAGTTCGATCTCCTGACCTCCATCATGTCCTCTCTT
4	TTAATTTTTTAATTACATTTAATCAGCATCGAACTCCTGACCTTGTAATCTGTCCACCTT
5	TTATCCAATTATAAGTCTATTGGCTCTTTCGAACTCCTGACCTCACGTAATTCTCCCACC
6	AAAAAAAAAAGGAAAAGAAAGAAGAAAGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC
7	AATAAACTATGACTTTGTGAAGATTCAGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC

8	TACGAGGAAATAGAATAAGATCTAGTATTCGAACTCCTGACCCTAGGTGATCCTCCTGCT
9	ATTTTTATTTTTTTGTTTGTTTTTGTTTTCGAACTCCTGACCTCAGGAGTTCCACCCACC
10	TTTTTCAGGGTGTGTTTCCATATAAAGATCGAACTCCTGACCTCAAGAAATCTACCTGCC
11	CTCAAAGACCCAAATATAGAAATACCATTCGAACTCCTGACCTTGTAATCTGTCCACCTT
12	GCATTAAAAAAAGATACCTTGTTCAGAATCGAACTCCTGACCTCACGTCAATTCATAAGT
13	CAGTCTTAAAAATCAATTCCACAAATCATCGAGACCAGCCTGACTGATATTGTGAAACCC
14	TGCTTTTGTGTCACAGGTTTTGACAACTTCGAACTCCTGACCGAAGCGATGATCCAGCCG
15	TATCATAGTCCAGATGAGATAATTTCCTTCGAACTCCTGACCTCAGGTAGTCCAACTGTC
16	ACAAAGCACTTGAACTTACATTAAGTCATCGAGACCAGCCTGACTGATATTGTGAAACCC
17	GGACCATTTCTGTAGCAGAAAGAGGAAGTCGATCTCCTGATCTCGTGATCTACCTTCCTT
18	TGTTTTTTATACTGCAAGACAGAGAGATTCGATCTCCTGACCTAGTGATTGGCCCTCCTC
19	GTTAGACATAAAGACTAATGGGATAGAATCGAACTCCTGACTTCAGGAAATCTGCCCGTC
20	CATGTGTATTCAGAAAGAAGTATGTGAATCGAACTCCTGACCTCAAATAATTCGCCCGCC
21	TAAGTGAACACGCAAGATAAAAATAGTATCGAACTCCTGACCTCAAAAAATCCACCACCT
22	GGTGCTGAAAATAAAGATACCCTTTCTGTCGAACTCCTGACCTCAATTAATCCACCCACC
23	GAGTAAGGAGTTTTTGTTGTCGTTGTTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT
24	AACTAATAAACTTGATGCAGAAGGAATTTCGAACTCCTGACCTTGTAATCTGTCCACCTT
25	AGTTCCTGCTATGTATAAAATGAAACTTTCGATCTCCTGTTCTCGTGATCCACCTGCCTC
26	ATACTAATTAATACGTAACCTACTAACATCGATCTCTTGACCTCATGGTCTCCCACCTCA
27	CCAAAAGCTTGCTTCATCCATTGATTCATCGAACTCCTGACCTTGTAATCTGTCCACCTT
28	AAAGGCAGAAGAAAGCCCTAGAAGAAGGTCGATCTCCTGACCTAGTGATTGGCCCTCCTC
29	AGGAAACATACTATCAACATTATAGCTGTCGAACTCCTGACCTCACGTCAATTCATAAGT
30	CCTAGCAAGGCAATCTACTCTGTTAAAGTCGAACTCCTGACCTCTAGTGATACACCTACC
31	TCTGAAACTGTGATGGTAGAGACAGATATCGATCTCCTGATCTCGTGATCTACCTTCCTT
32	GAAGTTATTGTCTTAGCCCATTGAAGCATCGAACTCCTGACCTCTAGTGATACACCTACC
33	TATTGTCCCCATTTTACAGAAGAAGAAATCGATCTCCTGACCTAGTGATTGGCCCTCCTC
34	TCATGTACAAAAATTAACTCAAAATGAATCGAACTCCTGACCTCAGAAGATTTGCCTGCC
35	TCACTCCCAAGCCATTGTGTTGTCTAAATCGAACTCCTGACCTCAACTGATTTGTCCACC
36	AGCTTTGAGCAGCTTTTATTTTTACATGTCGAACTCCTGACCTCAGGTAATCTTCCCACA
37	TTTCATACTTTTAATCTTACTAATGTTGTCGAACTCCTGACCTCAACTGATTTGTCCACC
38	CGAACAGATATTAATTCAACAGCTGCAATCGATCTCCTGATCTCGTGATCTACCTTCCTT
39	TTGATTGGGATGACATTAAATGTATAGGTCGAACTCCTGACCTACCTCAAGTGATCCATC
40	CTTGATCAAGAGGGATTTAAACTGAAATTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT
41	AGTCTGCCTCTTGGGAGTCATCCTGGGTTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT
42	CAGTGCTTGGACAGCATTCTCATGTAGTTCGATCTCCTGATCTCGTGATCTACCTTCCTT
43	AACCCTGATTTTCTGATTTAACACTGATTCGAACTCCTGACCTCAGGTAGTCCAACTGTC
44	TTTTGTCCTAGTTGTAGCTTTTATAATTTCGAACTCCTGACCTCATGTGATTTGGCCGCT
45	AGACTCAACCATTTGTCTAACCAATCAATCGAACTCCTGACCTCAGATGATTCACTCACC
46	TTCCTAAACTTTATGACTGAAATTATCTTCGAACTCCTGATCTCAGGTGATTTACTTGCG
47	GTGTCTGCATCTATTTTTATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGCAAAATAT
48	ACCAGCTCCTGTATTCCACTAGAAGACTTCGAACTCCTGACCTTGTGCTCTGTCTGCCTC
49	TTTAAAATAACAGATTATATCAAGAGCATCGAACTCCTGACTTCAGGAAATCTGCCCGTC
50	ATTCTAATATTCTTTAAAAACCATAAATTCGATCTCTTGACCTTGTGACTCACCCGCATC

Table 8.a3

	Probe Location				
	Chr	Start1	End1	Start2	End2
1	1	112153186	112153215	112272447	112272476
2	1	112153186	112153215	112262817	112262846
3	22	25299532	25299561	25482040	25482069
4	11	93197090	93197119	93228756	93228785
5	12	8956668	8956697	9052194	9052223
6	17	27705009	27705038	27778036	27778065
7	17	27705009	27705038	27865683	27865712
8	19	50840717	50840746	50961393	50961422
9	1	27836402	27836431	28029816	28029845
10	10	101411215	101411244	101490107	101490136
11	11	93057518	93057547	93228756	93228785
12	18	42444490	42444519	42488743	42488772
13	1	99639845	99639874	99714372	99714401
14	19	34393710	34393739	34499920	34499949
15	3	196356745	196356774	196597660	196597689
16	1	99670351	99670380	99714372	99714401
17	11	9685855	9685884	9716872	9716901
18	17	27705009	27705038	27879478	27879507
19	5	76572659	76572688	76680139	76680168
20	6	132711125	132711154	132761426	132761455
21	4	154222023	154222052	154421616	154421645
22	15	98883743	98883772	99043861	99043890
23	22	25482040	25482069	25619470	25619499
24	11	93183030	93183059	93228756	93228785
25	10	122685605	122685634	122705503	122705532
26	1	99538093	99538122	99618650	99618679
27	11	93198709	93198738	93228756	93228785
28	17	27602913	27602942	27705009	27705038
29	18	42413426	42413455	42488743	42488772
30	3	184240659	184240688	184480441	184480470
31	11	9685855	9685884	9839688	9839717
32	3	184390826	184390855	184480441	184480470
33	17	27609056	27609085	27705009	27705038
34	7	29911761	29911790	30016615	30016644
35	8	5125372	5125401	5302509	5302538
36	1	109341941	109341970	109359721	109359750
37	8	5120560	5120589	5302509	5302538
38	11	9663012	9663041	9685855	9685884
39	2	223395100	223395129	223450575	223450604
40	22	34722668	34722697	34750118	34750147
41	22	34696714	34696743	34750118	34750147
42	11	9577172	9577201	9685855	9685884
43	3	196470838	196470867	196597660	196597689

44	3	10166865	10166894	10293573	10293602
45	16	20286574	20286603	20445723	20445752
46	8	47130821	47130850	47283077	47283106
47	6	46139224	46139253	46175453	46175482
48	1	241874934	241874963	242040740	242040769
49	5	76400224	76400253	76572659	76572688
50	15	34889023	34889052	34980543	34980572

Table 8.a4

	4 kb Sequence Location					
	Chr	Start1	End1	Start2	End2	LS
1	1	112149216	112153215	112268477	112272476	NA
2	1	112149216	112153215	112262817	112266816	NA
3	22	25295562	25299561	25482040	25486039	1
4	11	93193120	93197119	93228756	93232755	1
5	12	8956668	8960667	9048224	9052223	1
6	17	27705009	27709008	27774066	27778065	1
7	17	27705009	27709008	27861713	27865712	1
8	19	50836747	50840746	50961393	50965392	1
9	1	27832432	27836431	28029816	28033815	1
10	10	101411215	101415214	101486137	101490136	NA
11	11	93057518	93061517	93228756	93232755	1
12	18	42444490	42448489	42488743	42492742	NA
13	1	99635875	99639874	99710402	99714401	NA
14	19	34389740	34393739	34499920	34503919	NA
15	3	196352775	196356774	196593690	196597689	1
16	1	99666381	99670380	99710402	99714401	NA
17	11	9685855	9689854	9712902	9716901	1
18	17	27705009	27709008	27875508	27879507	1
19	5	76572659	76576658	76676169	76680168	1
20	6	132707155	132711154	132757456	132761455	1
21	4	154218053	154222052	154421616	154425615	NA
22	15	98879773	98883772	99039891	99043890	NA
23	22	25482040	25486039	25615500	25619499	1
24	11	93179060	93183059	93228756	93232755	NA
25	10	122681635	122685634	122701533	122705532	NA
26	1	99534123	99538122	99618650	99622649	1
27	11	93198709	93202708	93228756	93232755	1
28	17	27598943	27602942	27705009	27709008	1
29	18	42413426	42417425	42488743	42492742	NA
30	3	184236689	184240688	184480441	184484440	NA
31	11	9685855	9689854	9835718	9839717	NA
32	3	184386856	184390855	184480441	184484440	1
33	17	27609056	27613055	27705009	27709008	1

34	7	29907791	29911790	30016615	30020614	NA
35	8	5121402	5125401	5298539	5302538	1
36	1	109341941	109345940	109359721	109363720	1
37	8	5116590	5120589	5298539	5302538	NA
38	11	9659042	9663041	9685855	9689854	1
39	2	223391130	223395129	223446605	223450604	NA
40	22	34722668	34726667	34750118	34754117	NA
41	22	34696714	34700713	34750118	34754117	NA
42	11	9573202	9577201	9685855	9689854	NA
43	3	196466868	196470867	196593690	196597689	NA
44	3	10166865	10170864	10289603	10293602	NA
45	16	20282604	20286603	20445723	20449722	1
46	8	47126851	47130850	47283077	47287076	1
47	6	46135254	46139253	46171483	46175482	1
48	1	241870964	241874963	242036770	242040769	1
49	5	76400224	76404223	76572659	76576658	NA
50	15	34885053	34889052	34976573	34980572	1

Table 8.a5

	ICU_log	Mild_log	ICU	Mild
1	NA			
2	NA			
3	9.599447509	9.264430371	775.7497459	614.9947869
4	10.49352917	10.17236933	1441.673918	1153.953462
5	10.39444376	10.07459523	1345.982339	1078.339117
6	10.62636191	10.30661631	1580.715378	1266.486789
7	10.38661023	10.07117308	1338.693737	1075.78427
8	10.52410405	10.21459717	1472.553211	1188.228988
9	9.307071362	8.999038316	633.4431611	511.6588203
10	NA			
11	10.13229518	9.830744132	1122.34086	910.6444884
12	NA			
13	NA			
14	NA			
15	11.3551302	11.05966017	2619.598874	2134.467046
16	NA			
17	10.96040561	10.66624354	1992.557451	1625.022004
18	9.792740941	9.502085361	886.9696569	725.1247273
19	9.954154896	9.666236536	991.9715236	812.5070587
20	10.79801835	10.51013898	1780.440303	1458.367884
21	NA			
22	NA			
23	9.41281968	9.126735681	681.6180263	559.0120922
24	NA			

25	NA			
26	8.716848864	8.432579255	420.7585753	345.5089458
27	9.955695294	9.671614205	993.0312396	815.5413435
28	10.68633942	10.40538876	1647.815971	1356.232452
29	NA			
30	NA			
31	NA			
32	11.59600435	11.31769	3095.602146	2552.490721
33	10.34141121	10.06315294	1297.403219	1069.82043
34	NA			
35	10.63316233	10.35536907	1588.183975	1310.01632
36	12.02325406	11.74668149	4162.556271	3436.398165
37	NA			
38	10.71331661	10.43719433	1678.918649	1386.463896
39	NA			
40	NA			
41	NA			
42	NA			
43	NA			
44	NA			
45	11.58969784	11.31567449	3082.099758	2548.927271
46	9.657401797	9.38369253	807.546652	667.9945538
47	9.529836499	9.256408896	739.2079689	611.5848656
48	10.84187781	10.5685943	1835.398746	1518.671685
49	NA			
50	10.11684723	9.847861496	1110.387282	921.5135034

Table 8.a6

	NESTED PCR PRIMER SET	
	probe	Primer ID
1	Hg38_1_112145907_112153217_112262815_112272478_FF	OBD183-261
2	Hg38_1_112145907_112153217_112262815_112272478_FR	OBD183-189
3	Hg38_22_25290566_25299563_25482038_25486782_FR	OBD183-013
4	Hg38_11_93191458_93197121_93228754_93237221_FR	OBD183-321
5	Hg38_12_8956666_8971971_9041253_9052225_RF	OBD183-141
6	Hg38_17_27705007_27714184_27773460_27778067_RF	OBD183-093
7	Hg38_17_27705007_27714184_27860380_27865714_RF	OBD183-117
8	Hg38_19_50837203_50840748_50961391_50964466_FR	OBD183-269
9	Hg38_1_27834284_27836433_28029814_28033207_FR	OBD183-293
10	Hg38_10_101411213_101417434_101485766_101490138_RF	OBD183-025
11	Hg38_11_93057516_93069988_93228754_93237221_RR	OBD183-233
12	Hg38_18_42444488_42452373_42488741_42500135_RR	OBD183-301
13	Hg38_1_99631771_99639876_99708395_99714403_FF	OBD183-1201
14	Hg38_19_34387270_34393741_34499918_34506554_FR	OBD183-1205

15	Hg38_3_196353836_196356776_196593741_196597691_FF	OBD183-389
16	Hg38_1_99659612_99670382_99708395_99714403_FF	OBD183-1209
17	Hg38_11_9685853_9690988_9710140_9716903_RF	OBD183-381
18	Hg38_17_27705007_27714184_27875357_27879509_RF	OBD183-029
19	Hg38_5_76572657_76583168_76676513_76680170_RF	OBD183-069
20	Hg38_6_132703799_132711156_132757539_132761457_FF	OBD183-1213
21	Hg38_4_154217720_154222054_154421614_154428471_FR	OBD183-057
22	Hg38_15_98874707_98883774_99040149_99043892_FF	OBD183-205
23	Hg38_22_25482038_25486782_25613025_25619501_RF	OBD183-113
24	Hg38_11_93178112_93183061_93228754_93237221_FR	OBD183-245
25	Hg38_10_122677780_122685636_122702672_122705534_FF	OBD183-065
26	Hg38_1_99533569_99538124_99618648_99629858_FR	OBD183-273
27	Hg38_11_93198707_93202947_93228754_93237221_RR	OBD183-253
28	Hg38_17_27594551_27602944_27705007_27714184_FR	OBD183-041
29	Hg38_18_42413424_42422256_42488741_42500135_RR	OBD183-281
30	Hg38_3_184235022_184240690_184480439_184482239_FR	OBD183-053
31	Hg38_11_9685853_9690988_9833988_9839719_RF	OBD183-385
32	Hg38_3_184389484_184390857_184480439_184482239_FR	OBD183-185
33	Hg38_17_27609054_27616846_27705007_27714184_RR	OBD183-077
34	Hg38_7_29905017_29911792_30016613_30019069_FR	OBD183-1217
35	Hg38_8_5120591_5125403_5295149_5302540_FF	OBD183-1221
36	Hg38_1_109341939_109348573_109359719_109366704_RR	OBD183-1225
37	Hg38_8_5115633_5120591_5295149_5302540_FF	OBD183-1229
38	Hg38_11_9656772_9663043_9685853_9690988_FR	OBD183-397
39	Hg38_2_223382061_223395131_223446116_223450606_FF	OBD183-237
40	Hg38_22_34722666_34726389_34750116_34757594_RR	OBD183-1233
41	Hg38_22_34696712_34700627_34750116_34757594_RR	OBD183-137
42	Hg38_11_9575436_9577203_9685853_9690988_FR	OBD183-353
43	Hg38_3_196466940_196470869_196593741_196597691_FF	OBD183-349
44	Hg38_3_10166863_10171451_10289864_10293604_RF	OBD183-341
45	Hg38_16_20282299_20286605_20445721_20457266_FR	OBD183-1237
46	Hg38_8_47127019_47130852_47283075_47288879_FR	OBD183-1241
47	Hg38_6_46130577_46139255_46168740_46175484_FF	OBD183-1245
48	Hg38_1_241870739_241874965_242033568_242040771_FF	OBD183-1249
49	Hg38_5_76400222_76402838_76572657_76583168_RR	OBD183-129
50	Hg38_15_34886920_34889054_34974237_34980574_FF	OBD183-1253

Table 8.a7

	NESTED PCR PRIMER SET		
	Primer Sequence	Primer ID	Primer Sequence
1	GCTGCCCTGAAAATGGGAGTCTG	OBD183-263	CTCTCTCCCTTCAGCACAGCCAC
2	TGCCCTGAAAATGGGAGTCTGAGTTA	OBD183-191	GGATGAATGTGACGCTTTCGTTCCCC
3	GAATGCTTCTGGAACACTTCTTCAAG	OBD183-015	CTGTCCCATCTGCCTAAAACCGTTGG
4	GCACACAGTAAGCACGCAATAAAATG	OBD183-323	GGATAAGCCACAAGGCAACTGGTCTG

5	GAAGGTGGCATTCTCTATTGTGTCCA	OBD183-143	ACTGCGGAACTTCAAAGGTCAGGTGC
6	GGGTGACCGAGTGAGATGATGTC	OBD183-097	ACCCTGTAGTCCTGGGCTCAAGAGAT
7	GAGGAACCACCAGGCTTTGGAGC	OBD183-1171	GGTTGGGTTTTCTCAATAATCCATAG
8	AGGGTGAGGGTATGTGGGTAGTG	OBD183-271	CAGCCAGCAGAGACAGGAAGTGC
9	GAGAGTTATTCCTCAAGTGCTCCCAC	OBD183-295	CAGAACACAGTGAACAACCAGGCATT
10	ATTCTAAGTTTTCTCTCCCACCCC	OBD183-027	GAACAGGGATGGGCAGAAGCAGAAAA
11	CAGGGCTACAGATGCTGGCAAAGTTG	OBD183-235	CACAAGGCAACTGGTCTGAATGTTTC
12	CTCTGGCATTGGTCAAGGTCAAAGTA	OBD183-303	ATAGGGCTGGAGAGGAGTAGGCAGAT
13	AGAGCGCACGGAGATCACCGAGCGA	OBD183-1203	GAGGTACTGGAGCCGAGAGGTAAC
14	TCTATCAGATCGGCGACCATTTGT	OBD183-1207	TACGATGCCGCTAAGAACCTCTC
15	GAAGGAAGGTGACTTGCTTGCCCAAC	OBD183-391	ATGAAATCACACCCAAGTCCCTCACT
16	GGTCGTCGCTGACGTTTACACTC	OBD183-1211	TAGTCTCATTATAATCGTTCGCTA
17	GGGAGGAAGACTGTAGTTGGAGACAT	OBD183-383	TGGAGGGCTTGCTATGGTCTGAATGT
18	AGGAGCCTCTGGAGCAAGGTCAG	OBD183-031	GCCATCCCCTACACAGGTTCTCA
19	GTAATCAAGACAGTGCTATGCTGGCA	OBD183-073	CCTGACCCACCAAGACTGAACCA
20	TTCAGGGATTGACCAACACCGGAA	OBD183-1215	AACATCTCACTTGAAGTAATGTAT
21	CTTTACTCTTATGCTCTGCTCTGTGC	OBD183-059	AAACACAGATGAGTTCGGGCGTGGTG
22	TAGGCTGTCCTCCTCCTGTGCCA	OBD183-207	TGGAGACCCCAGGCTAATACAGC
23	GATGGGCTGAGGTGGAGTCTACC	OBD183-1131	CCGCCCATCTGTAAGCCCATCTC
24	TTACCTCAGACATAGAAAGTGACTGC	OBD183-247	GCCACAAGGCAACTGGTCTGAATGTT
25	TCTGTCTTGCTCGTGATAGTAGTTGG	OBD183-067	GTAGGCGTTCATCTTCACGGTAAGGC
26	CCTCAAATCTTGTCGGGAGTTCCTCA	OBD183-275	ACTGTGACCAAAGGAAGGAAAGCCAT
27	GCAACCCCACTGAATGAAACGGACAC	OBD183-255	CACAAGGCAACTGGTCTGAATGTTTC
28	GGTCCCAGAGATGTTGACAGCCTG	OBD183-043	GCCATCCCCTACACAGGTTCTCA
29	GAGTTCTACCTAAGTCAGAGGAGGAA	OBD183-283	ATAGGGCTGGAGAGGAGTAGGCAGAT
30	GGCTCTTGCTCTGCTATGGGTTG	OBD183-055	GGCGATGCCCAGCAAGAGTGAAG
31	TGTTCCATTGTAGACTTCTCGGAGGC	OBD183-387	TGGAGGGCTTGCTATGGTCTGAATGT
32	CCCCTCCCTCATTCCTACCATCA	OBD183-187	GGCGATGCCCAGCAAGAGTGAAG
33	GTGCCACCCTGGGCTGGATGATT	OBD183-081	GCCTCTGGTGCCCTTTTGGGTTG
34	ACGACAGAGTCCGTGCACCTACCA	OBD183-1219	CTGACGCTGCAAAATTTGCAACCAG
35	AACCTCTTTAGTCTAAGTTCAGACT	OBD183-1223	GCAGTCTTCGCGGTAGGTCCTAGTG
36	AGTTGGAAGTTTGTCTAGATCTCAG	OBD183-1227	AGATATCTTTGATGTCGTGATTGG
37	ATTTTGTCACTAGAGGACGCACGCT	OBD183-1231	CTCGAGAGGAGGAGACGTCAGTCC
38	TCAAGTGACCATTGTGACCACCGC	OBD183-399	GGTGGAGGGCTTGCTATGGTCTG
39	CGCATTCTTTTGCCAACACCACATCA	OBD183-239	CTGACCCAGGAAAACCACCCTCATTC
40	AAGGACCCTTGGCCCTCCACCCTT	OBD183-1235	AGGCAGTGTATACTCTTCCATAAA
41	GCCCTCTACTTACCAACTTCTGCCTT	OBD183-139	GCATTCCTGATTGCCTGATTTCAAGT
42	TAGGCAGAACGCTTTGAGAGAAGTAT	OBD183-355	GTGGAGGGCTTGCTATGGTCTGAATG
43	TCAGTCACCCCATCCAGCCTCAT	OBD183-351	TAAGAGGACCTACGCACCCGCAG
44	TCTGTTGCGGGTCTCTTGAGGGC	OBD183-343	TAGTGAAGCCAGGTCCAGGAGCA
45	CGGGCTATTAGTTATGAGGTCCGAA	OBD183-1239	CCGTTACTGTTGGTCGTAGAGCCCA
46	GATTGAAAAAGGTGAGGGAACTCGG	OBD183-1243	GAACGGGTTGGCCAGATGTGCGACA
47	CCGAACGGGAAAGACGGACATCTAG	OBD183-1247	ATATCGCTTAGTCGCTCTTGGGCCG
48	GCAACCTGACCACGGTTGCGCGTCC	OBD183-1251	CGGTGCGCTACCTTGCAGGAATTGA
49	TTACTTTGCCATCTGATTGTGCTTGC	OBD183-131	GACCTCCAGCGAGACCACTCCTAAAT

50	GACCGTCCGTTAATTTCCCTTGCAT	OBD183-1255	AACCGCTCTCTTAGAAGAGAGACAG

Table 8.a8

51	Hg38_11_59844932_59849082_59873751_59881156_FF	TCN1	47867.7306
52	Hg38_2_68140822_68144419_68359452_68365969_FR	PLEK	51605.70057
53	Hg38_2_223296739_223307566_223446116_223450606_FF	AP1S3	49372.04609
54	Hg38_3_2993519_3002201_3121830_3126033_FF	IL5RA	48427.09125
55	Hg38_8_47239740_47247017_47283075_47288879_FR	PRKDC	47376.87168
56	Hg38_19_55428737_55436084_55609240_55610480_RR	SSC5D	47009.69299
57	Hg38_19_50907981_50915866_50961391_50964466_RR	KLK5	51087.9601
58	Hg38_6_13822111_13826619_14070076_14075830_RF	CD83	51551.70406
59	Hg38_2_215168332_215174922_215339857_215344488_FF	FN1	48345.93731
60	Hg38_9_83691585_83699524_83785514_83789572_FF	UBQLN1	48416.43058
61	Hg38_5_76572657_76583168_76717099_76725306_RF	IQGAP2	52489.5729
62	Hg38_1_27966549_27971202_28029814_28033207_FR	SMPDL3B	51485.31893
63	Hg38_2_227820023_227824564_227868226_227874758_RR	CCL20	46004.21086
64	Hg38_12_25200007_25206998_25256673_25260057_FR	KRAS	52498.54024
65	Hg38_7_66298919_66305803_66392051_66398673_FF	CRCP	54136.9225
66	Hg38_10_67952694_67960415_68133244_68143089_FR	SIRT1	54837.31692
67	Hg38_11_78974904_78976508_79134716_79152601_RF	GAB2	41989.93216
68	Hg38_16_20348272_20352389_20445721_20457266_RR	UMOD	55380.96235
69	Hg38_4_70243444_70255254_70475197_70476584_FF	MUC7	52402.38034
70	Hg38_12_45013447_45019401_45077155_45087147_FF	ANO6	51383.90016
71	Hg38_16_12325962_12334419_12372790_12375829_FF	CPPED1	52699.22445
72	Hg38_17_39781052_39789227_39819888_39822803_RR	GRB7	55019.10601
73	Hg38_3_157551093_157568769_157606016_157614360_FF	PTX3	53401.93153
74	Hg38_20_32234511_32238066_32285519_32290180_FF	KIF3B	48801.16551
75	Hg38_5_139327785_139331530_139355652_139356681_FF	MATR3	53797.60168
76	Hg38_6_13822111_13826619_14011144_14016925_RF	CD83	58355.99643
77	Hg38_5_55874716_55883166_56069488_56074299_FR	IL31RA	53914.7156
78	Hg38_1_109359719_109366704_109611657_109614647_RF	PSMA5	54950.53026
79	Hg38_19_50732808_50735232_50961391_50964466_RR	GPR32	56016.13008
80	Hg38_8_55800026_55805370_55942582_55947045_FF	LYN	55621.8783
81	Hg38_11_93115381_93124900_93228754_93237221_FR	MTNR1B	52689.14086
82	Hg38_X_70952076_70955538_71213839_71218089_FF	IL2RG	56885.39132
83	Hg38_11_93057516_93069988_93228754_93237221_FR	MTNR1B	55446.12937
84	Hg38_5_76572657_76583168_76637173_76639966_RF	IQGAP2	58308.47106
85	Hg38_20_4763308_4769930_4885862_4890450_FF	RASSF2	59927.43482
86	Hg38_3_105278351_105281788_105425156_105431103_RF	ALCAM	56327.14698
87	Hg38_19_42642158_42648993_42697457_42701566_RR	CEACAM8	55006.12013
88	Hg38_5_76400222_76402838_76572657_76583168_FR	IQGAP2	53090.77575
89	Hg38_2_223203554_223212132_223446116_223450606_FF	SCG2	58337.7325
90	Hg38_19_38895868_38902769_39089148_39091382_FR	SIRT2	57992.17317
91	Hg38_1_17044824_17050263_17192218_17198113_FF	PADI2	57847.82668

92	Hg38_5_76420596_76423340_76572657_76583168_FR	IQGAP2	58745.04935
93	Hg38_20_34791262_34795203_34932162_34933974_FF	NCOA6	60708.3298
94	Hg38_12_8119443_8124985_8341969_8343630_FF	CLEC4A	60019.25444
95	Hg38_17_1287026_1289930_1411117_1412617_FR	CRK	53984.44619
96	Hg38_1_109359719_109366704_109385998_109391476_RF	PSMA5	56576.1692
97	Hg38_1_187499122_187506399_187600952_187612332_FF	PTGS2	59637.75783
98	Hg38_11_72469497_72474813_72726299_72730494_FF	ARAP1	58295.92687
99	Hg38_15_34813171_34816916_34974237_34980574_FF	ACTC1	61960.99999
100	Hg38_12_32741504_32743146_32986666_32993216_RF	PKP2	66693.25

Table 8.b1

51	1.204466691	0.000270694	0.000186333	Immune
52	1.204265587	0.000198471	9.45656E-05	Immune
53	1.203832699	0.000377016	0.000308266	Immune
54	1.20361951	0.000203616	9.86734E-05	Immune
55	1.203047691	0.000323677	0.000248469	Immune
56	1.202678261	0.000386009	0.000316755	Immune
57	1.202676692	0.000190318	3.69637E-05	Immune
58	1.202099372	0.000190318	3.79683E-05	Immune
59	1.201468439	0.000309338	0.000232913	Immune
60	1.201216095	0.000398896	0.000329676	Immune
61	1.201051522	0.000190585	7.80929E-05	Immune
62	1.200030214	0.000205013	0.00010311	Immune
63	1.198654468	0.000208559	0.000105506	Immune
64	1.198534797	0.000190318	5.24934E-05	Immune
65	1.19847735	0.000424345	0.000356949	Immune
66	1.198308347	0.000190318	5.88163E-05	Immune
67	1.1980759	0.003159364	0.003112902	Immune
68	1.198072413	0.000190318	2.38385E-05	Immune
69	1.197988929	0.000331089	0.000256107	Immune
70	1.197718744	0.000436269	0.000370828	Immune
71	1.197394377	0.000267757	0.000174042	Immune
72	1.19677388	0.000190585	7.78741E-05	Immune
73	1.196698463	0.000236458	0.000138568	Immune
74	1.196661797	0.00035878	0.000285969	Immune
75	1.196248355	0.000270694	0.000187911	Immune
76	1.195984218	0.000190318	1.12567E-05	Immune
77	1.195682592	0.000190318	6.19733E-05	Immune
78	1.194986266	0.000190318	2.4109E-05	Immune
79	1.194608978	0.000190318	4.85841E-05	Immune
80	1.194497412	0.000190318	4.73235E-05	Immune
81	1.194332622	0.000370996	0.000298257	Cardio
82	1.194295196	0.000190318	4.47041E-05	Immune

83	1.193750964	0.000220747	0.000116217	Cardio
84	1.193449221	0.000190318	2.06378E-05	Immune
85	1.1931546	0.000190318	3.53671E-05	Immune
86	1.19304865	0.000241232	0.000148287	Immune
87	1.192289525	0.000211794	0.000109015	Immune
88	1.19220398	0.000269965	0.0001777	Immune
89	1.192155643	0.000203616	9.92034E-05	Immune
90	1.191812951	0.000190318	3.70888E-05	Immune
91	1.191782438	0.000190318	3.95164E-05	Immune
92	1.191324001	0.000190318	5.82141E-05	Immune
93	1.190714179	0.000190318	2.03084E-05	Immune
94	1.190702538	0.000190318	5.73893E-05	Immune
95	1.190499917	0.000367955	0.000294364	Immune
96	1.190008843	0.000190585	7.12243E-05	Immune
97	1.188655157	0.000190318	4.90378E-05	Cardio
98	1.187152176	0.000296454	0.000221468	Cardio
99	1.184047821	0.000211794	0.000108871	Cardio
100	1.181070726	0.000190318	2.9096E-05	Cardio

Table 8.b2

51	TGCCACCTCTAGAAGGAACACAGCTCCTTCGATCTCCTGACCTCATGACGTGTCCGCCTT
52	TCTCAAAATAGCCAAAAGTCTGAAACAATCGAACTCCCGACCTCCAGTGGAAGTTCACAC
53	ATACACTTCTATCTTGGAACTATTGAGATCGAACTCCTGACCTACCTCAAGTGATCCATC
54	CTAATTTTTATGAATATTTTTAATTGATTCGAACTCCTGACCTCGTGTTCCCCAGGCCTC
55	ATTTTGTTAAATCCTTTCTCTGCATCAATCGAACTCCTGATCTCAGGTGATTTACTTGCG
56	TTTTTGGAATAAATAGACATTTTCCTGATCGAACTCCTGACTATAGTTGATCCACCCACC
57	CGGGGAGCCTTACCAATAACATAAATAGTCGAACTCCTGACCCTAGGTGATCCTCCTGCT
58	AATAAAAATAGAAAACAATCCTTCAAAATCGATCTCCTTACCTCGTAATCTGCCTGCATA
59	TTGTAAAATCTAGTCTTCTGCTTCCAAGTCGAACTCCTGAGCTCAAGTCATCTACGTGCC
60	TTTTTATTTTTTTGTAGACAGGCTGGTCTCGAGGAAGGGATTCTGGACAGATAAAAACAA
61	ATTTAAACTATTTAATAATTTGCTGTATTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
62	TGATGCTAAGGCACAGTCAGTTTTACATTCGAACTCCTGACCTCAGGAGTTCCACCCACC
63	GAGTTGGGCAGATCATGAGGTCAGGAGTTCGATCTCCTGACCTTATGATCTGCCCACCTT
64	ATGAAGTGATTTACATAAAGTAGCTTGATCGAACTCCAGACCTCAGGAGATCTGCAGTCC
65	GATAATATTTAGTGAATATAGGGCTATTTCGAACTCCTGACTTGAGGTGATTCACCTGCC
66	CTAAAATTTTTTTTTTTGAGACGGAGCTTCGAACTCCTGACCTTATGCAATCCACTTGCC
67	TACAACAATTTATTTTTGGTTTAAAAGCTCGAACTCCTGACCTTATATAATCTGCCCACC
68	GGAGTGCAGTATAGACGAGGACTGCAAATCGAACTCCTGACCTCAGATGATTCACTCACC
69	GGTGGTCACCCATAGTCATTTACTTCTGTCGAACTCCTGACCTCACATTCCTGTATTTTC
70	CACGTTCTGGTAGTTAGGAAAATTCAAATCGAACTCCTGACCTCATTACCCACCCACCTT
71	TGGGGAAAAAAATCATCCCCGGGTGCATTCGAACTCCTGACCTCAAATGCACCCCCACCT
72	TTTACAACTGCTGGTCAGCCAGAGTCAGTCGAACTCCTGACCTCCAGAAAAATCCGCCCA
73	ATTTTTTTATGTGATGTGAGGTAAGAGTTCGATCTCCTGACCTCAGATGATCCATCTGCC
74	TAAATGCTCTTAATTATAAAAAATTCTGTCGAATTCCTGACCTCAGGTGTTCTACCTGCC

75	CTGTTAGTGATAAATCTGTAACAGCCCTTCGAACTCCTGACATCAAATAATCCACTCGCC
76	TTCCTATATGCCTGGAATAATGCCTTAGTCGATCTCCTTACCTCGTAATCTGCCTGCATA
77	CTGTTTCATCTGATTTAAAATACACACTTCGAACTCCTGACCTCAGGCAGTCACCTTCTT
78	GTACAGCCAAGGTGGAGAACTACTGAGGTCGAACTCCTGACCTCAGGTAATCTTCCCACA
79	ATCTTCTTTTCTTCCCCCATCCATTTCATCGAACTCCTGACCCTAGGTGATCCTCCTGCT
80	CAGATGAATCCCTTGTAACCTAGATACATCGAACTCCTGACCACAGGTGATCTACCTAAC
81	TGTCATTCAGCAATATTCAGTTTTTTGATCGAACTCCTGACCTTGTAATCTGTCCACCTT
82	TTGATCTACAGACTTAGAGCAACAGCCATCGAAGTCCTGACCTCAGGTAATCCTGCTGCC
83	GAATCCTAATCATAAAAGGGAAGTTTTATCGAACTCCTGACCTTGTAATCTGTCCACCTT
84	AGATGTATCAAACTATAAAGCAGCAGCATCGAACTCCTGACTTCAGGAAATCTGCCCGTC
85	TATAAGGCTTAAGATCTCTTAGAGTCTATCGAACTCATGACCTCAGGTTATCCTCCTGCC
86	ATAGAAAGTATATTCTATTAAGAGGTACTCGAGACCAGACTGGATAACAAGGCAAAACCC
87	CCTGGAAATCAGCTAGGAGGCCATTCCTTCGATCTCCTGACCTCGTGCGCAAGAGCAATG
88	TGTAGACAAAAAGTGACAGAAGCAACTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
89	GAAAGGTGGAGAATGAGGTGAAAAGAAGTCGAACTCCTGACCTACCTCAAGTGATCCATC
90	TGGCTGCTTTTGCACTGACACAGCAGAGTCGAACTCCTGACCTCAAGTAATCTACCCACC
91	CCAGGATGTACTACACTGAATATCTAAGTCGAACTCCTGACCTCAGGTTATCCATCTGCC
92	TGGTACCCGCTATTAAAATGGTGCTTGGTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
93	CAGGTTGCTAAAAATCATTTTTGCATGATCGAACTCCTGACCTTACGATCCACCCACCTT
94	CCCCCATCATTTGACAAAATATCATAACTCGAACTCCTGACCTCATGATTTCCTGCCTCA
95	GCACCCAAGCTGGGAACCTGGGAATCATTCGATCTCCTGACCTCGTGATTACAGGTGTGA
96	CAAAACTTCTTGTGCTGTAGATGAGGAATCGAACTCCTGACCTCAGGTAATCTTCCCACA
97	GTGATAAGTTATACAGAGATAAAATAAGTCGAACTCCTGGACTTATGTGATCTGCCCCCC
98	CAGAAAGGCTATTAGAATGCTTTGACCTTCGAATTCCTGACCTCAAGTGTTGGGATTACA
99	TAACAAAACATTTAAGAAGTAAATAATATCGATCTCTTGACCTTGTGACTCACCCGCATC
100	TCACATTTGAATTATTCACCCAAATGAATCGAACTCCTGACGTCAGGTGATCTACCTGTC

Table 8.b3

51	11	59849051	59849080	59881125	59881154
52	2	68144388	68144417	68359454	68359483
53	2	223307535	223307564	223450575	223450604
54	3	3002170	3002199	3126002	3126031
55	8	47246986	47247015	47283077	47283106
56	19	55428739	55428768	55609242	55609271
57	19	50907983	50908012	50961393	50961422
58	6	13822113	13822142	14075799	14075828
59	2	215174891	215174920	215344457	215344486
60	9	83699493	83699522	83789541	83789570
61	5	76572659	76572688	76725275	76725304
62	1	27971171	27971200	28029816	28029845
63	2	227820025	227820054	227868228	227868257
64	12	25206967	25206996	25256675	25256704
65	7	66305772	66305801	66398642	66398671
66	10	67960384	67960413	68133246	68133275

67	11	78974906	78974935	79152570	79152599
68	16	20348274	20348303	20445723	20445752
69	4	70255223	70255252	70476553	70476582
70	12	45019370	45019399	45087116	45087145
71	16	12334388	12334417	12375798	12375827
72	17	39781054	39781083	39819890	39819919
73	3	157568738	157568767	157614329	157614358
74	20	32238035	32238064	32290149	32290178
75	5	139331499	139331528	139356650	139356679
76	6	13822113	13822142	14016894	14016923
77	5	55883135	55883164	56069490	56069519
78	1	109359721	109359750	109614616	109614645
79	19	50732810	50732839	50961393	50961422
80	8	55805339	55805368	55947014	55947043
81	11	93124869	93124898	93228756	93228785
82	X	70955507	70955536	71218058	71218087
83	11	93069957	93069986	93228756	93228785
84	5	76572659	76572688	76639935	76639964
85	20	4769899	4769928	4890419	4890448
86	3	105278353	105278382	105431072	105431101
87	19	42642160	42642189	42697459	42697488
88	5	76402807	76402836	76572659	76572688
89	2	223212101	223212130	223450575	223450604
90	19	38902738	38902767	39089150	39089179
91	1	17050232	17050261	17198082	17198111
92	5	76423309	76423338	76572659	76572688
93	20	34795172	34795201	34933943	34933972
94	12	8124954	8124983	8343599	8343628
95	17	1289899	1289928	1411119	1411148
96	1	109359721	109359750	109391445	109391474
97	1	187506368	187506397	187612301	187612330
98	11	72474782	72474811	72730463	72730492
99	15	34816885	34816914	34980543	34980572
100	12	32741506	32741535	32993185	32993214

Table 8.b4

51	11	59845081	59849080	59877155	59881154	NA
52	2	68140418	68144417	68359454	68363453	1
53	2	223303565	223307564	223446605	223450604	NA
54	3	2998200	3002199	3122032	3126031	1
55	8	47243016	47247015	47283077	47287076	NA
56	19	55428739	55432738	55609242	55613241	NA
57	19	50907983	50911982	50961393	50965392	1
58	6	13822113	13826112	14071829	14075828	1

59	2	215170921	215174920	215340487	215344486	NA
60	9	83695523	83699522	83785571	83789570	NA
61	5	76572659	76576658	76721305	76725304	1
62	1	27967201	27971200	28029816	28033815	1
63	2	227820025	227824024	227868228	227872227	1
64	12	25202997	25206996	25256675	25260674	1
65	7	66301802	66305801	66394672	66398671	NA
66	10	67956414	67960413	68133246	68137245	1
67	11	78974906	78978905	79148600	79152599	NA
68	16	20348274	20352273	20445723	20449722	1
69	4	70251253	70255252	70472583	70476582	NA
70	12	45015400	45019399	45083146	45087145	NA
71	16	12330418	12334417	12371828	12375827	NA
72	17	39781054	39785053	39819890	39823889	1
73	3	157564768	157568767	157610359	157614358	NA
74	20	32234065	32238064	32286179	32290178	NA
75	5	139327529	139331528	139352680	139356679	NA
76	6	13822113	13826112	14012924	14016923	1
77	5	55879165	55883164	56069490	56073489	1
78	1	109359721	109363720	109610646	109614645	1
79	19	50732810	50736809	50961393	50965392	1
80	8	55801369	55805368	55943044	55947043	1
81	11	93120899	93124898	93228756	93232755	NA
82	X	70951537	70955536	71214088	71218087	1
83	11	93065987	93069986	93228756	93232755	NA
84	5	76572659	76576658	76635965	76639964	1
85	20	4765929	4769928	4886449	4890448	1
86	3	105278353	105282352	105427102	105431101	NA
87	19	42642160	42646159	42697459	42701458	NA
88	5	76398837	76402836	76572659	76576658	NA
89	2	223208131	223212130	223446605	223450604	1
90	19	38898768	38902767	39089150	39093149	1
91	1	17046262	17050261	17194112	17198111	1
92	5	76419339	76423338	76572659	76576658	1
93	20	34791202	34795201	34929973	34933972	1
94	12	8120984	8124983	8339629	8343628	1
95	17	1285929	1289928	1411119	1415118	NA
96	1	109359721	109363720	109387475	109391474	1
97	1	187502398	187506397	187608331	187612330	1
98	11	72470812	72474811	72726493	72730492	NA
99	15	34812915	34816914	34976573	34980572	NA
100	12	32741506	32745505	32989215	32993214	1

Table 8.b5

51	NA			
52	9.611985094	9.343831497	782.5206937	649.7907953
53	NA			
54	11.56145265	11.29407325	3022.345021	2511.046886
55	NA			
56	NA			
57	11.06302246	10.7967736	2139.447352	1778.90481
58	8.68134752	8.415791358	410.5310464	341.5117386
59	NA			
60	NA			
61	9.625287484	9.360989444	789.7693035	657.5648829
62	9.331358904	9.068288175	644.1973449	536.8176048
63	9.200494854	8.939079016	588.3353263	490.8297945
64	9.675485522	9.414213727	817.7326997	682.2769785
65	NA			
66	9.316046476	9.055047287	637.3961417	531.9132952
67	NA			
68	11.77410961	11.5133945	3502.355003	2923.324971
69	NA			
70	NA			
71	NA			
72	10.43825323	10.17910264	1387.481898	1159.351755
73	NA			
74	NA			
75	NA			
76	9.120786627	8.862588275	556.7117131	465.4841633
77	11.98951547	11.73168101	4066.340952	3400.853187
78	10.94222614	10.6852321	1967.606678	1646.551709
79	10.92643826	10.6698998	1946.191912	1629.14556
80	11.42624079	11.16983706	2751.954283	2303.859561
81	NA			
82	10.06832279	9.812163313	1073.660968	898.9912807
83	NA			
84	10.74240639	10.48726921	1713.115125	1435.431935
85	9.018633738	8.76385275	518.6558433	434.6929085
86	NA			
87	NA			
88	NA			
89	9.815255083	9.561682483	900.9199315	755.7066367
90	12.17670502	11.92354719	4629.706498	3884.591532
91	12.08219348	11.82907258	4336.133547	3638.359996
92	10.59553275	10.34296692	1547.295201	1298.803012
93	11.00656056	10.75473341	2057.33435	1727.815445
94	11.59214401	11.34033097	3087.330064	2592.864267
95	NA			

96	12.037335	11.7863627	4203.382404	3532.227873
97	10.4350455	10.18571527	1384.400353	1164.677868
98	NA			
99	NA			
100	9.07291504	8.832819681	538.5419955	455.9777699

Table 8.b6

51	Hg38_11_59844932_59849082_59873751_59881156_FF	OBD183-033
52	Hg38_2_68140822_68144419_68359452_68365969_FR	OBD183-145
53	Hg38_2_223296739_223307566_223446116_223450606_FF	OBD183-229
54	Hg38_3_2993519_3002201_3121830_3126033_FF	OBD183-125
55	Hg38_8_47239740_47247017_47283075_47288879_FR	OBD183-369
56	Hg38_19_55428737_55436084_55609240_55610480_RR	OBD183-221
57	Hg38_19_50907981_50915866_50961391_50964466_RR	OBD183-225
58	Hg38_6_13822111_13826619_14070076_14075830_RF	OBD183-1257
59	Hg38_2_215168332_215174922_215339857_215344488_FF	OBD183-153
60	Hg38_9_83691585_83699524_83785514_83789572_FF	OBD183-089
61	Hg38_5_76572657_76583168_76717099_76725306_RF	OBD183-201
62	Hg38_1_27966549_27971202_28029814_28033207_FR	OBD183-1261
63	Hg38_2_227820023_227824564_227868226_227874758_RR	OBD183-197
64	Hg38_12_25200007_25206998_25256673_25260057_FR	OBD183-061
65	Hg38_7_66298919_66305803_66392051_66398673_FF	OBD183-1265
66	Hg38_10_67952694_67960415_68133244_68143089_FR	OBD183-309
67	Hg38_11_78974904_78976508_79134716_79152601_RF	OBD183-345
68	Hg38_16_20348272_20352389_20445721_20457266_RR	OBD183-297
69	Hg38_4_70243444_70255254_70475197_70476584_FF	OBD183-045
70	Hg38_12_45013447_45019401_45077155_45087147_FF	OBD183-1269
71	Hg38_16_12325962_12334419_12372790_12375829_FF	OBD183-1273
72	Hg38_17_39781052_39789227_39819888_39822803_RR	OBD183-265
73	Hg38_3_157551093_157568769_157606016_157614360_FF	OBD183-1277
74	Hg38_20_32234511_32238066_32285519_32290180_FF	OBD183-177
75	Hg38_5_139327785_139331530_139355652_139356681_FF	OBD183-133
76	Hg38_6_13822111_13826619_14011144_14016925_RF	OBD183-1281
77	Hg38_5_55874716_55883166_56069488_56074299_FR	OBD183-1285
78	Hg38_1_109359719_109366704_109611657_109614647_RF	OBD183-1289
79	Hg38_19_50732808_50735232_50961391_50964466_RR	OBD183-1293
80	Hg38_8_55800026_55805370_55942582_55947045_FF	OBD183-1297
81	Hg38_11_93115381_93124900_93228754_93237221_FR	OBD183-249
82	Hg38_X_70952076_70955538_71213839_71218089_FF	OBD183-1301
83	Hg38_11_93057516_93069988_93228754_93237221_FR	OBD183-1305
84	Hg38_5_76572657_76583168_76637173_76639966_RF	OBD183-157
85	Hg38_20_4763308_4769930_4885862_4890450_FF	OBD183-1309
86	Hg38_3_105278351_105281788_105425156_105431103_RF	OBD183-305
87	Hg38_19_42642158_42648993_42697457_42701566_RR	OBD183-049

88	Hg38_5_76400222_76402838_76572657_76583168_FR	OBD183-209
89	Hg38_2_223203554_223212132_223446116_223450606_FF	OBD183-317
90	Hg38_19_38895868_38902769_39089148_39091382_FR	OBD183-1313
91	Hg38_1_17044824_17050263_17192218_17198113_FF	OBD183-1317
92	Hg38_5_76420596_76423340_76572657_76583168_FR	OBD183-1321
93	Hg38_20_34791262_34795203_34932162_34933974_FF	OBD183-1325
94	Hg38_12_8119443_8124985_8341969_8343630_FF	OBD183-1329
95	Hg38_17_1287026_1289930_1411117_1412617_FR	OBD183-241
96	Hg38_1_109359719_109366704_109385998_109391476_RF	OBD183-1333
97	Hg38_1_187499122_187506399_187600952_187612332_FF	OBD183-1337
98	Hg38_11_72469497_72474813_72726299_72730494_FF	OBD183-109
99	Hg38_15_34813171_34816916_34974237_34980574_FF	OBD183-103
100	Hg38_12_32741504_32743146_32986666_32993216_RF	OBD183-009

Table 8.b7

51	AGGGAAAGAACTTGGTTTACTGCTGC	OBD183-035	GAGGTGGAGGTGGATTTGCTCGTATG
52	CAGAGGAAACCATCATTGTTAGTAGC	OBD183-147	CCCAGAACAGAGAAAGGGCATTAGGG
53	GGTGGTGTGGGTGTCATTAGTAAACT	OBD183-231	CTGACCCAGGAAAACCACCCTCATTC
54	ACTTCTTTCTCTCTCTGCTGACTGGG	OBD183-127	GGGCTGAAAAGTTTGGGAAGAACAGG
55	CTTGTCCTGTTCCCAGTTTCTGAGGG	OBD183-371	TTACAATCGCCTCAAAGTGCTCAAGC
56	GCCTCCCTCCTCATCACTTCCTC	OBD183-223	CCAGCCCAGCACTCTTGTAACTC
57	CCTCCACCCAACAGAAAATCCTCTTA	OBD183-227	AGACACAGCCAGCAGAGACAGGAAGT
58	ATAGCTTCTTACCGGTGCGCCACCG	OBD183-1259	TAGGCAGTACGATCGCACGCCCCAT
59	CCTAAGGTGAGTAATGTTGACTGGCT	OBD183-155	CACCTGTTGTAATCCTGGCACTCTGG
60	CCTGGGCTCAACCTTGCTGGACT	OBD183-093	GGGTGACCGAGTGAGATGATGTC
61	TCACCCCTCTGCTTCCAGGACAG	OBD183-203	CCTCCAGCGAGACCACTCCTAAA
62	GTGAACGATTGGTAAACCCAGTGTC	OBD183-1263	CTGTGAGCGACAAAAGCTTAAATGG
63	TTTACTGTCTTGAAGGAGGCAGGGTT	OBD183-199	GCACTGAAGAGAACACAGCAAAGCCG
64	GTCCTAAAAGAATCACAGTTATGCCA	OBD183-063	GCAGCGAAGAAGTTGAGAAGTGGACA
65	GAAATACGCGCCCATAACTTGGTGC	OBD183-1267	GAATACGGGTCGTAGCAATGTTCGT
66	CCCTGTGTGTTTCTTCCCTTGGCTGA	OBD183-311	CCCACAAAACTTGACTCTCTTCCATC
67	AGAGGTTCATCGTCTCCAGGTCATAG	OBD183-347	TTCACACAGAGAGGTTGCCTGGATGT
68	TGTCTGTCTGTCCCTGTGACCCT	OBD183-299	CAACTCACCCAGAGACCCCTTGC
69	CCAGGTAGAAGTGGTTTGTTACACAT	OBD183-047	CTCCCTCAAATCCAGACACCTAAAGA
70	CTGACTATGATCTACATATTACAGG	OBD183-1271	CGGTACGTCTGCTTTGGTCAGCCTC
71	TAATGGCTCGTAAGATAGTGCAGCC	OBD183-1275	GCTGGTGATCACTCGATGACCTCGG
72	GTCTTGTGGCTGAAGTGCCCGTT	OBD183-267	CTCTCCTTCCAGCCTTCTTGGGC
73	CTCCCCATTGCAACTACGGGGATTC	OBD183-1279	TTGGAGAGCCAGCTGCGTTCGCTAA
74	GTTTTCCCTGTTGGTATGTAGCCTGG	OBD183-179	ACTACGAATGATAGGCTGGGCACAGT
75	CTTCAGTGTTTCCTTTCAGTGATGGC	OBD183-135	ATGACATTTCGGGCTGGGCACGG
76	TGTGAGGACAGTGTAGTATTAGCAA	OBD183-1283	ACGATAAGTCCCGAACTGGTTGTGA
77	CCTAACGAAAAGTGAACTTCATAAT	OBD183-1287	TCGAATGCAGTGATCTCCCAGGTGC
78	ACGTGCTGTCCCACGCACATGGTAG	OBD183-1291	GAATCAAAAATACTAGGTAACTAGA
79	ATTTGGACAAAATTGAATGGAGTCT	OBD183-1295	GGATTTGCGACGTTCTAAGCGTTGG

80	GATCAACCTTCACACCGATCTAGAA	OBD183-1299	TCCATGTGAATCGCCATCCAGGATC
81	GCCAATGAGCACCACATCACTATTTG	OBD183-251	GGATAAGCCACAAGGCAACTGGTCTG
82	GCAACTCTCCTCCTCAGCAGTCTGG	OBD183-1303	TCCTAGCAACCGGGGGCTGGGAATC
83	TCTATGGAAACTACAGGACTAACCT	OBD183-1307	TGTGACATGAGTCAAGATATTTGCT
84	GACTCATTTCAGTTGTTCAGAGGTCG	OBD183-159	GACCTCCAGCGAGACCACTCCTAAAT
85	CGGTAATCTATGCTCTAGGCATCTA	OBD183-1311	AGGACTCGTGTCAACGCGCAGGCTT
86	GCACAATGCCAGAAACATAGTAGACG	OBD183-307	GGGAAGAATGAATGACGCCGAAGGAC
87	GCCCAGGACATACCACACACCAA	OBD183-051	GCCCTCACTAAAGCCCACAGCGT
88	CCTCCAGCACACACACACTCAGT	OBD183-211	GACCTCCAGCGAGACCACTCCTA
89	TTAGAATGATAGTTACCTGAGACCAG	OBD183-319	CCCAGGAAAACCACCCTCATTCAAAC
90	TGCGAGACAATGCTACCTTACCGGT	OBD183-1315	CATTCCCTCATCACAATTGAACTAA
91	CGGAACTCGATCGGTTGAACTCTAT	OBD183-1319	AGGGCGCGAGACGTATTCCCCGGTT
92	CACGCCTGGTCTTCGAAGTTAGCAC	OBD183-1323	GCTGCTTGGGACCATAAAACCTCAT
93	ATCGAGCGGGCAATATGTACATATT	OBD183-1327	TCACCGCGGAACCCGACTATGCGAC
94	TACCTCTACAATGGATGCGCAAAAA	OBD183-1331	TGGACGGCCTATTTACCGAGAGCTG
95	GGAAGGGCACCTCCACTCATCCA	OBD183-243	CTGGCTGTCATCCAACCACCACT
96	TTCGAAGGCTGGTTGAATACATGGC	OBD183-1335	AGAAGATTGAGGTGTCCTAAACTTA
97	CGCGGCCATAACACCTTAGCCGTCT	OBD183-1339	CGGGGGAATAAGTGACCTATGCACC
98	TATGTGGACCTGATGGGCACCCC	OBD183-1091	TGCTATTATCTGGTGACTGGACTGGG
99	TTTGAAAAGACCGTCGGGTGCGG	OBD183-1031	TGAAGTGGCATCTCTCTCCCGCC
100	CACAAGAAAATAAGTCTCCCAACCTG	OBD183-011	TGACTAAAATGTTATGTGGTGCGTGA

Table 8.b8

101	Hg38_8_30141432_30150688_30174555_30176773_FR	DCTN6	55692.9615
102	Hg38_12_8705594_8710071_8956666_8971971_RR	KLRG1	58603.68516
103	Hg38_4_146421995_146434783_146576248_146581867_RR	POU4F2	49274.49382
104	Hg38_20_31418840_31431664_31617243_31621976_RR	DEFB123	59083.38395
105	Hg38_5_76380998_76384783_76572657_76583168_FR	IQGAP2	54851.10909
106	Hg38_1_150618429_150622168_150754333_150760976_FF	CTSS	64127.37577
107	Hg38_8_47283075_47288879_47486518_47496230_RF	PRKDC	57314.15933
108	Hg38_8_47250090_47257109_47283075_47288879_FR	PRKDC	50064.97609
109	Hg38_20_46117565_46123196_46312844_46316630_FF	CD40	59459.05109
110	Hg38_11_59836753_59842056_59873751_59881156_FF	TCN1	53784.52324
111	Hg38_17_75812204_75816321_75950756_75954014_FF	UNC13D	60099.77655
112	Hg38_19_51712234_51719472_51826457_51831790_RF	FPR1	65123.51909
113	Hg38_4_146576248_146581867_146648355_146653240_RF	POU4F2	57957.39948
114	Hg38_4_151824476_151828586_151939544_151951330_RF	FBXW7	56112.04376
115	Hg38_6_136360365_136366092_136470425_136479842_RF	MAP3K5	56877.63053
116	Hg38_3_10094056_10097375_10166863_10171451_RR	BRK1	57233.48463
117	Hg38_3_30527627_30532055_30652453_30660274_FR	TGFBR2	60126.87115
118	Hg38_2_74566692_74568044_74592023_74597081_FR	LOXL3	57121.13507
119	Hg38_7_29859712_29867302_30016613_30019069_RR	WIPF3	60565.65705
120	Hg38_10_26740932_26742560_26959699_26967983_RR	ABI1	59888.31329
121	Hg38_14_94590755_94595046_94660913_94670434_FF	SERPINA3	51602.36278

122	Hg38_2_68146585_68154467_68359452_68365969_RR	PLEK	60673.0528
123	Hg38_19_29696989_29701188_29727590_29730932_FF	PLEKHF1	52817.5742
124	Hg38_10_67996987_68002098_68133244_68143089_FR	SIRT1	65629.85778
125	Hg38_3_172498977_172504898_172612668_172616740_RR	TNFSF10	58221.03427
126	Hg38_11_66660876_66666332_66795521_66799004_FR	SPTBN2	57312.99458
127	Hg38_1_11722709_11729599_11945928_11948525_FF	NPPA	56411.9319
128	Hg38_12_69485433_69494790_69582845_69586465_FF	CCT2	57383.41886
129	Hg38_6_92733887_92741450_92775882_92789490_FF	BACH2	59527.59812
130	Hg38_1_64986326_64990105_65229466_65234378_RF	JAK1	63746.32604
131	Hg38_9_83554932_83574455_83691585_83699524_RF	UBQLN1	61891.82036
132	Hg38_19_50878674_50885130_50961391_50964466_FR	KLK5	62845.36841
133	Hg38_12_8849992_8853563_8956666_8971971_RR	KLRG1	62618.39393
134	Hg38_13_27943964_27948276_28172854_28181281_RR	FLT3	59041.48761
135	Hg38_5_31659980_31666153_31910749_31916612_RR	DROSHA	59449.15028
136	Hg38_3_2897600_2903984_3121830_3126033_FF	IL5RA	57800.99656
137	Hg38_3_170416234_170418115_170607532_170615844_RR	SKIL	63920.31015
138	Hg38_18_55916670_55920381_56075450_56084543_FR	TCF4	64853.46274
139	Hg38_5_76572657_76583168_76698020_76702533_RF	IQGAP2	57619.86752
140	Hg38_12_8913809_8922295_8956666_8971971_RR	KLRG1	61465.60317
141	Hg38_5_74537627_74543794_74656276_74660840_RF	HEXB	62777.03507
142	Hg38_7_37143709_37150477_37190622_37192292_FF	ELMO1	58975.8291
143	Hg38_9_131690419_131696896_131751071_131753768_FR	RAPGEF1	56194.47425
144	Hg38_6_26425345_26428181_26579344_26586907_RR	BTN1A1	61428.23451
145	Hg38_22_28560976_28565084_28753634_28758538_FF	TTC28	62272.87774
146	Hg38_3_187141583_187148120_187202075_187212711_RF	MASP1	68339.73699
147	Hg38_1_193519461_193528788_193673926_193687017_FR	CDC73	59191.22135
148	Hg38_4_154421614_154428471_154600623_154609665_RF	FGA	60226.98349
149	Hg38_16_75703703_75711017_75770470_75776868_RF	KARS	64545.47619
150	Hg38_10_101411213_101417434_101602840_101605496_RF	POLL	57537.34386

Table 8.c1

101	1.189894605	0.000267757	0.000173585	Immune
102	1.189574098	0.000241232	0.00014759	Immune
103	1.189341371	0.001503703	0.001455054	Immune
104	1.189054381	0.000197577	9.1207E-05	Immune
105	1.188958993	0.000349576	0.000274341	Immune
106	1.188853014	0.000190318	2.07508E-05	Immune
107	1.188487932	0.000296454	0.000221421	Immune
108	1.18834688	0.000953713	0.000903222	Immune
109	1.187993343	0.0002561	0.000160439	Immune
110	1.187956606	0.000386774	0.00031852	Immune
111	1.187782434	0.000281289	0.000199385	Immune
112	1.187618829	0.000190318	1.95822E-05	Immune
113	1.187303761	0.000374876	0.000305414	Immune

114	1.187272836	0.000270662	0.000183891	Immune
115	1.18719651	0.000309944	0.000234281	Immune
116	1.186853935	0.000270451	0.000180566	Immune
117	1.186778182	0.000190318	4.44105E-05	Immune
118	1.186672454	0.000211794	0.000108212	Immune
119	1.186560703	0.000270662	0.000181532	Immune
120	1.186285074	0.000197577	9.13432E-05	Immune
121	1.186276015	0.000899575	0.000844013	Immune
122	1.186160032	0.000270451	0.000179402	Immune
123	1.186098691	0.00093254	0.000880427	Immune
124	1.185853274	0.000190318	3.99447E-05	Immune
125	1.18551634	0.000349576	0.000274843	Immune
126	1.184920048	0.000436269	0.000370491	Immune
127	1.184745946	0.000561947	0.0005041	Immune
128	1.184546219	0.000320976	0.000244508	Immune
129	1.1845323	0.000327812	0.000252608	Immune
130	1.184035394	0.000190318	5.4065E-05	Immune
131	1.183997916	0.000291919	0.000207777	Immune
132	1.183983245	0.000190318	5.26589E-05	Immune
133	1.183850689	0.000197577	9.04588E-05	Immune
134	1.183834593	0.000269965	0.000177859	Immune
135	1.183509166	0.000374731	0.000303169	Immune
136	1.183397205	0.000349576	0.000273026	Immune
137	1.183347956	0.000190318	9.84044E-06	Immune
138	1.183297504	0.000191193	8.22707E-05	Immune
139	1.182991993	0.000423881	0.000355312	Immune
140	1.182982506	0.000294063	0.000210766	Immune
141	1.182858758	0.000191193	8.17229E-05	Immune
142	1.18268215	0.003600958	0.003569185	Immune
143	1.182551034	0.00098659	0.000937261	Immune
144	1.182494488	0.000269965	0.000177167	Immune
145	1.182491457	0.000294063	0.000211778	Immune
146	1.182489201	0.000190318	9.42584E-06	Immune
147	1.182342728	0.000456106	0.000393056	Immune
148	1.182263907	0.000459663	0.000397474	Immune
149	1.182179987	0.000190318	6.46828E-05	Immune
150	1.181917431	0.001090883	0.001042756	Immune

Table 8.c2

101	GTAAGAAGTGAGTGGGAATTAGACCAGCTCGATCTCCTGACCTTAAGCGATCTCCCCGCC
102	ACTGATATACCTATCCTTATTAAGGCACTCGAACTCCTGACCTCACGTAATTCTCCCACC
103	GATACAATTTCTGTTTAAGAGAGTGTAATCGAACTCCTGACCTCACTCAGGTGATCCCCC
104	ATATTGGAAATTATTTTACTCTAGACTTTCGAACTCCTTGACCTCAGGTGATCTACCTGC
105	ACTTTTCTTTTATGCCAATTAGAATAAGTCGAACTCCTGACTTCAGGAAATCTGCCCGTC

106	TTTTTCATGGGTTTTTGTTTTGTTTATTTCGAACTTCTGACCTCATGATCAACCCATCTT
107	TTCCCTGACTGGAACCTCTAGTACAATGTCGAACTCCTGATCTCAGGTGATTTACTTGCG
108	AACCCCTTTTATTTCCTATACATCTATTTCGAACTCCTGATCTCAGGTGATTTACTTGCG
109	GGCTTCTTCTCCAATGTGTCATCTGCTTTCGAACTCCTGACCTCAATGTGACTCACCTGC
110	GGATATTTGGATGTAATGAGGAGAAGCATCGATCTCCTGACCTCATGACGTGTCCGCCTT
111	TATCTCTGAGATGAGAATGGAAAATAAATCGAATTCCTGACCTCTTGATCTGTCTGCCTT
112	ATGGTCTTCCTCAACAGTTTTTCTTTCATCGAACTCGTGACCTCAAGTGGTCTCCCTGCC
113	AACTGTTGGGGCTCTAATTTATATCTGATCGAACTCCTGACCTCACTCAGGTGATCCCCC
114	AAGACAGATCTGGTTTTTTTTTGAAATGTCGATTTCCTGACCTTGTGATCCAATGCCAGG
115	TAAAACTGTAAAACACTGATGCCAGAAATCGAACTCCTGACTTCGGTGATCTACCTGCCG
116	TAGGCAGACTTACCTACCACAGATACAGTCGAACTCCTGACCTCATGTGATTTGGCCGCT
117	TATTGTCTTTCTTCAGATGTGGGCTACATCGAACTCCTGACCTCAGGTGAATAACCTGCC
118	AATTTGAAAAGTTACACAACATTTATAGTCGAACTACTGACCTAAGTGATCCACCCACCT
119	TCAGCTGGGGTTTCCCAAGCCCTTGAGATCGAACTCCTGACCTCAGAAGATTTGCCTGCC
120	ATAGGTAAAAAAGGAACTGAAGGTAAAATCGAACTCCTGACCTCAAGAGATCTGTCCTCC
121	TGATTCAAGCTTGATTCTGGAGCTTGAATCGAACTCCTGATCTTAGGTGATCCATCCACC
122	TTAGTTCTTAGATGCTTTGTCATATGCTTCGAACTCCCGACCTCCAGTGGAAGTTCACAC
123	TGGCTTTTTAGAAAAACATTTATTGTAATCGAACTCCTGACCACAAATTATCCACCAGAC
124	AATGCAAATAATCTCAAGGTCTACAGTTTCGAACTCCTGACCTTATGCAATCCACTTGCC
125	ATTCATGTTAGAACTACATGTAGACATTTCGATCTCGTGACCTCTTGATCCTCCCACCTC
126	GCCAAATCTTGGTCTTGATCTGTGCCAATCGAACTCCTGACCTCAGGTAATTAGCCCACC
127	AGGCACTGTGCCACTCATTTAGGACCCATCGAACTCCTGACCTCAGTGGATCATCAGACT
128	GCTTCTAGATTTTTGTTTTGTTTTGTTTTCGAACTCCTGACCTCAGTTCATCCGCCTACC
129	TTTTATTTCAATGATTGTATATTATTAGTCGAACTCCTGACTTTAAGTAATCTGCCCACC
130	GCCTTAACAACAACAAAATGGAGAGTTATCGAACTCCTGACTTCAGGTGACTCACCCACC
131	TTTTTATTTTTTTGTAGACAGGCTGGTCTCGAGGTATCACAAGTGAATGCTGCAAAATGA
132	GTTAGCCAGACATCCTTGATAGATATTATCGAACTCCTGACCCTAGGTGATCCTCCTGCT
133	AAGAGGAACTAACTAGTCACAAAGGCCATCGAACTCCTGACCTCACGTAATTCTCCCACC
134	TTCTGCAGAAAAAGTGTCAACAATGTAGTCGAGACCAGCCTGAGGATCATAACAAAATCG
135	ATCCTCTGAGCTTTTGGTTCTTCTCAATTCGAACTCCTGACCTCAAGCTATCCATCTGCC
136	TGGATTAATAGATTAGGTCAGTAAAGAATCGAACTCCTGACCTCGTGTTCCCCAGGCCTC
137	CTCTTATGCCTCCATTAGAATTTGACATTCGATCTCCTGACTTCGTGATCTGTCCACCTT
138	AAATGTAAACTGAGTGTCTATTGTACACTCGAGACCAGCCTGAACAATATAGTGAGACCC
139	ATCATAGCTACTGAAGATGTAGGCATTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
140	TTTGTCATTTCAGGGATTTGTGTGTGCTTCGAACTCCTGACCTCACGTAATTCTCCCACC
141	TGATCCCTGGGGATACACAAATTGCCATTCGAACTCCTGACCTCAGTCAATCTGCCCACC
142	AAAAAATTGTTAACTACATGATGGAAAATCGATCTCTTGACTTCATGATCCACCTGCCTT
143	CTATAATAACATTAACAGCTGAAATTTATCGAACTCCTGACCTCAGGTTACCCCCTGCCT
144	GCAATTTTCTTATAGTGCTTTGAGAACATCGAACTCCTAACCTCAAGTAATCCACACACT
145	CTGCCAAAAGTGAAGATCCCTACTATATTCGAACTCCTGACCTCAGGTAATCTATCCGCC
146	TGTCCCTTGCATGGGACACATTGTTTCATCGAACTCCTGACCTTTGGTCATCCACCTGCC
147	TTAGGCTTCTCTTCAGAGTTATCTCTGTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT
148	AAACACAGTCCATCCATTTCCAGACCCATCGAACTCCTGACCTCAAAAAATCCACCACCT
149	CTTAACAAACCAATGATAAGTAATGAGATCGAACTCCTGGCCTCAGATGATACATCTGCT
150	TCAAGTTCATCTAGTGCAGCTCTTTTATTCGAACTCCTGACCTCAAGAAATCTACCTGCC

Table 8.c3

101	8	30150657	30150686	30174557	30174586
102	12	8705596	8705625	8956668	8956697
103	4	146421997	146422026	146576250	146576279
104	20	31418842	31418871	31617245	31617274
105	5	76384752	76384781	76572659	76572688
106	1	150622137	150622166	150760945	150760974
107	8	47283077	47283106	47496199	47496228
108	8	47257078	47257107	47283077	47283106
109	20	46123165	46123194	46316599	46316628
110	11	59842025	59842054	59881125	59881154
111	17	75816290	75816319	75953983	75954012
112	19	51712236	51712265	51831759	51831788
113	4	146576250	146576279	146653209	146653238
114	4	151824478	151824507	151951299	151951328
115	6	136360367	136360396	136479811	136479840
116	3	10094058	10094087	10166865	10166894
117	3	30532024	30532053	30652455	30652484
118	2	74568013	74568042	74592025	74592054
119	7	29859714	29859743	30016615	30016644
120	10	26740934	26740963	26959701	26959730
121	14	94595015	94595044	94670403	94670432
122	2	68146587	68146616	68359454	68359483
123	19	29701157	29701186	29730901	29730930
124	10	68002067	68002096	68133246	68133275
125	3	172498979	172499008	172612670	172612699
126	11	66666301	66666330	66795523	66795552
127	1	11729568	11729597	11948494	11948523
128	12	69494759	69494788	69586434	69586463
129	6	92741419	92741448	92789459	92789488
130	1	64986328	64986357	65234347	65234376
131	9	83554934	83554963	83699493	83699522
132	19	50885099	50885128	50961393	50961422
133	12	8849994	8850023	8956668	8956697
134	13	27943966	27943995	28172856	28172885
135	5	31659982	31660011	31910751	31910780
136	3	2903953	2903982	3126002	3126031
137	3	170416236	170416265	170607534	170607563
138	18	55920350	55920379	56075452	56075481
139	5	76572659	76572688	76702502	76702531
140	12	8913811	8913840	8956668	8956697
141	5	74537629	74537658	74660809	74660838
142	7	37150446	37150475	37192261	37192290

143	9	131696865	131696894	131751073	131751102
144	6	26425347	26425376	26579346	26579375
145	22	28565053	28565082	28758507	28758536
146	3	187141585	187141614	187212680	187212709
147	1	193528757	193528786	193673928	193673957
148	4	154421616	154421645	154609634	154609663
149	16	75703705	75703734	75776837	75776866
150	10	101411215	101411244	101605465	101605494

Table 8.c4

101	8	30146687	30150686	30174557	30178556	NA
102	12	8705596	8709595	8956668	8960667	NA
103	4	146421997	146425996	146576250	146580249	NA
104	20	31418842	31422841	31617245	31621244	1
105	5	76380782	76384781	76572659	76576658	NA
106	1	150618167	150622166	150756975	150760974	1
107	8	47283077	47287076	47492229	47496228	NA
108	8	47253108	47257107	47283077	47287076	NA
109	20	46119195	46123194	46312629	46316628	NA
110	11	59838055	59842054	59877155	59881154	NA
111	17	75812320	75816319	75950013	75954012	NA
112	19	51712236	51716235	51827789	51831788	1
113	4	146576250	146580249	146649239	146653238	NA
114	4	151824478	151828477	151947329	151951328	NA
115	6	136360367	136364366	136475841	136479840	NA
116	3	10094058	10098057	10166865	10170864	NA
117	3	30528054	30532053	30652455	30656454	1
118	2	74564043	74568042	74592025	74596024	NA
119	7	29859714	29863713	30016615	30020614	NA
120	10	26740934	26744933	26959701	26963700	1
121	14	94591045	94595044	94666433	94670432	NA
122	2	68146587	68150586	68359454	68363453	NA
123	19	29697187	29701186	29726931	29730930	NA
124	10	67998097	68002096	68133246	68137245	1
125	3	172498979	172502978	172612670	172616669	NA
126	11	66662331	66666330	66795523	66799522	NA
127	1	11725598	11729597	11944524	11948523	NA
128	12	69490789	69494788	69582464	69586463	NA
129	6	92737449	92741448	92785489	92789488	NA
130	1	64986328	64990327	65230377	65234376	1
131	9	83554934	83558933	83695523	83699522	NA
132	19	50881129	50885128	50961393	50965392	1
133	12	8849994	8853993	8956668	8960667	1
134	13	27943966	27947965	28172856	28176855	NA

135	5	31659982	31663981	31910751	31914750	NA
136	3	2899983	2903982	3122032	3126031	NA
137	3	170416236	170420235	170607534	170611533	1
138	18	55916380	55920379	56075452	56079451	1
139	5	76572659	76576658	76698532	76702531	NA
140	12	8913811	8917810	8956668	8960667	NA
141	5	74537629	74541628	74656839	74660838	1
142	7	37146476	37150475	37188291	37192290	NA
143	9	131692895	131696894	131751073	131755072	NA
144	6	26425347	26429346	26579346	26583345	NA
145	22	28561083	28565082	28754537	28758536	NA
146	3	187141585	187145584	187208710	187212709	1
147	1	193524787	193528786	193673928	193677927	NA
148	4	154421616	154425615	154605664	154609663	NA
149	16	75703705	75707704	75772867	75776866	1
150	10	101411215	101415214	101601495	101605494	NA

Table 8.c5

101	NA			
102	NA			
103	NA			
104	11.2653241	11.0155094	2461.503536	2070.135374
105	NA			
106	8.743406573	8.493836218	428.5757984	360.4951945
107	NA			
108	NA			
109	NA			
110	NA			
111	NA			
112	9.549135201	9.301063329	749.1626689	630.8107034
113	NA			
114	NA			
115	NA			
116	NA			
117	12.44731269	12.20026238	5584.888214	4705.92424
118	NA			
119	NA			
120	11.636792	11.39034125	3184.369416	2684.320562
121	NA			
122	NA			
123	NA			
124	9.006228668	8.760303152	514.215279	433.6247075
125	NA			
126	NA			

127	NA			
128	NA			
129	NA			
130	10.30481335	10.06110114	1264.905023	1068.30001
131	NA			
132	10.55811799	10.31446932	1507.683603	1273.399442
133	11.99043762	11.74695049	4068.940936	3437.038957
134	NA			
135	NA			
136	NA			
137	11.89228799	11.64941363	3801.328495	3212.350581
138	10.4161041	10.17329126	1366.343114	1154.691115
139	NA			
140	NA			
141	11.94554115	11.70326334	3944.266053	3334.519889
142	NA			
143	NA			
144	NA			
145	NA			
146	9.083400882	8.841573873	542.4705027	458.753029
147	NA			
148	NA			
149	10.70568414	10.46423444	1670.059908	1412.695127
150	NA			

Table 8.c6

101	Hg38_8_30141432_30150688_30174555_30176773_FR	OBD183-121
102	Hg38_12_8705594_8710071_8956666_8971971_RR	OBD183-1341
103	Hg38_4_146421995_146434783_146576248_146581867_RR	OBD183-017
104	Hg38_20_31418840_31431664_31617243_31621976_RR	OBD183-213
105	Hg38_5_76380998_76384783_76572657_76583168_FR	OBD183-169
106	Hg38_1_150618429_150622168_150754333_150760976_FF	OBD183-1345
107	Hg38_8_47283075_47288879_47486518_47496230_RF	OBD183-361
108	Hg38_8_47250090_47257109_47283075_47288879_FR	OBD183-1349
109	Hg38_20_46117565_46123196_46312844_46316630_FF	OBD183-393
110	Hg38_11_59836753_59842056_59873751_59881156_FF	OBD183-173
111	Hg38_17_75812204_75816321_75950756_75954014_FF	OBD183-333
112	Hg38_19_51712234_51719472_51826457_51831790_RF	OBD183-365
113	Hg38_4_146576248_146581867_146648355_146653240_RF	OBD183-1353
114	Hg38_4_151824476_151828586_151939544_151951330_RF	OBD183-1357
115	Hg38_6_136360365_136366092_136470425_136479842_RF	OBD183-1361
116	Hg38_3_10094056_10097375_10166863_10171451_RR	OBD183-373
117	Hg38_3_30527627_30532055_30652453_30660274_FR	OBD183-005
118	Hg38_2_74566692_74568044_74592023_74597081_FR	OBD183-313

119	Hg38_7_29859712_29867302_30016613_30019069_RR	OBD183-1365
120	Hg38_10_26740932_26742560_26959699_26967983_RR	OBD183-1369
121	Hg38_14_94590755_94595046_94660913_94670434_FF	OBD183-181
122	Hg38_2_68146585_68154467_68359452_68365969_RR	OBD183-021
123	Hg38_19_29696989_29701188_29727590_29730932_FF	OBD183-1373
124	Hg38_10_67996987_68002098_68133244_68143089_FR	OBD183-285
125	Hg38_3_172498977_172504898_172612668_172616740_RR	OBD183-1377
126	Hg38_11_66660876_66666332_66795521_66799004_FR	OBD183-149
127	Hg38_1_11722709_11729599_11945928_11948525_FF	OBD183-325
128	Hg38_12_69485433_69494790_69582845_69586465_FF	OBD183-161
129	Hg38_6_92733887_92741450_92775882_92789490_FF	OBD183-037
130	Hg38_1_64986326_64990105_65229466_65234378_RF	OBD183-377
131	Hg38_9_83554932_83574455_83691585_83699524_RF	OBD183-1381
132	Hg38_19_50878674_50885130_50961391_50964466_FR	OBD183-289
133	Hg38_12_8849992_8853563_8956666_8971971_RR	OBD183-337
134	Hg38_13_27943964_27948276_28172854_28181281_RR	OBD183-193
135	Hg38_5_31659980_31666153_31910749_31916612_RR	OBD183-001
136	Hg38_3_2897600_2903984_3121830_3126033_FF	OBD183-1385
137	Hg38_3_170416234_170418115_170607532_170615844_RR	OBD183-1389
138	Hg38_18_55916670_55920381_56075450_56084543_FR	OBD183-1393
139	Hg38_5_76572657_76583168_76698020_76702533_RF	OBD183-329
140	Hg38_12_8913809_8922295_8956666_8971971_RR	OBD183-357
141	Hg38_5_74537627_74543794_74656276_74660840_RF	OBD183-277
142	Hg38_7_37143709_37150477_37190622_37192292_FF	OBD183-257
143	Hg38_9_131690419_131696896_131751071_131753768_FR	OBD183-1397
144	Hg38_6_26425345_26428181_26579344_26586907_RR	OBD183-097
145	Hg38_22_28560976_28565084_28753634_28758538_FF	OBD183-165
146	Hg38_3_187141583_187148120_187202075_187212711_RF	OBD183-085
147	Hg38_1_193519461_193528788_193673926_193687017_FR	OBD183-217
148	Hg38_4_154421614_154428471_154600623_154609665_RF	OBD183-105
149	Hg38_16_75703703_75711017_75770470_75776868_RF	OBD183-073
150	Hg38_10_101411213_101417434_101602840_101605496_RF	OBD183-081

Table 8.c7

101	GGGTGTTGCGAGCAGCCTGAATG	OBD183-123	GGGCGATAATGCTGGAGACACAG
102	AGACGCCGCTTGCGATTTCGACCAA	OBD183-1343	CAGCGGGAACGGCTGTGCAGTCACA
103	GACTTTGTATGCTTGGCTCTTTTCAA	OBD183-019	CTGCGTGAAGATTGGGAAAATACTCT
104	TGGACAGAGCACCTCCTGATAGC	OBD183-215	CAGTGAGATGATGGGCACCAGGG
105	CTCAGTAGTGGCTCTCCTTCCCC	OBD183-171	CCTCCAGCGAGACCACTCCTAAA
106	CCGCTGTGTAGCGGACAGTCTGAGC	OBD183-1347	TACCCTCTCAAGCACGAGATCTACA
107	CTTCTTGCTTTTCAATCAGGATGCCT	OBD183-363	CCTCCATCTCTTGCCTTCTCCTTAGG
108	GGGCGGGGTAGAAGCCGTCGCTTCG	OBD183-1351	GGTCCATGCGGGGGGTAAAACCCTG
109	TTTCTGATACCATCTGCGAGCCCTGC	OBD183-395	AGTCAGGGAAATAACTCACTGGGAAG
110	CAAGGTGGTCCCCGAGTTGCCAT	OBD183-175	GAGGTGGAGGTGGATTTGCTCGT

111	CCAAGATACTGCCCTGGGTCTCC	OBD183-335	CCCCACCCTGACCAACTGAATCA
112	TCTGGCTTTTGCCTGTCCTTCTGATG	OBD183-367	CCACTCTTGACCTCAGTTTCCCTGTA
113	TTTAAGAGGTCCGGGCAGCATACGC	OBD183-1355	TGTGGTTTATGTGCTACTGTGGAGA
114	GCGGCACCCATCTCTCTTCATTCGC	OBD183-1359	GGGTTTGTGAATCTAGGAGCACAAA
115	TTATTGTGAACGTTCGAAAGCACAA	OBD183-1363	AAAGCGGCGCACTTCAGGCATAAAA
116	GGCAGAATAGTCTCATCCAGCCC	OBD183-375	TGAAGCCAGGTCCAGGAGCAGTG
117	GGTTTCACAGTATGGATTTGGTGTTC	OBD183-007	GCCTGGGTATTCTACTGTCAGAGATT
118	CATTTACGGGAGTGGTGGACAACACA	OBD183-315	TTAGGTCTGGGCTCAGTGACTTATGC
119	GGATGGATTTTTGACAATCCCCGAT	OBD183-1367	AATGCTAGGGAGCAATAAACATAAC
120	GTCCAAGCTATGGTCCCTTAACAGC	OBD183-1371	CATCCACAGTGAATTGATCCGAAGG
121	GCCAAAACAAAGTGTCCTCATCTGGG	OBD183-183	AAGGGTATGGGAAAACAGGCATCTGC
122	GAGTCTCACTTAGAACCTGCTACTGT	OBD183-023	CCCAGAACAGAGAAAGGGCATTAGGG
123	GGGTCGGCATCGGAAGCTTGAAATT	OBD183-1375	GAGAAGCGGGGAGTTACCGGTCAAT
124	AACACCAACTCCTTCCCCATTCTAAT	OBD183-287	GGACCCACAAAACTTGACTCTCTTCC
125	ACGAGCATACAGACAATCGTCGTCG	OBD183-1379	ATACTCTCCAGCCGACTGAAAACGG
126	ATGGGAACTCCAGACACCAATGGCTG	OBD183-151	AAACCTACCGCTTTGACCTCACAGAA
127	TCTCACCCCTACTCCCACCTCAC	OBD183-327	GAAGACACAGCAGAGGACACAGC
128	CCAGAGTGAGTCAAGGAGGCACG	OBD183-163	TTTCAGGCGTCCCTTTCCCTTGC
129	CTGACCCATTTTCCCTCTCCTGTGAT	OBD183-039	GCAGGAACAACAGAAAGTAGAAACAG
130	AGGGATGGTGGCTCAATGCTGCC	OBD183-379	CCTGGAGAAAACTTGCTGCCGAG
131	GAGAAAAAACCACTGGAAATGGCAG	OBD183-1383	TACCAGCTCGACATTCGCGTGCCCC
132	TCCTGGACAGTCAGCAAACCTGC	OBD183-291	CAGCCAGCAGAGACAGGAAGTGC
133	GTCAGAGGCAAGGAGGAAGGACC	OBD183-339	GCGGAACTTCAAAGGTCAGGTGC
134	TCAGACAGCCTTCCCAAGCCCTG	OBD183-195	ACACACTTTCACTCCCTGTCCCC
135	TCTGTAACACCAAGTGGAAAGCAGTG	OBD183-003	TAAAAGCAGGAACTGGCTGGGCGTG
136	CGGCCAACCGTTCATTGGAGCAATA	OBD183-1387	GCTAGGCAACAGCTGGATCTACAGA
137	AGTGGATGGATGAGCGCCACATGTA	OBD183-1391	AGCGCGATTGTCGGGCACATTAGAT
138	TTGCCTAATGGGCCTCTTTGGTCAT	OBD183-1395	TAAGTCACAGTGACAGCTTCTACTT
139	CCTTAGGATTTTCTCAACAAGCCATT	OBD183-331	CCTCCAGCGAGACCACTCCTAAATAA
140	CACCTCAACTCCAAGAAGGCGGG	OBD183-359	GCGGAACTTCAAAGGTCAGGTGC
141	CCAGATGCTCCCAATCCCAGTCA	OBD183-279	TAGTGGATTCCTGGCTGGGCACG
142	AACCCAACCGTCCAGAGTCCACG	OBD183-259	CCTGTGGAAGGTGGGACTATGAG
143	GGCTAGGTCGTCGTGCGCTCCGTCT	OBD183-1399	GTACGCAGGGGACCAGTCGATAGCT
144	ACCCTGTAGTCCTGGGCTCAAGAGAT	OBD183-099	TGCCCAATAAAAGAAACCATCAAGGG
145	GGGAGGCACAGGAAGGGAAGTTG	OBD183-167	GCTGCCTAAGGGTCTCTTTGGTC
146	GAGCAGAGTGAGGACTGGAATCC	OBD183-089	CCTGGGCTCAACCTTGCTGGACT
147	GTATCAGAGGTAATCAAGTAACCAAG	OBD183-219	ATTACCTCATTTATGCCTCACACCAT
148	GCTACGGTTCACAAGGTGCTTAGAAA	OBD183-1051	GGGAAGGAAAAGAGGGCAAGTCC
149	CCTGACCCACCAAGACTGAACCA	OBD183-077	GTGCCACCCTGGGCTGGATGATT
150	GCCTCTGGTGCCCTTTTGGGTTG	OBD183-085	GAGCAGAGTGAGGACTGGAATCC

Table 8.c8

151	Hg38_19_7668688_7670794_7738421_7741267_FR	CD209	68536.88075
152	Hg38_2_223262711_223267419_223446116_223450606_FF	AP1S3	64453.33777

153	Hg38_22_25253412_25258650_25482038_25486782_FR	LRP5L	62341.8788
154	Hg38_2_68188547_68193452_68359452_68365969_FR	PLEK	61203.76528
155	Hg38_2_68188547_68193452_68359452_68365969_RR	PLEK	71929.28683
156	Hg38_1_229073105_229082983_229284318_229294264_FR	RAB4A	64881.66358
157	Hg38_9_83554932_83574455_83691585_83699524_FF	UBQLN1	63600.61525
158	Hg38_22_25264413_25271942_25482038_25486782_RR	LRP5L	59608.34156
159	Hg38_1_99618648_99629858_99759006_99763111_RF	AGL	62129.00664
160	Hg38_18_55921930_55924182_56075450_56084543_FR	TCF4	64843.45614
161	Hg38_17_74584319_74586652_74671518_74675232_FF	CD300E	62299.89556
162	Hg38_1_109359719_109366704_109566782_109570200_RF	PSMA5	61137.98638
163	Hg38_1_27834284_27836433_28029814_28033207_RR	SMPDL3B	56542.18928
164	Hg38_5_76572657_76583168_76654480_76657126_RF	IQGAP2	54976.37824
165	Hg38_4_109733192_109734599_109791099_109801176_RF	CFI	62515.30852
166	Hg38_1_70054091_70068840_70318902_70321099_RR	LRRC7	66114.54819
167	Hg38_1_229261740_229263861_229284318_229294264_RR	RAB4A	66865.24279
168	Hg38_14_60530277_60542106_60741580_60746311_FF	SIX1	66165.21408
169	Hg38_11_93198707_93202947_93228754_93237221_FR	MTNR1B	37933.34162
170	Hg38_12_34029969_34035740_34074510_34080992_RF	PKP2	55267.19406
171	Hg38_3_192827117_192831683_192941417_192949607_FR	FGF12	62148.98347
172	Hg38_1_112145907_112153217_112230261_112242505_FR	WNT2B	7382.521556
173	Hg38_5_30065209_30068365_30144494_30156052_FR	DROSHA	29882.79129
174	Hg38_4_177311798_177314753_177426344_177434196_FF	AGA	22347.51822
175	Hg38_8_8573974_8579178_8694304_8696852_RR	MFHAS1	35948.26439
176	Hg38_19_15474784_15476319_15596057_15603844_RR	PGLYRP2	31090.69115
177	Hg38_3_57432399_57444809_57467336_57470926_FR	PDE12	26664.51749
178	Hg38_11_9685853_9690988_9860564_9866955_RF	SWAP70	36242.64198
179	Hg38_12_8803939_8810628_8956666_8971971_FR	KLRG1	36737.01892
180	Hg38_12_8725011_8729420_8956666_8971971_RR	KLRG1	33145.41837
181	Hg38_12_8729585_8733910_8956666_8971971_FR	KLRG1	35411.42703
182	Hg38_1_150313909_150318375_150517096_150519652_FF	ECM1	40526.16555
183	Hg38_8_129814184_129820472_129899083_129904705_RR	FAM49B	40190.71701
184	Hg38_4_70364253_70375913_70475197_70476584_FF	MUC7	39883.20945
185	Hg38_1_219996896_220002127_220133227_220135485_RR	EPRS	38850.69788
186	Hg38_2_85732323_85740233_85782915_85784976_RR	GNLY	41138.40803
187	Hg38_22_25482038_25486782_25521454_25528069_RF	LRP5L	40073.65698
188	Hg38_12_8895119_8900342_8956666_8971971_RR	KLRG1	39969.28595
189	Hg38_5_30065209_30068365_30144494_30156052_RR	DROSHA	41444.33551
190	Hg38_12_8956666_8971971_9003019_9010419_RF	KLRG1	36856.30955
191	Hg38_5_30097465_30100060_30144494_30156052_FR	DROSHA	40796.38683
192	Hg38_11_9564044_9569915_9685853_9690988_FR	SWAP70	39581.10269
193	Hg38_19_42510307_42515066_42619854_42637441_RF	CEACAM1	41746.83799
194	Hg38_3_158515927_158528644_158576893_158580745_FR	MLF1	40688.15116
195	Hg38_12_8895119_8900342_8956666_8971971_FR	KLRG1	41167.33264
196	Hg38_3_138618464_138621485_138761567_138764562_FF	PIK3CB	38579.83331
197	Hg38_7_29905017_29911792_30016613_30019069_RR	WIPF3	43551.56674

198	Hg38_3_48672113_48676996_48843153_48846436_FR	IP6K2	41154.59394
199	Hg38_1_193547269_193555526_193673926_193687017_FR	CDC73	42763.73552
200	Hg38_5_30144494_30156052_30253195_30260049_RF	DROSHA	44527.21156

Table 8.d1

151	1.181787026	0.000190318	2.71916E-05	Immune
152	1.181714874	0.000225914	0.000121603	Immune
153	1.181692991	0.000241232	0.000147415	Immune
154	1.181539128	0.000251226	0.000156647	Immune
155	1.181443607	0.000190318	1.87626E-05	Immune
156	1.181393821	0.000190318	3.80424E-05	Immune
157	1.181132678	0.000267133	0.000171279	Immune
158	1.181117543	0.000445143	0.000382299	Immune
159	1.181064073	0.000374731	0.000304194	Immune
160	1.180874194	0.000267643	0.000172394	Immune
161	1.180816886	0.000294308	0.00021294	Immune
162	1.180545458	0.000310163	0.000235359	Immune
163	1.180462828	0.00053371	0.000475629	Immune
164	1.180229999	0.001162913	0.001115028	Immune
165	1.180118172	0.000295776	0.000218437	Immune
166	1.180035485	0.000190318	5.29624E-06	Immune
167	1.180012151	0.000190318	3.69225E-05	Immune
168	1.179979201	0.000190318	5.13943E-05	Immune
169	1.231473592	0.000190318	4.42795E-05	Cardio
170	1.185406719	0.000498619	0.000439958	Cardio
171	1.182511977	0.000222743	0.000118578	Cardio
172	1.407050346	0.004706404	0.004692561	Immune
173	1.316408041	0.000873288	0.000814213	Immune
174	1.288792142	0.000190585	7.74166E-05	Immune
175	1.257269632	0.002829576	0.002779642	Immune
176	1.254791316	0.000190318	2.26275E-06	Immune
177	1.254616035	0.000415275	0.000345656	Immune
178	1.238026952	0.000190318	1.54626E-05	Immune
179	1.237777926	0.000190318	1.94526E-05	Immune
180	1.234793924	0.000566158	0.000509542	Immune
181	1.233163004	0.000270694	0.000186341	Immune
182	1.226641769	0.000190318	3.33057E-05	Immune
183	1.225950683	0.000191193	8.17423E-05	Immune
184	1.224948599	0.000190318	6.4529E-06	Immune
185	1.224615055	0.000197577	8.89174E-05	Immune
186	1.224596817	0.000190585	7.64443E-05	Immune
187	1.223630226	0.000228221	0.000125122	Immune
188	1.223520931	0.000274554	0.000192995	Immune
189	1.222306449	0.000190585	7.05947E-05	Immune

190	1.222262167	0.000537737	0.0004808	Immune
191	1.222169265	0.000190585	7.57638E-05	Immune
192	1.221529554	0.000205013	0.000102709	Immune
193	1.221272906	0.000190318	5.99672E-05	Immune
194	1.221188551	0.000190585	7.4407E-05	Immune
195	1.220281543	0.000225914	0.00012208	Immune
196	1.220202701	0.000477041	0.000416709	Immune
197	1.218733777	0.000191193	8.32253E-05	Immune
198	1.218608399	0.000190318	3.31236E-05	Immune
199	1.218463012	0.000190318	5.72619E-05	Immune
200	1.218446463	0.000190318	3.88975E-05	Immune

Table 8.d2

151	TTCCCCCAGTCCTCATAATGAGGCTTCATCGAGACCAGCCTAGCGAATGTGGTGAAACCT
152	ATTTGTTATTACCTCAATGAGAGCCTAGTCGAACTCCTGACCTACCTCAAGTGATCCATC
153	TTAAATTGACATTTGCCAAAGGCTCCACTCGATCTCCTGACCTCCATCATGTCCTCTCTT
154	GACTAAATACTCAGTATTTACAATCTAGTCGAACTCCCGACCTCCAGTGGAAGTTCACAC
155	CCTTTAGTACAGCGAGTAATAGATATATTCGAACTCCCGACCTCCAGTGGAAGTTCACAC
156	GTATTTTTTATAGATGTTCTCCATGAAGTCGAACTCCTGACTGAGGTGATCCATCCGCCT
157	TATTTCATGGGTCACTGATAAGTTCCATTCGAGACCAGCCTGTCTACAAAAAAATAAAAA
158	GTCAATTGCAAGTTGTGACAAACCCACTTCGATCTCCTGACCTCCATCATGTCCTCTCTT
159	GAATTATTAGATTAAGAAGCAAAGGCACTCGATCTCTTGACCTCATGGTCTCCCACCTCA
160	CGGTTTATTCATTATTTAATACATCTCATCGAGACCAGCCTGAACAATATAGTGAGACCC
161	TCCCCAGGAACACCTGGAAGCTCAGGATTCGATCTCCTGACCTCATGATTCATCCTCCTT
162	ATTAACTATTTAGTACTACCCCTGATTATCGAACTCCTGACCTCAGGTAATCTTCCCACA
163	TTGTGGCAACTCAGCACACTTAACAACATCGAACTCCTGACCTCAGGAGTTCCACCCACC
164	CCTAGTATTGATAGAGGAAATATTAAATTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
165	AACTTCAATAAAATATGTCATTTCAGTTTCGAACTCCTGACCTCAAGTCATTCCCCTGCC
166	ATACCTTAAGAGGAGAATTGATGGAATGTCGATCTCTTGACATCATGATCCACCTGCCTC
167	ACAGCATTGATACCCAGGGATTATTCATTCGAACTCCTGACTGAGGTGATCCATCCGCCT
168	TTAACAAGTGAAATAAAATAGTACCAATTCGAACTCCTGACCTCGTAATCTACCCGCCTC
169	TTATTAAGACAAATATCCAACAAAGTCATCGAACTCCTGACCTTGTAATCTGTCCACCTT
170	AACTATTGCTATAGCAATCAAATTGCTTTCGAACTCCTGACCTCAGGTAGTACACCCGTC
171	ATAGTGAAAAATATTCAAATTCAGACAATCGAACTCCTGACCTCAAGTTATCCAGCCGTC
172	AGGGGTCACTGTTGATTCTGGAGTGTTCTCGAGAAAAATACTTTTCTACAGATGTGTCCT
173	GACTTTTAACATTTGACTTAGAGAAGATTCGAACTCCTGACCTGATGATCCCCCTACTTG
174	CACTTTAAAATTATATTCTTTGATGACTTCGAACTCCTGACCGTTTCTACTAAAAATACA
175	AAGTATATTTTGTAGTCTTTGGTATGAATCGAGACCATCCTGGTCAACACTGTGAAAACC
176	GGAGTTTCATCATTTTATCAGGGTGGTCTCGAGGAATTTATCCATTTCTTCTAGATTTTC
177	ACTTTGGTTCATTTACATCTTTAATTGATCGAACTCCTGACCTCAGATCAGGTGATCTGC
178	CATTTCTTAAAAGAAGACATAAAAATGGTCGATCTCCTGATCTCGTGATCTACCTTCCTT
179	CACATCTAAACTCCTGAAATTCTTCTGTTCGAACTCCTGACCTCACGTAATTCTCCCACC
180	CAAAAATACATTTATCAGAGCTAAAAAATCGAACTCCTGACCTCACGTAATTCTCCCACC
181	GATAGATGATAGGTGATTGTTAGATTGATCGAACTCCTGACCTCACGTAATTCTCCCACC

182	AGGGAGATTCCGTCTAAAAAAAAAAATGTCGAACTCCTGACCTTATGATCCATCCACCTC
183	CAAGACTCTGTCTCAAGCAAAAAAAAAATCGAACTCCTGACACCTCAGGTGATCTACCTG
184	GAAAATCTAGAAGAAATGGACAAATTCCTCGAACTCCTGACCTCACATTCCTGTATTTTC
185	TAGAGTAGTCTCATCTTCTTATAAAACATCGAACTCCTGACCTCAGGATTTGCCAGCCTC
186	GGGAAAAGTTGCAAAAAAAAAAAAGCAATCGAACTCCTGACCTCAACAGATCCTCCTGCT
187	AATGCCAACTTCAGATTTTAGTCTCCTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT
188	TGTCATCTGTTCATACAATGCTAAAAATTCGAACTCCTGACCTCACGTAATTCTCCCACC
189	AATTAAAACATTTTGAAAAATGTAAGCATCGAACTCCTGACCTGATGATCCCCCTACTTG
190	GCATATTAATTTCAAGATAGCAGTCAATTCGAACTCCTGACCTCACGTAATTCTCCCACC
191	GGCTTTTGATTATTCACACAAGATATGATCGAACTCCTGACCTGATGATCCCCCTACTTG
192	TCTACACATTTATTGTGAACTTACCTCTTCGATCTCCTGATCTCGTGATCTACCTTCCTT
193	AATTTATGTTATAGCGATTACATCTAGATCGATCTCCTGACCTTGTGTTTCACCTGCCTT
194	TCTTCCATCTACAGAATTTTAATTAGAGTCGAACTCCTGATCTCGTGATATGCTGGCCTC
195	TAACTCATTTCAGCATTTCTTTTTTTTTTCGAACTCCTGACCTCACGTAATTCTCCCACC
196	GTTGCTTTAAGTGACGGAGTCCACAAGATCGAACTCCTGACCTCAAGTAGTTCTTCCACC
197	TAGTATTCAGAAATGGGGAGATTATTGTTCGAACTCCTGACCTCAGAAGATTTGCCTGCC
198	AGTAGAGACCACTTTGACCAGGCTGGTCTCGAGGAATTTATCCATTTCTTCTAGATTTTC
199	CAGATAGGTAAGTTACTAAAGAGGAAAATCGATCTCTTGACCTCGTACTCTGCCTGCCTT
200	CATTCCATATCTATACCAATGTTTCACTTCGAACTCCTGACCTGATGATCCCCCTACTTG

Table 8.d3

151	19	7670763	7670792	7738423	7738452
152	2	223267388	223267417	223450575	223450604
153	22	25258619	25258648	25482040	25482069
154	2	68193421	68193450	68359454	68359483
155	2	68188549	68188578	68359454	68359483
156	1	229082952	229082981	229284320	229284349
157	9	83574424	83574453	83699493	83699522
158	22	25264415	25264444	25482040	25482069
159	1	99618650	99618679	99763080	99763109
160	18	55924151	55924180	56075452	56075481
161	17	74586621	74586650	74675201	74675230
162	1	109359721	109359750	109570169	109570198
163	1	27834286	27834315	28029816	28029845
164	5	76572659	76572688	76657095	76657124
165	4	109733194	109733223	109801145	109801174
166	1	70054093	70054122	70318904	70318933
167	1	229261742	229261771	229284320	229284349
168	14	60542075	60542104	60746280	60746309
169	11	93202916	93202945	93228756	93228785
170	12	34029971	34030000	34080961	34080990
171	3	192831652	192831681	192941419	192941448
172	1	112153186	112153215	112230263	112230292
173	5	30068334	30068363	30144496	30144525

174	4	177314722	177314751	177434165	177434194
175	8	8573976	8574005	8694306	8694335
176	19	15474786	15474815	15596059	15596088
177	3	57444778	57444807	57467338	57467367
178	11	9685855	9685884	9866924	9866953
179	12	8810597	8810626	8956668	8956697
180	12	8725013	8725042	8956668	8956697
181	12	8733879	8733908	8956668	8956697
182	1	150318344	150318373	150519621	150519650
183	8	129814186	129814215	129899085	129899114
184	4	70375882	70375911	70476553	70476582
185	1	219996898	219996927	220133229	220133258
186	2	85732325	85732354	85782917	85782946
187	22	25482040	25482069	25528038	25528067
188	12	8895121	8895150	8956668	8956697
189	5	30065211	30065240	30144496	30144525
190	12	8956668	8956697	9010388	9010417
191	5	30100029	30100058	30144496	30144525
192	11	9569884	9569913	9685855	9685884
193	19	42510309	42510338	42637410	42637439
194	3	158528613	158528642	158576895	158576924
195	12	8900311	8900340	8956668	8956697
196	3	138621454	138621483	138764531	138764560
197	7	29905019	29905048	30016615	30016644
198	3	48676965	48676994	48843155	48843184
199	1	193555495	193555524	193673928	193673957
200	5	30144496	30144525	30260018	30260047

Table 8.d4

151	19	7666793	7670792	7738423	7742422	1
152	2	223263418	223267417	223446605	223450604	NA
153	22	25254649	25258648	25482040	25486039	NA
154	2	68189451	68193450	68359454	68363453	NA
155	2	68188549	68192548	68359454	68363453	1
156	1	229078982	229082981	229284320	229288319	1
157	9	83570454	83574453	83695523	83699522	NA
158	22	25264415	25268414	25482040	25486039	NA
159	1	99618650	99622649	99759110	99763109	NA
160	18	55920181	55924180	56075452	56079451	NA
161	17	74582651	74586650	74671231	74675230	NA
162	1	109359721	109363720	109566199	109570198	NA
163	1	27834286	27838285	28029816	28033815	NA
164	5	76572659	76576658	76653125	76657124	NA
165	4	109733194	109737193	109797175	109801174	NA

166	1	70054093	70058092	70318904	70322903	1
167	1	229261742	229265741	229284320	229288319	1
168	14	60538105	60542104	60742310	60746309	NA
169	11	93198946	93202945	93228756	93232755	1
170	12	34029971	34033970	34076991	34080990	NA
171	3	192827682	192831681	192941419	192945418	NA
172	1	112149216	112153215	112230263	112234262	NA
173	5	30064364	30068363	30144496	30148495	NA
174	4	177310752	177314751	177430195	177434194	1
175	8	8573976	8577975	8694306	8698305	NA
176	19	15474786	15478785	15596059	15600058	1
177	3	57440808	57444807	57467338	57471337	NA
178	11	9685855	9689854	9862954	9866953	1
179	12	8806627	8810626	8956668	8960667	1
180	12	8725013	8729012	8956668	8960667	NA
181	12	8729909	8733908	8956668	8960667	NA
182	1	150314374	150318373	150515651	150519650	1
183	8	129814186	129818185	129899085	129903084	1
184	4	70371912	70375911	70472583	70476582	1
185	1	219996898	220000897	220133229	220137228	1
186	2	85732325	85736324	85782917	85786916	1
187	22	25482040	25486039	25524068	25528067	NA
188	12	8895121	8899120	8956668	8960667	NA
189	5	30065211	30069210	30144496	30148495	1
190	12	8956668	8960667	9006418	9010417	NA
191	5	30096059	30100058	30144496	30148495	1
192	11	9565914	9569913	9685855	9689854	1
193	19	42510309	42514308	42633440	42637439	1
194	3	158524643	158528642	158576895	158580894	1
195	12	8896341	8900340	8956668	8960667	NA
196	3	138617484	138621483	138760561	138764560	NA
197	7	29905019	29909018	30016615	30020614	1
198	3	48672995	48676994	48843155	48847154	1
199	1	193551525	193555524	193673928	193677927	1
200	5	30144496	30148495	30256048	30260047	1

Table 8.d5

151	9.745198813	9.504228747	858.2170855	726.2028326
152	NA			
153	NA			
154	NA			
155	9.188191698	8.94764093	583.339395	493.7513661
156	11.19470461	10.95421463	2343.915112	1984.0252
157	NA			

158	NA			
159	NA			
160	NA			
161	NA			
162	NA			
163	NA			
164	NA			
165	NA			
166	10.90151073	10.66268049	1912.853583	1621.013612
167	10.90641724	10.66761552	1919.370135	1626.56811
168	NA			
169	10.22141458	9.921028894	1193.857214	969.454174
170	NA			
171	NA			
172	NA			
173	NA			
174	9.020303555	8.654283952	519.256498	402.9016635
175	NA			
176	10.10536786	9.777920411	1101.587105	877.9046288
177	NA			
178	10.92918677	10.62114405	1949.903174	1575.008663
179	10.04649516	9.738742662	1057.539006	854.385091
180	NA			
181	NA			
182	10.60273531	10.30802133	1555.039282	1267.720798
183	9.329982987	9.036082042	643.5832582	524.9666784
184	12.81038919	12.51766797	7183.091546	5863.994255
185	11.53765213	11.24532381	2972.893641	2427.614808
186	11.14927191	10.85696507	2271.251748	1854.693493
187	NA			
188	NA			
189	10.83389196	10.54428593	1825.267204	1493.297532
190	NA			
191	10.36767831	10.0782342	1321.241349	1081.06249
192	10.11372007	9.825031299	1107.983028	907.0456176
193	9.617488259	9.329102637	785.5113215	643.1906559
194	9.364965765	9.076679796	659.3797471	539.9491721
195	NA			
196	NA			
197	10.25819848	9.97281547	1224.687952	1004.885542
198	10.05999314	9.774758552	1067.479864	875.9826906
199	9.915747672	9.630685215	965.9118156	792.7296983
200	10.43056871	10.14552585	1380.111113	1132.680964

Table 8.d6

151	Hg38_19_7668688_7670794_7738421_7741267_FR	OBD183-1401
152	Hg38_2_223262711_223267419_223446116_223450606_FF	OBD183-1405
153	Hg38_22_25253412_25258650_25482038_25486782_FR	OBD183-1409
154	Hg38_2_68188547_68193452_68359452_68365969_FR	OBD183-1413
155	Hg38_2_68188547_68193452_68359452_68365969_RR	OBD183-1417
156	Hg38_1_229073105_229082983_229284318_229294264_FR	OBD183-1421
157	Hg38_9_83554932_83574455_83691585_83699524_FF	OBD183-1425
158	Hg38_22_25264413_25271942_25482038_25486782_RR	OBD183-1429
159	Hg38_1_99618648_99629858_99759006_99763111_RF	OBD183-1433
160	Hg38_18_55921930_55924182_56075450_56084543_FR	OBD183-1437
161	Hg38_17_74584319_74586652_74671518_74675232_FF	OBD183-1441
162	Hg38_1_109359719_109366704_109566782_109570200_RF	OBD183-1445
163	Hg38_1_27834284_27836433_28029814_28033207_RR	OBD183-1449
164	Hg38_5_76572657_76583168_76654480_76657126_RF	OBD183-1453
165	Hg38_4_109733192_109734599_109791099_109801176_RF	OBD183-1457
166	Hg38_1_70054091_70068840_70318902_70321099_RR	OBD183-1461
167	Hg38_1_229261740_229263861_229284318_229294264_RR	OBD183-1465
168	Hg38_14_60530277_60542106_60741580_60746311_FF	OBD183-1469
169	Hg38_11_93198707_93202947_93228754_93237221_FR	OBD183-1473
170	Hg38_12_34029969_34035740_34074510_34080992_RF	OBD183-1477
171	Hg38_3_192827117_192831683_192941417_192949607_FR	OBD183-1481
172	Hg38_1_112145907_112153217_112230261_112242505_FR	OBD183-1485
173	Hg38_5_30065209_30068365_30144494_30156052_FR	OBD183-1489
174	Hg38_4_177311798_177314753_177426344_177434196_FF	OBD183-1493
175	Hg38_8_8573974_8579178_8694304_8696852_RR	OBD183-1497
176	Hg38_19_15474784_15476319_15596057_15603844_RR	OBD183-1501
177	Hg38_3_57432399_57444809_57467336_57470926_FR	OBD183-1505
178	Hg38_11_9685853_9690988_9860564_9866955_RF	OBD183-1509
179	Hg38_12_8803939_8810628_8956666_8971971_FR	OBD183-1513
180	Hg38_12_8725011_8729420_8956666_8971971_RR	OBD183-1517
181	Hg38_12_8729585_8733910_8956666_8971971_FR	OBD183-1521
182	Hg38_1_150313909_150318375_150517096_150519652_FF	OBD183-1525
183	Hg38_8_129814184_129820472_129899083_129904705_RR	OBD183-1529
184	Hg38_4_70364253_70375913_70475197_70476584_FF	OBD183-1533
185	Hg38_1_219996896_220002127_220133227_220135485_RR	OBD183-1537
186	Hg38_2_85732323_85740233_85782915_85784976_RR	OBD183-1541
187	Hg38_22_25482038_25486782_25521454_25528069_RF	OBD183-1545
188	Hg38_12_8895119_8900342_8956666_8971971_RR	OBD183-1549
189	Hg38_5_30065209_30068365_30144494_30156052_RR	OBD183-1553
190	Hg38_12_8956666_8971971_9003019_9010419_RF	OBD183-1557
191	Hg38_5_30097465_30100060_30144494_30156052_FR	OBD183-1561
192	Hg38_11_9564044_9569915_9685853_9690988_FR	OBD183-1565
193	Hg38_19_42510307_42515066_42619854_42637441_RF	OBD183-1569
194	Hg38_3_158515927_158528644_158576893_158580745_FR	OBD183-1573
195	Hg38_12_8895119_8900342_8956666_8971971_FR	OBD183-1577

196	Hg38_3_138618464_138621485_138761567_138764562_FF	OBD183-1581
197	Hg38_7_29905017_29911792_30016613_30019069_RR	OBD183-1585
198	Hg38_3_48672113_48676996_48843153_48846436_FR	OBD183-1589
199	Hg38_1_193547269_193555526_193673926_193687017_FR	OBD183-1593
200	Hg38_5_30144494_30156052_30253195_30260049_RF	OBD183-1597

Table 8.d7

151	AGGCTACCTTGACGCTCACCCTG	OBD183-1403	GGAGTAGGTGGAGCCCAAAGGAT
152	CACCAGGGTATTTCCCAGCAGCC	OBD183-1407	CTGACCCAGGAAAACCACCCTCA
153	GACCTTCAATACCCAAAGTAAGCCTT	OBD183-1411	CTGTCCCATCTGCCTAAAACCGTTGG
154	CATCTCCCTCCCCTCCTTTCAGC	OBD183-1415	GCTGTCACTCCCAAGAGAAGCCT
155	AATCTTGCTACTGCCCATTAGAAAGG	OBD183-1419	CCCAGAACAGAGAAAGGGCATTAGGG
156	GGGATGTCCTTGCTTGTTCCTGAT	OBD183-1423	GATTCCAAAGGTCCGAAAGCAACGGG
157	CCATCTGCTCCAGGTATGACCCT	OBD183-1427	CCTGGGCTCAACCTTGCTGGACT
158	GGACCTGAATCTTCCACTCTGTCTTT	OBD183-1431	CTGTCCCATCTGCCTAAAACCGTTGG
159	TACCTCTCCTCTCCCCGCAAAACACT	OBD183-1435	ACTGTGACCAAAGGAAGGAAAGCCAT
160	GGCAGTGAATAACCTGTGGAAAGATT	OBD183-1439	CACCCAGTCACCCAGGCTTGTGTA
161	ACAGCCCCATCTCAGGGATAGGTTC	OBD183-1443	ATAAAAGTGGTTGTATTGGCTGGGCG
162	GCATCCTAAGAAAGTCACTATGTGCT	OBD183-1447	GTCACCTTTCGTCTTTTCCATTTCCC
163	CACATCTCAGGTCTACGCCTCTCAAG	OBD183-1451	CAGAACACAGTGAACAACCAGGCATT
164	GATGTGGTCAGTTGTAGGAGCAGACT	OBD183-1455	CCTCCAGCGAGACCACTCCTAAATAA
165	GACAAGATAGTTTTGGATTGCCACCA	OBD183-1459	GGGAAGAAAAGATGGAAGTGGGTCAT
166	GGTGGTAAACATTTGGCTTTTCCCAG	OBD183-1463	AATACAGCGGAGTCAGGGAGGCAAGA
167	GTTACCAGCAAATCTTCCATCAGTTC	OBD183-1467	GATTCCAAAGGTCCGAAAGCAACGGG
168	CTCAAGTCAAGAGAGGAGACAGCCAT	OBD183-1471	CCAGAGACAGGTTGAGGAGTAGAAAG
169	TGTCAAGCGGGGGCCTCAAGTTAT	OBD183-1475	GAAGGACGGAAACCAGAATTACT
170	CGCGGCATCTAATTTTAGTGTATT	OBD183-1479	TTGACTGCGAGTTCGCTACTAGT
171	CCGACTGCCCTTGTCCAATGGTGG	OBD183-1483	ACCCGATGAGTTGCCGACTTTTAGG
172	GCTGCCCTGAAAATGGGAGTCTG	OBD183-1487	GGCAGATGGGAAGCAGCGTCCTA
173	GCGTGATAGACTATGCACTAGGGTC	OBD183-1491	ACGGCCTATTTACCGAGAGCTGTT
174	TTCAGAGCCGGTAGATGTATGGC	OBD183-1495	GAAGGCTGGTTGAATACATGGCAG
175	TACGTGTACGAGCTCCTGCAGGA	OBD183-1499	AGATTGAGGTGTCCTAAACTTAC
176	TCAAATCGCATCCGCCGTGCACA	OBD183-1503	CGGCCATAACACCTTAGCCGTCTC
177	GAGATCGGGCACAGATGTGACTTCT	OBD183-1507	GGGGAATAAGTGACCTATGCACCAG
178	GCGCACGACGTCCTGATCCACCC	OBD183-1511	CGCCGCTTGCGATTTCGACCAAC
179	ATTCCGCCTATACGGATGCGTTC	OBD183-1515	GCGGGAACGGCTGTGCAGTCACA
180	CATACCTATCCCGAATGCTTAAGT	OBD183-1519	CGCTGTGTAGCGGACAGTCTGAG
181	AGGGAGTTACAGGCTTTCAGTAA	OBD183-1523	TACCCTCTCAAGCACGAGATCTAC
182	CTTAAAGTGATGCAGGTACATCCAT	OBD183-1527	GGGCGGGGTAGAAGCCGTCGCTT
183	GTGGAGTGTTTAACACTACCTTCC	OBD183-1531	GGGTCCATGCGGGGGGTAAAACC
184	GGTGTCTCGTGCACACCCTGGTAGC	OBD183-1535	TGTTTAAGAGGTCCGGGCAGCATA
185	ACCTGGAAACCCTCCTGCTGAAATAG	OBD183-1539	AAATCTGGACTCTGCCTTCTTGGAGC
186	CCGCTCTCTCTTCTGTGTCTTGG	OBD183-1543	GGTCAGTGTGGCAAAGTGGGAGC
187	CCCTGCTACAGATGATGCTGCCTG	OBD183-1547	CAGGGTCTGTCCCATCTGCCTAA

188	CCCAGCAGCAACTGTTTATCAGCAAT	OBD183-1551	ACTGCGGAACTTCAAAGGTCAGGTGC
189	GCGCGGCACCCATCTCTCTTCATT	OBD183-1555	AAAAAAGCGGCGCACTTCAGGCAT
190	GCTTATTGTGAACGTTCGAAAGC	OBD183-1559	AAAGGATGGATTTTTGACAATCC
191	CAATGTGGTTTATGTGCTACTGT	OBD183-1563	CGATGTCCAAGCTATGGTCCCTT
192	GAGAGGGTTTGTGAATCTAGGAGCA	OBD183-1567	ACAGCAATGCTAGGGAGCAATAA
193	CCGTGCTTTGAAAATCCCCAGATGTC	OBD183-1571	ATTCTCACTCCCCTACCTTCAGTCTG
194	CGTCGATACTCTCCAGCCGACTGAA	OBD183-1575	ACAGAAGCGCGATTGTCGGGCACAT
195	ACGGGAGAAAAAACCACTGGAAA	OBD183-1579	AGATTATAGTGTTGAAAAAGTCCTT
196	GGCAGTACCAGCTCGACATTCGCGT	OBD183-1583	TTCGACGGCGTGGGGAGTCTCTCCA
197	CCCCCGGCCAACCGTTCATTGGAG	OBD183-1587	CGTGATTTACGGACGCGAATTTA
198	AATAAGTGGATGGATGAGCGCCAC	OBD183-1591	ACATAAGTCACAGTGACAGCTTC
199	TGTATTGCCTAATGGGCCTCTTT	OBD183-1595	ACTTGGCTAGGTCGTCGTGCGCTCC
200	GTCATGCTAGGCAACAGCTGGATC	OBD183-1599	TCTGTACGCAGGGGACCAGTCGATA

Table 8.d8

201	Hg38_22_25264413_25271942_25482038_25486782_FR	LRP5L	42055.91212
202	Hg38_1_27797543_27806064_28029814_28033207_FR	SMPDL3B	42053.26541
203	Hg38_5_30055950_30065209_30144494_30156052_RR	DROSHA	39242.5488
204	Hg38_4_177265268_177272349_177426344_177434196_RF	AGA	44566.05845
205	Hg38_17_27573633_27580584_27705007_27714184_RR	LGALS9	44463.66765
206	Hg38_X_139896828_139900158_140013151_140020699_RF	ATP11C	42988.24933
207	Hg38_1_99460537_99469579_99708395_99714403_FF	AGL	42204.62547
208	Hg38_1_193673926_193687017_193723402_193725340_RF	CDC73	43424.86092
209	Hg38_12_56314794_56317802_56415250_56418662_FR	IL23A	45342.46649
210	Hg38_17_27705007_27714184_27819635_27822792_RF	LGALS9	43050.25058
211	Hg38_1_99641071_99649469_99708395_99714403_FF	AGL	45766.87757
212	Hg38_1_35174790_35177903_35287825_35293685_FR	SFPQ	45003.4861
213	Hg38_5_30008006_30016904_30144494_30156052_RR	DROSHA	44834.65227
214	Hg38_5_67178844_67182260_67213797_67219491_FR	CD180	47184.00069
215	Hg38_1_109359719_109366704_109565116_109566579_RF	PSMA5	49493.46698
216	Hg38_1_219983690_219989585_220133227_220135485_FR	EPRS	42918.44189
217	Hg38_11_78965087_78972317_79119884_79126654_RF	GAB2	49202.3045
218	Hg38_18_539296_550050_584723_586397_RF	COLEC12	50109.23772
219	Hg38_8_8694304_8696852_8726052_8731395_RF	MFHAS1	50973.66001
220	Hg38_1_193528788_193530846_193673926_193687017_RR	CDC73	48989.93916
221	Hg38_3_70749410_70755452_70897303_70900588_FR	FOXP1	42784.88768
222	Hg38_8_24010357_24021429_24161634_24170554_FR	ADAMDEC1	40591.79728
223	Hg38_3_158576893_158580745_158781885_158789582_RF	MLF1	52695.67794
224	Hg38_17_69164151_69180522_69430124_69435332_FR	MAP2K6	47636.4474
225	Hg38_11_65101566_65105117_65228515_65232564_FR	CAPN1	49851.89096
226	Hg38_8_24161634_24170554_24298873_24305051_RF	ADAMDEC1	39385.93102
227	Hg38_13_50104086_50113860_50155566_50162889_RF	TRIM13	49629.8881
228	Hg38_8_8634577_8639077_8694304_8696852_FR	MFHAS1	46854.06025
229	Hg38_8_24119510_24130040_24161634_24170554_FR	ADAMDEC1	41567.6576

230	Hg38_6_31710695_31717311_31846792_31848234_FR	C6orf48	52074.92239
231	Hg38_22_38808896_38820306_38970835_38973283_RF	APOBEC3A	50041.44307
232	Hg38_21_46072387_46079344_46279083_46281797_FF	MCM3AP	49734.38802
233	Hg38_3_105082976_105093952_105278351_105281788_FR	ALCAM	54246.45493
234	Hg38_22_38707803_38709080_38808896_38820306_RR	GTPBP1	48887.48828
235	Hg38_4_154421614_154428471_154574662_154583311_RF	FGA	48300.52211
236	Hg38_20_4736115_4737739_4885862_4890450_FF	RASSF2	52691.03985
237	Hg38_19_55395028_55396801_55609240_55610480_RR	SSC5D	55587.02385
238	Hg38_5_76475531_76481400_76572657_76583168_FR	IQGAP2	55578.78572
239	Hg38_4_163153577_163160533_163215420_163222992_FF	NPY5R	37333.89774
240	Hg38_X_2456239_2461258_2530520_2531841_FR	CD99	51560.88544
241	Hg38_1_238263911_238275028_238361690_238365165_FF	ZP4	48737.12973
242	Hg38_18_60381033_60390027_60592857_60596411_FF	PMAIP1	51696.53899
243	Hg38_22_38732684_38735694_38808896_38820306_RR	GTPBP1	51041.21585
244	Hg38_8_8653178_8657570_8694304_8696852_FR	MFHAS1	53321.30992
245	Hg38_11_102793985_102796912_102892680_102896888_FF	MMP1	51501.90071
246	Hg38_1_193673926_193687017_193848403_193851226_FR	CDC73	55872.3905
247	Hg38_19_42434303_42437498_42510307_42515066_FR	CEACAM1	53501.44381
248	Hg38_8_129814184_129820472_129899083_129904705_FR	FAM49B	55342.69733
249	Hg38_19_41359498_41360630_41453565_41456813_RF	ATP5SL	56454.72932
250	Hg38_1_193673926_193687017_193926526_193929941_RF	CDC73	52504.51484

Table 8.e1

201	1.217980671	0.000270451	0.000180173	Immune
202	1.21732084	0.000190318	6.7117E-05	Immune
203	1.217307806	0.000349576	0.000275548	Immune
204	1.217145751	0.000266211	0.00016834	Immune
205	1.216632744	0.000190318	3.93869E-05	Immune
206	1.215123981	0.000236458	0.000138114	Immune
207	1.215110028	0.000295776	0.00021803	Immune
208	1.214128695	0.000190585	7.22446E-05	Immune
209	1.213994593	0.000190318	6.32828E-05	Immune
210	1.211680597	0.000239248	0.000142845	Immune
211	1.210787095	0.000241232	0.000146519	Immune
212	1.209605762	0.000266673	0.000169416	Immune
213	1.209227903	0.000241232	0.000147551	Immune
214	1.20869455	0.000190318	2.08852E-05	Immune
215	1.20814936	0.000190318	1.93974E-05	Immune
216	1.20795849	0.000416908	0.000348241	Immune
217	1.207439156	0.000190318	3.57235E-05	Immune
218	1.206960097	0.000190318	3.04807E-06	Immune

219	1.206874718	0.000190318	4.50806E-05	Immune
220	1.206787146	0.000190318	3.40624E-05	Immune
221	1.206542696	0.000646854	0.000591681	Immune
222	1.205959387	0.000841008	0.000781643	Immune
223	1.205560226	0.000190318	2.78556E-05	Immune
224	1.205304475	0.000205013	0.000102815	Immune
225	1.204318622	0.000197577	9.32259E-05	Immune
226	1.204255307	0.001260137	0.001215661	Immune
227	1.204213124	0.000190318	5.14896E-05	Immune
228	1.203802599	0.000370996	0.000298979	Immune
229	1.203738557	0.000667821	0.000614788	Immune
230	1.203390916	0.000190318	5.57817E-05	Immune
231	1.202416682	0.000190585	7.03711E-05	Immune
232	1.202330306	0.000322087	0.000246301	Immune
233	1.201814636	0.000190318	3.40317E-05	Immune
234	1.200186232	0.000294063	0.000211898	Immune
235	1.199963105	0.000445143	0.000380385	Immune
236	1.199818633	0.000190318	6.21786E-05	Immune
237	1.199815298	0.000190318	6.67805E-05	Immune
238	1.199650396	0.000190318	5.8028E-05	Immune
239	1.199628952	0.004213528	0.004188743	Immune
240	1.199599769	0.000235024	0.000134691	Immune
241	1.199199629	0.000272499	0.00019075	Immune
242	1.198713718	0.000190318	6.53657E-05	Immune
243	1.19837051	0.000270662	0.000183447	Immune
244	1.197935801	0.000190318	6.08052E-05	Immune
245	1.197701976	0.000190318	6.71712E-05	Immune
246	1.197665727	0.000190318	4.42672E-05	Immune
247	1.197042331	0.000236458	0.000140484	Immune
248	1.196532286	0.000211794	0.000110258	Immune
249	1.195802366	0.000190318	3.17828E-05	Immune
250	1.195754196	0.000241232	0.000148167	Immune

Table 8.e2

201	AACACCAACTTCAGATTTTAGTCTGCTTTCGATCTCCTGACCTCCATCATGTCCTCTCTT
202	TCCCTGAGTTATGCAGCTCTTCCAAATGTCGAACTCCTGACCTCAGGAGTTCCACCCACC
203	TTTATTCTTTCTTTGTGTTATAAGCAATTCGAACTCCTGACCTGATGATCCCCCTACTTG
204	TGTATTTTTAGTAGAAACGGTCAGGAGTTCGATGGCATATAGTTGTACACTACAGTGATT
205	AGCTACCTTTCAGGGGAAATTATTTTTTTCGATCTCCTGACCTAGTGATTGGCCCTCCTC
206	TCATTAGTTGCCTGGAGACAAATTTGAGTCGAACTCCTGACCTCAAGGCCCAGTCAGCCT
207	TATTTATATTCCTTAATGATGTAACTTCTCGAGACCAGCCTGACTGATATTGTGAAACCC
208	CAAAGGCTCTAGGTGGCTGATTAAAGCATCGATCTCTTGACCTCGTACTCTGCCTGCCTT
209	AAGAGGAAGTTATAGTTAATGGAGAGTTTCGATCTCCTGACCTTGTCATTCTCCCATCTC
210	AGGTGTAAAAAATTATAAAAGTATTAATTCGATCTCCTGACCTAGTGATTGGCCCTCCTC

211	ACTGAGGATACCAATGACTCCAGCATTCTCGAGACCAGCCTGACTGATATTGTGAAACCC
212	ATCTTAGAAACGGTAAACATCTCAAATATCGAACTCCTGACCTCGCGGTCTACCAGCCTT
213	AAAATAAATTAATCCCAAACTTGGTTAGTCGAACTCCTGACCTGATGATCCCCCTACTTG
214	GACCTAAGGATTAAGAAGATTAATGGAGTCGATCTCCTGACATCGTGATCTATCCGCCTC
215	GAATGAAATGTCATTCTTTTTTGTTTGTTCGAACTCCTGACCTCAGGTAATCTTCCCACA
216	TCACCCTATCCAATTTTTACTGCTACATTCGAACTCCTGACCTCAGGATTTGCCAGCCTC
217	TAATTTATACAAGTAGAAAAATTCTAGGTCGAACTCCTGACCTCAAAAGATCTGCTCGCT
218	GTCTTTTGCCATATTAGTCTGTCTGGTCTCGATGCAAAAATCCTCAATAAAATACTGGCA
219	CTAGCACCAAACTTCTCATTTCAGACTTTCGAGACCATCCTGGTCAACACTGTGAAAACC
220	TTCACAACTATTCACTGCAGAAAACAAGTCGATCTCTTGACCTCGTACTCTGCCTGCCTT
221	ACATCTTTTTGCTTTTTTGCATTTAGTGTCGAGGAGTATCTTTGTGATGTTCTCTGTATT
222	AGTAATAGACTTAAAGATGAAAAGTCATTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA
223	TCCTGTTAAGCATATTATTGATGGGCTTTCGAACTCCTGATCTCGTGATATGCTGGCCTC
224	ATTGATTAAAAAAAAAGGGAAGACAACATCGAGACCAGCCTGTCCACCATGGTGGAACCC
225	CTCATAATTGGTTAACAATGAGGTTTTTTCGAACTCCTGACCTGAAGGGATCTGTCTGCC
226	ATAAACCTTTATTTTAAAATTCTTCTTTTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA
227	AAATTAATGGATATTTTCCTTTGAAGGGTCGAACTCCTGAGCTCAAGACCTCCCAAAGTG
228	CCATCCATAAGGTTTTTAGGAAAAAAACTCGAGACCATCCTGGTCAACACTGTGAAAACC
229	GTTTTGTCACAGTAATAAATCAATCAGTTCGATTTTAGATCTTTCCTGCTTTCTCTGGTA
230	TACTAAAAATTATTTTATAGAATGTCCCTCGAGACCAGCCTGGGTAATATTGCAAGACAC
231	TGAGATTTTGTCTCAAAAAAAAAAAAAGTCGAACTCCTGACCTCAGATGATTCATCTGCC
232	TTCAGGCCACGTGGTCCCAGATGTGAAGTCGAACTCCTGACCTCAGTGTTCCACGCACCT
233	CTTTAGAAGCTACTCTTTATATACTCGCTCGAGACCAGACTGGATAACAAGGCAAAACCC
234	ACACCATCACTTTTTCTTTTTGATATCATCGAACTCCTGACCTCAGATGATTCATCTGCC
235	AGCATAGATCATACTTAGTGAGAGGCTTTCGAACTCCTGACCTCAAAAAATCCACCACCT
236	AGCAGAAGAAAATAAGTGAAGTCTAACATCGAACTCATGACCTCAGGTTATCCTCCTGCC
237	TTTGCATATTGTGACTATCCAGAGGCATTCGAACTCCTGACTATAGTTGATCCACCCACC
238	CAATGTACAAAAAAAGTTTTTTTTTTTTTCGAACTCCTGACTTCAGGAAATCTGCCCGTC
239	TGCATTGTACATAGTTAGATCGCAGAGATCGAACTCCTGACCTCATCATTCACCCACCTC
240	ACACAAATAAAATAGGAGTCCGGTGACCTCGAGACCATCCTGGCTAATTTGGTGAAACCC
241	TTTAATGGGCAACTCTGAAGGATTATGTTCGAACTCCTGACCTTGTGTTCAACCCACCTC
242	ATAAAAATTAAATTTAGTCACAGTACATTCGAACTCCTGACCTCAGGTGCTTCACCTGCT
243	AAAAAGAAAAAGAAAAACAGAACAAACATCGAACTCCTGACCTCAGATGATTCATCTGCC
244	ATGATGGGGGAAATAATTCAAAACTGACTCGAGACCATCCTGGTCAACACTGTGAAAACC
245	TCCATCAACTGTGATGCAGTTTCCCTCTTCGATCTCCTGACCTCAAGATCCACCAACCTC
246	GGAACACTTCTCTAAGAACCTGAATTATTCGATCTCTTGGCCTCATGATCCATCAGCCTT
247	GTCAGCTACTGGCTCTGTCACTTAACTGTCGATCTCCTGACCTTGTGTTTCACCTGCCTT
248	GCCTCTGCTGTGTAACTTCAGAGGAAATTCGAACTCCTGACACCTCAGGTGATCTACCTG
249	ATTAGGCACTGTAGAATCTAGCAGCATCTCGAGACCATCCTGGCCAACATTCTGAAACCC
250	CCTTAATAAAATAAACTTTCTAAATTGATCGATCTCTTGACCTCGTACTCTGCCTGCCTT

Table 8.e3

201	22	25271911	25271940	25482040	25482069
202	1	27806033	27806062	28029816	28029845

203	5	30055952	30055981	30144496	30144525
204	4	177265270	177265299	177434165	177434194
205	17	27573635	27573664	27705009	27705038
206	X	139896830	139896859	140020668	140020697
207	1	99469548	99469577	99714372	99714401
208	1	193673928	193673957	193725309	193725338
209	12	56317771	56317800	56415252	56415281
210	17	27705009	27705038	27822761	27822790
211	1	99649438	99649467	99714372	99714401
212	1	35177872	35177901	35287827	35287856
213	5	30008008	30008037	30144496	30144525
214	5	67182229	67182258	67213799	67213828
215	1	109359721	109359750	109566548	109566577
216	1	219989554	219989583	220133229	220133258
217	11	78965089	78965118	79126623	79126652
218	18	539298	539327	586366	586395
219	8	8694306	8694335	8731364	8731393
220	1	193528790	193528819	193673928	193673957
221	3	70755421	70755450	70897305	70897334
222	8	24021398	24021427	24161636	24161665
223	3	158576895	158576924	158789551	158789580
224	17	69180491	69180520	69430126	69430155
225	11	65105086	65105115	65228517	65228546
226	8	24161636	24161665	24305020	24305049
227	13	50104088	50104117	50162858	50162887
228	8	8639046	8639075	8694306	8694335
229	8	24130009	24130038	24161636	24161665
230	6	31717280	31717309	31846794	31846823
231	22	38808898	38808927	38973252	38973281
232	21	46079313	46079342	46281766	46281795
233	3	105093921	105093950	105278353	105278382
234	22	38707805	38707834	38808898	38808927
235	4	154421616	154421645	154583280	154583309
236	20	4737708	4737737	4890419	4890448
237	19	55395030	55395059	55609242	55609271
238	5	76481369	76481398	76572659	76572688
239	4	163160502	163160531	163222961	163222990
240	X	2461227	2461256	2530522	2530551
241	1	238274997	238275026	238365134	238365163
242	18	60389996	60390025	60596380	60596409
243	22	38732686	38732715	38808898	38808927
244	8	8657539	8657568	8694306	8694335
245	11	102796881	102796910	102896857	102896886
246	1	193686986	193687015	193848405	193848434
247	19	42437467	42437496	42510309	42510338

248	8	129820441	129820470	129899085	129899114
249	19	41359500	41359529	41456782	41456811
250	1	193673928	193673957	193929910	193929939

Table 8.e4

201	22	25267941	25271940	25482040	25486039	NA
202	1	27802063	27806062	28029816	28033815	1
203	5	30055952	30059951	30144496	30148495	NA
204	4	177265270	177269269	177430195	177434194	NA
205	17	27573635	27577634	27705009	27709008	1
206	X	139896830	139900829	140016698	140020697	NA
207	1	99465578	99469577	99710402	99714401	NA
208	1	193673928	193677927	193721339	193725338	1
209	12	56313801	56317800	56415252	56419251	1
210	17	27705009	27709008	27818791	27822790	NA
211	1	99645468	99649467	99710402	99714401	NA
212	1	35173902	35177901	35287827	35291826	NA
213	5	30008008	30012007	30144496	30148495	NA
214	5	67178259	67182258	67213799	67217798	1
215	1	109359721	109363720	109562578	109566577	1
216	1	219985584	219989583	220133229	220137228	NA
217	11	78965089	78969088	79122653	79126652	1
218	18	539298	543297	582396	586395	1
219	8	8694306	8698305	8727394	8731393	1
220	1	193528790	193532789	193673928	193677927	1
221	3	70751451	70755450	70897305	70901304	NA
222	8	24017428	24021427	24161636	24165635	NA
223	3	158576895	158580894	158785581	158789580	1
224	17	69176521	69180520	69430126	69434125	1
225	11	65101116	65105115	65228517	65232516	1
226	8	24161636	24165635	24301050	24305049	NA
227	13	50104088	50108087	50158888	50162887	1
228	8	8635076	8639075	8694306	8698305	NA
229	8	24126039	24130038	24161636	24165635	NA
230	6	31713310	31717309	31846794	31850793	1
231	22	38808898	38812897	38969282	38973281	1
232	21	46075343	46079342	46277796	46281795	NA
233	3	105089951	105093950	105278353	105282352	1
234	22	38707805	38711804	38808898	38812897	NA
235	4	154421616	154425615	154579310	154583309	NA
236	20	4733738	4737737	4886449	4890448	1
237	19	55395030	55399029	55609242	55613241	1
238	5	76477399	76481398	76572659	76576658	1
239	4	163156532	163160531	163218991	163222990	NA

240	X	2457257	2461256	2530522	2534521	NA
241	1	238271027	238275026	238361164	238365163	NA
242	18	60386026	60390025	60592410	60596409	1
243	22	38732686	38736685	38808898	38812897	NA
244	8	8653569	8657568	8694306	8698305	1
245	11	102792911	102796910	102892887	102896886	1
246	1	193683016	193687015	193848405	193852404	1
247	19	42433497	42437496	42510309	42514308	NA
248	8	129816471	129820470	129899085	129903084	NA
249	19	41359500	41363499	41452812	41456811	1
250	1	193673928	193677927	193925940	193929939	NA

Table 8.e5

201	NA			
202	9.856034856	9.572325397	926.7490081	761.302179
203	NA			
204	NA			
205	9.788722457	9.505828718	884.5025284	727.0086495
206	NA			
207	NA			
208	10.28022963	10.00030828	1243.533477	1024.218835
209	9.03422448	8.754462483	524.291185	431.8727513
210	NA			
211	NA			
212	NA			
213	NA			
214	10.94283311	10.6693834	1968.434662	1628.562536
215	11.15039873	10.87759991	2273.026414	1881.41176
216	NA			
217	11.16388225	10.89193176	2294.369841	1900.194994
218	11.11006248	10.8386845	2210.355149	1831.340701
219	9.363274334	9.091998412	658.6071364	545.7129283
220	10.38999991	10.11882867	1341.842759	1111.913367
221	NA			
222	NA			
223	9.731248047	9.461544321	849.9581788	705.0317025
224	10.80641554	10.5370179	1790.833553	1485.793499
225	9.762290707	9.494073576	868.4450201	721.109019
226	NA			
227	9.639375905	9.371285159	797.5194561	662.2743435
228	NA			
229	NA			
230	11.83928058	11.57217521	3664.195043	3044.891726
231	11.63915089	11.37321396	3189.580322	2652.641443

232	NA			
233	9.381403003	9.116188606	666.9353009	554.9402386
234	NA			
235	NA			
236	9.485484999	9.222668657	716.828903	597.4477167
237	8.998787677	8.735975346	511.5699377	426.3739083
238	9.475879036	9.213265001	712.0718625	593.5661463
239	NA			
240	NA			
241	NA			
242	12.32877198	12.06728484	5144.346073	4291.555188
243	NA			
244	10.28679249	10.02624189	1249.203229	1042.796473
245	11.4461966	11.18592763	2790.284673	2329.698646
246	8.741107218	8.480881915	427.8932819	357.2727115
247	NA			
248	NA			
249	13.31992647	13.0619475	10225.80265	8551.415305
250	NA			

Table 8.e6

201	Hg38_22_25264413_25271942_25482038_25486782_FR	OBD183-1601
202	Hg38_1_27797543_27806064_28029814_28033207_FR	OBD183-1605
203	Hg38_5_30055950_30065209_30144494_30156052_RR	OBD183-1609
204	Hg38_4_177265268_177272349_177426344_177434196_RF	OBD183-1613
205	Hg38_17_27573633_27580584_27705007_27714184_RR	OBD183-1617
206	Hg38_X_139896828_139900158_140013151_140020699_RF	OBD183-1621
207	Hg38_1_99460537_99469579_99708395_99714403_FF	OBD183-1625
208	Hg38_1_193673926_193687017_193723402_193725340_RF	OBD183-1629
209	Hg38_12_56314794_56317802_56415250_56418662_FR	OBD183-1633
210	Hg38_17_27705007_27714184_27819635_27822792_RF	OBD183-1637
211	Hg38_1_99641071_99649469_99708395_99714403_FF	OBD183-1641
212	Hg38_1_35174790_35177903_35287825_35293685_FR	OBD183-1645
213	Hg38_5_30008006_30016904_30144494_30156052_RR	OBD183-1649
214	Hg38_5_67178844_67182260_67213797_67219491_FR	OBD183-1653
215	Hg38_1_109359719_109366704_109565116_109566579_RF	OBD183-1657
216	Hg38_1_219983690_219989585_220133227_220135485_FR	OBD183-1661
217	Hg38_11_78965087_78972317_79119884_79126654_RF	OBD183-1665
218	Hg38_18_539296_550050_584723_586397_RF	OBD183-1669
219	Hg38_8_8694304_8696852_8726052_8731395_RF	OBD183-1673
220	Hg38_1_193528788_193530846_193673926_193687017_RR	OBD183-1677
221	Hg38_3_70749410_70755452_70897303_70900588_FR	OBD183-1681
222	Hg38_8_24010357_24021429_24161634_24170554_FR	OBD183-1685
223	Hg38_3_158576893_158580745_158781885_158789582_RF	OBD183-1689

224	Hg38_17_69164151_69180522_69430124_69435332_FR	OBD183-1693
225	Hg38_11_65101566_65105117_65228515_65232564_FR	OBD183-1697
226	Hg38_8_24161634_24170554_24298873_24305051_RF	OBD183-1701
227	Hg38_13_50104086_50113860_50155566_50162889_RF	OBD183-1705
228	Hg38_8_8634577_8639077_8694304_8696852_FR	OBD183-1709
229	Hg38_8_24119510_24130040_24161634_24170554_FR	OBD183-1713
230	Hg38_6_31710695_31717311_31846792_31848234_FR	OBD183-1717
231	Hg38_22_38808896_38820306_38970835_38973283_RF	OBD183-1721
232	Hg38_21_46072387_46079344_46279083_46281797_FF	OBD183-1725
233	Hg38_3_105082976_105093952_105278351_105281788_FR	OBD183-1729
234	Hg38_22_38707803_38709080_38808896_38820306_RR	OBD183-1733
235	Hg38_4_154421614_154428471_154574662_154583311_RF	OBD183-1737
236	Hg38_20_4736115_4737739_4885862_4890450_FF	OBD183-1741
237	Hg38_19_55395028_55396801_55609240_55610480_RR	OBD183-1745
238	Hg38_5_76475531_76481400_76572657_76583168_FR	OBD183-1749
239	Hg38_4_163153577_163160533_163215420_163222992_FF	OBD183-1753
240	Hg38_X_2456239_2461258_2530520_2531841_FR	OBD183-1757
241	Hg38_1_238263911_238275028_238361690_238365165_FF	OBD183-1761
242	Hg38_18_60381033_60390027_60592857_60596411_FF	OBD183-1765
243	Hg38_22_38732684_38735694_38808896_38820306_RR	OBD183-1769
244	Hg38_8_8653178_8657570_8694304_8696852_FR	OBD183-1773
245	Hg38_11_102793985_102796912_102892680_102896888_FF	OBD183-1777
246	Hg38_1_193673926_193687017_193848403_193851226_FR	OBD183-1781
247	Hg38_19_42434303_42437498_42510307_42515066_FR	OBD183-1785
248	Hg38_8_129814184_129820472_129899083_129904705_FR	OBD183-1789
249	Hg38_19_41359498_41360630_41453565_41456813_RF	OBD183-1793
250	Hg38_1_193673926_193687017_193926526_193929941_RF	OBD183-1797

Table 8.e7

201	CCCTGCTACAGATGATGCTGCCTG	OBD183-1603	CAGGGTCTGTCCCATCTGCCTAA
202	CTGCTCCTATAGGGCGTAATGACA	OBD183-1607	CTTCTTGTTGGGACGGCTTTCGTT
203	CCACATATCACGTGGTACAAGGT	OBD183-1611	AGACGTTCTCTTTCCATTTGGATCA
204	ATTCGTGTCCGCGGGCACCTTGAA	OBD183-1615	TTCGGACCGCTTCCGTGGCCGTGAG
205	CCTGGCAAAGCCTTGGGATACAGC	OBD183-1619	GCCATCCCCTACACAGGTTCTCA
206	CATCACCGGCCGGTGCTAAAACCA	OBD183-1623	CGCAGCTTCAGTTACGGGGGCGAAT
207	AAGTTGTGGCCCATACTCGTTTAC	OBD183-1627	GTAACTCCACCACAGAGTACGAC
208	GGGTGACCTGGGCGGAGGCTGCCCT	OBD183-1631	ATTTGCGATGGAACTTGGAGTCTA
209	CGTTGACGCAATATAGGAGAGGAAA	OBD183-1635	GAGGGTTTCCTAACGTGCCTTGC
210	CTGGTATAGAGATTTTGCAGGTA	OBD183-1639	TGTAGCTACCTGACAGGAACTGA
211	GATGCTGCTGGGCAGTCACCCTCC	OBD183-1643	TCCTCGGTCGTAGCCCTTATATT
212	ACACCCCACGATACAAAAACAAGT	OBD183-1647	GCTCAGTACGATTGACGTTTGCTC
213	ACCGCACAATCTTAGGGGATACTTC	OBD183-1651	CGGTTTGTAACGGTGCGGATACC
214	GTTGCTCTAGGACACCGAGCAAA	OBD183-1655	GACAACTCCATCTGCTTCTTCCGT
215	TTGACAACGGGCCGTTGGGAGCAAA	OBD183-1659	CGTGGCAAACATGAAACAAGCTCCA

216	CCCCACCGAGACACTTGTGACTC	OBD183-1663	TCTGGACTCTGCCTTCTTGGAGC
217	AGATTTCAAGTCCGTAGGCTCAG	OBD183-1667	CGTATTCCGGGTCCTGTCGGTAGG
218	CTTTAAAGACTGCACTACTAGTCA	OBD183-1671	TTCTAGCCTACCCTTAAGCTTGT
219	TGTATCCATGGTATCTGTACGTTTG	OBD183-1675	GTGTGCGTACTCGTTGAAGGTGGG
220	TATCAGAAGCCCCCGAAACTAGGT	OBD183-1679	TGAGGATCAACAGACCTCTGTAT
221	CCGCTTGCGACCGTTTAGATGTTTC	OBD183-1683	ACCGAGGGCAGCACCGTGTAACTTC
222	GAACAGGGCTGTTCGCGTGATAC	OBD183-1687	AGGACATCTATGGGGATACATAGG
223	TCGTAAACCTAGATAGTCAACCATG	OBD183-1691	TATGGAGGTCAAGTGCTGTAATTT
224	CTAGTATTTGTCACGTCCTGTATGA	OBD183-1695	ATTCACTTGGCGTCCCCGTTGCG
225	CAGTTTTGATTTCCTTTTCTGACCTC	OBD183-1699	GTTCTGTTTCTTGACCAGTGTGTTGA
226	AAAGATGTCGTGCTACTCCATAC	OBD183-1703	AGGCCTCCACCTACCGATACATGAG
227	CGGGAGATCTAGTAAAGGATGAAAT	OBD183-1707	TGTCCCCTCCCGCATGCAAGCGAT
228	AAATGGGGCGAAATTACGCTGCC	OBD183-1711	ATAGGAATTCAGAGGCTTTAAGGTG
229	TGCTCGTCCTACGAGTGGTAGAGTT	OBD183-1715	GTGGCGCGTTTTTAAACACCGTCC
230	CGTGTAACCCCGACCCAGCAACGT	OBD183-1719	CAGTCGGCCTACCGTCCGCTCCCAA
231	TATTTAGCAGGAGTCGCACTCAG	OBD183-1723	TATGTTACTGTCAGAGGGGCACA
232	GGTTAATGATGGGTTCAGCTCTAA	OBD183-1727	TAATAATATACGGGGCATAGTATA
233	CTTGACAGCCCTCTTTGTGGTTACTC	OBD183-1731	GAATGACGCCGAAGGACTTTGTATCC
234	TAGTCTGTTACGCTGGCCTCTATAT	OBD183-1735	TGACTTCTAGCGCACGACGTCCTGA
235	GAAGTATTCGCATGCGCAACCCCAC	OBD183-1739	CCACCCCATTCCGCCTATACGGATG
236	AGCCAAGCGTGGTTGTACTTCGCCA	OBD183-1743	GTTCCCATACCTATCCCGAATGC
237	ACCTGTCCTTGTGGTTTGCCTAAC	OBD183-1747	TAAGTAAGGGAGTTACAGGCTTTCA
238	AGTACCTGCAGTTTAGTATTAACT	OBD183-1751	TAATCTTAAAGTGATGCAGGTACAT
239	CGAATGCTACGCCGTTACCTCAGC	OBD183-1755	CATCGTGGAGTGTTTAACACTACC
240	TTGGTACATGCAGCAAACACTCAGT	OBD183-1759	TCCTGGTGTCTCGTGCACACCCTGG
241	AAAGCGGGGTGTCAAGCGGGGGCC	OBD183-1763	AGCCGTAGTACCTGCGGCAGGCACA
242	CAAGTTATGCGCGGCATCTAATTTT	OBD183-1767	TCACTATCCATATACGAGGTGGC
243	GTGTATTGCCGACTGCCCTTGTC	OBD183-1771	GATGTTCCGTTTGGTCTATAGCA
244	AATGGTGGAGAAGGACGGAAACCA	OBD183-1775	GTGTGTTGTCTCTCATTTCTGCTTA
245	AATTACTATTGACTGCGAGTTCGCT	OBD183-1779	ACCTTGGTGGCGCCCCGTACGCCGT
246	CTAGTGACCCGATGAGTTGCCGA	OBD183-1783	CAGGTAGCTGCCCTCACGGGACT
247	TTTTAGGTGCGTGATAGACTATG	OBD183-1787	GCACTTTACACTGGTATAGGGAC
248	ACTAGGGTCCTTCAGAGCCGGTAG	OBD183-1791	GTGTGTAGCCGAGCTAATAAAACG
249	TGTATGGCATACGTGTACGAGCT	OBD183-1795	TGCGTGCTAACGGAACGCTTCAGGC
250	CTGCAGGAATCAAATCGCATCCGC	OBD183-1799	ATCGAAATTATGGTACCGAGAGGC

Table 8.e8

251	Hg38_12_46821759_46827269_46865284_46879162_FF	PCED1B	52444.49409
252	Hg38_22_28598306_28600429_28753634_28758538_FF	TTC28	53389.05472
253	Hg38_11_9477640_9482033_9685853_9690988_RR	SWAP70	50697.26673
254	Hg38_22_28554668_28559386_28753634_28758538_FF	TTC28	53965.86326
255	Hg38_17_1411117_1412617_1634184_1635993_RF	CRK	53185.52889
256	Hg38_5_74325511_74329920_74537627_74543794_FR	HEXB	58046.45799
257	Hg38_12_14611683_14620949_14668390_14673240_FR	HIST4H4	59701.44705

258	Hg38_X_2345279_2349126_2530520_2531841_FR	CD99	54408.43105
259	Hg38_18_56075450_56084543_56148926_56154674_RF	TCF4	50818.57391
260	Hg38_19_17318586_17321060_17372677_17376287_RR	PLVAP	50867.38498
261	Hg38_12_122518390_122523625_122683979_122688903_FF	HCAR2	67212.53389
262	Hg38_4_4146074_4152493_4280585_4285296_FF	LYAR	54078.12648
263	Hg38_11_118323848_118335396_118462783_118464333_RR	CD3D	57954.67302
264	Hg38_15_72172047_72177812_72350397_72358464_RF	PKM	53340.62932
265	Hg38_12_8956666_8971971_9052225_9059010_RF	A2M	58456.59878
266	Hg38_1_160202241_160208034_160387699_160390980_FR	NCSTN	54296.30822
267	Hg38_22_34722666_34726389_34750116_34757594_FR	TOM1	44837.84123
268	Hg38_18_8623206_8633807_8834563_8839858_RR	RAB12	57961.35429
269	Hg38_3_10166863_10171451_10267732_10269649_RF	IRAK2	58264.83493
270	Hg38_22_37732067_37737457_37944696_37945909_FF	ANKRD54	54981.71707
271	Hg38_11_47310703_47316087_47405431_47407603_RF	SPI1	59891.07706
272	Hg38_10_73661598_73666900_73900120_73903402_RF	CAMK2G	59699.3964
273	Hg38_11_78798294_78806874_78965087_78972317_RR	GAB2	55159.38443
274	Hg38_15_65465777_65469194_65573794_65596385_RF	DPP8	58682.0863
275	Hg38_1_193655980_193663241_193673926_193687017_FR	CDC73	57777.81756
276	Hg38_5_30107211_30110692_30144494_30156052_RR	DROSHA	58365.69232
277	Hg38_18_427721_433761_539296_550050_FR	COLEC12	58064.51858
278	Hg38_12_15684229_15699647_15801742_15806686_FF	EPS8	56946.45375
279	Hg38_19_33180896_33182661_33328178_33332893_FF	CEBPA	61202.44274
280	Hg38_11_78848038_78857286_78965087_78972317_FR	GAB2	58769.84406
281	Hg38_Y_20386719_20398884_20504300_20520750_FR	KDM5D	48417.46255
282	Hg38_20_31369843_31372347_31617243_31621976_RR	DEFB118	59843.41938
283	Hg38_1_147709076_147716288_147799500_147802923_RF	ACP6	53821.33874
284	Hg38_17_30923923_30926868_31150085_31156746_RF	NF1	57251.74647
285	Hg38_9_94033256_94043963_94058786_94067185_FF	BARX1	59735.75802
286	Hg38_5_31866962_31870685_31910749_31916612_RR	GOLPH3	60050.7893
287	Hg38_10_114529344_114531737_114712352_114726311_RF	ABLIM1	55746.96154
288	Hg38_12_64438849_64448996_64463496_64470612_RF	TBK1	61881.88104
289	Hg38_17_35998435_36002770_36030367_36035489_FR	CCL15	65006.71327
290	Hg38_3_154848097_154855651_154966860_154974838_FR	MME	56265.31231
291	Hg38_1_193673926_193687017_193882412_193889924_RF	CDC73	60988.03841
292	Hg38_3_158501077_158507758_158576893_158580745_FR	MLF1	57524.99311
293	Hg38_17_63801674_63804028_64026936_64033184_FF	CD79B	64531.91532
294	Hg38_17_31302844_31307239_31324781_31330350_RR	EVI2B	64284.82246
295	Hg38_17_31224131_31234469_31324781_31330350_RR	EVI2B	60367.16409
296	Hg38_19_42697457_42701566_42762015_42770764_RF	CEACAM8	58661.04435
297	Hg38_8_8422737_8427114_8694304_8696852_RR	MFHAS1	59120.0054
298	Hg38_2_9540565_9545891_9601867_9603721_FR	ADAM17	61151.65322
299	Hg38_6_136360365_136366092_136518089_136523843_RF	MAP3K5	62837.60702
300	Hg38_X_70970170_70972174_71213839_71218089_FF	IL2RG	55780.88443

Table 8.f1

251	1.195236301	0.000190318	5.82936E-05	Immune
252	1.195155906	0.000211794	0.000109982	Immune
253	1.195084632	0.000412196	0.00034188	Immune
254	1.19473551	0.000262232	0.000165052	Immune
255	1.194662754	0.000270694	0.000188378	Immune
256	1.194570441	0.000190318	2.12317E-05	Immune
257	1.194388741	0.000190318	3.06672E-06	Immune
258	1.194096109	0.000339175	0.000263359	Immune
259	1.194065862	0.000190585	7.47758E-05	Immune
260	1.19390711	0.000236458	0.000140202	Immune
261	1.193203867	0.000595529	0.000538726	Immune
262	1.193183504	0.000203616	9.94699E-05	Immune
263	1.193086823	0.000190318	1.03911E-05	Immune
264	1.193068914	0.00053272	0.000473181	Immune
265	1.192890687	0.000194259	8.6845E-05	Immune
266	1.192862248	0.000190585	7.07744E-05	Immune
267	1.191959549	0.001980022	0.001933434	Immune
268	1.191727576	0.000190318	3.59458E-05	Immune
269	1.19169403	0.000190318	3.35943E-05	Immune
270	1.191457327	0.000190318	1.58474E-05	Immune
271	1.190917338	0.000190318	3.2688E-05	Immune
272	1.19084303	0.000197577	9.35587E-05	Immune
273	1.190744302	0.000275396	0.000194397	Immune
274	1.190504767	0.000190318	4.37089E-05	Immune
275	1.190493985	0.000190318	5.63296E-05	Immune
276	1.19047063	0.000197577	9.26462E-05	Immune
277	1.190369905	0.00103073	0.000982226	Immune
278	1.190186142	0.000190318	5.1042E-05	Immune
279	1.189884825	0.000190318	2.93967E-05	Immune
280	1.189598135	0.000190318	4.56676E-05	Immune
281	1.189191627	0.000915634	0.000861773	Immune
282	1.188928982	0.000190318	3.12731E-05	Immune
283	1.188579442	0.000236458	0.000136615	Immune
284	1.188149935	0.00035878	0.000285442	Immune
285	1.188067975	0.000190585	7.48475E-05	Immune
286	1.187779274	0.000235024	0.000132037	Immune
287	1.187507007	0.000249741	0.000154252	Immune
288	1.187477184	0.000190318	8.80731E-06	Immune
289	1.18733157	0.000190318	8.7159E-06	Immune
290	1.187294832	0.000190318	3.14804E-05	Immune
291	1.187269786	0.000190585	7.42594E-05	Immune
292	1.18676595	0.000508992	0.000450607	Immune
293	1.186090957	0.000190318	2.59098E-05	Immune
294	1.185876603	0.000190318	1.4985E-05	Immune
295	1.185799969	0.000235024	0.000131543	Immune

296	1.185573628	0.000270662	0.000182572	Immune
297	1.185403394	0.000295776	0.000218048	Immune
298	1.185337077	0.000190318	2.75867E-05	Immune
299	1.185296999	0.000190318	6.49959E-05	Immune
300	1.185190065	0.000595824	0.000541499	Immune

Table 8.f2

251	TTTAGTTATGATAGAGGAAATCACGCTATCGACTTCTTCCTGGTTTAGTCTTAGGAGGGT
252	GCTTCAAAAAATAAAACTAAAAATATGTTCGAACTCCTGACCTCAGGTAATCTATCCGCC
253	GGTATTGATATAAAATAGTGATTTTATATCGATCTCCTGATCTCGTGATCTACCTTCCTT
254	CAGTAACTTCAGTTTTTTATTTACTCATTCGAACTCCTGACCTCAGGTAATCTATCCGCC
255	GTCACACTCTTACCAAGCTAAAACTCTTTCGATCTCCTGACCTCGTGATTACAGGTGTGA
256	TTCCAAAATTCTGAGATTCTTAATTATGTCGAACTCCTGACCTCAGTCAATCTGCCCACC
257	AAGAATTAAGAGTAAAAATTATGTGAGGTCGAACTGCTGACCTCGTTATCCACCCACTTC
258	TCCTCAAAAAAATTAAAAATAGAACTACTCGAGACCATCCTGGCTAATTTGGTGAAACCC
259	AATTTTAGACCAACATCCCTGATGAACATCGAGACCAGCCTGAACAATATAGTGAGACCC
260	GGTGGGTGGATCACTTCAAGTCAGGAGTTCGATCTCCTGACCTAGTGATCCACCCACCTC
261	ACGGAATCTGGATTGAATAAATAGGGAATCGATCTCTTGACCTCGTGATCCAATCACCTT
262	AATAGAGACCATATTGGCCAGGATGGTCTCGAGGGTAGTCATGTTTTCCTTCCTGAGGAT
263	TACCAGGGATGTCTGAAGGAACTAAGAGTCGATCTCCTGACTTTGTGATCCTCCCACGTC
264	CTTGGAAGACAGAAAAATACCTAATCTTTCGAACTCCTGACCTTATAATCCCCCTGCCTT
265	AGCTGGGGTTAAATTCATTTAAATGAGTTCGAACTCCTGACCTCACGTAATTCTCCCACC
266	AGCAACTCTTAATCTTCAGGCTTCCTTCTCGATTTTAGATCTTTCCTGCTTTCTCTTGTG
267	CCTTACAAAAAGTTCTAAAGGGAGTTGTTCGAGGAGTATCTTTGTGGCTTTCTCTGTATT
268	TCTCTAAACATAAATTGTGAAGATTCCATCGAACTCCCGACCTCAGAGGATCTGTCTGCC
269	GAGCCCAGTAGTTCAAGGTTTCAGTGAGTCGAACTCCTGACCTCATGTGATTTGGCCGCT
270	GAGGCAGGCAAATCACGAGCTCAGGAGATCGAACTCCTGACCTCATGATTTGCCTGCCTC
271	TGGCTGATTTCCAGAGAAGAATACAAACTCGAGACCAGCCTTGACCAATATGGTGAAATC
272	TGAGAACAGATTCTCTAGAAAAGTCGCCTCGAGACCAGCCTAGATAACTTGGTGAAACTC
273	AAAGCCCTGTTATCAAATTAGGTCACAATCGAACTCCTGACCTCAAAAGATCTGCTCGCT
274	ATGTTGTAACCAAAAGAACTTAAACATTTCGATCTCCTGACCTTGTCATCCACCTACCTC
275	TTTTCCCTTCTCACAGGTATTGTGTTGTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT
276	CTCCTTACTTCATTATGACTGGATTTGATCGAACTCCTGACCTGATGATCCCCCTACTTG
277	GAAAGCCAAGCTGGGTGGACTCAGGAGTTCGATGCAAAAATCCTCAATAAAATACTGGCA
278	AGTCACACATACAACTTTAGTGTACCATTCGATCTCCAGACCTTGTGATTTGCCTGCCTT
279	TTAATACAAAAAACTAATTAAAATTTAATCGAACTCCTGACCCCAGGTGTTCTACCCGCC
280	AGCGGTTTTTTTGTGATGTTAGAGATGTTCGAACTCCTGACCTCAAAAGATCTGCTCGCT
281	GTGGAGACCCTAACTGCTTTTAGGGAGATCGAGGAATTTATCCATTTCTTCTAGATTTTC
282	TGTACAAGCATATTCATTGATGTCTTGTTCGAACTCCTTGACCTCAGGTGATCTACCTGC
283	TGGATCATGGGAGGCCTAGGTCGGGAGTTCGATGGTCTTTACAATTTGGCTTGTTTTTGC
284	ATTTCTTTCTTCTTCCCATTTTCTAAAATCGAACTCCTGACCTTGGGTAATCCACCCTCC
285	TTGTCTTTGCACCTTTTTCAAAAATTAGTCGAACTCCTGATCTTATGATCCACCCACCTC
286	CCTGAACCTTTTGGGCTGAACTTCACCTTCGAACTCCTGACCTCAAGCTATCCATCTGCC
287	CTATTCTTGCATTGCTACAAAGAAACATTCGATCTCTTGAACTCATGATCGCCTGCCTCA

288	AAATACTTTGTTATATATAAAATGGAGTTCGAACTCTTGACCTCAAGTGATCACCCATCT
289	GGTGTTCACCATATTAGTCAGGTTGGTCTCGAGGCTTCTCTGGGTTCATTTCCTTTAAAT
290	AATTTTAGACCAATATGCCTGATGAACATCGAACTCCTGACCTGGGCCTTCCAAAGTGCT
291	GAGAGTATAAGTGTTATGATTGGCCACTTCGATCTCTTGACCTCGTACTCTGCCTGCCTT
292	ATTTTCACCAAAACCTTTTAATAAGAATTCGAACTCCTGATCTCGTGATATGCTGGCCTC
293	AATTTGAATATAGTAGGAGCTATTTAAGTCGAACCCCTGACCTCATGATCTTCCCACCTT
294	ATGTATTCTTCAAAGTTAGTACTTTTGTTCGAACTCCTGGCCTTATGTAACCCACCTGCC
295	TCAAGAGGTGAAACCCTTATTGGAGGAATCGAACTCCTGGCCTTATGTAACCCACCTGCC
296	CCATTTGTTTGTATCCTCTTTTATTTCATCGATCTCCTGACCTCGTGCGCAAGAGCAATG
297	AACTGAAGGAGCTCTTAATGGCCAAAACTCGAGACCATCCTGGTCAACACTGTGAAAACC
298	GGTGAGAGAATTGCTTGACCCAAGGAGTTCGATCTCCTGACCTCAGATGATTTGCCTGCC
299	CAAAAATTGCCAAAAATAAGTAGGTTTTTCGAACTCCTGACTTCGGTGATCTACCTGCCG
300	CTCAAAGAACTTAAAACAAAATTACCATTCGAAGTCCTGACCTCAGGTAATCCTGCTGCC

Table 8.f3

251	12	46827238	46827267	46879131	46879160
252	22	28600398	28600427	28758507	28758536
253	11	9477642	9477671	9685855	9685884
254	22	28559355	28559384	28758507	28758536
255	17	1411119	1411148	1635962	1635991
256	5	74329889	74329918	74537629	74537658
257	12	14620918	14620947	14668392	14668421
258	X	2349095	2349124	2530522	2530551
259	18	56075452	56075481	56154643	56154672
260	19	17318588	17318617	17372679	17372708
261	12	122523594	122523623	122688872	122688901
262	4	4152462	4152491	4285265	4285294
263	11	118323850	118323879	118462785	118462814
264	15	72172049	72172078	72358433	72358462
265	12	8956668	8956697	9058979	9059008
266	1	160208003	160208032	160387701	160387730
267	22	34726358	34726387	34750118	34750147
268	18	8623208	8623237	8834565	8834594
269	3	10166865	10166894	10269618	10269647
270	22	37737426	37737455	37945878	37945907
271	11	47310705	47310734	47407572	47407601
272	10	73661600	73661629	73903371	73903400
273	11	78798296	78798325	78965089	78965118
274	15	65465779	65465808	65596354	65596383
275	1	193663210	193663239	193673928	193673957
276	5	30107213	30107242	30144496	30144525
277	18	433730	433759	539298	539327
278	12	15699616	15699645	15806655	15806684
279	19	33182630	33182659	33332862	33332891

280	11	78857255	78857284	78965089	78965118
281	Y	20398853	20398882	20504302	20504331
282	20	31369845	31369874	31617245	31617274
283	1	147709078	147709107	147802892	147802921
284	17	30923925	30923954	31156715	31156744
285	9	94043932	94043961	94067154	94067183
286	5	31866964	31866993	31910751	31910780
287	10	114529346	114529375	114726280	114726309
288	12	64438851	64438880	64470581	64470610
289	17	36002739	36002768	36030369	36030398
290	3	154855620	154855649	154966862	154966891
291	1	193673928	193673957	193889893	193889922
292	3	158507727	158507756	158576895	158576924
293	17	63803997	63804026	64033153	64033182
294	17	31302846	31302875	31324783	31324812
295	17	31224133	31224162	31324783	31324812
296	19	42697459	42697488	42770733	42770762
297	8	8422739	8422768	8694306	8694335
298	2	9545860	9545889	9601869	9601898
299	6	136360367	136360396	136523812	136523841
300	X	70972143	70972172	71218058	71218087

Table 8.f4

251	12	46823268	46827267	46875161	46879160	1
252	22	28596428	28600427	28754537	28758536	NA
253	11	9477642	9481641	9685855	9689854	NA
254	22	28555385	28559384	28754537	28758536	NA
255	17	1411119	1415118	1631992	1635991	NA
256	5	74325919	74329918	74537629	74541628	1
257	12	14616948	14620947	14668392	14672391	1
258	X	2345125	2349124	2530522	2534521	NA
259	18	56075452	56079451	56150673	56154672	1
260	19	17318588	17322587	17372679	17376678	NA
261	12	122519624	122523623	122684902	122688901	NA
262	4	4148492	4152491	4281295	4285294	1
263	11	118323850	118327849	118462785	118466784	1
264	15	72172049	72176048	72354463	72358462	NA
265	12	8956668	8960667	9055009	9059008	1
266	1	160204033	160208032	160387701	160391700	1
267	22	34722388	34726387	34750118	34754117	NA
268	18	8623208	8627207	8834565	8838564	1
269	3	10166865	10170864	10265648	10269647	1
270	22	37733456	37737455	37941908	37945907	1
271	11	47310705	47314704	47403602	47407601	1

272	10	73661600	73665599	73899401	73903400	1
273	11	78798296	78802295	78965089	78969088	NA
274	15	65465779	65469778	65592384	65596383	1
275	1	193659240	193663239	193673928	193677927	1
276	5	30107213	30111212	30144496	30148495	1
277	18	429760	433759	539298	543297	NA
278	12	15695646	15699645	15802685	15806684	1
279	19	33178660	33182659	33328892	33332891	1
280	11	78853285	78857284	78965089	78969088	1
281	Y	20394883	20398882	20504302	20508301	NA
282	20	31369845	31373844	31617245	31621244	1
283	1	147709078	147713077	147798922	147802921	NA
284	17	30923925	30927924	31152745	31156744	NA
285	9	94039962	94043961	94063184	94067183	1
286	5	31866964	31870963	31910751	31914750	NA
287	10	114529346	114533345	114722310	114726309	NA
288	12	64438851	64442850	64466611	64470610	1
289	17	35998769	36002768	36030369	36034368	1
290	3	154851650	154855649	154966862	154970861	1
291	1	193673928	193677927	193885923	193889922	1
292	3	158503757	158507756	158576895	158580894	NA
293	17	63800027	63804026	64029183	64033182	1
294	17	31302846	31306845	31324783	31328782	1
295	17	31224133	31228132	31324783	31328782	NA
296	19	42697459	42701458	42766763	42770762	NA
297	8	8422739	8426738	8694306	8698305	NA
298	2	9541890	9545889	9601869	9605868	1
299	6	136360367	136364366	136519842	136523841	1
300	X	70968173	70972172	71214088	71218087	NA

Table 8.f5

251	9.261492616	9.004196745	613.7437493	513.4915569
252	NA			
253	NA			
254	NA			
255	NA			
256	11.76159151	11.50509958	3472.096936	2906.565252
257	9.808161043	9.551888572	896.5007891	750.5938044
258	NA			
259	12.74848001	12.4925976	6881.369583	5762.973217
260	NA			
261	NA			
262	10.86784306	10.61302713	1868.730827	1566.172195

263	11.38390481	11.12920578	2672.371408	2239.880079
264	NA			
265	8.51769591	8.263234065	366.5067376	307.2425173
266	9.376431103	9.122003653	664.6408256	557.1815411
267	NA			
268	10.75771082	10.50465634	1731.384963	1452.8362
269	11.81117631	11.55816244	3593.505825	3015.460122
270	10.34582431	10.09309703	1301.377959	1092.257296
271	10.76109087	10.50901759	1735.446128	1457.234749
272	9.791897887	9.539914629	886.4514984	744.3898785
273	NA			
274	10.20339011	9.951816717	1179.034415	990.3651355
275	10.09625577	9.844695441	1094.651386	919.4934205
276	10.36334483	10.1118128	1317.27864	1106.519226
277	NA			
278	10.15172368	9.900536452	1137.557438	955.7811153
279	10.17251702	9.921695087	1154.071603	969.9019422
280	10.28586021	10.03538592	1248.396245	1049.426869
281	NA			
282	11.04901568	10.79935314	2118.776472	1782.088337
283	NA			
284	NA			
285	9.696657759	9.448040378	829.8218065	698.4632396
286	NA			
287	NA			
288	9.300962164	9.05306237	630.7664708	531.1819707
289	9.351949998	9.104227125	653.4576811	550.3582132
290	12.59587528	12.34819705	6190.650419	5214.080155
291	10.27490953	10.02726173	1238.95625	1043.533883
292	NA			
293	10.19282148	9.946606833	1170.428819	986.7951626
294	8.270976292	8.025022395	308.8957673	260.4788446
295	NA			
296	NA			
297	NA			
298	11.37072493	11.12542755	2648.068866	2234.021796
299	10.15948714	9.914238539	1143.695387	964.9019506
300	NA			

Table 8.f6

251	Hg38_12_46821759_46827269_46865284_46879162_FF	OBD183-1801
252	Hg38_22_28598306_28600429_28753634_28758538_FF	OBD183-1805
253	Hg38_11_9477640_9482033_9685853_9690988_RR	OBD183-1809
254	Hg38_22_28554668_28559386_28753634_28758538_FF	OBD183-1813

255	Hg38_17_1411117_1412617_1634184_1635993_RF	OBD183-1817
256	Hg38_5_74325511_74329920_74537627_74543794_FR	OBD183-1821
257	Hg38_12_14611683_14620949_14668390_14673240_FR	OBD183-1825
258	Hg38_X_2345279_2349126_2530520_2531841_FR	OBD183-1829
259	Hg38_18_56075450_56084543_56148926_56154674_RF	OBD183-1833
260	Hg38_19_17318586_17321060_17372677_17376287_RR	OBD183-1837
261	Hg38_12_122518390_122523625_122683979_122688903_FF	OBD183-1841
262	Hg38_4_4146074_4152493_4280585_4285296_FF	OBD183-1845
263	Hg38_11_118323848_118335396_118462783_118464333_RR	OBD183-1849
264	Hg38_15_72172047_72177812_72350397_72358464_RF	OBD183-1853
265	Hg38_12_8956666_8971971_9052225_9059010_RF	OBD183-1857
266	Hg38_1_160202241_160208034_160387699_160390980_FR	OBD183-1861
267	Hg38_22_34722666_34726389_34750116_34757594_FR	OBD183-1865
268	Hg38_18_8623206_8633807_8834563_8839858_RR	OBD183-1869
269	Hg38_3_10166863_10171451_10267732_10269649_RF	OBD183-1873
270	Hg38_22_37732067_37737457_37944696_37945909_FF	OBD183-1877
271	Hg38_11_47310703_47316087_47405431_47407603_RF	OBD183-1881
272	Hg38_10_73661598_73666900_73900120_73903402_RF	OBD183-1885
273	Hg38_11_78798294_78806874_78965087_78972317_RR	OBD183-1889
274	Hg38_15_65465777_65469194_65573794_65596385_RF	OBD183-1893
275	Hg38_1_193655980_193663241_193673926_193687017_FR	OBD183-1897
276	Hg38_5_30107211_30110692_30144494_30156052_RR	OBD183-1901
277	Hg38_18_427721_433761_539296_550050_FR	OBD183-1905
278	Hg38_12_15684229_15699647_15801742_15806686_FF	OBD183-1909
279	Hg38_19_33180896_33182661_33328178_33332893_FF	OBD183-1913
280	Hg38_11_78848038_78857286_78965087_78972317_FR	OBD183-1917
281	Hg38_Y_20386719_20398884_20504300_20520750_FR	OBD183-1921
282	Hg38_20_31369843_31372347_31617243_31621976_RR	OBD183-1925
283	Hg38_1_147709076_147716288_147799500_147802923_RF	OBD183-1929
284	Hg38_17_30923923_30926868_31150085_31156746_RF	OBD183-1933
285	Hg38_9_94033256_94043963_94058786_94067185_FF	OBD183-1937
286	Hg38_5_31866962_31870685_31910749_31916612_RR	OBD183-1941
287	Hg38_10_114529344_114531737_114712352_114726311_RF	OBD183-1945
288	Hg38_12_64438849_64448996_64463496_64470612_RF	OBD183-1949
289	Hg38_17_35998435_36002770_36030367_36035489_FR	OBD183-1953
290	Hg38_3_154848097_154855651_154966860_154974838_FR	OBD183-1957
291	Hg38_1_193673926_193687017_193882412_193889924_RF	OBD183-1961
292	Hg38_3_158501077_158507758_158576893_158580745_FR	OBD183-1965
293	Hg38_17_63801674_63804028_64026936_64033184_FF	OBD183-1969
294	Hg38_17_31302844_31307239_31324781_31330350_RR	OBD183-1973
295	Hg38_17_31224131_31234469_31324781_31330350_RR	OBD183-1977
296	Hg38_19_42697457_42701566_42762015_42770764_RF	OBD183-1981
297	Hg38_8_8422737_8427114_8694304_8696852_RR	OBD183-1985
298	Hg38_2_9540565_9545891_9601867_9603721_FR	OBD183-1989
299	Hg38_6_136360365_136366092_136518089_136523843_RF	OBD183-1993

300	Hg38_X_70970170_70972174_71213839_71218089_FF	OBD183-1997

Table 8.f7

251	GTGCACATGAGATCGGGCACAGAT	OBD183-1803	AGCACCAGGCATTCGTTTCATAAC
252	CCCCGCTACCTAAGAGGCTAAGG	OBD183-1807	GCTGCCTAAGGGTCTCTTTGGTC
253	GGTGATGCCCCAAACAGTTTGTTAT	OBD183-1811	GAACAGTCGGGCTTTCTAGGGCG
254	CTCAGTCTCCAAAGAATCCGAAAGTA	OBD183-1815	GGCTGCCTAAGGGTCTCTTTGGTCTA
255	GAGGAGAGTGGCAGAAGGACCAA	OBD183-1819	CCTGGCTGTCATCCAACCACCAC
256	GCCTCACAGAGCCTCATTTCCAC	OBD183-1823	TAGTGGATTCCTGGCTGGGCACG
257	AATCCTTTAACGGTCCTCGTGCGAT	OBD183-1827	ACTTATACCCACGTACCCAACATGT
258	CTCCAGAAGCCGTCTTATGTGGGC	OBD183-1831	GATGTCGATGAGCAAAAGTGGGTGG
259	ACGCGACGTTACTCTGATGGCAA	OBD183-1835	GCTCGGGAACTGCCTGGACGCCCTC
260	GTATTCATCATGATAATGCGTAGG	OBD183-1839	CGTGTATACATAAAGACTGTACGGT
261	GCACTACCAGTTGCCGTTACACTA	OBD183-1843	CATTTACACTGGGGTGAGATACG
262	GCCTTGCGAGGGCCATCCTATTT	OBD183-1847	TGAGAGGAAAAATATATCGTTAGT
263	CTCGGTGGGTTAAATATGATTTGG	OBD183-1851	AAGAACTTAGTTTTGAGATTATCCC
264	GGACGAGACGCGCATGGGGTGAC	OBD183-1855	GCGTAAGTTCAACTATGATTCTATT
265	GCCCCACCTGGTCCACAGAAATC	OBD183-1859	GCGGAACTTCAAAGGTCAGGTGC
266	CAGCCTGTCCTGCAATGAGGAATAT	OBD183-1863	ATCTACGAGCTGCCCTCCCTATAC
267	ACAGAATTCGAAACATCTGGGGATT	OBD183-1867	CGCAGGGCCGTAAGTTACGCTCAGA
268	TTTATGACTTACATCTCTATAGG	OBD183-1871	TCAACTGCCCTTGGGAGACCAATGC
269	ATACAACTAGGACTAGGGCGCACG	OBD183-1875	AACCTCCATGTGTTCGGCTAAAAG
270	TTAGGCCCGTATGTACAGTCACCG	OBD183-1879	CCATGCATTTCTTAATCCTTTGTC
271	CTTGAGCTCGGAGAAATTACAGTC	OBD183-1883	CCGAAATTGTTTATGACTTAGTA
272	CAGTGACAAATTCTTGCCACGCGGT	OBD183-1887	CACCCTCCAAAAGAGCAGCAGAT
273	CGAGAGTCCAATTCACTTGTTAG	OBD183-1891	TTTGGGCGTAGCTGTGTCGAGTGC
274	CCGCAGCAACTACACTCAGCCTT	OBD183-1895	ATAATGGACTGGGCTGGGCGTGG
275	ATAGGGCCGTGTAGAGGATCTCAAA	OBD183-1899	CCGTCTCGCTGTACTAACTCGCA
276	AAAAAGGAAACAGCCGTCGCCTTGA	OBD183-1903	TCAAGCGAGCACGTTTTTTGCAGT
277	GCCGAGAACATTCACCGCTTTCC	OBD183-1907	TACCAGCTCGAGGTGTTAATACC
278	AAGTCAATGCGTCGATGACGTGGGT	OBD183-1911	ATTGCAGAAACGTCACGTCCTGGCC
279	CGCACCACATTTTATTTCCTACAGTC	OBD183-1915	TGTGACTGTGCTACCACCAACTACGG
280	CCCGGGCCCACTTGTTTTTACCCAT	OBD183-1919	TCGAATATCGAGCTCCATCAGGCT
281	AAGCACATTAGGCTCAATGTGTACA	OBD183-1923	CGCAGTATGCAACGCTTGCGGACCG
282	CAATGAGGGCAGAGGAATAGAGGAAT	OBD183-1927	TGAGATGATGGGCACCAGGGTAATGG
283	CATTCCTGGGATTATTAGGCGTGGC	OBD183-1931	CGTCCGCAGACATGTCTCTTCGGTA
284	GTTGTCCCAGCCCTAAGTAGATGATA	OBD183-1935	AGTGCTGTGACATTGGTGGTAGTGGC
285	TAAGCTTTCTAGGAGTCATCAAG	OBD183-1939	CGGCCCTATCCTGAGATTGGTATT
286	CCACGGCATTTACTGTGCTCCAG	OBD183-1943	AAAGCAGGAACTGGCTGGGCGTG
287	GATAGTTCTTTAGTAGCGCACTC	OBD183-1947	ACACACGTCGTTGTATCATCAATGT
288	TTATTCGCTCAGCGTCATCGAAA	OBD183-1951	GTCTTCATAGCGAGGACTACGCTGA
289	CCGTTCAGACGGCTAGACTCAGCAG	OBD183-1955	TGTTTAAAAAGGTGCCCGAGTGCG
290	AAAACTGACGGGTCGAACTCTGCT	OBD183-1959	ATGCTACCAAGAGCCTAATGGGAT
291	TCCTGCTCTCGTCCATGGTATTCGC	OBD183-1963	GCAGGAATACTTGTGGGTGCGCAC

292	AGGTCACCTAAGAAGGGTTGCAT	OBD183-1967	CCTGCACCGGTTATATGAACTACA
293	TGAAAAGAGTGCTCCTGCGATAAAT	OBD183-1971	AGAGAGCCTTTAGAAACACACCG
294	GTTCTCTATGCGCAGGTCCCCTTCG	OBD183-1975	CTGTAAGGAAGTTAGTCAAGACGTA
295	CTTCTCTATCTTCCACAACCTCACCA	OBD183-1979	TAAATGGGAGCAGCCACAGTGAGGAC
296	TTGAATCGTAGAATACCAGTAGTTT	OBD183-1983	GGGTCCATGCGAAGGGTGGCAGACC
297	GTGTTTACCAATGTTCCACCCCC	OBD183-1987	GTTTTATAAAGTGAGGACGGACCG
298	CGCGCCTTTTGGGAAGCTCACGT	OBD183-1991	GTAGTGGCCACCCTCTTCAAGCT
299	AATACCTACCCTTGCCCTTCCCACCA	OBD183-1995	AATCTCTCTCGGTGTTTTAGCCGTCA
300	AGTGCCTTCAAGACCCCCAAGATC	OBD183-1999	GGAAAGTGAGTATATTGCTAGGG

Table 8.f8

301	Hg38_5_111518564_111524189_111570082_111578257_FR	CAMK4	53895.56742
302	Hg38_3_87150717_87152334_87167991_87177284_FF	POU1F1	64124.1068
303	Hg38_5_74394031_74404922_74537627_74543794_RR	HEXB	65086.74306
304	Hg38_16_57311821_57315910_57359852_57364698_FR	CCL22	65988.63889
305	Hg38_X_2530520_2531841_2565626_2568771_RF	CD99	59592.42497
306	Hg38_4_104772558_104786165_104802495_104808042_FR	TET2	62339.16643
307	Hg38_16_57156886_57158385_57359852_57364698_RR	CCL22	62836.77792
308	Hg38_14_30757124_30766270_31037033_31039641_RR	COCH	59487.29689
309	Hg38_2_68135773_68139581_68359452_68365969_RR	PLEK	64241.20036
310	Hg38_16_2330922_2335048_2522663_2525074_RF	ATP6V0C	57154.64158
311	Hg38_15_63964667_63969673_64105032_64108785_FF	DAPK2	61998.74552
312	Hg38_22_38681470_38688482_38808896_38820306_RR	GTPBP1	65196.99376
313	Hg38_7_100032804_100034042_100078292_100082051_FR	ZNF3	59483.99451
314	Hg38_3_70698156_70700092_70796347_70803301_FR	FOXP1	50093.92319
315	Hg38_2_120597115_120611528_120697175_120701136_RR	GLI2	64773.43449
316	Hg38_19_48331809_48333020_48561743_48564039_FF	KDELR1	63102.10432
317	Hg38_3_70698156_70700092_70796347_70803301_RR	FOXP1	50518.81561
318	Hg38_5_58504296_58515741_58568633_58574449_FF	GAPT	64526.10527
319	Hg38_1_7824282_7826917_7994232_7998947_FF	PARK7	66312.10271
320	Hg38_X_77765454_77772092_77954363_77959007_RR	ATP7A	65901.89086
321	Hg38_3_158501077_158507758_158576893_158580745_RR	MLF1	64995.94624
322	Hg38_1_193673926_193687017_193851226_193858598_RF	CDC73	67151.59303
323	Hg38_12_116931027_116934300_116959223_116967078_RF	TESC	67895.68024
324	Hg38_17_7665587_7668453_7811362_7813705_FF	EFNB3	68021.43322
325	Hg38_12_87675372_87683936_87811804_87814408_FF	C12orf29	59072.48374
326	Hg38_12_46746378_46756718_46865284_46879162_FF	PCED1B	56348.34876
327	Hg38_12_56269538_56273851_56415250_56418662_FR	IL23A	58735.67365
328	Hg38_7_26158147_26166959_26344790_26347647_FF	SNX10	67515.79006
329	Hg38_4_40800075_40804237_41041101_41047221_RR	RBM47	63952.65387
330	Hg38_5_101857205_101863977_102113262_102119968_RR	SLCO4C1	54021.35936
331	Hg38_22_38970835_38973283_39095838_39099483_FR	APOBEC3A	65531.89713
332	Hg38_5_55874716_55883166_56069488_56074299_RR	IL31RA	62997.34802
333	Hg38_5_30097465_30100060_30144494_30156052_RR	DROSHA	62532.2281

334	Hg38_3_30481415_30486448_30652453_30660274_RR	TGFBR2	62959.29829
335	Hg38_19_49754688_49759950_49902219_49904931_RR	AKT1S1	64821.01619
336	Hg38_10_26780453_26788708_26959699_26967983_RR	ABI1	54431.98717
337	Hg38_8_129796093_129803717_129899083_129904705_RR	FAM49B	57906.95109
338	Hg38_5_30008006_30016904_30144494_30156052_FR	DROSHA	65273.34565
339	Hg38_11_65076105_65079526_65228515_65232564_RR	CAPN1	64028.9213
340	Hg38_19_51523072_51524696_51712234_51719472_FR	SIGLEC14	64127.44789

Table 8.g1

301	1.184813122	0.000595529	0.00053948	Immune
302	1.184689343	0.000190318	4.54574E-05	Immune
303	1.184668406	0.000190318	3.06628E-05	Immune
304	1.18465428	0.000190318	1.14318E-05	Immune
305	1.184410724	0.000435221	0.000367378	Immune
306	1.184302874	0.000836477	0.000774971	Immune
307	1.18428889	0.000190318	4.23498E-05	Immune
308	1.184242905	0.000190318	6.18658E-05	Immune
309	1.18418235	0.000190585	7.59141E-05	Immune
310	1.184026398	0.00061716	0.000562705	Immune
311	1.183975176	0.000190318	2.49364E-05	Immune
312	1.183284508	0.000197577	9.11215E-05	Immune
313	1.183113527	0.000193014	8.45857E-05	Immune
314	1.183036403	0.000781416	0.00072166	Immune
315	1.183020166	0.000191193	8.1694E-05	Immune
316	1.18279674	0.000190318	4.91079E-05	Immune
317	1.182516616	0.000877054	0.000820303	Immune
318	1.182098422	0.000190318	2.6743E-05	Immune
319	1.181843928	0.000190318	5.45416E-06	Immune
320	1.181837185	0.000190318	1.47871E-05	Immune
321	1.18179292	0.000191193	8.2668E-05	Immune
322	1.181711187	0.000190318	3.11695E-05	Immune
323	1.181481439	0.000190318	4.55554E-05	Immune
324	1.181451408	0.000190318	1.56118E-05	Immune
325	1.181422328	0.000349894	0.000276828	Immune
326	1.181382308	0.000492539	0.000433145	Immune
327	1.181296054	0.001179304	0.001134213	Immune
328	1.181133151	0.000190318	2.00708E-05	Immune
329	1.181131206	0.000480329	0.000420995	Immune
330	1.181018432	0.001509728	0.001465324	Immune
331	1.181002423	0.000190318	3.1194E-05	Immune
332	1.18088206	0.000235024	0.000134191	Immune
333	1.180627075	0.0002944	0.000213873	Immune
334	1.180573942	0.000190318	6.57555E-05	Immune
335	1.180542127	0.000190318	5.55389E-05	Immune

336	1.180416072	0.000656661	0.000602583	Immune
337	1.180322929	0.000298508	0.000223881	Immune
338	1.180072895	0.000228221	0.000125521	Immune
339	1.180011257	0.000190585	7.63618E-05	Immune
340	1.179876337	0.000203616	9.81568E-05	Immune

Table 8.g2

301	CTAAACCAGTAAATGTTTAATAAAAAGATCGAGGGGTATCTTTGTGGCATTCTCTGTATT
302	TGTTTTCATTTTAAGATGAAGACAGCCTTCGAGACCATCCTGGCTAACATGATGAAATCC
303	ATGTGTTGTTCTCAATTTTGCACTTGCTTCGAACTCCTGACCTCAGTCAATCTGCCCACC
304	GATGGGCAGATTACTTGAAGTCAAGAGTTCGAACTCCTGACCTCAAGTGAAACTCCCATC
305	ATACAAGAGTCATGTACAAGACCTTGCTTCGAGACCATCCTGGCTAATTTGGTGAAACCC
306	CCAAGTAAAATGTTGTTCACTTTTGTGCTCGATGCAAAAATCCTCAATAAAATACTGGCA
307	AATGTTCTCTTATGAACATCATTTAAGTTCGAACTCCTGACCTCAAGTGAAACTCCCATC
308	ACCTGAAGAAACATTGTTTTCTTAAAAATCGATCTCTTGACCTTCTGATCTGCCTGCCTC
309	AGAAGTTTAAGCTACAAAATAAAATGTTTCGAACTCCCGACCTCCAGTGGAAGTTCACAC
310	TCTCTCTGGCCACTTATTTATTTATTTTTCGATCTCCTGACCTGGAACATCACCCTTTTG
311	GGCAAGTGGATAGATTGAGCCCAGGAAGTCGAACTCCTGACCTAAGGTGATCTGTCCACC
312	TACAACAGGCTCCAAGACAACACTTTATTCGAACTCCTGACCTCAGATGATTCATCTGCC
313	ACCTGATTTTGCATCGGAGAATTCACACTCGAGACCAGCCTGGCCAGGATGATGAAACCC
314	AGAATAAGAAGGGAAGATAAGGACAGAATCGAACTTCCTCCTTTAGCTCGGAGAAGTTTG
315	CCTTACGATGGGGTCCCAGCTGGACACCTCGAGACCAGCCTGAGAAATACGGTGAAACCC
316	GAGCTAAATCGCTTTGATTGGCTGTTCATCGATCTCCTGACTTCGTGATCAACCCACCTC
317	AATGTAAAGCATTACATGGAAACAGTACTCGAACTTCCTCCTTTAGCTCGGAGAAGTTTG
318	TTGCTGACTCTGGAGAGTCCAGGTGGTCTCGAGGACTATCTTTGTGGCGTTCTCTGTATT
319	TCTGAGAAACTTTTTTGTGAGAAACTGATCGAACTCCTGATCTCAGGAGATCCACCCACC
320	TTTCTCTAAGGTATGTTAAAACTCTTGTTCGAACTCCTGACCTCATTATCTGCCCACCTT
321	GAAATCAAGATAGGAATTTAAAAATTCTTCGAACTCCTGATCTCGTGATATGCTGGCCTC
322	CCAAAACAAAAATAGCACTGACAAAAGATCGATCTCTTGACCTCGTACTCTGCCTGCCTT
323	TGACAAAGAAAAAGTATGCAAAAAGAAGTCGAACTCCTGGCTTCAAGTAAGAGTTCACTT
324	CAGCAAAGTTTTATTGTAAAATAAGAGATCGAACTCCTGACCTCCAGTCATCCACCCGCG
325	TCCAACATTCAGAGTTTATTTATTTGAATCGATCTCTTGACTTCATGATCCACCTGACTT
326	CAAAAAAATGAACAGTACTTTTTTCTTATCGACTTCTTCCTGGTTTAGTCTTAGGAGGGT
327	GTATTCTCAGTAGAAATTCTTTTATTTTTCGATCTCCTGACCTTGTCATTCTCCCATCTC
328	GAATAAATGAAAGGCCTAGCTAAAGCAGTCGAACTCCTGACCTCAAGTAATCCAACCACC
329	TGAATGTCTTGGTAGTAATTTGACAATATCGATCTCCTGATCTTGTGATTCCCCCACCTT
330	TCATCTATATTTTCTTCTCTTAGGTATTTCGATGTTCATCAGGGATGTTGGTTTAAAATT
331	TGAGATTTTGTCTCAAAAAAAAAAAAAGTCGAACTCCTGACCTCAGGTCATCAGCCTGCC
332	AAGTTCAACAAGGTTGCCAATTACCAAATCGAACTCCTGACCTCAGGCAGTCACCTTCTT
333	TCTGTCTTTGCTTTTGCAGTTTTCCTCATCGAACTCCTGACCTGATGATCCCCCTACTTG
334	CACAGGGTGACAGGAGACAGAATGAGAGTCGAACTCCTGACCTCAGGTGAATAACCTGCC
335	TTATTTAGGAATGGTTTCCTTTAGCACTTCGAACTCCTGACTTCGGGTGATCCCTCCCAT
336	AAGATCGTTATTGCTTGAGCCCAGGAGTTCGAACTCCTGACCTCAAGAGATCTGTCCTCC
337	GTACCTGGGGGACAGAAATTGCAGTGAGTCGAACTCCTGACACCTCAGGTGATCTACCTG

338	CTGTTTTCTATCCTTCCTGATATTTCACTCGAACTCCTGACCTGATGATCCCCCTACTTG
339	TTCAAAAGACAAAAAAGACAACCAAAAGTCGAACTCCTGACCTGAAGGGATCTGTCTGCC
340	AGTTACTGAGATAAGAGTTTTTAAAAAATCGAACTCGTGACCTCAAGTGGTCTCCCTGCC

Table 8.g3

301	5	111524158	111524187	111570084	111570113
302	3	87152303	87152332	87177253	87177282
303	5	74394033	74394062	74537629	74537658
304	16	57315879	57315908	57359854	57359883
305	X	2530522	2530551	2568740	2568769
306	4	104786134	104786163	104802497	104802526
307	16	57156888	57156917	57359854	57359883
308	14	30757126	30757155	31037035	31037064
309	2	68135775	68135804	68359454	68359483
310	16	2330924	2330953	2525043	2525072
311	15	63969642	63969671	64108754	64108783
312	22	38681472	38681501	38808898	38808927
313	7	100034011	100034040	100078294	100078323
314	3	70700061	70700090	70796349	70796378
315	2	120597117	120597146	120697177	120697206
316	19	48332989	48333018	48564008	48564037
317	3	70698158	70698187	70796349	70796378
318	5	58515710	58515739	58574418	58574447
319	1	7826886	7826915	7998916	7998945
320	X	77765456	77765485	77954365	77954394
321	3	158501079	158501108	158576895	158576924
322	1	193673928	193673957	193858567	193858596
323	12	116931029	116931058	116967047	116967076
324	17	7668422	7668451	7813674	7813703
325	12	87683905	87683934	87814377	87814406
326	12	46756687	46756716	46879131	46879160
327	12	56273820	56273849	56415252	56415281
328	7	26166928	26166957	26347616	26347645
329	4	40800077	40800106	41041103	41041132
330	5	101857207	101857236	102113264	102113293
331	22	38973252	38973281	39095840	39095869
332	5	55874718	55874747	56069490	56069519
333	5	30097467	30097496	30144496	30144525
334	3	30481417	30481446	30652455	30652484
335	19	49754690	49754719	49902221	49902250
336	10	26780455	26780484	26959701	26959730
337	8	129796095	129796124	129899085	129899114
338	5	30016873	30016902	30144496	30144525
339	11	65076107	65076136	65228517	65228546

340	19	51524665	51524694	51712236	51712265	

Table 8.g4

301	5	111520188	111524187	111570084	111574083	NA
302	3	87148333	87152332	87173283	87177282	1
303	5	74394033	74398032	74537629	74541628	1
304	16	57311909	57315908	57359854	57363853	1
305	X	2530522	2534521	2564770	2568769	NA
306	4	104782164	104786163	104802497	104806496	NA
307	16	57156888	57160887	57359854	57363853	1
308	14	30757126	30761125	31037035	31041034	1
309	2	68135775	68139774	68359454	68363453	1
310	16	2330924	2334923	2521073	2525072	NA
311	15	63965672	63969671	64104784	64108783	1
312	22	38681472	38685471	38808898	38812897	1
313	7	100030041	100034040	100078294	100082293	1
314	3	70696091	70700090	70796349	70800348	NA
315	2	120597117	120601116	120697177	120701176	1
316	19	48329019	48333018	48560038	48564037	1
317	3	70698158	70702157	70796349	70800348	NA
318	5	58511740	58515739	58570448	58574447	1
319	1	7822916	7826915	7994946	7998945	1
320	X	77765456	77769455	77954365	77958364	1
321	3	158501079	158505078	158576895	158580894	1
322	1	193673928	193677927	193854597	193858596	1
323	12	116931029	116935028	116963077	116967076	1
324	17	7664452	7668451	7809704	7813703	1
325	12	87679935	87683934	87810407	87814406	NA
326	12	46752717	46756716	46875161	46879160	NA
327	12	56269850	56273849	56415252	56419251	NA
328	7	26162958	26166957	26343646	26347645	1
329	4	40800077	40804076	41041103	41045102	NA
330	5	101857207	101861206	102113264	102117263	NA
331	22	38969282	38973281	39095840	39099839	1
332	5	55874718	55878717	56069490	56073489	NA
333	5	30097467	30101466	30144496	30148495	NA
334	3	30481417	30485416	30652455	30656454	1
335	19	49754690	49758689	49902221	49906220	1
336	10	26780455	26784454	26959701	26963700	NA
337	8	129796095	129800094	129899085	129903084	NA
338	5	30012903	30016902	30144496	30148495	NA
339	11	65076107	65080106	65228517	65232516	1
340	19	51520695	51524694	51712236	51716235	NA

Table 8.g5

301	NA			
302	13.69963199	13.45512319	13304.549	11230.41165
303	11.8818126	11.6373293	3773.82707	3185.555597
304	9.341391495	9.096925399	648.6927455	547.579793
305	NA			
306	NA			
307	10.79493533	10.55091428	1776.639591	1500.17416
308	10.60237505	10.35841003	1554.651021	1312.780524
309	9.430097761	9.186206505	689.8303345	582.5372542
310	NA			
311	12.56847353	12.3248347	6074.178243	5130.325674
312	11.15640944	10.91361244	2282.516284	1928.966592
313	11.81006925	11.56748073	3590.749382	3034.999854
314	NA			
315	10.08324621	9.840771544	1084.824695	916.995945
316	11.28389732	11.04169515	2493.397741	2108.052599
317	NA			
318	10.79233693	10.55098677	1773.442609	1500.249536
319	10.52171506	10.28067554	1470.116798	1243.917884
320	11.33684904	11.09581775	2586.613966	2188.638164
321	9.125908582	8.88493132	558.6917017	472.7492373
322	9.387992848	9.147115368	669.9886514	566.9648038
323	8.807058565	8.566461601	447.9079818	379.1070829
324	11.46909828	11.22853799	2834.931736	2399.533081
325	NA			
326	NA			
327	NA			
328	12.41326573	12.17309412	5454.630414	4618.133366
329	NA			
330	NA			
331	12.06973489	11.82972297	4298.849518	3640.000592
332	NA			
333	NA			
334	12.55842206	12.31893366	6032.005646	5109.38403
335	11.07345524	10.83400571	2154.974733	1825.411125
336	NA			
337	NA			
338	NA			
339	10.55168093	10.31288031	1500.971564	1271.997665
340	NA			

Table 8.g6

301	Hg38_5_111518564_111524189_111570082_111578257_FR	OBD183-2001
302	Hg38_3_87150717_87152334_87167991_87177284_FF	OBD183-2005
303	Hg38_5_74394031_74404922_74537627_74543794_RR	OBD183-2009
304	Hg38_16_57311821_57315910_57359852_57364698_FR	OBD183-2013
305	Hg38_X_2530520_2531841_2565626_2568771_RF	OBD183-2017
306	Hg38_4_104772558_104786165_104802495_104808042_FR	OBD183-2021
307	Hg38_16_57156886_57158385_57359852_57364698_RR	OBD183-2025
308	Hg38_14_30757124_30766270_31037033_31039641_RR	OBD183-2029
309	Hg38_2_68135773_68139581_68359452_68365969_RR	OBD183-2033
310	Hg38_16_2330922_2335048_2522663_2525074_RF	OBD183-2037
311	Hg38_15_63964667_63969673_64105032_64108785_FF	OBD183-2041
312	Hg38_22_38681470_38688482_38808896_38820306_RR	OBD183-2045
313	Hg38_7_100032804_100034042_100078292_100082051_FR	OBD183-2049
314	Hg38_3_70698156_70700092_70796347_70803301_FR	OBD183-2053
315	Hg38_2_120597115_120611528_120697175_120701136_RR	OBD183-2057
316	Hg38_19_48331809_48333020_48561743_48564039_FF	OBD183-2061
317	Hg38_3_70698156_70700092_70796347_70803301_RR	OBD183-2065
318	Hg38_5_58504296_58515741_58568633_58574449_FF	OBD183-2069
319	Hg38_1_7824282_7826917_7994232_7998947_FF	OBD183-2073
320	Hg38_X_77765454_77772092_77954363_77959007_RR	OBD183-2077
321	Hg38_3_158501077_158507758_158576893_158580745_RR	OBD183-2081
322	Hg38_1_193673926_193687017_193851226_193858598_RF	OBD183-2085
323	Hg38_12_116931027_116934300_116959223_116967078_RF	OBD183-2089
324	Hg38_17_7665587_7668453_7811362_7813705_FF	OBD183-2093
325	Hg38_12_87675372_87683936_87811804_87814408_FF	OBD183-2097
326	Hg38_12_46746378_46756718_46865284_46879162_FF	OBD183-2101
327	Hg38_12_56269538_56273851_56415250_56418662_FR	OBD183-2105
328	Hg38_7_26158147_26166959_26344790_26347647_FF	OBD183-2109
329	Hg38_4_40800075_40804237_41041101_41047221_RR	OBD183-2113
330	Hg38_5_101857205_101863977_102113262_102119968_RR	OBD183-2117
331	Hg38_22_38970835_38973283_39095838_39099483_FR	OBD183-2121
332	Hg38_5_55874716_55883166_56069488_56074299_RR	OBD183-2125
333	Hg38_5_30097465_30100060_30144494_30156052_RR	OBD183-2129
334	Hg38_3_30481415_30486448_30652453_30660274_RR	OBD183-2133
335	Hg38_19_49754688_49759950_49902219_49904931_RR	OBD183-2137
336	Hg38_10_26780453_26788708_26959699_26967983_RR	OBD183-2141
337	Hg38_8_129796093_129803717_129899083_129904705_RR	OBD183-2145
338	Hg38_5_30008006_30016904_30144494_30156052_FR	OBD183-2149
339	Hg38_11_65076105_65079526_65228515_65232564_RR	OBD183-2153
340	Hg38_19_51523072_51524696_51712234_51719472_FR	OBD183-2157

Table 8.g7

301	CCACCAACACCACTTTCAAACCCGCA	OBD183-2003	CAAACTACATCCTGTGAGCCAAACTA
302	AATTCTCACGGGCAAAGCAGATG	OBD183-2007	ATGGCGAGTCGCGCTTTCCGTAAT

303	CCCTGAGGTAGCACAACAGAACC	OBD183-2011	TAGTGGATTCCTGGCTGGGCACG
304	CCCCTAACTTCCTCTTCTCACCC	OBD183-2015	GATAGTGAGCCCAGAGCAGTGGC
305	CTTGCCCGCTCCTGGACAGGTGGTC	OBD183-2019	TACGATGTGACAGAGCCGGTCCCG
306	TTAAAAAGACGAACACTCTGGGTT	OBD183-2023	TTTATTTTAGCGTCTAGGGCCTGAG
307	TAAAAATCTGTCAAGCCAGTTAG	OBD183-2027	TTCATCCAAGCTCCAAGCTACGA
308	AGCGTACACGAGCGACAACGACGC	OBD183-2031	TAAAGACTTAGAGTTCCGGCCCAC
309	CCTCTGACGCAATGAGCCGCAAG	OBD183-2035	CTGTATACTGCCACACATTAGAG
310	CTCCGTGAGTCCTCTTAGCCCCT	OBD183-2039	CAAGCCAAGGTTCAAGCCCTGAC
311	AAATCGGGCCCTACTGCTACTGGCA	OBD183-2043	GCGTCACCCGGCTCCGAAAATATG
312	TCTCCTATACACTTGTGTACCCTAG	OBD183-2047	CGATGCTCTCTATGGTTCAATCC
313	GTATAAGAAGATGCGTCGGTGCT	OBD183-2051	TCGACAACCAGTATGGTGATTCCT
314	TTCGGCCTTGCAGGCTGGCACAC	OBD183-2055	ATCCCCTAGTCGAGATGCATGTGA
315	AAGGAGTTCCACCCTCCGAAGGATC	OBD183-2059	CGATTTTCGGGCGAAGGGGTTTGTA
316	GAACACGGAGAGGTATCCCGCCCG	OBD183-2063	AGGACACTGTGTAACGTAACTGTA
317	TTCATCGTACCGTATCTGCCGTTA	OBD183-2067	GAGTACAGATAATTGTGGAGAACGT
318	TGAGTCCAACGCGTAGGCTAGAA	OBD183-2071	GGTGGCTAGGCTGTCTTGACCCAAT
319	TGTAGACAGTGTGCACTAGACACT	OBD183-2075	GCTTTGGCGCGTAAAGGTAACCCA
320	TGTGAAAAAACTCCCCTCAGCCATC	OBD183-2079	CGGACTTCGGTTATGAAGGGTGAAA
321	TCGGATGGTGACTGGAGCGTTAT	OBD183-2083	GGCACTCTCGTACAAAAGCGTTT
322	ACAGGATCCCAGCCTTAGCGGCCT	OBD183-2087	TGCGGTGCGTGTATTCGCAGTCGAA
323	AACTGGAATCCCGCATTGCGGTAGC	OBD183-2091	ACACATGCACCTCGAGTGGTTCT
324	GAAAACTCGTGGAGTTGGTCCGCG	OBD183-2095	AACCAACTGGCTTTCTCGGTCGG
325	TAGCGAATACGAGTGTACCGAAC	OBD183-2099	CCAACCGTAGTTATCTTCGTAACA
326	ACAGGAACCATGATCAATTGACC	OBD183-2103	TCTAGTTACCCCACCAGAAGGAC
327	GCCGAACGGATTCTGATCATAGT	OBD183-2107	AACCTGTCAAACGACGCCACTTCG
328	TCTCCATCCCTCCTCCTCCAGAT	OBD183-2111	TTACGCCACCACACTTCAGCCCC
329	TGAAGCAAAGTTCTGACGGCTAT	OBD183-2115	CCAGTTGAGACTCTCGGACTACAAC
330	CGCAGTTTCCACGGAACTAGATTGC	OBD183-2119	GTCCTAAGTAGAGGATTCCAAGGCG
331	TTCGTGTGCAGAATAGCGGCATCG	OBD183-2123	TACGGGCTCGTCTTAACGGGAAT
332	CTTTGGCTGTTTTCTCACATCGTGG	OBD183-2127	GTTAGTGGGGACACGGCGAACCACT
333	CTAACTCGAACATTAGACGTGCT	OBD183-2131	TGCAGCGTCGATGCATGGGTGGTC
334	GTCCGACATGGTTGAAGTTTTCCTA	OBD183-2135	CTGTCGATCGTCGCCGCAATGGC
335	TCCGGTGAGATGGAGGCATTGGTCT	OBD183-2139	GACACTGCCAAGATCAGTCTGGC
336	CCTCATGTATCGAGGCAGATGGGG	OBD183-2143	CCACAGATTCTTTAAACATACCCT
337	ACTCTAGTACAAGTCATCTCGAGCC	OBD183-2147	ACTATTCTATGGCAAGTGCTGAG
338	TCGCGTGATGAACCGCTTCGAGCGC	OBD183-2151	GTCTGAATCTTATGTGGAAACCC
339	AAATAAATGGGCGTGGTGGCACATA	OBD183-2155	GTTCTGTTTCTTGACCAGTGTGTTGA
340	CTACATCCAGTATCTTCAGAAAACAC	OBD183-2159	CCACTCTTGACCTCAGTTTCCCTGTA

Table 8.g8

	qPCR PRIMER SET	
	probe	qPCR Primer ID
13	Hg38_1_99631771_99639876_99708395_99714403_FF	OBD183-q765
14	Hg38_19_34387270_34393741_34499918_34506554_FR	OBD183-q425

16	Hg38_1_99659612_99670382_99708395_99714403_FF	OBD183-q709
20	Hg38_6_132703799_132711156_132757539_132761457_FF	OBD183-q537
34	Hg38_7_29905017_29911792_30016613_30019069_FR	OBD183-q733
35	Hg38_8_5120591_5125403_5295149_5302540_FF	OBD183-q753
36	Hg38_1_109341939_109348573_109359719_109366704_RR	OBD183-q481
37	Hg38_8_5115633_5120591_5295149_5302540_FF	OBD183-q785
40	Hg38_22_34722666_34726389_34750116_34757594_RR	OBD183-q521
45	Hg38_16_20282299_20286605_20445721_20457266_FR	OBD183-q457
46	Hg38_8_47127019_47130852_47283075_47288879_FR	OBD183-q677
47	Hg38_6_46130577_46139255_46168740_46175484_FF	OBD183-q685
48	Hg38_1_241870739_241874965_242033568_242040771_FF	OBD183-q569
50	Hg38_15_34886920_34889054_34974237_34980574_FF	OBD183-q693
58	Hg38_6_13822111_13826619_14070076_14075830_RF	OBD183-q609
62	Hg38_1_27966549_27971202_28029814_28033207_FR	OBD183-q713
65	Hg38_7_66298919_66305803_66392051_66398673_FF	OBD183-q797
70	Hg38_12_45013447_45019401_45077155_45087147_FF	OBD183-q517
71	Hg38_16_12325962_12334419_12372790_12375829_FF	OBD183-q637
73	Hg38_3_157551093_157568769_157606016_157614360_FF	OBD183-q621
76	Hg38_6_13822111_13826619_14011144_14016925_RF	OBD183-q721
77	Hg38_5_55874716_55883166_56069488_56074299_FR	OBD183-q441
78	Hg38_1_109359719_109366704_109611657_109614647_RF	OBD183-q541
79	Hg38_19_50732808_50735232_50961391_50964466_RR	OBD183-q573
80	Hg38_8_55800026_55805370_55942582_55947045_FF	OBD183-q741
82	Hg38_X_70952076_70955538_71213839_71218089_FF	OBD183-q773
83	Hg38_11_93057516_93069988_93228754_93237221_FR	OBD183-q597
85	Hg38_20_4763308_4769930_4885862_4890450_FF	OBD183-q581
90	Hg38_19_38895868_38902769_39089148_39091382_FR	OBD183-q789
91	Hg38_1_17044824_17050263_17192218_17198113_FF	OBD183-q761
92	Hg38_5_76420596_76423340_76572657_76583168_FR	OBD183-q505
93	Hg38_20_34791262_34795203_34932162_34933974_FF	OBD183-q653
94	Hg38_12_8119443_8124985_8341969_8343630_FF	OBD183-q625
96	Hg38_1_109359719_109366704_109385998_109391476_RF	OBD183-q501
97	Hg38_1_187499122_187506399_187600952_187612332_FF	OBD183-q473

Table 9.a

	qPCR PRIMER SET	
	Sequence	qPCR Primer ID
13	CCACTAAATGGAGCAGTTGTTTGACCTC	OBD183-q767
14	GTGCCCACTGCCCACAGGACGCA	OBD183-q427
16	CACACTTAGGGTCTCCTTCTATGTCCCC	OBD183-q711
20	GGCGTTGTGCGGTTTTGAGAATAGTTCC	OBD183-q539
34	CCCACATAGAAGAATGAAGTTGGACCCC	OBD183-q735

35	GCGTGTATTTCTGATTCTTGCCACCTCC	OBD183-q755
36	CCCCTCCGTGGGACAGGAACAGTT	OBD183-q483
37	CAAGAGCAAGCCACGGGAGGTAGGGC	OBD183-q787
40	GGTGAAAGGAAGGTGTGTGAAGTGAACC	OBD183-q523
45	GGCAGAGAAGCCAGAGTGAGCCAAGAC	OBD183-q459
46	AGAAAGTCCCAACTCTGAAGAAGTCCTA	OBD183-q679
47	AATCATCATCTCTGGAGCCTCTGAAAGC	OBD183-q687
48	GTGTTCATTGTGAGATGTGTGACTTGAC	OBD183-q571
50	CCACTCCTTCTCTACAACTTCACCAGAT	OBD183-q695
58	GGAAGAAGGGACAGGTCAGAGAGGTGAG	OBD183-q611
62	CCCCATACTCCTCTCCCCTGTGGTTCAG	OBD183-q715
65	TAAGACCTGTAAACTGGGAGAGCCC	OBD183-q799
70	GCCAATAAAACAAATAAAAGCCCCTCAC	OBD183-q519
71	GCACACCGCCAAGGAACTCGCTTAGC	OBD183-q639
73	GGTCTTATTCATTCTGTGGGTTGGCTCT	OBD183-q623
76	CGGCTCCCTCCAGGCTCTGCTCA	OBD183-q723
77	GCATCCTTCTCTCACTGGGTATTCCTTT	OBD183-q443
78	CCTGGGTTGCTGGTGTCTGTGTTTCCTC	OBD183-q543
79	CTTGCTTAGAAAACCATCTGTGCCTGGG	OBD183-q575
80	GTAGTAGACGCATTCTGTGGAGTTGGAG	OBD183-q743
82	TAAACAGGTTCATCCAGGTTGTGAGGTA	OBD183-q775
83	CAGACCGATGGAATGGAACCGAGAGCCC	OBD183-q599
85	CTGACGAGGTGTCTGCTCCATTGCCTG	OBD183-q583
90	CATCTGCTTTTGTATGGTTGTGAGC	OBD183-q791
91	GCCTGTGGGATGACTGTGGTTACCTGC	OBD183-q763
92	CCAGGCAATGCTACGCCAGGCTTTGTGC	OBD183-q507
93	GGGTTCATCCTCGGTAGAGCGGCAAAGC	OBD183-q655
94	CTGTGAAGGTGTGGAGAGCACTTAGGGA	OBD183-q627
96	CACTGAAGCAAGTTCTGGAGGTGGTAGT	OBD183-q503
97	GCTGATGCTTCTGGCACCTGGACCAC	OBD183-q475

Table 9.b

	qPCR PRIMER SET	
	qPCR Reverse Seq	Probe ID
13	GGAGAGGACGAGGAGGTCAGTTCAGAG	OBD183-p765
14	CCGCAGGTGGCAACGACGACACAGTAGG	OBD183-p425
16	GGAGAGGACGAGGAGGTCAGTTCAGAG	OBD183-p709
20	TCGTTGCTAAAAGAGCCTACTTCCTAAT	OBD183-p537
34	GCTGGTCTAAACAGAAGGAAGAGAGGTG	OBD183-p733
35	GAAAAGTGTGTAGGTCAGGTGTAGTGGC	OBD183-p753

36	GAGTCACCTTTCGTCTTTTCCATTTCCC	OBD183-p481
37	GAAAAGTGTGTAGGTCAGGTGTAGTGGC	OBD183-p785
40	ACATTCTTTCATCTACTCTTCCGTCTGC	OBD183-p521
45	CACGAGGCAACTCACCCAGAGACCCC	OBD183-p457
46	GCTGTTCCTCCATCTCTTGCCTTCTCCT	OBD183-p677
47	CTCTGCTGGGTGTCATTCCTTTTCCCTC	OBD183-p685
48	GCCCCGCCTGTCTGATTTCTTATTGTTG	OBD183-p569
50	TTTGAAAAGACCGTCGGGTGCGG	OBD183-p693
58	GGTGTCTCGCTCTGTCGCCAGGCTTCAG	OBD183-p609
62	CAGTGCCCTGGTGAAGCAGAGGTTCTC	OBD183-p713
65	GGTGCCCAGGAAACAGCAGTGAACAAGG	OBD183-p797
70	GCCCTGTGTTCTGTCTTATCTCTCCATC	OBD183-p517
71	TCTCTCTCCAGGGTCTCTCCCAGGCTGC	OBD183-p637
73	CCATCAGGTTTGGTGTCTGGTGGAGGC	OBD183-p621
76	GGTGTCTCGCTCTGTCGCCAGGCTTCAG	OBD183-p721
77	ATAACCAGCCACAGTTCTCACTTTGAAT	OBD183-p441
78	GAGTCACCTTTCGTCTTTTCCATTTCCC	OBD183-p541
79	GAGACAGGCTGAGGGAGAACCCAAGC	OBD183-p573
80	GCCGCTGGCAACCTCCGCTCTTTCTG	OBD183-p741
82	CTGGGACAGAAGGAGAGGGAAAGAGTTG	OBD183-p773
83	GCCACAAGGCAACTGGTCTGAATGTTTC	OBD183-p597
85	GTGCCTGGCTTCCTTCATCTACCAAGAC	OBD183-p581
90	GGAATGTTTCTGCTAAATCCAAAAGTAG	OBD183-p789
91	GGAGGGCAGGAAGGTTGGTGATGGGCAG	OBD183-p761
92	CCTCTTGACCTCCAGCGAGACCACTCC	OBD183-p505
93	CCCCACCCAATGCTGTCCTTCCTTTGAT	OBD183-p653
94	CCACACACACCACCCAGGAGCCCAGTG	OBD183-p625
96	GAGTCACCTTTCGTCTTTTCCATTTCCC	OBD183-p501
97	TTGAACATTAGGCTGGGCACGGTGTCTC	OBD183-p473

Table 9.c

	qPCR PRIMER SET	
	Probe Sequence	Probe ID
13	TCAATTCCACAAATCATCGAGACCAGCCTGACTG	OBD183-p767
14	ACAACTTCGAACTCCTGACCGAAGCGATGATCC	OBD183-p427
16	AGCACTTGAACTTACATTAAGTCATCGAGACCAGC	OBD183-p711
20	TGTGAATCGAACTCCTGACCTCAAATAATTCGCC	OBD183-p539
34	AATGAATCGAACTCCTGACCTCAGAAGATTTGCC	OBD183-p735
35	ACTCCCAAGCCATTGTGTTGTCTAAATCGAACTCC	OBD183-p755
36	TACATGTCGAACTCCTGACCTCAGGTAATCTTCC	OBD183-p483
37	ATGTTGTCGAACTCCTGACCTCAACTGATTTGTC	OBD183-p787
40	ACTGAAATTCGAGGAGTATCTTTGTGGCTTTCTC	OBD183-p523

45	ACCATTTGTCTAACCAATCAATCGAACTCCTGACC	OBD183-p459
46	TGACTGAAATTATCTTCGAACTCCTGATCTCAGG	OBD183-p679
47	ATTAAGCCTTTCGAACTCCTGACTTTGTGATTCGC	OBD183-p687
48	TCCACTAGAAGACTTCGAACTCCTGACCTTGTGC	OBD183-p571
50	ATAAATTCGATCTCTTGACCTTGTGACTCACCCG	OBD183-p695
58	TCAAAATCGATCTCCTTACCTCGTAATCTGCCTG	OBD183-p611
62	AGGCACAGTCAGTTTTACATTCGAACTCCTGACC	OBD183-p715
65	AGGGCTATTTCGAACTCCTGACTTGAGGTGATTC	OBD183-p799
70	TTCAAATCGAACTCCTGACCTCATTACCCACCC	OBD183-p519
71	AATCATCCCCGGGTGCATTCGAACTCCTGACC	OBD183-p639
73	TGTGATGTGAGGTAAGAGTTCGATCTCCTGACC	OBD183-p623
76	TGCCTTAGTCGATCTCCTTACCTCGTAATCTGC	OBD183-p723
77	ACACACTTCGAACTCCTGACCTCAGGCAGTCAC	OBD183-p443
78	AGCCAAGGTGGAGAACTACTGAGGTCGAACTCC	OBD183-p543
79	TCCATTTCATCGAACTCCTGACCCTAGGTGATCC	OBD183-p575
80	ACCTAGATACATCGAACTCCTGACCACAGGTG	OBD183-p743
82	AGAGCAACAGCCATCGAAGTCCTGACCTCAGG	OBD183-p775
83	AGGGAAGTTTTATCGAACTCCTGACCTTGTAATC	OBD183-p599
85	AGTCTATCGAACTCATGACCTCAGGTTATCCTCC	OBD183-p583
90	TGCACTGACACAGCAGAGTCGAACTCCTGACC	OBD183-p791
91	TCTAAGTCGAACTCCTGACCTCAGGTTATCCATC	OBD183-p763
92	TGGTGCTTGGTCGAACTCCTGACTTCAGGAAATC	OBD183-p507
93	TGCATGATCGAACTCCTGACCTTACGATCCACC	OBD183-p655
94	TCATAACTCGAACTCCTGACCTCATGATTTCCTG	OBD183-p627
96	TGTGCTGTAGATGAGGAATCGAACTCCTGACCTC	OBD183-p503
97	AGTTATACAGAGATAAAATAAGTCGAACTCCTGG	OBD183-p475

Table 9.d

	qPCR PRIMER SET
	Probe Sequence
13	TCAGTCAGGCTGGTCTCGATGATTTGTGGAATTG
14	TCGCTTCGGTCAGGAGTTCGAAGTTGTCAAAACC
16	AGGCTGGTCTCGATGACTTAATGTAAGTTCAAGTG
20	AGGTCAGGAGTTCGATTCACATACTTCTTTCTGA
34	TCTTCTGAGGTCAGGAGTTCGATTCATTTTGAGT
35	AGGAGTTCGATTTAGACAACACAATGGCTTGGGAG
36	AGATTACCTGAGGTCAGGAGTTCGACATGTAAA
37	TCAGTTGAGGTCAGGAGTTCGACAACATTAGTAAG
40	AGAGAAAGCCACAAAGATACTCCTCGAATTTCAG
45	AGGTCAGGAGTTCGATTGATTGGTTAGACAAATGG
46	ACCTGAGATCAGGAGTTCGAAGATAATTTCAGTC
47	TGCGAATCACAAAGTCAGGAGTTCGAAAGGCTTA

48	AGCACAAGGTCAGGAGTTCGAAGTCTTCTAGTGG
50	TGAGTCACAAGGTCAAGAGATCGAATTTATGG
58	AGGCAGATTACGAGGTAAGGAGATCGATTTTGA
62	AGGTCAGGAGTTCGAATGTAAAACTGACTGTGCC
65	TGAATCACCTCAAGTCAGGAGTTCGAAATAGCCC
70	TGGGTGGGTAATGAGGTCAGGAGTTCGATTTGAA
71	ATTTGAGGTCAGGAGTTCGAATGCACCCGGG
73	AGGTCAGGAGATCGAACTCTTACCTCACATCAC
76	AGGCAGATTACGAGGTAAGGAGATCGACTAAGG
77	TGACTGCCTGAGGTCAGGAGTTCGAAGTGTGT
78	AGGAGTTCGACCTCAGTAGTTCTCCACCTTGGC
79	ACCTAGGGTCAGGAGTTCGATGAAATGGATGGG
80	TCACCTGTGGTCAGGAGTTCGATGTATCTAGG
82	ACCTGAGGTCAGGACTTCGATGGCTGTTGCTC
83	AGATTACAAGGTCAGGAGTTCGATAAAACTTCCC
85	AGGAGGATAACCTGAGGTCATGAGTTCGATAGACT
90	AGGTCAGGAGTTCGACTCTGCTGTGTCAGTGC
91	ACCTGAGGTCAGGAGTTCGACTTAGATATTCAGTG
92	AGATTTCCTGAAGTCAGGAGTTCGACCAAGCACC
93	TGGATCGTAAGGTCAGGAGTTCGATCATGCAA
94	AGGAAATCATGAGGTCAGGAGTTCGAGTTATG
96	TGAGGTCAGGAGTTCGATTCCTCATCTACAGCAC
97	TCCAGGAGTTCGACTTATTTTATCTCTGTATAAC

Table 9.e

	probe	gene	RPs
1	Hg38_12_57452982_57456003_57739419_57741914_FR	ARHGAP9	20695.53197
2	Hg38_12_8219310_8221338_8341969_8343630_RR	CLEC4A	22476.39239
3	Hg38_12_57452982_57456003_57601753_57604119_FR	ARHGAP9	26019.28963
4	Hg38_3_194096425_194098698_194154195_194165166_FF	CPN2	36563.85323
5	Hg38_12_57452982_57456003_57739419_57741914_FF	ARHGAP9	39468.24142
6	Hg38_3_194044420_194052936_194096425_194098698_RF	CPN2	41488.61576
7	Hg38_19_55711882_55714266_55776223_55778463_RF	NLRP9	47528.20138
8	Hg38_3_194096425_194098698_194189178_194197532_FF	CPN2	41354.35321
9	Hg38_1_121333642_121342053_121403378_121413898_FF	FCGR1B	53004.08958
10	Hg38_22_24148514_24151453_24244877_24251612_FR	SUSD2	39791.5111
11	Hg38_20_48471129_48476648_48496455_48503402_RF	PREX1	46296.68446
12	Hg38_2_11008274_11010451_11159160_11162827_FR	ROCK2	60658.80582
13	Hg38_17_7929728_7931226_8055790_8058200_RF	TRAPPC1	64657.79207
14	Hg38_1_203176687_203182913_203364177_203368484_FF	CHI3L1	59766.30883
15	Hg38_1_203071961_203079830_203176687_203182913_RF	ADORA1	57174.38857
16	Hg38_22_42578934_42580470_42682810_42685060_FR	CYB5R3	53123.90834
17	Hg38_6_88165452_88168090_88188008_88196988_RF	CNR1	63654.72943

18	Hg38_17_7929728_7931226_7944762_7946565_RF	TRAPPC1	52010.98025
19	Hg38_19_55674838_55678632_55776223_55778463_RF	NLRP9	60382.50989
20	Hg38_1_203176687_203182913_203223882_203229092_FF	CHI3L1	61234.27208
21	Hg38_16_85802241_85804577_86052797_86054069_RR	IRF8	60406.66065
22	Hg38_16_85802241_85804577_85995087_85996356_RR	IRF8	58149.21291
23	Hg38_2_47522457_47530546_47595212_47601970_FF	MSH2	57045.54636
24	Hg38_2_47354005_47355988_47522457_47530546_RF	EPCAM	57499.77068
25	Hg38_1_203176687_203182913_203350351_203352113_FR	CHI3L1	65021.94766
26	Hg38_2_11008274_11010451_11142335_11148573_FF	ROCK2	65585.09004
27	Hg38_2_1633514_1641369_1669637_1675007_RF	PXDN	68553.52952
28	Hg38_5_75334371_75336800_75362869_75366450_FR	COL4A3BP	59160.03332
29	Hg38_3_194096425_194098698_194189178_194197532_FR	CPN2	56698.06689
30	Hg38_20_48373933_48385139_48496455_48503402_RF	PREX1	55522.20115
31	Hg38_5_140633075_140635001_140734427_140740603_RR	CD14	54888.93545
32	Hg38_11_59792208_59794193_59978140_59991387_RR	TCN1	74005.01033
33	Hg38_11_5689507_5691245_5788110_5795433_FF	TRIM22	88583.0796
34	Hg38_6_1238869_1247003_1325058_1328459_RR	FOXC1	82994.49164
35	Hg38_19_55694907_55697956_55776223_55778463_RF	NLRP9	64771.6835
36	Hg38_8_30132536_30134220_30177058_30181551_RR	DCTN6	74556.42789
37	Hg38_11_63903088_63909160_64170615_64174763_FF	OTUB1	63195.39089
38	Hg38_5_140633075_140635001_140703783_140710933_RR	CD14	58926.91739
39	Hg38_5_75334371_75336800_75421277_75426441_FR	COL4A3BP	64569.86308
40	Hg38_1_203176687_203182913_203381983_203386317_FR	CHI3L1	65019.22414
41	Hg38_14_87760445_87771456_87814113_87820852_FF	GPR65	52190.12812
42	Hg38_X_1815902_1820657_1830879_1832345_RR	AKAP17A	91544.03603
43	Hg38_18_28150489_28152101_28322522_28342464_RR	AQP4	72068.78058
44	Hg38_19_55104500_55106500_55175439_55177687_FR	TNNI3	77938.82926
45	Hg38_1_201489507_201495563_201554857_201559521_RF	TNNI1	95434.40565
46	Hg38_1_159614098_159617749_159863199_159866609_RF	CRP	86219.89409
47	Hg38_1_201387330_201388480_201554857_201559521_RF	TNNI1	88125.35913
48	Hg38_12_110242070_110251176_110379081_110380448_RR	ATP2A2	89868.81994
49	Hg38_2_53751287_53756935_53865030_53869534_FR	GPR75	98485.8466
50	Hg38_1_159708294_159713893_159863199_159866609_RF	CRP	104796.2151

Table 10.a1

	FC:(class1/class2)	pfp	P.value	CCSs
1	-1.273955346	0.005801433	0.005727997	Immune
2	-1.257925344	0.003678786	0.003275206	Immune
3	-1.251537985	0.003591299	0.003182164	Immune
4	-1.219963576	0.001529047	0.000920221	Immune
5	-1.20992116	0.002056946	0.001478485	Immune
6	-1.204270443	0.001905941	0.001319886	Immune
7	-1.20352041	0.000548965	8.54501E-05	Immune
8	-1.20265895	0.0025339	0.002063472	Immune

9	-1.197079593	0.001529047	0.00092259	Immune
10	-1.195746952	0.005042802	0.004913289	Immune
11	-1.185895106	0.002250025	0.001670904	Immune
12	-1.183435224	0.000520629	6.99049E-05	Cardio
13	-1.183434809	0.001364867	0.000760179	Immune
14	-1.181127512	0.00048383	4.59179E-05	Immune
15	-1.180302978	0.000693008	0.00020761	Immune
16	-1.178910824	0.001087752	0.000477881	Immune
17	-1.178597726	0.002297443	0.001781961	Immune
18	-1.177395452	0.001369925	0.000768776	Immune
19	-1.175238807	0.000691883	0.000188452	Immune
20	-1.174498675	0.000691883	0.000204354	Immune
21	-1.174476154	0.00048383	3.64444E-05	Immune
22	-1.174324323	0.000580521	0.000141879	Immune
23	-1.173818675	0.002056946	0.001467992	Immune
24	-1.173804774	0.002172138	0.001594735	Immune
25	-1.172308346	0.000548965	0.000115314	Immune
26	-1.171668875	0.000786846	0.000252322	Cardio
27	-1.171515589	0.001905941	0.001326921	Immune
28	-1.171289424	0.001303562	0.000704034	Immune
29	-1.170754835	0.002297443	0.001765408	Immune
30	-1.169480391	0.002305285	0.001809211	Immune
31	-1.169390122	0.004420249	0.004159137	Immune
32	-1.168763954	0.00048383	3.28398E-05	Immune
33	-1.168388858	0.002316153	0.001827513	Immune
34	-1.168128163	0.00092227	0.00031414	Immune
35	-1.167926895	0.00063478	0.000168739	Immune
36	-1.167913965	0.005042802	0.004887801	Immune
37	-1.167215962	0.00092227	0.000315206	Immune
38	-1.166183201	0.003576526	0.003150581	Immune
39	-1.166029994	0.001303562	0.000699267	Immune
40	-1.165357971	0.001038693	0.000436752	Immune
41	-1.164160024	0.003576526	0.003153983	Immune
42	-1.163643176	0.001256517	0.000635032	Immune
43	-1.161997248	0.000548965	0.000109155	Immune
44	-1.144590291	0.003077496	0.002610028	Cardio
45	-1.144176303	0.001042455	0.00045305	Cardio
46	-1.143933829	0.000548965	0.00011352	Immune
47	-1.140546879	0.000691883	0.000199948	Cardio
48	-1.140518988	0.000548965	0.000103344	Cardio
49	-1.139661805	0.000520629	7.24927E-05	Cardio
50	-1.134523619	0.000439511	2.22537E-05	Immune

Table 10.a2

	60 mer
1	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGACTGTCCCAAAGTGAACTTGGAAAATGTT
2	AATTAATGAAGCGCAAATCAAAGGGGACTCGAGCTTCCCAGACATGCTCATGCTAGATTA
3	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGTAGGCTCTTTCTGACCCTCAGAAATAC
4	TACAGCTGCAGGAAAACCCCGTTCTTATTCGACATATGCTTTCAGTTCTCTTGGGTAAAT
5	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGGTAAGAGAAAGGTCAGCCCTCAACTTG
6	TACAGCTGCAGGAAAACCCCGTTCTTATTCGAGAGTCATTTTATCCTCAAGCACTATTGC
7	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGAGGTTCAGGCTCCTCAGTGTTTTGCAGGC
8	TACAGCTGCAGGAAAACCCCGTTCTTATTCGATGATAGTAATCTTCAAAGAATAGTCACA
9	TGACCCCAAGCATTCTGGCCTGAACGATTCGATTTCCCACAAATAAATCCAGTAATCTTG
10	TTTTAGGGACCAGGGGTCAGAAGATGGATCGACAGATAGGCCAGATAGCTAGACAAAGAG
11	CCTCCCTGGGTCACCAGCTTCGTGACCCTCGATGTTCTTTATACCTTGCCCATATTGTAC
12	AGAGAGCTCAATGTGTTTCGGCTTTAGTTCGATGGTGAAGACCCCCATAGCTTTTGTTCT
13	GGTGGACCGACGAGGCTCAAAATCAAGATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
14	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATCACATCACTCTTTCCTGTTTTTTTTCC
15	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAGAAGTCTCTGTGAAACTCCTGTGCAAAA
16	CACATCCCTGTCTAGTCCTATCTGTTCATCGAGCCAGAGTGTCACTCTGTCACCTAGGCT
17	TTGTGGTGAGAACGATACAGGAGACAGCTCGATGTATTTCCCTGGGAAGACTTAGCTGCT
18	CTGTGTGGTACAAACATGACAACCTAGGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
19	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGAGGCCTTCCCTGCTTGCGCGGTGCCCTTC
20	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAGGAGTCCTGTCAGACCCTAGGTCTCCA
21	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAATAAATAGAAATATAGAATAAATAGACA
22	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGGTGCCAGCTGCTAAGAGGGGTCTCGCT
23	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGCAACCCCTGAGAATAAGGTGGCTCAAT
24	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGTGTAACTCACTAGCACGTTGTCTCTC
25	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAAGTTTCCAGGACTGCCACACTATCAGC
26	AGAGAGCTCAATGTGTTTCGGCTTTAGTTCGATGCTCATATTGTCCCAAATTTAGGCTGG
27	CAGCGCGCAGCCAAACCGTCGGGAACACTCGAGCAGCGGGAATGTTTGTCTTGGGATTAG
28	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGAAGTATGCTCCTACGCTAGGTAAGTCTTG
29	TACAGCTGCAGGAAAACCCCGTTCTTATTCGACAGAGACCTCCCCAGGATGAGTAAACCT
30	CCTCCCTGGGTCACCAGCTTCGTGACCCTCGACTCAAAGGAGAAAAATGCATGTCCCCCT
31	TCCGGAGCTCAGAGGTTCGGAAGACTTATCGAAAAGACTTTAACATATTTGAATACCAAT
32	CACGCCAAACCTCAAGTACATACTAATTTCGACTCATGCTCTTGAAAATAGTAAGAAAAA
33	AAGACTCCTGTCTCAAGAGCCGAGCTCCTCGAAGCCATTTATAAGGGTTAGAACTAACTT
34	GTGGGCAGATTGGACAATCGTGAGAAGATCGAGCACATGCAATTCCCTCTGCTCCATGAC
35	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGACCTGGACTCGCTGGTGAGCCGGCCGGGC
36	GGAGCGGGACTGACTGATTGCCAGCAATTCGAAAATGGGAAGAAAATTGCTTATTGTGTT
37	AACTGCCGCGGCTCTCTCTCAACGGGGTTCGAGACCAGGCTGGCCGACATTGCAAAACCT
38	TCCGGAGCTCAGAGGTTCGGAAGACTTATCGAAAGCTAAGGCTTTATAGAAATGAAGGCT
39	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATACCTTATTTCCCTTCTTTGATTAAATG
40	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATCCCATCTCCTGTCTACTTGGGACCTTT
41	CGCCCTCCCAGGAGATCCCCACAACTAATCGACTTAAGGAAAGAAAAAGTCATATGCTGA
42	AAGCGAGCGGATCACCTCGGCCAGGAGTTCGAGACAAGCCTGGCCAACATGGTGAAACCC
43	GTGAACATTCACTGTCTTCCTGACAGCTTCGATAGATAGATACTATTTTATTTTATTTTT
44	CTTGTCAGCACTTGGAGCTATCCAATGGTCGAAGCGAACAGTTGGGGGAACTCAAATGGG

45	AGGTGAGAAGCTTTGTCCGAGATGATGGTCGAAGAAAGGGAAATGACTTCTTCTCAGTAG
46	CGGATTCTGGTTACAGAGAGGGATGAGATCGAATGGACTCCGCTAAGTGTGTTGGCTTGA
47	AGGTGAGAAGCTTTGTCCGAGATGATGGTCGATATATTGCACTTCCAAGGTATCATCTGA
48	AGAACTCACCATATTGCCAGGGCTGGTCTCGAACTCCTGACGTCAGGTGTTCCACCCGCC
49	CAGGCTAAGTGCCTGGGGTTCATCCTAATCGAGCAATCCATCAGGTCATTGGTTAGGTTC
50	CGGATTCTGGTTACAGAGAGGGATGAGATCGAAGTTGAGAATTGCTGGCCTAGAGTCCCT

Table 10.a3

	Probe sequence	Probe Location				
	Chr	Start1	End1	Start2	End2	Chr
1	12	57455972	57456001	57739421	57739450	12
2	12	8219312	8219341	8341971	8342000	12
3	12	57455972	57456001	57601755	57601784	12
4	3	194098667	194098696	194165135	194165164	3
5	12	57455972	57456001	57741883	57741912	12
6	3	194044422	194044451	194098667	194098696	3
7	19	55711884	55711913	55778432	55778461	19
8	3	194098667	194098696	194197501	194197530	3
9	1	121342022	121342051	121413867	121413896	1
10	22	24151422	24151451	24244879	24244908	22
11	20	48471131	48471160	48503371	48503400	20
12	2	11010420	11010449	11159162	11159191	2
13	17	7929730	7929759	8058169	8058198	17
14	1	203182882	203182911	203368453	203368482	1
15	1	203071963	203071992	203182882	203182911	1
16	22	42580439	42580468	42682812	42682841	22
17	6	88165454	88165483	88196957	88196986	6
18	17	7929730	7929759	7946534	7946563	17
19	19	55674840	55674869	55778432	55778461	19
20	1	203182882	203182911	203229061	203229090	1
21	16	85802243	85802272	86052799	86052828	16
22	16	85802243	85802272	85995089	85995118	16
23	2	47530515	47530544	47601939	47601968	2
24	2	47354007	47354036	47530515	47530544	2
25	1	203182882	203182911	203350353	203350382	1
26	2	11010420	11010449	11148542	11148571	2
27	2	1633516	1633545	1674976	1675005	2
28	5	75336769	75336798	75362871	75362900	5
29	3	194098667	194098696	194189180	194189209	3
30	20	48373935	48373964	48503371	48503400	20
31	5	140633077	140633106	140734429	140734458	5
32	11	59792210	59792239	59978142	59978171	11
33	11	5691214	5691243	5795402	5795431	11

34	6	1238871	1238900	1325060	1325089	6
35	19	55694909	55694938	55778432	55778461	19
36	8	30132538	30132567	30177060	30177089	8
37	11	63909129	63909158	64174732	64174761	11
38	5	140633077	140633106	140703785	140703814	5
39	5	75336769	75336798	75421279	75421308	5
40	1	203182882	203182911	203381985	203382014	1
41	14	87771425	87771454	87820821	87820850	14
42	X	1815904	1815933	1830881	1830910	X
43	18	28150491	28150520	28322524	28322553	18
44	19	55106469	55106498	55175441	55175470	19
45	1	201489509	201489538	201559490	201559519	1
46	1	159614100	159614129	159866578	159866607	1
47	1	201387332	201387361	201559490	201559519	1
48	12	110242072	110242101	110379083	110379112	12
49	2	53756904	53756933	53865032	53865061	2
50	1	159708296	159708325	159866578	159866607	1

Table 10.a4

	4 kb Sequence Location						
	Start1	End1	Start2	End2	LS	ICU_log	Mild_log
1	57452002	57456001	57739421	57743420	-1	8.42660788	8.77592259
2	8219312	8223311	8341971	8345970	-1	13.44759042	13.77863673
3	57452002	57456001	57601755	57605754	-1	8.831328426	9.155030504
4	194094697	194098696	194161165	194165164	-1	9.362305671	9.649143746
5	57452002	57456001	57737913	57741912	-1	9.325012999	9.599926042
6	194044422	194048421	194094697	194098696	-1	9.366287848	9.634447262
7	55711884	55715883	55774462	55778461	-1	10.76113311	11.02839371
8	194094697	194098696	194193531	194197530	-1	9.272983011	9.539210592
9	121338052	121342051	121409897	121413896	-1	10.01046366	10.26998274
10	24147452	24151451	24244879	24248878	-1	10.69019538	10.94810749
11	48471131	48475130	48499401	48503400	-1	10.09287096	10.33884737
12	11006450	11010449	11159162	11163161	-1	9.301471298	9.54445204
13	7929730	7933729	8054199	8058198	-1	10.10777159	10.35075183
14	203178912	203182911	203364483	203368482	-1	9.729014913	9.969179637
15	203071963	203075962	203178912	203182911	-1	10.05240071	10.29155795
16	42576469	42580468	42682812	42686811	-1	10.05622844	10.29368303
17	88165454	88169453	88192987	88196986	-1	9.683077151	9.920148539
18	7929730	7933729	7942564	7946563	-1	10.49831735	10.73391631
19	55674840	55678839	55774462	55778461	-1	10.67029135	10.90324529
20	203178912	203182911	203225091	203229090	-1	9.926220657	10.15826574
21	85802243	85806242	86052799	86056798	-1	9.173064361	9.405081783
22	85802243	85806242	85995089	85999088	-1	10.48615582	10.71798673
23	47526545	47530544	47597969	47601968	-1	9.437760352	9.668969919

24	47354007	47358006	47526545	47530544	-1	9.118710946	9.349903426
25	203178912	203182911	203350353	203354352	-1	9.931051088	10.16040317
26	11006450	11010449	11144572	11148571	-1	9.488712244	9.717277151
27	1633516	1637515	1671006	1675005	-1	10.15462185	10.382998
28	75332799	75336798	75362871	75366870	-1	8.819614815	9.047712422
29	194094697	194098696	194189180	194193179	-1	9.872738681	10.10017768
30	48373935	48377934	48499401	48503400	-1	10.20973269	10.43560036
31	140633077	140637076	140734429	140738428	-1	8.123671931	8.349428241
32	59792210	59796209	59978142	59982141	-1	8.736005392	8.960988981
33	5687244	5691243	5791432	5795431	-1	12.56468564	12.78920615
34	1238871	1242870	1325060	1329059	-1	9.727145978	9.951344548
35	55694909	55698908	55774462	55778461	-1	11.14500394	11.36895391
36	30132538	30136537	30177060	30181059	-1	9.987789562	10.21172356
37	63905159	63909158	64170762	64174761	-1	14.09191195	14.31498347
38	140633077	140637076	140703785	140707784	-1	7.939949339	8.161743785
39	75332799	75336798	75421279	75425278	-1	8.818310552	9.039915452
40	203178912	203182911	203381985	203385984	-1	9.679045952	9.899819138
41	87767455	87771454	87816851	87820850	-1	13.17327648	13.39256586
42	1815904	1819903	1830881	1834880	-1	15.01284834	15.23149707
43	28150491	28154490	28322524	28326523	-1	8.521036405	8.737643057
44	55102499	55106498	55175441	55179440	N/A		
45	201489509	201493508	201555520	201559519	N/A		
46	159614100	159618099	159862608	159866607	N/A		
47	201387332	201391331	201555520	201559519	N/A		
48	110242072	110246071	110379083	110383082	N/A		
49	53752934	53756933	53865032	53869031	N/A		
50	159708296	159712295	159862608	159866607	N/A		

Table 10.a5

	ICU	Mild	probe
1	344.0818253	438.344881	Hg38_12_57452982_57456003_57739419_57741914_FR
2	11171.92693	14053.45003	Hg38_12_8219310_8221338_8341969_8343630_RR
3	455.5066878	570.0839223	Hg38_12_57452982_57456003_57601753_57604119_FR
4	658.1650789	802.9374234	Hg38_3_194096425_194098698_194154195_194165166_FF
5	641.3699716	776.0070998	Hg38_12_57452982_57456003_57739419_57741914_FF
6	659.9842782	794.7995589	Hg38_3_194044420_194052936_194096425_194098698_RF
7	1735.49694	2088.705988	Hg38_19_55711882_55714266_55776223_55778463_RF
8	618.6514505	744.0267041	Hg38_3_194096425_194098698_194189178_194197532_FF
9	1031.453925	1234.732445	Hg38_1_121333642_121342053_121403378_121413898_FF
10	1652.226061	1975.644278	Hg38_22_24148514_24151453_24244877_24251612_FR
11	1092.086155	1295.099626	Hg38_20_48471129_48476648_48496455_48503402_RF
12	630.9891107	746.7347396	Hg38_2_11008274_11010451_11159160_11162827_FR
13	1103.424033	1305.83041	Hg38_17_7929728_7931226_8055790_8058200_RF
14	848.6435546	1002.35625	Hg38_1_203176687_203182913_203364177_203368484_FF

15	1061.876821	1253.336375	Hg38_1_203071961_203079830_203176687_203182913_RF
16	1064.697916	1255.183898	Hg38_22_42578934_42580470_42682810_42685060_FR
17	822.0470455	968.8627787	Hg38_6_88165452_88168090_88188008_88196988_RF
18	1446.466656	1703.063262	Hg38_17_7929728_7931226_7944762_7946565_RF
19	1629.587775	1915.154794	Hg38_19_55674838_55678632_55776223_55778463_RF
20	972.9491909	1142.727535	Hg38_1_203176687_203182913_203223882_203229092_FF
21	577.2547628	677.9719537	Hg38_16_85802241_85804577_86052797_86054069_RR
22	1434.324581	1684.362243	Hg38_16_85802241_85804577_85995087_85996356_RR
23	693.5039802	814.0479235	Hg38_2_47522457_47530546_47595212_47601970_FF
24	555.9113186	652.5313594	Hg38_2_47354005_47355988_47522457_47530546_RF
25	976.2122787	1144.421802	Hg38_1_203176687_203182913_203350351_203352113_FR
26	718.4342124	841.7670053	Hg38_2_11008274_11010451_11142335_11148573_FF
27	1139.844927	1335.346102	Hg38_2_1633514_1641369_1669637_1675007_RF
28	451.8232857	529.2158358	Hg38_5_75334371_75336800_75362869_75366450_FR
29	937.5414604	1097.631198	Hg38_3_194096425_194098698_194189178_194197532_FR
30	1184.22926	1384.932898	Hg38_20_48373933_48385139_48496455_48503402_RF
31	278.9131086	326.1582341	Hg38_5_140633075_140635001_140734427_140740603_RR
32	426.3827883	498.3408334	Hg38_11_59792208_59794193_59978140_59991387_RR
33	6058.251034	7078.393007	Hg38_11_5689507_5691245_5788110_5795433_FF
34	847.5448933	990.0410593	Hg38_6_1238869_1247003_1325058_1328459_RR
35	2264.54256	2644.820161	Hg38_19_55694907_55697956_55776223_55778463_RF
36	1015.369815	1185.864587	Hg38_8_30132536_30134220_30177058_30181551_RR
37	17461.76713	20381.65333	Hg38_11_63903088_63909160_64170615_64174763_FF
38	245.5629913	286.3714353	Hg38_5_140633075_140635001_140703783_140710933_RR
39	451.4150012	526.3634313	Hg38_5_75334371_75336800_75421277_75426441_FR
40	819.7532761	955.306015	Hg38_1_203176687_203182913_203381983_203386317_FR
41	9237.434251	10753.85168	Hg38_14_87760445_87771456_87814113_87820852_FF
42	33061.12818	38471.3562	Hg38_X_1815902_1820657_1830879_1832345_RR
43	367.3563507	426.8670684	Hg38_18_28150489_28152101_28322522_28342464_RR
44			Hg38_19_55104500_55106500_55175439_55177687_FR
45			Hg38_1_201489507_201495563_201554857_201559521_RF
46			Hg38_1_159614098_159617749_159863199_159866609_RF
47			Hg38_1_201387330_201388480_201554857_201559521_RF
48			Hg38_12_110242070_110251176_110379081_110380448_RR
49			Hg38_2_53751287_53756935_53865030_53869534_FR
50			Hg38_1_159708294_159713893_159863199_159866609_RF

Table 10.a6

	Primer ID	Primer Sequence	Primer ID
1	OBD183-1149	GGCAAAGAGCAGACAGGGAAAGG	OBD183-115
2	OBD183-1109	TGACAGCAGAAGGAGCAGGACCACAA	OBD183-111
3	OBD183-1137	ACAGGGAAAGGGAGGCAGAAGGG	OBD183-1139
4	OBD183-2161	ATTGATGATCTCGCGAGACGCTTT	OBD183-2163
5	OBD183-1185	AAAGAGCAGACAGGGAAAGGGAGGCA	OBD183-1187

6	OBD183-1189	GACGCAGGAATGGAAGGGAAAGG	OBD183-119
7	OBD183-1025	TGAGGCGTGTCCGATGTGGGAAT	OBD183-1027
8	OBD183-1169	GAGGGAGAAAGGAATGAAGGCTGC	OBD183-117
9	OBD183-1061	CATAGTGGATTGAAACAGGGTGGAGC	OBD183-1063
10	OBD183-1129	CCCCACAAGCCCACAAAAGCCAT	OBD183-113
11	OBD183-1073	ACAAGACCTCTCCTCCCTGAGTC	OBD183-1075
12	OBD183-2165	CTCGCCTGACAGACGTTATTGTCT	OBD183-2167
13	OBD183-1005	AGGTGGAGCCCATCAAGCGGTAT	OBD183-1007
14	OBD183-1081	TGACCTTCCCCGCAGACAGTGCT	OBD183-1083
15	OBD183-1045	GAGACAGGCAGGTGAGAGAAAGG	OBD183-1047
16	OBD183-2169	GGACAGTTTCCATAACTGCTGGC	OBD183-2171
17	OBD183-1173	GAGGTGCTGGAGTGTGGCTGTGA	OBD183-1175
18	OBD183-1001	TTGGCTGACCTTGGGTGTGGTGT	OBD183-1003
19	OBD183-1017	TGAGGCGTGTCCGATGTGGGAAT	OBD183-1019
20	OBD183-1077	GAGACAGGCAGGTGAGAGAAAGG	OBD183-1079
21	OBD183-2173	AAATCGAATCACTTCATCGAATTCT	OBD183-2175
22	OBD183-1021	AGCAAGGTGAGGTGACAGGGAGC	OBD183-1023
23	OBD183-2177	TAGAGTACGTGTCCCAACTGTTGC	OBD183-2179
24	OBD183-2181	TAAGCGCGCGTACAGTAGGGCGA	OBD183-2183
25	OBD183-1069	GATGGGAGACAGGCAGGTGAGAG	OBD183-107
26	OBD183-1161	AGACATCCTGAGAGACCAGAGGG	OBD183-1163
27	OBD183-1153	AGGAGGAGCAGCACCAGCACTGT	OBD183-1155
28	OBD183-1117	TACAGGTTTGAGGTGCCCGTCGC	OBD183-1119
29	OBD183-1181	GAGGGACGCAGGAATGGAAGGGA	OBD183-1183
30	OBD183-1193	ACAAGACCTCTCCTCCCTGAGTC	OBD183-1195
31	OBD183-1113	GTGCCGCTGTGTAGGAAAGAAGC	OBD183-1115
32	OBD183-1125	ATGGACAACCAGGTGGCAGGAAAGGT	OBD183-1127
33	OBD183-2185	AAGGTAACCATCGGAGCCCGTGA	OBD183-2187
34	OBD183-1037	TACCAAGAGGGTGGCACTGGGCT	OBD183-1039
35	OBD183-1013	CTGAGGCGTGTCCGATGTGGGAA	OBD183-1015
36	OBD183-2189	CCCAACATAAGGCAACTCATGCG	OBD183-2191
37	OBD183-2193	GGATACACATGCGCCTCGGTCCGA	OBD183-2195
38	OBD183-1141	CGGGTGCCGCTGTGTAGGAAAGA	OBD183-1143
39	OBD183-1057	ACACAAGAGAGAGAGACGCAGGTGAC	OBD183-1059
40	OBD183-1105	GATGGGAGACAGGCAGGTGAGAG	OBD183-1107
41	OBD183-1121	CTGCCAATGAGAGTGTCAGCCCG	OBD183-1123
42	OBD183-2197	GGAACGAATATGAGGCAGACTCTCA	OBD183-2199
43	OBD183-1009	AAGGCAGAGAACAAAACACAGAGGTG	OBD183-1011
44	OBD183-2201	CACAGAAGGCGTGCGAGCACCAATG	OBD183-2203
45	OBD183-1165	GACTGGGAGCAGGGTTTTGATGG	OBD183-1167
46	OBD183-1085	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-1087
47	OBD183-1101	GACTGGGAGCAGGGTTTTGATGG	OBD183-1103
48	OBD183-2205	TACCAAAGCTGAGAGTCGTCTATC	OBD183-2207
49	OBD183-1049	CATTGCCACTCCCAGTCGGGCTA	OBD183-105
50	OBD183-1093	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-1095

Table 10.a7

	Primer Sequence
1	CTCTCCCTTCTCTCCTACCCTGC
2	AGGATGGTGACCCTTGTATCAGTTAG
3	GTCCATCTGTCCAGTCAGGTCCT
4	AAAGGCGTCCAGTCTCGTGTATAAG
5	TATTCTTTCCCAGAGTCCCATCTTGG
6	CTCCATCTCCCACAGCATCCAGC
7	ACGACATCGCCGCAGCACTCATC
8	GGTTGGGTTTTCTCAATAATCCATAG
9	GGAGAAGAGGACTGTAGAAGGAGACA
10	CCGCCCATCTGTAAGCCCATCTC
11	GCTGTTCCTGCCTCTCTGCTACG
12	CACAGGCAAAAATGTAACTTTCC
13	TGAAGTGGCATCTCTCTCCCGCC
14	GTTTGGTAGTGGCTGTCTGGAGC
15	ATCCGCCTCCACACACCCACACT
16	TAACGCCCATCTACACTTAGCTATA
17	CGCTTGAGTTGGTGCTGAATGCC
18	TGAAGTGGCATCTCTCTCCCGCC
19	TGGGAGAGCACTCGGGAACCTCA
20	CCTTTCCGCTACCTGGCTGTGGT
21	TTGAACACTCGGTCGAAGGCGCTCG
22	CCTGGAAGATGTGGGAGGCTGTT
23	GCACGCTACTGTTACGAGATTCCT
24	CCGAAGAAAAGTTAAGCCCCTCG
25	CTCTGGCTTGACCTTCTCCACTG
26	GCCTGGAGCAACTTCCTGTGCCA
27	CCTTCCTCTGGGCTCTCTGTAAC
28	GGCTTCCAGTGTAGAGGTTACCC
29	GTGTGTTTTGAGGAGCACCCAGC
30	CCTGGTGGACTTGGCTTCGTTCC
31	GGTGTTGAGGTCCAGTCTTCCGC
32	AAAGTATGTAGCAAAGCACCCCACTG
33	CTGGCATGAAATACTACGGGCCTTC
34	CGTGTGGTTATGGAATCAGGGTGC
35	AAGGACTTGAGCAGGTGATGGGC
36	ATGATTGCCGCATTTTCACGGTTGC
37	TCATCAAGCCCGCCAACGGGTTAG
38	GGAGTCCTTCACCACACAGTCAC
39	CAGCCAGGTAGAAATGAATACAGGGT
40	GCAGACAAAGGCTGAGAGAGAGG
41	CAGTGGATGGTGGAAACCCTGGA

42	ATCGCTATCTGTCCGTAACGTCG
43	GCAGGAAAGACTCAAGCACTCTGGAC
44	CTATCATCGGTCACTTGTGTTAGGT
45	GCCTCACTGTCTCAGCCCTGCTA
46	TGTCCCCTTCTACTACCCCACCT
47	CCCCAAGCAGGCTCTGGCACATA
48	TATCTTCTAATAGTACCTCTATTAA
49	GGGAAGGAAAAGAGGGCAAGTCC
50	GGTCCACTGGCAATCACCCTACT

Table 10.a8

51	Hg38_12_8119443_8124985_8219310_8221338_FR	CLEC4A	17037.22852
52	Hg38_12_8083961_8090020_8219310_8221338_FR	CLEC4A	18859.97781
53	Hg38_12_8219310_8221338_8280556_8285132_RR	CLEC4A	22456.54994
54	Hg38_12_8219310_8221338_8280556_8285132_RF	CLEC4A	24421.30275
55	Hg38_12_8219310_8221338_8360776_8364742_RR	CLEC4A	24631.85253
56	Hg38_12_8163206_8167779_8219310_8221338_FR	CLEC4A	26120.50389
57	Hg38_12_8219310_8221338_8328073_8331432_RR	CLEC4A	26483.91688
58	Hg38_12_8219310_8221338_8255950_8259013_RR	CLEC4A	26177.66647
59	Hg38_X_1815902_1820657_1862592_1866142_RR	AKAP17A	75133.70138
60	Hg38_3_196593741_196597691_196703167_196707250_FR	NRROS	74115.71314
61	Hg38_5_75334371_75336800_75481806_75484209_FF	COL4A3BP	57905.16147
62	Hg38_2_161723651_161741319_161918005_161924903_FF	DPP4	62589.08218
63	Hg38_6_123594_131362_212545_213965_RF	DUSP22	75804.29568
64	Hg38_1_27649538_27652259_27797543_27806064_RF	IFI6	66756.33102
65	Hg38_X_133714472_133717449_133849575_133858877_FR	GPC3	73268.76653
66	Hg38_3_55467637_55470328_55535014_55543312_RF	WNT5A	72517.34766
67	Hg38_4_145148297_145150633_145243015_145254513_FF	ABCE1	68632.72477
68	Hg38_19_55633863_55635586_55776223_55778463_RF	NLRP9	75169.9172
69	Hg38_5_75334371_75336800_75398018_75402594_FR	COL4A3BP	68717.29379
70	Hg38_12_57452982_57456003_57579684_57582438_FF	ARHGAP9	56735.59546
71	Hg38_17_7811362_7813705_7929728_7931226_RR	KDM6B	64335.59006
72	Hg38_12_54361590_54362896_54554738_54558191_FR	GPR84	77977.99646
73	Hg38_19_55562835_55568514_55776223_55778463_FF	NLRP9	68297.20436
74	Hg38_11_71580341_71586157_71832412_71840897_FR	DEFB108B	77867.08944
75	Hg38_6_88188008_88196988_88297132_88306521_FF	CNR1	66691.60404
76	Hg38_6_29569885_29574451_29588494_29591069_FR	UBD	70449.91197
77	Hg38_5_75334371_75336800_75441359_75447695_FR	COL4A3BP	64955.57945
78	Hg38_1_6450603_6452273_6528747_6530250_RR	TNFRSF25	71701.08408
79	Hg38_1_203176687_203182913_203266998_203270781_FF	CHI3L1	73183.63882
80	Hg38_5_100903133_100904261_100940255_100954422_FR	SLCO4C1	71609.32595
81	Hg38_13_52856863_52871994_53051233_53054182_RR	OLFM4	71949.72778
82	Hg38_13_52856863_52871994_52963892_52968641_RR	OLFM4	68520.61362
83	Hg38_3_105173425_105200082_105366513_105369025_FR	ALCAM	66104.48917

84	Hg38_11_71704758_71706689_71832412_71840897_FR	DEFB108B	64412.60339
85	Hg38_5_53482717_53490284_53612898_53621230_RR	FST	77444.92065
86	Hg38_1_20178914_20185415_20244434_20247937_FR	PLA2G2F	62651.6697
87	Hg38_7_44346974_44354823_44468808_44471840_RF	CAMK2B	66580.98176
88	Hg38_2_47522457_47530546_47606707_47620212_FF	MSH2	72271.33277
89	Hg38_16_85802241_85804577_85911952_85914037_RR	IRF8	74094.77992
90	Hg38_16_85802241_85804577_86036135_86037752_RR	IRF8	77409.18625
91	Hg38_8_143703137_143706882_143989689_143994132_RR	SCRIB	73024.49729
92	Hg38_19_38110009_38116645_38359207_38361549_RF	SIPA1L3	72414.84672
93	Hg38_15_53421523_53422709_53572546_53588481_FR	ONECUT1	74543.21657
94	Hg38_16_85802241_85804577_85867011_85868324_RR	IRF8	76315.72288
95	Hg38_13_52856863_52871994_52977238_52983123_RR	OLFM4	85912.11333
96	Hg38_19_11340579_11345804_11410807_11412077_FR	RAB3D	65883.23259
97	Hg38_6_88064644_88073249_88188008_88196988_RF	AKIRIN2	76118.52573
98	Hg38_14_87632983_87637573_87760445_87771456_RF	GPR65	60903.03466
99	Hg38_6_31492265_31495553_31621846_31623705_RF	AIF1	64391.76277
100	Hg38_1_203176687_203182913_203386317_203394696_FF	CHI3L1	84256.99019

Table 10.b1

51	-1.291886788	0.004735379	0.004479108	Immune
52	-1.276607983	0.005042802	0.004915136	Immune
53	-1.258007859	0.004367629	0.004084773	Immune
54	-1.245249491	0.004313719	0.004004296	Immune
55	-1.242984819	0.00604682	0.00604682	Immune
56	-1.242567483	0.003834101	0.00346781	Immune
57	-1.237550281	0.004735694	0.004515894	Immune
58	-1.237318061	0.005042802	0.004853215	Immune
59	-1.185115992	0.001735668	0.001164435	Immune
60	-1.184021602	0.003517821	0.003042841	Immune
61	-1.177773137	0.001038693	0.000435011	Immune
62	-1.174455561	0.000548965	0.000112646	Immune
63	-1.168790651	0.000439511	2.02372E-05	Immune
64	-1.16673532	0.001014024	0.000363933	Immune
65	-1.166592129	0.000959795	0.000340181	Immune
66	-1.16579207	0.000548965	9.19356E-05	Immune
67	-1.161957027	0.001889671	0.001291674	Immune
68	-1.161756615	0.000548965	0.000102232	Immune
69	-1.161687815	0.001256517	0.000624724	Immune
70	-1.161219868	0.006007073	0.005981727	Immune
71	-1.161116734	0.000959795	0.000338831	Immune
72	-1.160957348	0.000508234	5.40393E-05	Immune
73	-1.160376317	0.001256517	0.000628074	Immune
74	-1.1596609	0.00048383	4.6954E-05	Immune
75	-1.159541181	0.001087752	0.000501372	Immune

76	-1.159137231	0.001687588	0.001103697	Immune
77	-1.158036372	0.004074156	0.003713155	Immune
78	-1.157946235	0.00592368	0.005873691	Immune
79	-1.157617797	0.001038693	0.000427764	Immune
80	-1.157435731	0.001660717	0.001079116	Immune
81	-1.156728084	0.000548965	0.000103051	Immune
82	-1.155458775	0.001038693	0.000399475	Immune
83	-1.155306024	0.001038693	0.000419393	Immune
84	-1.155297894	0.001523301	0.000897002	Immune
85	-1.155073798	0.00048383	4.19686E-05	Immune
86	-1.154967103	0.002294852	0.001733243	Immune
87	-1.154518586	0.001386154	0.000789582	Immune
88	-1.154279434	0.001660717	0.00106681	Immune
89	-1.154128129	0.00060994	0.000156989	Immune
90	-1.153773794	0.00048383	3.04929E-05	Immune
91	-1.153622734	0.002297443	0.001793362	Immune
92	-1.153379263	0.000520629	6.69249E-05	Immune
93	-1.152793154	0.000439511	2.214E-05	Immune
94	-1.152700501	0.000548965	0.000103767	Immune
95	-1.152626951	0.000211853	2.73861E-06	Immune
96	-1.152618451	0.001555148	0.000948832	Immune
97	-1.152145384	0.001038693	0.000418922	Immune
98	-1.151874288	0.004367629	0.004091197	Immune
99	-1.151161423	0.001794515	0.001211487	Immune
100	-1.151012921	0.000520629	7.13254E-05	Immune

Table 10.b2

51	CCCCCATCATTTGACAAAATATCATAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT
52	TCAAAAGGGAAGACTGCCTATATCAAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT
53	AATTAATGAAGCGCAAATCAAAGGGGACTCGACTATAAGAGAGAGGTACGCTCCGGGGGG
54	AGGCTCCGTTCCAGTTCTTGATCCACACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT
55	AATTAATGAAGCGCAAATCAAAGGGGACTCGAAGATCCAGAAAATTGGCCTGGTGCAGTA
56	CAGTCCTTGCCTCCTCAGAAGAAAGAACTCGAGTCCCCTTTGATTTGCGCTTCATTAATT
57	AATTAATGAAGCGCAAATCAAAGGGGACTCGACTTTCAAACCTTTCTCCACAACAGGGCC
58	AATTAATGAAGCGCAAATCAAAGGGGACTCGAATCCCTGGGCTGAAGTGATCCACTTGCC
59	AAGCGAGCGGATCACCTCGGCCAGGAGTTCGAGAGCAGCCTGGCCACATGGGAGGGAGGG
60	GACAGTTGGACTACCTGAGGTCAGGAGTTCGAGACATAATTTATATAGCTCAGTATATAC
61	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATGTTACCATGAGGCTTTCAAATAACAAG
62	ACAGTCCTCCGCTCTACCAACTGAGCTATCGAAACCTGATGATATGGCTTCTCCATTCAT
63	CAGAAAGAAGACAAGGGGCATCTGAATGTCGAATCAAGTTTATAATTTTAAAATAATTGG
64	TCCCTGAGTTATGCAGCTCTTCCAAATGTCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG
65	ACCACACCCTGGTCCTGGTAGTTAAAGATCGACCACTTTCAAATCTTTTCCACCTGGTAA
66	GGAGACAGGGTTACATCAGCCAGTAACATCGATGTTTGTTTTTTAAACCAGTGAAATATA
67	GTTGTCTTACTCCTGAAGGATGCTGCAGTCGAGGCATTTTAACTAAATTATCTGCTTCAC

68	CAGAATAGGAAGGAGCAAGCTGAGAGGTTCGACCTCCCAAATTGTTGGGATTACAGGCGT
69	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGAAAATAAATAAGTAAAATTAAAAAAAAAT
70	AGCAGTCTCTACTTTTCTAGAGGTAGGTTCGAGAAAAAGTTTCTGCAGCCCCTCACCAAG
71	TAACTCACAAAGGCAAGATTAGTTGATGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
72	CAAAGCAGAGGAACACAGCAAAACACATTCGAGTTCACATTCTGCCCTAACAATTACAAC
73	AATGACACGCTAAAAGGAAAAAGGAACGTCGAACCTCTCAGCTTGCTCCTTCCTATTCTG
74	GTTTTTGGCTACCAGTCCTTCACCTGCGTCGACCTTTATAGACGCTATCAAGGAAGCACC
75	TTGTGGTGAGAACGATACAGGAGACAGCTCGAAATGGTTCATAGATTTAAGTGTAAAAGT
76	ATTTTGTCTGTGAGGTCCCAGCTCTAATTCGACTCTCCTGTGAAGACACCTCCTACAATG
77	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGACAAACTATGCATTTCTCAGAATGCATCT
78	GTATGAGGTGCAAGGCCCCACCCATTCTTCGAGCAAGAAGAGGAGGGCCAAGCCCAGGCC
79	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAACTCATCCATTCCAAAGATGGCTCAGGG
80	GCAGGGACACTTTTCAAGAGTTCTGTGTTCGAGATATTAAACAAGACATTCAATTGGTTC
81	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGGGACCAAATCTCCAACTTTTTTTTCCC
82	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGGGTTGCTTTTCTTTTTCAAGAAAAATT
83	TTCTCATGTTAATAAACATGAAAAATGGTCGATTTTTAAACCTCAGCGAGGGTGGGTGGG
84	AGGTGACCGTCTTCCAGAGGAGAGCGGATCGACCTTTATAGACGCTATCAAGGAAGCACC
85	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAAAATAAAACAACTACGTTTGCTGTACAA
86	GCCAGGATAGGGAAGAAGCAGATTGATATCGAGGATGATAGATCCCAAGGAGAGAGTGAC
87	CAAACCAGAGATGAAGCAACAGGTCTAATCGAGTCCTTTGCCCATATTTTGATTGGATTG
88	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGGCTTTTCAGGACTGGAGTGACTGATG
89	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAACACTTTGGACAGCAGTCTTTTAAATGG
90	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGTTGGTCACCTGAGCCTATTATTGACGG
91	CAACCAACCAGAAAACACAGGAAACAACTCGATTTGGGAACTAAAGGATTAGGCTTCTTG
92	ACGCTGAGGAGGAAGATTCGGGCTGGATTCGAGGAAGTGTTTCTGGCCATGGTGAGGCCT
93	CTGCCTTCCTAACCATGTCCTGAGAAACTCGAAAAGCACAATCCATGAAAGAAAAAAATT
94	GAGAGGCCGTTCTAAAAGCACATTTGTATCGATCTGTCACATACCTAGAAATACAGGGAC
95	GTTGGAAGGAATCCAGGGTAAGGGATATTCGATACTGCTTGAACATAAAATGAAATGTAG
96	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAAAAGAATGTGAGACATACCTCAGGAAAA
97	TTGTGGTGAGAACGATACAGGAGACAGCTCGATTTGTAGCTGATGCATCGCAAACTAAAA
98	CGCCCTCCCAGGAGATCCCCACAACTAATCGACACCCTCTGATTTCATCCCTGACCAGTC
99	GCCATCAGATCTCCCACATGAGGCATTTTCGACTTTGTCTCCATCCAAGGACGCTATGGC
100	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAGCCTGCAGTCTCTGCTACTCAGGAGGCT

Table 10.b3

51	12	8124954	8124983	8219312	8219341	12
52	12	8089989	8090018	8219312	8219341	12
53	12	8219312	8219341	8280558	8280587	12
54	12	8219312	8219341	8285101	8285130	12
55	12	8219312	8219341	8360778	8360807	12
56	12	8167748	8167777	8219312	8219341	12
57	12	8219312	8219341	8328075	8328104	12
58	12	8219312	8219341	8255952	8255981	12
59	X	1815904	1815933	1862594	1862623	X

60	3	196597660	196597689	196703169	196703198	3
61	5	75336769	75336798	75484178	75484207	5
62	2	161741288	161741317	161924872	161924901	2
63	6	123596	123625	213934	213963	6
64	1	27649540	27649569	27806033	27806062	1
65	X	133717418	133717447	133849577	133849606	X
66	3	55467639	55467668	55543281	55543310	3
67	4	145150602	145150631	145254482	145254511	4
68	19	55633865	55633894	55778432	55778461	19
69	5	75336769	75336798	75398020	75398049	5
70	12	57455972	57456001	57582407	57582436	12
71	17	7811364	7811393	7929730	7929759	17
72	12	54362865	54362894	54554740	54554769	12
73	19	55568483	55568512	55778432	55778461	19
74	11	71586126	71586155	71832414	71832443	11
75	6	88196957	88196986	88306490	88306519	6
76	6	29574420	29574449	29588496	29588525	6
77	5	75336769	75336798	75441361	75441390	5
78	1	6450605	6450634	6528749	6528778	1
79	1	203182882	203182911	203270750	203270779	1
80	5	100904230	100904259	100940257	100940286	5
81	13	52856865	52856894	53051235	53051264	13
82	13	52856865	52856894	52963894	52963923	13
83	3	105200051	105200080	105366515	105366544	3
84	11	71706658	71706687	71832414	71832443	11
85	5	53482719	53482748	53612900	53612929	5
86	1	20185384	20185413	20244436	20244465	1
87	7	44346976	44347005	44471809	44471838	7
88	2	47530515	47530544	47620181	47620210	2
89	16	85802243	85802272	85911954	85911983	16
90	16	85802243	85802272	86036137	86036166	16
91	8	143703139	143703168	143989691	143989720	8
92	19	38110011	38110040	38361518	38361547	19
93	15	53422678	53422707	53572548	53572577	15
94	16	85802243	85802272	85867013	85867042	16
95	13	52856865	52856894	52977240	52977269	13
96	19	11345773	11345802	11410809	11410838	19
97	6	88064646	88064675	88196957	88196986	6
98	14	87632985	87633014	87771425	87771454	14
99	6	31492267	31492296	31623674	31623703	6
100	1	203182882	203182911	203394665	203394694	1

Table 10.b4

51	8120984	8124983	8219312	8223311	-1	12.07327084	12.44275049

52	8086019	8090018	8219312	8223311	-1	11.95497869	12.30729427
53	8219312	8223311	8280558	8284557	-1	13.36820619	13.69934713
54	8219312	8223311	8281131	8285130	-1	12.36592063	12.68235545
55	8219312	8223311	8360778	8364777	-1	13.32842649	13.64223517
56	8163778	8167777	8219312	8223311	-1	12.37704415	12.69036836
57	8219312	8223311	8328075	8332074	-1	13.5625678	13.87005494
58	8219312	8223311	8255952	8259951	-1	13.3439069	13.6511233
59	1815904	1819903	1862594	1866593	-1	15.01277876	15.25780703
60	196593690	196597689	196703169	196707168	-1	13.69773762	13.94143302
61	75332799	75336798	75480208	75484207	-1	8.776702189	9.012763863
62	161737318	161741317	161920902	161924901	-1	10.77393009	11.00592221
63	123596	127595	209964	213963	-1	9.115283145	9.340299688
64	27649540	27653539	27802063	27806062	-1	9.814441912	10.03691923
65	133713448	133717447	133849577	133853576	-1	13.02851094	13.25081119
66	55467639	55471638	55539311	55543310	-1	8.854845783	9.076156277
67	145146632	145150631	145250512	145254511	-1	10.25892229	10.47547901
68	55633865	55637864	55774462	55778461	-1	11.12541749	11.34172535
69	75332799	75336798	75398020	75402019	-1	8.782342773	8.998565192
70	57452002	57456001	57578437	57582436	-1	9.336877845	9.552519006
71	7811364	7815363	7929730	7933729	-1	9.948424476	10.1639375
72	54358895	54362894	54554740	54558739	-1	9.486338095	9.701653065
73	55564513	55568512	55774462	55778461	-1	9.849737886	10.06433064
74	71582156	71586155	71832414	71836413	-1	11.29688058	11.51058358
75	88192987	88196986	88302520	88306519	-1	9.852031669	10.06558573
76	29570450	29574449	29588496	29592495	-1	9.938800965	10.15185234
77	75332799	75336798	75441361	75445360	-1	9.027203502	9.238884069
78	6450605	6454604	6528749	6532748	-1	10.7301206	10.94168886
79	203178912	203182911	203266780	203270779	-1	9.764657929	9.975816937
80	100900260	100904259	100940257	100944256	-1	8.543546476	8.754478563
81	52856865	52860864	53051235	53055234	-1	9.053565284	9.263615049
82	52856865	52860864	52963894	52967893	-1	8.984087711	9.192553498
83	105196081	105200080	105366515	105370514	-1	9.045714651	9.253989703
84	71702688	71706687	71832414	71836413	-1	11.30160114	11.50986604
85	53482719	53486718	53612900	53616899	-1	10.02446578	10.2324508
86	20181414	20185413	20244436	20248435	-1	9.479465863	9.687317623
87	44346976	44350975	44467839	44471838	-1	9.821968558	10.02925996
88	47526545	47530544	47616211	47620210	-1	9.169560439	9.376552961
89	85802243	85806242	85911954	85915953	-1	9.366760906	9.573564304
90	85802243	85806242	86036137	86040136	-1	9.504386132	9.710746533
91	143703139	143707138	143989691	143993690	-1	10.32744034	10.53361184
92	38110011	38114010	38357548	38361547	-1	10.63356996	10.83943695
93	53418708	53422707	53572548	53576547	-1	8.74166765	8.946801323
94	85802243	85806242	85867013	85871012	-1	9.177859427	9.382877141
95	52856865	52860864	52977240	52981239	-1	8.36761929	8.572544949
96	11341803	11345802	11410809	11414808	-1	10.83922183	11.04413685

97	88064646	88068645	88192987	88196986	-1	9.697794475	9.90211725
98	87632985	87636984	87767455	87771454	-1	13.48348911	13.68747238
99	31492267	31496266	31619704	31623703	-1	10.12377665	10.3268668
100	203178912	203182911	203390695	203394694	-1	10.05723707	10.2601411

Table 10.b5

51	4309.398622	5567.255144	Hg38_12_8119443_8124985_8219310_8221338_FR
52	3970.152459	5068.328324	Hg38_12_8083961_8090020_8219310_8221338_FR
53	10573.79904	13301.92229	Hg38_12_8219310_8221338_8280556_8285132_RR
54	5278.530474	6573.087384	Hg38_12_8219310_8221338_8280556_8285132_RF
55	10286.22855	12785.62593	Hg38_12_8219310_8221338_8360776_8364742_RR
56	5319.386501	6609.696696	Hg38_12_8163206_8167779_8219310_8221338_FR
57	12098.72832	14972.78463	Hg38_12_8219310_8221338_8328073_8331432_RR
58	10397.19612	12864.63854	Hg38_12_8219310_8221338_8255950_8259013_RR
59	33059.53377	39179.38218	Hg38_X_1815902_1820657_1862592_1866142_RR
60	13287.0906	15732.2023	Hg38_3_196593741_196597691_196703167_196707250_FR
61	438.5818165	516.5498819	Hg38_5_75334371_75336800_75481806_75484209_FF
62	1750.959609	2056.424249	Hg38_2_161723651_161741319_161918005_161924903_FF
63	554.5920574	648.2020116	Hg38_6_123594_131362_212545_213965_RF
64	900.4122733	1050.542802	Hg38_1_27649538_27652259_27797543_27806064_RF
65	8355.502851	9747.46386	Hg38_X_133714472_133717449_133849575_133858877_FR
66	462.992747	539.7532731	Hg38_3_55467637_55470328_55535014_55543312_RF
67	1225.302538	1423.748895	Hg38_4_145148297_145150633_145243015_145254513_FF
68	2234.006228	2595.371513	Hg38_19_55633863_55635586_55776223_55778463_RF
69	440.2999202	511.491052	Hg38_5_75334371_75336800_75398018_75402594_FR
70	646.6664016	750.9218735	Hg38_12_57452982_57456003_57579684_57582438_FF
71	988.0392032	1147.228853	Hg38_17_7811362_7813705_7929728_7931226_RR
72	717.2529044	832.7000298	Hg38_12_54361590_54362896_54554738_54558191_FR
73	922.7128165	1070.694099	Hg38_19_55562835_55568514_55776223_55778463_FF
74	2515.937863	2917.634766	Hg38_11_71580341_71586157_71832412_71840897_FR
75	924.1810319	1071.625965	Hg38_6_88188008_88196988_88297132_88306521_FF
76	981.4704112	1137.658895	Hg38_6_29569885_29574451_29588494_29591069_FR
77	521.7458832	604.2007098	Hg38_5_75334371_75336800_75441359_75447695_FR
78	1698.588409	1966.874053	Hg38_1_6450603_6452273_6528747_6530250_RR
79	869.8711636	1006.97834	Hg38_1_203176687_203182913_203266998_203270781_FF
80	373.1330847	431.8775647	Hg38_5_100903133_100904261_100940255_100954422_FR
81	531.3671697	614.647328	Hg38_13_52856863_52871994_53051233_53054182_RR
82	506.3838946	585.1057145	Hg38_13_52856863_52871994_52963892_52968641_RR
83	528.4835118	610.5601847	Hg38_3_105173425_105200082_105366513_105369025_FR
84	2524.183613	2916.184012	Hg38_11_71704758_71706689_71832412_71840897_FR
85	1041.513465	1203.024913	Hg38_5_53482717_53490284_53612898_53621230_RR
86	713.8444176	824.4668191	Hg38_1_20178914_20185415_20244434_20247937_FR
87	905.1220656	1044.980247	Hg38_7_44346974_44354823_44468808_44471840_RF
88	575.8544659	664.696967	Hg38_2_47522457_47530546_47606707_47620212_FF

89	660.2007221	761.9562241	Hg38_16_85802241_85804577_85911952_85914037_RR
90	726.282059	837.965207	Hg38_16_85802241_85804577_86036135_86037752_RR
91	1284.899972	1482.289818	Hg38_8_143703137_143706882_143989689_143994132_RR
92	1588.632775	1832.296098	Hg38_19_38110009_38116645_38359207_38361549_RF
93	428.0595343	493.4641006	Hg38_15_53421523_53422709_53572546_53588481_FR
94	579.1765684	667.6171203	Hg38_16_85802241_85804577_85867011_85868324_RR
95	330.2968246	380.7090219	Hg38_13_52856863_52871994_52977238_52983123_RR
96	1832.022909	2111.623407	Hg38_19_11340579_11345804_11410807_11412077_FR
97	830.4758901	956.8289633	Hg38_6_88064644_88073249_88188008_88196988_RF
98	11453.40632	13192.88425	Hg38_14_87632983_87637573_87760445_87771456_RF
99	1115.733415	1284.389266	Hg38_6_31492265_31495553_31621846_31623705_RF
100	1065.442539	1226.338128	Hg38_1_203176687_203182913_203386317_203394696_FF

Table 10.b6

51	OBD183-2209	ATTGAGTTGTTGACCCTACAAGCA	OBD183-2211
52	OBD183-2213	ATCGTCGTCGCTCCTCAAACTTG	OBD183-2215
53	OBD183-2217	CGCTCTATCAACTCTAGAATGTTGT	OBD183-2219
54	OBD183-2221	GTGCTCAGGACGACAGTCTGGGA	OBD183-2223
55	OBD183-2225	CAGGGGCCCTTCTAACGAAGCGGG	OBD183-2227
56	OBD183-2229	GCTGCTTGCTTGTGGGACTTGCC	OBD183-2231
57	OBD183-2233	CAAGTCGCAGCTCGGGGCAGATCTT	OBD183-2235
58	OBD183-2237	ATGGGCGCTCTTACTCCGTTGGGC	OBD183-2239
59	OBD183-2241	CTTAAAGACTGTCCATTTGACAACA	OBD183-2243
60	OBD183-2245	TCATCGGCGGGAGGCGGTCCCAGGC	OBD183-2247
61	OBD183-2249	CCAAATCGCAGCGTAGGGCTAGGA	OBD183-2251
62	OBD183-2253	TCCAGTAAAGGGCCGGGAGGTTAT	OBD183-2255
63	OBD183-2257	AACCGCACATAGTAAATAGCTCA	OBD183-2259
64	OBD183-2261	GGTGATGAGCAAAGAAGTGGAAA	OBD183-2263
65	OBD183-2265	GCTTTAGTGTTGAAATCTCCCTTG	OBD183-2267
66	OBD183-2269	CAGTTTCTGACCGGCCGTGGGCC	OBD183-2271
67	OBD183-2273	TCGCGATGAATGGGGTGAGCGGGA	OBD183-2275
68	OBD183-1053	CTGAGGCGTGTCCGATGTGGGAA	OBD183-1055
69	OBD183-2277	CGCGAAGGAGGTGCAAGGCCCAAAG	OBD183-2279
70	OBD183-1177	ACAGGGAAAGGGAGGCAGAAGGG	OBD183-1179
71	OBD183-1029	GATGGAGCAGAACAGGAAGTTGGG	OBD183-103
72	OBD183-1145	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-1147
73	OBD183-1197	GGATGGATGTGGGAATGGATGGG	OBD183-1199
74	OBD183-2281	TATCTCAGGTATCTTGAAAGATT	OBD183-2283
75	OBD183-2285	CACCCGTGCTAGTGTCGTATACTG	OBD183-2287
76	OBD183-2289	GAAATAGAGGGCTTACTATATGTT	OBD183-2291

77	OBD183-2293	ATCAAAATCGTAGCCGCATGGCA	OBD183-2295
78	OBD183-2297	CGGTCCCGCAGCTCCGGTTAACGCT	OBD183-2299
79	OBD183-1097	GATGGGAGACAGGCAGGTGAGAG	OBD183-1099
80	OBD183-1157	TCACCTCTCCTCCGTCCCACCATTTT	OBD183-1159
81	OBD183-1033	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-1035
82	OBD183-1041	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-1043
83	OBD183-2301	TCCTAACTGGATTGCCACACTTGGTG	OBD183-2303
84	OBD183-2305	GCTAATACCTGTAAGAGGTAGTT	OBD183-2307
85	OBD183-1133	TGAGTGAGCAGTGAGCGGTGGCA	OBD183-1135
86	OBD183-1089	CTTTTGAGAATGCCGAGGTAATGGGC	OBD183-109
87	OBD183-2309	AGAATCACCTACTCAGGGACACACTG	OBD183-2311
88	OBD183-2313	GCCCTAAGGCTCTCTGGAGCGGAGT	OBD183-2315
89	OBD183-2317	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2319
90	OBD183-2321	ACAGCAAGGTGAGGTGACAGGGA	OBD183-2323
91	OBD183-2325	GCGCGGAAAAGTCAATAGAAGAT	OBD183-2327
92	OBD183-2329	GGGAGGACTCTGGTCTCAGGGAT	OBD183-2331
93	OBD183-2333	TCTCTTACCATCAATTGACATCTTT	OBD183-2335
94	OBD183-2337	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2339
95	OBD183-2341	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2343
96	OBD183-2345	GTTCCCGCCTTCCTCCATCTTGC	OBD183-2347
97	OBD183-2349	CTCCCCGAGACCGATAAGCAATCAG	OBD183-2351
98	OBD183-2353	ACAGGTGGGTCCGCACAGTCGCC	OBD183-2355
99	OBD183-1065	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-1067
100	OBD183-2357	CCAGTCGATTGATAAGGCGGCGCAC	OBD183-2359

Table 10.b7

51	TAAGCCGACAGGACCGAACGGTCA
52	TGTGGCGTTCACGATTCAGGCAT
53	ATACAAGGCCAATCGTGCGGATGCG
54	AGCAGAAGGAGCAGGACCACAAG
55	TGCTGGATATCCTAGTGAGCGCGA
56	AGCAGAAGGAGCAGGACCACAAG
57	ATGGGAACTAAGGGTGAGTAGTA
58	AGCATGTGGGACGTAGTCGGAGAG
59	ATTTTCACGTAGATCATAACCGGT
60	TCTCAGAAAAGCTCTGGAGCCACCC
61	CCTCTCTGAGAGTCGGATCTCGC
62	GAAACTGTTCAGCTCTGGCAAGA

63	CGTACCAAATTCCGTTTTATAAGG
64	GAAATAAGCAGGTCCCGTTACCTC
65	AATTGGCTTAACTGTAGCATGCACA
66	ATCCAAACACAAATCGCTGTGGCA
67	ATATGTCCTCGTTACTATTGGTT
68	GTTTGCTGTCCTCCATCCTCCCA
69	AAGGGGTCAAGGACCTACATCAA
70	TTACCACGCCAATCCCAGCCCTT
71	TGAAGTGGCATCTCTCTCCCGCC
72	CCCTGCCTCTTCACAAAGCAAGC
73	CTGAGGCGTGTCCGATGTGGGAA
74	TGGAAGAGACTATACTCAGGTTA
75	TCAAATCTAGATGTATCATGCGCAA
76	CTCGCTTAAGCAGGTGCGTGCTT
77	GGGCCATTTAAAGAAAGAGGAACAG
78	AGTATCAGTTCGCCTGTGAGCAGC
79	TGTCACCTCTTCCACCCTCTCAG
80	ACAATCTCTCCACTAAGCAAACCCTG
81	CACATACAAAGCATCATTCCAGGTGC
82	CCTCAGGGAAAGGGAAAACCAAGAGT
83	CCCTGGGACTAACACTTTCTGTGATG
84	ACCCCGTCATTCATACCGAGAACC
85	CCAAAAGAAAACTGACCCCTTAGAGG
86	TGCTATTATCTGGTGACTGGACTGGG
87	GAAAGGTTATCCAGAATACAGAAGGG
88	ATAACTGACACATTGTTACAAAA
89	GCTCTCCCTTGTAGCCTGTTAGG
90	TGGCAGCATCGCACCATCCCCAT
91	TGCTATTGGCTAAAATTAGAAAG
92	CAAGGAATGCCCGAGTCAGGTGA
93	ATACCTGCAACCCCGCAACTGTCCT
94	AAGAGTAGGAAACCCCTGGCAGC
95	GAACATCTACTTCAACCTCCTGCCCA
96	CCCCTTGCCTCTTGTTTGAAGCC
97	TGAAGGTGTAATCAGTTTGAGTA
98	TCCTGTCCCGACAATGCGGGTGGCA
99	GTTTTCAGTGGAATAGAGAGATGTGT
100	AACGCCAACCTTGTGCTAAGCACC

Table 10.b8

101	Hg38_6_31621846_31623705_31710695_31717311_FR	BAG6	76086.53763
102	Hg38_7_156960823_156963130_157154305_157160294_RR	MNX1	67505.74102
103	Hg38_2_47522457_47530546_47563847_47570151_FR	MSH2	82371.47843
104	Hg38_1_203176687_203182913_203318340_203323344_FF	CHI3L1	79022.09419

105	Hg38_1_87788995_87790981_87818262_87826752_RF	LMO4	86647.00466
106	Hg38_2_1263661_1274578_1419778_1424769_RF	PXDN	71442.26485
107	Hg38_16_19856577_19858875_20038454_20045219_FR	GPRC5B	75834.09114
108	Hg38_17_7929728_7931226_8091106_8097573_RR	TRAPPC1	72855.19388
109	Hg38_14_24307628_24311588_24485793_24490540_RR	LTB4R	94399.28713
110	Hg38_14_87841922_87846485_88021020_88026181_FR	GPR65	64229.78661
111	Hg38_1_164748288_164754002_164931877_164940038_FR	PBX1	72147.73599
112	Hg38_1_39655161_39659067_39836323_39843028_FF	PPIE	78015.47867
113	Hg38_1_121080942_121088798_121289281_121293407_RF	FCGR1B	69362.97632
114	Hg38_1_87818262_87826752_87928072_87933012_FF	LMO4	86699.02543
115	Hg38_1_87725315_87731896_87818262_87826752_RF	LMO4	82370.32264
116	Hg38_6_31621846_31623705_31760827_31764995_FR	BAG6	64487.05815
117	Hg38_20_30175888_30181348_30407864_30413511_RR	DEFB115	78526.88029
118	Hg38_6_88188008_88196988_88297132_88306521_FR	CNR1	79295.45848
119	Hg38_5_44708519_44718992_44785151_44789520_RF	FGF10	87836.34591
120	Hg38_19_49705556_49707798_49902219_49904931_RR	AKT1S1	98290.50026
121	Hg38_7_156960823_156963130_156997451_157002320_RR	MNX1	71687.00739
122	Hg38_5_53482717_53490284_53547734_53551656_RR	FST	88679.68983
123	Hg38_12_54361590_54362896_54476649_54480906_FF	GPR84	88026.9097
124	Hg38_1_203176687_203182913_203216286_203223882_FF	CHI3L1	83735.49887
125	Hg38_1_222313331_222325139_222441386_222443155_RF	MIA3	87164.68193
126	Hg38_1_121248861_121256803_121333642_121342053_RF	FCGR1B	75416.59036
127	Hg38_11_62592659_62593709_62832564_62835574_RR	TMEM179B	82225.58952
128	Hg38_12_54361590_54362896_54554738_54558191_FF	GPR84	91177.99339
129	Hg38_1_20049001_20056499_20178914_20185415_RF	PLA2G2D	77018.95665
130	Hg38_6_31446120_31450854_31621846_31623705_RF	AIF1	67251.16575
131	Hg38_15_50130724_50136085_50246566_50252745_FR	ATP8B4	84971.7205
132	Hg38_3_55535014_55543312_55612203_55618906_FF	WNT5A	88723.8519
133	Hg38_10_30369802_30374526_30437454_30440597_RF	MAP3K8	87279.79485
134	Hg38_5_75258048_75262845_75334371_75336800_RF	COL4A3BP	84526.94398
135	Hg38_6_33314273_33315676_33463232_33466480_FF	TAPBP	67876.06938
136	Hg38_20_23532159_23546814_23621720_23626001_FF	CST3	88568.20301
137	Hg38_1_153390496_153396692_153513973_153518338_RR	S100A7	83780.77149
138	Hg38_13_52856863_52871994_52883407_52889776_RR	OLFM4	85453.44397
139	Hg38_17_7665587_7668453_7929728_7931226_FR	EFNB3	74941.58463
140	Hg38_7_50286505_50295259_50544402_50549189_FR	IKZF1	85006.69353
141	Hg38_13_52856863_52871994_52892346_52898772_RR	OLFM4	97547.21362
142	Hg38_1_27610668_27612988_27649538_27652259_RR	FGR	79412.98785
143	Hg38_8_22681793_22682820_22815485_22819827_FR	EGR3	82717.07453
144	Hg38_19_11340579_11345804_11529780_11532285_FF	ECSIT	70032.18988
145	Hg38_19_11340579_11345804_11460171_11462756_FR	RAB3D	74325.76416
146	Hg38_6_26251913_26253832_26447582_26451332_RF	BTN2A2	74530.3491
147	Hg38_1_19972751_19977472_20178914_20185415_RF	PLA2G2A	74314.40789
148	Hg38_6_88146572_88149296_88188008_88196988_RF	CNR1	81860.02161
149	Hg38_22_42372891_42375481_42578934_42580470_RF	NFAM1	73010.50576

150	Hg38_8_64551143_64558219_64578198_64580985_RR	CYP7B1	88305.87208

Table 10.c1

101	-1.150617051	0.000548965	0.000106987	Immune
102	-1.150577287	0.004266767	0.003924706	Immune
103	-1.149458647	0.001014024	0.000375521	Immune
104	-1.149204947	0.001256975	0.000641747	Immune
105	-1.149093467	0.001183842	0.000569443	Immune
106	-1.149018322	0.001319233	0.00072363	Immune
107	-1.148871477	0.003207085	0.002746997	Immune
108	-1.148855684	0.001256517	0.000635169	Immune
109	-1.14852207	0.000130185	1.09861E-06	Immune
110	-1.147938237	0.002345377	0.00188026	Immune
111	-1.147750151	0.001605895	0.000990951	Immune
112	-1.147573915	0.001303562	0.000685373	Immune
113	-1.147511427	0.001306826	0.000711311	Immune
114	-1.147428692	0.000944817	0.000326899	Immune
115	-1.14732136	0.001303562	0.000694322	Immune
116	-1.14690098	0.002606229	0.002155362	Immune
117	-1.146873351	0.000580521	0.000141801	Immune
118	-1.146790056	0.000749172	0.000229144	Immune
119	-1.146766869	0.001734234	0.001156156	Immune
120	-1.146610946	0.001523301	0.000899584	Immune
121	-1.146187181	0.004081719	0.00373727	Immune
122	-1.146140194	0.00048383	4.6805E-05	Immune
123	-1.146033669	0.000876094	0.000288335	Immune
124	-1.145584041	0.001042044	0.00044712	Immune
125	-1.14558036	0.000508234	5.88759E-05	Immune
126	-1.145394787	0.001087752	0.000504864	Immune
127	-1.14525572	0.001042044	0.000448475	Immune
128	-1.145085484	0.000548965	0.000115815	Immune
129	-1.145048997	0.001256517	0.000633498	Immune
130	-1.144585667	0.002297443	0.00178706	Immune
131	-1.144362485	0.002056946	0.001484126	Immune
132	-1.144178863	0.00063478	0.000166288	Immune
133	-1.144123651	0.001038693	0.000423895	Immune
134	-1.144027903	0.001303562	0.000690728	Immune
135	-1.143809831	0.00223996	0.001653979	Immune
136	-1.143798281	0.000568148	0.000127054	Immune
137	-1.14358087	0.002114975	0.001543843	Immune
138	-1.143441535	0.000548965	8.93217E-05	Immune
139	-1.14340434	0.001660717	0.00107298	Immune
140	-1.143184548	0.00048383	3.18249E-05	Immune
141	-1.142263822	0.000508234	5.98961E-05	Immune

142	-1.142222301	0.002297443	0.00175262	Immune
143	-1.142218474	0.000691883	0.000204278	Immune
144	-1.142194183	0.002718332	0.002259542	Immune
145	-1.141901437	0.001937994	0.001363993	Immune
146	-1.141806893	0.002581943	0.002121453	Immune
147	-1.141779212	0.002100898	0.001524702	Immune
148	-1.141767242	0.001613021	0.0010209	Immune
149	-1.141697254	0.003808064	0.003422437	Immune
150	-1.141664358	0.000691883	0.000196547	Immune

Table 10.c2

101	GCCATCAGATCTCCCACATGAGGCATTTTCGACTTCACCATCCAGCTGGCCTCCAGCAGC
102	CCCAGCTCCTGCAAAACTCCTCCTGACTTCGAGATTCTGTCTAAAAAAAAAAGATAAAAG
103	CGGAGGGTATAATAACTGCTGTTGTGTATCGACGCGGAGGCCCTTGGGCATAGTCAAGAC
104	GTCCCAAGTGGCATGAGAGGTAGACTCATCGAAAGGACCTGTCTCTGCCCATAAGAGGGC
105	AGCTGTTCCTTTAATCTTCCCAGCACTATCGATGAACACTTCTTTCCAAAAAAAGTTTAC
106	TTCTAGATGCCGGGATACAGAGATGAGTTCGACATGTACGGCCTGGCTCAGCATTGCCTT
107	AGGAAATGTACTAACTGTTAAGGAAAACTCGAAGCTCTTTAAAAGTATTCCAACCCCATC
108	CTTATCCTCCGAGACCTTTACCTCATCCTCGATGACTCTTGGAGGATGCTGGGAGCCTGA
109	CACTCCATGGTCTCTCCCTCATCCCTAATCGATACAGAAAAATTTCAAGAAAAATTTCAT
110	ATGAGGCTGTGGAAGAGCAAAATGAGTTTCGACATGGTGGTATACCATGGTGGTGATACT
111	AGTACTCTTTGTTGTCATTTAGTATGTATCGAGGTCAATGTCGCATAGCTAATAAGACCT
112	AAACTAGAGGGATCTACCAGAGGAGGTGTCGATTTGTTGAATGTTCTTCAGGGATAGCCT
113	AGCAAGGAACATAATTATGGCTGTGCTTTCGATGATGCAGTTGCTTTTGAAACTCTTTAA
114	AGCTGTTCCTTTAATCTTCCCAGCACTATCGAGTGCCACTATTTTTAAACAGATCTTAAA
115	AGCTGTTCCTTTAATCTTCCCAGCACTATCGATCATAAATTAGTAAATTGAAAGATCAAG
116	GCCATCAGATCTCCCACATGAGGCATTTTCGACCTCAACCAGGTCAAAGGGAACAAAGGG
117	ATTCAGGGCGGGGGTCCTCTTGCCAAGATCGATAGACCACTAGCAAGACTAATAAAGAAG
118	TTGTGGTGAGAACGATACAGGAGACAGCTCGAATGTGCAAAGTATAACAAAAAGATAGGT
119	TTGCCCCAGTGACTGTTTGAGCAGTGCCTCGAATGATTATAACATATAGGTAAGTAAAAT
120	GATCTCACTACGTTGCCCTAGGCTGGTCTCGAACTCCTGACTTCGGGTGATCCCTCCCAT
121	CCCAGCTCCTGCAAAACTCCTCCTGACTTCGACACTGAAAACCTGTGTATGAAGTCACCG
122	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAGCAACAAAGGGCCATAGGGTGACTGTAT
123	CAAAGCAGAGGAACACAGCAAAACACATTCGAAAGAAAGCATAATAGAAGTTAAAACATC
124	GTCCCAAGTGGCATGAGAGGTAGACTCATCGATGTTCGGGGGTAGAAAGTGCTCTGGATG
125	GACAGCTGGCTCTTCATCACAATCATTCTCGATATTTCACTCTTGGGGCTTATAATCTAG
126	TGACCCCAAGCATTCTGGCCTGAACGATTCGAGTATGAACGGAAAATTGACTAGCCCTCA
127	TGCTGCTTCAGGATCCTCAAGGCCAGTCTCGATATCTTCGGCGCCTGAGGGGACGACGAG
128	CAAAGCAGAGGAACACAGCAAAACACATTCGAGAAGCTGGGAACACACTGAAGAAGTGGG
129	GCCAGGATAGGGAAGAAGCAGATTGATATCGAATTCAAAGCTTATTTAAAGGTTATATAT
130	GCCATCAGATCTCCCACATGAGGCATTTTCGATAGTCTACTAAACATGCCATGATTAAAT
131	GCAATTCCATTTGGATCCCCTGATTGAGTCGATGAAATGCCCAAGCTAAGGTAGGAGCTA
132	GGAGACAGGGTTACATCAGCCAGTAACATCGAGAAAGGATAGCTGGGTCTTCCCATGATG
133	TCTGGCTCTATCAAGCTCTATTTAATAGTCGAATTTACAGCTGGCTAACAGAGGCCCAGA

134	CCCGCGCTAGTAACTGAGCTTTCAGTCATCGATGTGAAAATCCTCAGTAAAATACTGTCA
135	TGCCCTGCATGTCCAAGGGAAGGAGCGGTCGAGGTTCGCAAACCTCAGTTTTTGACTTCT
136	GAGAAGGGGAAACACAATGTGTCTGTTATCGATGATTTCACGTTGGTGAAGTTGGTCAGA
137	GAGCTGGAGAAAGCCTTGAACTCTATCATCGACTCTATTGTTTTTCTTATTGTTTTCTTC
138	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAGACCTAGATAGGTCCTCCTTTTACCATG
139	CAGCAAAGTTTTATTGTAAAATAAGAGATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
140	GGAGGGGCAACTGCTAAGTGTATGATTATCGATTCCAACTTTAATGACAAACACTGGTCC
141	GTTGGAAGGAATCCAGGGTAAGGGATATTCGATTGTTATGGAAGGGATTTATACTTGAAT
142	GTGTGGTTTAGTGCAAGTTTTTCACCTCTCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG
143	GCCAAGAGGGGAAAGGACTCATGTTCTCTCGAGGTCTAGAATCTGAGACCTAAATGAATT
144	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAGTTTGGTTTGTCTTGAATAAACTGAGGT
145	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGACACCTGTTCTTCACATGCACATCCAACC
146	AAGGGGAGCTCATTTAGTTCATAAGCGGTCGACCATCACCTCCAGGGAGATCCAGACAGC
147	GCCAGGATAGGGAAGAAGCAGATTGATATCGACCAGTATTTCCCAATTGGGGTTCATGGG
148	TTGTGGTGAGAACGATACAGGAGACAGCTCGATTCTAAGCTAAGCAATTTGGTTTTGTTT
149	CACATCCCTGTCTAGTCCTATCTGTTCATCGAAATATTTCATTAACATCCACACACACAC
150	TTAAAAATTCCCAAGATGGAAAAAGAGATCGATCCTTCGCCCTTCAAATGTCCACTTCGG

Table 10.c3

101	6	31623674	31623703	31710697	31710726	6
102	7	156960825	156960854	157154307	157154336	7
103	2	47530515	47530544	47563849	47563878	2
104	1	203182882	203182911	203323313	203323342	1
105	1	87788997	87789026	87826721	87826750	1
106	2	1263663	1263692	1424738	1424767	2
107	16	19858844	19858873	20038456	20038485	16
108	17	7929730	7929759	8091108	8091137	17
109	14	24307630	24307659	24485795	24485824	14
110	14	87846454	87846483	88021022	88021051	14
111	1	164753971	164754000	164931879	164931908	1
112	1	39659036	39659065	39842997	39843026	1
113	1	121080944	121080973	121293376	121293405	1
114	1	87826721	87826750	87932981	87933010	1
115	1	87725317	87725346	87826721	87826750	1
116	6	31623674	31623703	31760829	31760858	6
117	20	30175890	30175919	30407866	30407895	20
118	6	88196957	88196986	88297134	88297163	6
119	5	44708521	44708550	44789489	44789518	5
120	19	49705558	49705587	49902221	49902250	19
121	7	156960825	156960854	156997453	156997482	7
122	5	53482719	53482748	53547736	53547765	5
123	12	54362865	54362894	54480875	54480904	12
124	1	203182882	203182911	203223851	203223880	1
125	1	222313333	222313362	222443124	222443153	1

126	1	121248863	121248892	121342022	121342051	1
127	11	62592661	62592690	62832566	62832595	11
128	12	54362865	54362894	54558160	54558189	12
129	1	20049003	20049032	20185384	20185413	1
130	6	31446122	31446151	31623674	31623703	6
131	15	50136054	50136083	50246568	50246597	15
132	3	55543281	55543310	55618875	55618904	3
133	10	30369804	30369833	30440566	30440595	10
134	5	75258050	75258079	75336769	75336798	5
135	6	33315645	33315674	33466449	33466478	6
136	20	23546783	23546812	23625970	23625999	20
137	1	153390498	153390527	153513975	153514004	1
138	13	52856865	52856894	52883409	52883438	13
139	17	7668422	7668451	7929730	7929759	17
140	7	50295228	50295257	50544404	50544433	7
141	13	52856865	52856894	52892348	52892377	13
142	1	27610670	27610699	27649540	27649569	1
143	8	22682789	22682818	22815487	22815516	8
144	19	11345773	11345802	11532254	11532283	19
145	19	11345773	11345802	11460173	11460202	19
146	6	26251915	26251944	26451301	26451330	6
147	1	19972753	19972782	20185384	20185413	1
148	6	88146574	88146603	88196957	88196986	6
149	22	42372893	42372922	42580439	42580468	22
150	8	64551145	64551174	64578200	64578229	8

Table 10.c4

101	31619704	31623703	31710697	31714696	-1	10.27609537	10.47850312
102	156960825	156964824	157154307	157158306	-1	10.03642306	10.23878096
103	47526545	47530544	47563849	47567848	N/A		
104	203178912	203182911	203319343	203323342	N/A		
105	87788997	87792996	87822751	87826750	N/A		
106	1263663	1267662	1420768	1424767	N/A		
107	19854874	19858873	20038456	20042455	N/A		
108	7929730	7933729	8091108	8095107	N/A		
109	24307630	24311629	24485795	24489794	N/A		
110	87842484	87846483	88021022	88025021	N/A		
111	164750001	164754000	164931879	164935878	N/A		
112	39655066	39659065	39839027	39843026	N/A		
113	121080944	121084943	121289406	121293405	N/A		
114	87822751	87826750	87929011	87933010	N/A		
115	87725317	87729316	87822751	87826750	N/A		
116	31619704	31623703	31760829	31764828	N/A		
117	30175890	30179889	30407866	30411865	N/A		

118	88192987	88196986	88297134	88301133	N/A		
119	44708521	44712520	44785519	44789518	N/A		
120	49705558	49709557	49902221	49906220	N/A		
121	156960825	156964824	156997453	157001452	N/A		
122	53482719	53486718	53547736	53551735	N/A		
123	54358895	54362894	54476905	54480904	N/A		
124	203178912	203182911	203219881	203223880	N/A		
125	222313333	222317332	222439154	222443153	N/A		
126	121248863	121252862	121338052	121342051	N/A		
127	62592661	62596660	62832566	62836565	N/A		
128	54358895	54362894	54554190	54558189	N/A		
129	20049003	20053002	20181414	20185413	N/A		
130	31446122	31450121	31619704	31623703	N/A		
131	50132084	50136083	50246568	50250567	N/A		
132	55539311	55543310	55614905	55618904	N/A		
133	30369804	30373803	30436596	30440595	N/A		
134	75258050	75262049	75332799	75336798	N/A		
135	33311675	33315674	33462479	33466478	N/A		
136	23542813	23546812	23622000	23625999	N/A		
137	153390498	153394497	153513975	153517974	N/A		
138	52856865	52860864	52883409	52887408	N/A		
139	7664452	7668451	7929730	7933729	N/A		
140	50291258	50295257	50544404	50548403	N/A		
141	52856865	52860864	52892348	52896347	N/A		
142	27610670	27614669	27649540	27653539	N/A		
143	22678819	22682818	22815487	22819486	N/A		
144	11341803	11345802	11528284	11532283	N/A		
145	11341803	11345802	11460173	11464172	N/A		
146	26251915	26255914	26447331	26451330	N/A		
147	19972753	19976752	20181414	20185413	N/A		
148	88146574	88150573	88192987	88196986	N/A		
149	42372893	42376892	42576469	42580468	N/A		
150	64551145	64555144	64578200	64582199	N/A		

Table 10.c5

101	1239.975041	1426.736425	Hg38_6_31621846_31623705_31710695_31717311_FR
102	1050.181566	1208.315057	Hg38_7_156960823_156963130_157154305_157160294_RR
103			Hg38_2_47522457_47530546_47563847_47570151_FR
104			Hg38_1_203176687_203182913_203318340_203323344_FF
105			Hg38_1_87788995_87790981_87818262_87826752_RF
106			Hg38_2_1263661_1274578_1419778_1424769_RF
107			Hg38_16_19856577_19858875_20038454_20045219_FR
108			Hg38_17_7929728_7931226_8091106_8097573_RR
109			Hg38_14_24307628_24311588_24485793_24490540_RR

110			Hg38_14_87841922_87846485_88021020_88026181_FR
111			Hg38_1_164748288_164754002_164931877_164940038_FR
112			Hg38_1_39655161_39659067_39836323_39843028_FF
113			Hg38_1_121080942_121088798_121289281_121293407_RF
114			Hg38_1_87818262_87826752_87928072_87933012_FF
115			Hg38_1_87725315_87731896_87818262_87826752_RF
116			Hg38_6_31621846_31623705_31760827_31764995_FR
117			Hg38_20_30175888_30181348_30407864_30413511_RR
118			Hg38_6_88188008_88196988_88297132_88306521_FR
119			Hg38_5_44708519_44718992_44785151_44789520_RF
120			Hg38_19_49705556_49707798_49902219_49904931_RR
121			Hg38_7_156960823_156963130_156997451_157002320_RR
122			Hg38_5_53482717_53490284_53547734_53551656_RR
123			Hg38_12_54361590_54362896_54476649_54480906_FF
124			Hg38_1_203176687_203182913_203216286_203223882_FF
125			Hg38_1_222313331_222325139_222441386_222443155_RF
126			Hg38_1_121248861_121256803_121333642_121342053_RF
127			Hg38_11_62592659_62593709_62832564_62835574_RR
128			Hg38_12_54361590_54362896_54554738_54558191_FF
129			Hg38_1_20049001_20056499_20178914_20185415_RF
130			Hg38_6_31446120_31450854_31621846_31623705_RF
131			Hg38_15_50130724_50136085_50246566_50252745_FR
132			Hg38_3_55535014_55543312_55612203_55618906_FF
133			Hg38_10_30369802_30374526_30437454_30440597_RF
134			Hg38_5_75258048_75262845_75334371_75336800_RF
135			Hg38_6_33314273_33315676_33463232_33466480_FF
136			Hg38_20_23532159_23546814_23621720_23626001_FF
137			Hg38_1_153390496_153396692_153513973_153518338_RR
138			Hg38_13_52856863_52871994_52883407_52889776_RR
139			Hg38_17_7665587_7668453_7929728_7931226_FR
140			Hg38_7_50286505_50295259_50544402_50549189_FR
141			Hg38_13_52856863_52871994_52892346_52898772_RR
142			Hg38_1_27610668_27612988_27649538_27652259_RR
143			Hg38_8_22681793_22682820_22815485_22819827_FR
144			Hg38_19_11340579_11345804_11529780_11532285_FF
145			Hg38_19_11340579_11345804_11460171_11462756_FR
146			Hg38_6_26251913_26253832_26447582_26451332_RF
147			Hg38_1_19972751_19977472_20178914_20185415_RF
148			Hg38_6_88146572_88149296_88188008_88196988_RF
149			Hg38_22_42372891_42375481_42578934_42580470_RF
150			Hg38_8_64551143_64558219_64578198_64580985_RR

Table 10.c6

101	OBD183-2361	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2363

102	OBD183-2365	TCCCAACATTTGCCACCACCTACTCC	OBD183-2367
103	OBD183-2369	AGTCGTCCGGAGACGTGGTTCCT	OBD183-2371
104	OBD183-2373	GATGGGAGACAGGCAGGTGAGAG	OBD183-2375
105	OBD183-2377	GCTGTCTTCCCCGTCACACATCC	OBD183-2379
106	OBD183-2381	GAAGACCAGGAGAGGCATCAACTG	OBD183-2383
107	OBD183-2385	CGCAATGACTGGAACGGGATTCTCTA	OBD183-2387
108	OBD183-2389	TGAAGTGGCATCTCTCTCCCGCC	OBD183-2391
109	OBD183-2393	TCTCCTGCTCCCCACTCCACAGT	OBD183-2395
110	OBD183-2397	TCAGCAGGGCAGGAACACAGTGG	OBD183-2399
111	OBD183-2401	TGGCAGGAGTAGCCGTGAAAGGC	OBD183-2403
112	OBD183-2405	GGGCAGACAGGCAGAAGGACAGA	OBD183-2407
113	OBD183-2409	AGGCGACAGGGTTCGGGCTTTATTCT	OBD183-2411
114	OBD183-2413	CCCGTCACACATCCAAACAAGAGCAT	OBD183-2415
115	OBD183-2417	CCCCGTCACACATCCAAACAAGAGCA	OBD183-2419
116	OBD183-2421	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2423
117	OBD183-2425	TCACCCCGCTCGTGTAGAACAGCG	OBD183-2427
118	OBD183-2429	TAGAGAACAAGAGGTGCTGGAGTGTG	OBD183-2431
119	OBD183-2433	CCTTTACCCTAATATTTTGTGCC	OBD183-2435
120	OBD183-2437	CGTCACAGCTCTATTCGACGGTG	OBD183-2439
121	OBD183-2441	ATGTCCACACCCACTGCCACGAT	OBD183-2443
122	OBD183-2445	TTCTTCGCTTGACGGAGCCAGCAGTT	OBD183-2447
123	OBD183-2449	CCAGGTGAGGTTGGCAGCAAGCAT	OBD183-2451
124	OBD183-2453	GATGGGAGACAGGCAGGTGAGAG	OBD183-2455
125	OBD183-2457	TCCATCTAAACATCACCGTGCTCCAG	OBD183-2459
126	OBD183-2461	GGTGGAAGCAGCAAGGGAAGACC	OBD183-2463
127	OBD183-2465	CACCTCTTACTCCCCTCTCCCTT	OBD183-2467
128	OBD183-2469	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-2471
129	OBD183-2473	GAACGCGGTAGCTTTCTTCAGCTAA	OBD183-2475
130	OBD183-2477	AAGAGTCCTTGCCACCTGGAAGCG	OBD183-2479
131	OBD183-2481	GCGTGGATACTTTCCTCTTCCGAACT	OBD183-2483
132	OBD183-2485	GGAGGAGTAAGGCTGAAATAACAGGG	OBD183-2487
133	OBD183-2489	GTGCTGAATGAGTGCGGAGTCCAGAA	OBD183-2491
134	OBD183-2493	TATTGTCCATTAGGCCCCACAAGGG	OBD183-2495
135	OBD183-2497	GGGTTCTGTATGATTACCGTCGT	OBD183-2499
136	OBD183-2501	CTGAAACGCAGACTGGTGGGTGC	OBD183-2503
137	OBD183-2505	GAGCCATAGCCATCTGCTGGTTTGGT	OBD183-2507
138	OBD183-2509	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2511
139	OBD183-2513	GTTCACCCCTCAGACACACAGGT	OBD183-2515
140	OBD183-2517	GGTCCAGAGCATTTTGGTGGTGC	OBD183-2519
141	OBD183-2521	ACCAAAGCACCTCTGAAGGACAAAGA	OBD183-2523
142	OBD183-2525	GCCTGGTGTGAATCCTGCCTCCA	OBD183-2527
143	OBD183-2529	ATTCCCCACCAGTATGAGGCGAAT	OBD183-2531
144	OBD183-2533	GTGGCTCAGAACTTTACCTTTGCCTC	OBD183-2535
145	OBD183-2537	GTGGCTCAGAACTTTACCTTTGCCTC	OBD183-2539
146	OBD183-2541	GCTTCAGATGAGGCTCCACCTTGTTA	OBD183-2543

147	OBD183-2545	AGTAGGACTCGGGCAGGGAGGAT	OBD183-2547
148	OBD183-2549	AGAGGTGCTGGAGTGTGGCTGTGATT	OBD183-2551
149	OBD183-2553	GCCAGCGAGACACTCACACAACT	OBD183-2555
150	OBD183-2557	GCACTAAGTCCTGCTAACATCAG	OBD183-2559

Table 10.c7

101	AATGCTCCTCCTTTCCTTCAGTCCCC
102	GAGAAAATAATGGTGGGAAGTTAGGG
103	TAAAGCCTCGTTATTGATCCGGTT
104	TTCTCCTGTGACAACTCCCTGGG
105	CCAAGGCAAAGCACGAAGGATGC
106	GCCTTTCTTTGCCCAGTATTAGC
107	CACTTGGAGTTGATGACTTGCCTGAC
108	TCCACTGCCCTGCTTCTCACCAA
109	CCAGCACAGAGTGTCCGTTTCCA
110	CACAGCAGAGGACCTATTCCCAG
111	GGCTGGGACTGTGAAACCTGGAA
112	GACAGATGGCACTACAGAAGGGC
113	CTCTGATAACATCTTCCCTCTACACG
114	GAACCTATGAAGGACCACTAAGGAGC
115	CATTTACTTTTACCTCTCCTTCCAGC
116	TTATCCCCTTCCTCAATCCCACCTCC
117	AAAACGAACACCGAGAATGCAGAA
118	TCACATCCTCCTTGAACTATTCTGTA
119	GAATCATAAGCAAAAGCACTGGTG
120	GGTGGCGATCCCTAAGAAGGTGTG
121	TGGGAGGGCTGAGAGGTGAGGAA
122	CTATCCTGGTCAAACTGGGACATACA
123	GGGAATAGTTTAGGCTTTGGGAAATC
124	AGTGCGTCTCTGTGTCTGGGCTA
125	GGGAACCATCTTTCTCTTCTGTCAT
126	CCCAGTCAGGGAATGAGAGGGTA
127	CGGCAGGGAAGATGAGACCACAG
128	GCACAGGAGGAGTCTGAAAGCAG
129	GGCATTCGAATAATGGTATTAAG
130	ACCAGGTATGGCCATCGGCGCTA
131	GGGAATGGTTGGTGGAGGTTACAAGT
132	TCCCACCACCATCATTACTGTCCTGA
133	GGTAACTGGCGAAGCACTCAATAAAC
134	GTTAAGTACCCAGATATTCGCTGG
135	CTCGGGGTCTATGGATGCCCGGTAG
136	CCCAGGAATGAGGACCACAGTCT
137	GTGGTATCCTAAAACCTGACCTCAAC
138	GACCAAGAATAGTCCAACTCCAACAG

139	TGAAGTGGCATCTCTCTCCCGCC
140	AAGGGCAGAGGCAGGACTTGGAC
141	CAAAAGTGTCCCTTCCCTGCTCCCTA
142	TCACCATCTCCTCAGGCACAAGG
143	GTTGTCTGGTATATTAACGTGCC
144	CATCACCTCTCTGGTATTCTTCCTGG
145	GAGCCTACAGGATTTAGAGTGGGTTG
146	CCATAGAATACAGCAGCACCCAGCAT
147	TTCACAGACCAGCATCGCCCCAT
148	CCCCAACCCCATACAGTGTGATA
149	GGGTGCCTCCAAATCGCATCTCC
150	ATGTCTGACTTAGTTCTCCAGCCAGC

Table 10.c8

151	Hg38_22_42405467_42408113_42578934_42580470_RF	NFAM1	80338.79435
152	Hg38_11_114241978_114246699_114439739_114443191_FR	ZBTB16	85996.62695
153	Hg38_5_76793348_76797693_76897248_76903956_RF	F2RL1	85235.48486
154	Hg38_1_27649538_27652259_27838007_27841075_RF	IFI6	83318.9954
155	Hg38_16_22513299_22515891_22559024_22570518_FF	POLR3E	83027.21437
156	Hg38_5_53482717_53490284_53554764_53563025_RR	FST	92529.50484
157	Hg38_17_7889503_7895357_7929728_7931226_FR	TRAPPC1	84835.85238
158	Hg38_2_47522457_47530546_47595212_47601970_FR	MSH2	78163.52614
159	Hg38_1_36461525_36463186_36575866_36579237_RF	CSF3R	77121.89746
160	Hg38_16_86372874_86378933_86513165_86515439_RR	FOXF1	79942.3235
161	Hg38_8_53298881_53306504_53518003_53523754_RF	OPRK1	94581.09623
162	Hg38_6_31588788_31590397_31621846_31623705_RF	AIF1	68435.03959
163	Hg38_2_219136508_219146735_219271447_219273060_FR	NHEJ1	86467.33636
164	Hg38_14_96122093_96130378_96263508_96266492_RF	BDKRB1	86504.3109
165	Hg38_10_73661598_73666900_73777774_73781187_RR	SEC24C	89527.307
166	Hg38_6_31621846_31623705_31693387_31703142_FR	BAG6	78489.59358
167	Hg38_2_47522457_47530546_47666116_47672220_FR	MSH2	83025.74574
168	Hg38_1_191729725_191732129_191869196_191881753_FR	RGS1	87903.89085
169	Hg38_7_104953069_104957259_105015558_105026847_RR	KMT2E	123658.9696
170	Hg38_12_54173791_54182056_54361590_54362896_RF	GPR84	96202.26462
171	Hg38_6_27860135_27864160_28014483_28022084_FR	HIST1H3I	82308.28752
172	Hg38_5_75236091_75239565_75334371_75336800_FF	COL4A3BP	92507.98272
173	Hg38_6_31817301_31818773_31878016_31881028_RF	HSPA1A	78213.14494
174	Hg38_17_7811362_7813705_7929728_7931226_RF	KDM6B	92203.46121
175	Hg38_14_24307628_24311588_24511833_24515792_RR	LTB4R	108316.2481
176	Hg38_1_121333642_121342053_121413898_121422150_FR	FCGR1B	75415.05882
177	Hg38_20_1589686_1605075_1636521_1641313_FR	SIRPB1	78259.09721
178	Hg38_5_100903133_100904261_100940255_100954422_FF	SLCO4C1	88801.69101
179	Hg38_4_145148297_145150633_145295262_145303638_FR	ABCE1	71043.23202
180	Hg38_17_7861815_7869138_7929728_7931226_FR	TRAPPC1	82177.5641

181	Hg38_16_85802241_85804577_85933137_85934694_RR	IRF8	90446.47069
182	Hg38_1_121052779_121056014_121248861_121256803_RR	FCGR1B	76230.75824
183	Hg38_6_106106013_106107198_106244728_106262141_RR	ATG5	77094.90975
184	Hg38_17_7861815_7869138_7929728_7931226_RR	TRAPPC1	82404.478
185	Hg38_1_121289281_121293407_121403378_121413898_FF	FCGR1B	78301.51501
186	Hg38_12_49954074_49960858_50101385_50107364_FF	RACGAP1	103477.8303
187	Hg38_6_32178822_32181952_32282603_32287434_RR	AGER	92115.75296
188	Hg38_11_6164440_6172634_6399479_6402059_RF	APBB1	89050.5491
189	Hg38_20_177034_181274_305424_309823_FR	DEFB128	76150.09639
190	Hg38_17_7929728_7931226_7944762_7946565_FF	TRAPPC1	90240.21925
191	Hg38_3_55535014_55543312_55612203_55618906_FR	WNT5A	97085.63511
192	Hg38_2_8571790_8576812_8640383_8646383_FF	ID2	96139.64242
193	Hg38_6_32934293_32937112_33060957_33074774_FF	HLA-DMA	88786.60149
194	Hg38_3_187569317_187579639_187726556_187727893_FR	BCL6	101438.3337
195	Hg38_1_39655161_39659067_39769500_39772730_FR	PPIE	84545.84627
196	Hg38_12_55953308_55956138_56112355_56115503_RR	PA2G4	99642.94851
197	Hg38_8_53448228_53464529_53518003_53523754_FF	OPRK1	88339.66075
198	Hg38_X_72208498_72213408_72340340_72345964_FF	CITED1	103970.4648
199	Hg38_5_60437025_60452736_60528868_60530657_RF	PDE4D	94525.29468
200	Hg38_6_27860135_27864160_27892394_27893632_FR	HIST1H3I	77795.67217

Table 10.d1

151	-1.141650335	0.001608284	0.001011115	Immune
152	-1.141519846	0.000580521	0.000144718	Immune
153	-1.141503061	0.000691883	0.000192651	Immune
154	-1.141362141	0.001257335	0.000652541	Immune
155	-1.141312609	0.001087752	0.000500407	Immune
156	-1.141306493	0.000508234	6.00445E-05	Immune
157	-1.141090521	0.000780545	0.000247008	Immune
158	-1.141005717	0.004288867	0.00396313	Immune
159	-1.14081435	0.001638666	0.001044045	Immune
160	-1.140775221	0.004735379	0.004495613	Immune
161	-1.140725713	0.000691883	0.000197463	Immune
162	-1.140707987	0.003576526	0.003111556	Immune
163	-1.140700468	0.001038693	0.00039895	Immune
164	-1.140699319	0.001038693	0.000412663	Immune
165	-1.140696831	0.000568148	0.0001253	Immune
166	-1.140678683	0.001087752	0.000499089	Immune
167	-1.140529444	0.003808064	0.003417198	Immune
168	-1.140487352	0.001087752	0.000496518	Immune
169	-1.14035827	0.001038693	0.000438267	Immune
170	-1.140295487	0.000580521	0.000143875	Immune
171	-1.14019275	0.001375885	0.000777927	Immune

172	-1.140190056	0.000749172	0.000233919	Immune
173	-1.140090269	0.003207085	0.002739994	Immune
174	-1.140013979	0.000558904	0.000120271	Immune
175	-1.139869101	6.55E-05	2.76371E-07	Immune
176	-1.139864017	0.001803063	0.001224865	Immune
177	-1.139617942	0.002297443	0.00177739	Immune
178	-1.139591682	0.001038693	0.000392403	Immune
179	-1.139263741	0.003054479	0.002573073	Immune
180	-1.139248288	0.001257335	0.000647292	Immune
181	-1.139203035	0.000580521	0.000136699	Immune
182	-1.139134604	0.002035483	0.001442874	Immune
183	-1.138925048	0.005042802	0.004913944	Immune
184	-1.138898567	0.001711945	0.00112685	Immune
185	-1.138557886	0.001716439	0.00113705	Immune
186	-1.138453619	0.001256517	0.000636211	Immune
187	-1.138262072	0.000539173	7.73497E-05	Immune
188	-1.138220841	0.001038693	0.000435859	Immune
189	-1.13809959	0.001496732	0.000858884	Immune
190	-1.137929608	0.000548965	0.00011276	Immune
191	-1.137921067	0.000855596	0.000277978	Immune
192	-1.137875489	0.00048383	3.93433E-05	Immune
193	-1.137744871	0.000548965	8.79018E-05	Immune
194	-1.137699742	0.00043607	1.28797E-05	Immune
195	-1.137631552	0.001937994	0.001365591	Immune
196	-1.137625783	0.001905941	0.001313269	Immune
197	-1.137573687	0.001183842	0.000558133	Immune
198	-1.137537352	0.000520629	6.4014E-05	Immune
199	-1.137338682	0.001087752	0.000485637	Immune
200	-1.1371575	0.002321293	0.001841364	Immune

Table 10.d2

151	CACATCCCTGTCTAGTCCTATCTGTTCATCGAGAGATACCCTACTTGCTATCATCATGGG
152	AGGAGTTCACCAGGGAGAAAAGAAGAAATCGAGCCCGTCCTGGGAGAGCGTTGGGGGTCT
153	TGTTAGTAGAGACCATGTTAGGCTGGTCTCGAACTCCCAGCCTCAGGTAATCTGCTCTCC
154	GAACCTCACAAGCCTCAGCAAATTCCCATCGAGGAGCTAAAAGCGAAGGCCGCGGGGAAG
155	CGTCTCAATGGCTCCCAACTCTTTTGCCTCGAGCCTGGTTTGTGTGTTTTATCCAGAAGT
156	GAGACGCGGGAGAAAAGTAGGAAATAAATCGAGGAGAGAAAACAAGGTGTGAAAGATCCA
157	CCATCCCAAAGTGCCCCGTGCTGAAGGGTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
158	CGGAGGGTATAATAACTGCTGTTGTGTATCGAGGCACAGGTAATTTGCCCAAGGTTACAC
159	ACAGGAGGCTCCTCTAACACATCTCCTCTCGACTGTTCCGGTCTCATCACAGGGAGGGCA
160	GCGTGAGTGAAGACCTTGCTGTATAACCTCGAGGTATAACCGTCGGCAGAAGAAAAGGGT
161	GCATCTCCGTGAGAGGCATTTGCATAGCTCGAGTTCTCATTTAGCTTTCACTTATAAATG
162	GCCATCAGATCTCCCACATGAGGCATTTTCGAGCCTCCGTTCAAATTGATCATCATCAAA
163	AATTTTCTTCAAATGGTTCTGTCTTCAATCGAGCGCCCAACCTACACCAACCTCAATCGC

164	GTGTTGTGTGAATTTACTCTGATAATGCTCGACTTGAAAACAAGCACTGCCTCACTGCAA
165	GAGTTTCACCAAGTTATCTAGGCTGGTCTCGAACTCCTGAGCTCAGGTGATTCACTTGCC
166	GCCATCAGATCTCCCACATGAGGCATTTTCGACTGGCCAGCTCCGGAAGTCAAAGTTGTA
167	CGGAGGGTATAATAACTGCTGTTGTGTATCGATTAACTTCTGCTCCAGCTCAGAGACAGC
168	GCCCCCTGCTCAACGGCGCGCAGTCCCATCGACCACATGTTTACATTTTGAAGACATTTG
169	GGTTGGAGGATCACCTGAGCCCGAGAGGTCGAGGCTGGAGACATGAATACCTATTTGGAA
170	CAAAGCAGAGGAACACAGCAAAACACATTCGAGTCTGGGCTCCTTCTTCTGTTCCCCCGC
171	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGATTCATATGAATGCTGTGGTATTATAGGT
172	GTTGAAACACCATTGAAATAAATGTTATTCGATGACTGAAAGCTCAGTTACTAGCGCGGG
173	GGGTCTCCTGCTCACCTTGTTGTCTAAGTCGAGCGCATGGTGCAGGAGGCGGAGAAGTAC
174	AAAGAGACACTTCTGATCCCCGCAAACATCGACATCAACTAATCTTGCCTTTGTGAGTTA
175	CACTCCATGGTCTCTCCCTCATCCCTAATCGAGTTGGCAGGTATAAAACACCTAGAAACT
176	TGACCCCAAGCATTCTGGCCTGAACGATTCGAGGTAACTCCTATCTAATGGGTTTTTCTT
177	GGCAGAGGGTTTGGCTACAAAAGGACCATCGATAAACAGGAGACATGACTGAGATGACAA
178	GCAGGGACACTTTTCAAGAGTTCTGTGTTCGATCATAACTCACTGTGGCCTTGATCTTCC
179	GTTGTCTTACTCCTGAAGGATGCTGCAGTCGAATGTGATAACTATGAAGGGAGAGATTTT
180	TGATGGTTTAGAATGCAGCTACCAATTATCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
181	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAGTGGCTGCTGCCTGCAGCTAAGTATTTT
182	TCCTAGATAAATAGCTTAAATTTTAGGATCGAGTATGAACGGAAAATTGACTAGCCCTCA
183	CCGGGGGCTCATACTACTGCAAATGCAATCGATCATCAGTTGTATCCCTTGTGCATAGCA
184	GGAAGCCACTGAAGAAGCTAAGGAAAGTTCGAGGATGAGGTAAAGGTCTCGGAGGATAAG
185	AGCAAGGAACATAATTATGGCTGTGCTTTCGATTTCCCACAAATAAATCCAGTAATCTTG
186	TGCAAAGACTGACTGACAGAAACAGATTTCGAGGACATTTTCTGAAAACCACTCTTCTCT
187	GTTCCTAAGACCTTTCTTTCCACAGATCTCGATTAAATTTGATACCCCTTCATGCTAAAA
188	GACTCTGATGCTGGATGAACTCCCACCCTCGATGTGATACGTTATATCAACAGAATGAAG
189	AGGTTTTTGTATCTCTGTTCTAGGGACATCGACCAACAGAACTATGCAGAGTTTGGCTGG
190	AAAGAGACACTTCTGATCCCCGCAAACATCGACCTAGGTTGTCATGTTTGTACCACACAG
191	GGAGACAGGGTTACATCAGCCAGTAACATCGAGTCTACACACTGGCTTGTGAACATGTTG
192	GATGATTCCGTGCAGTCATTTAAACAGTTCGATTCTGGAAGACAAAACAAAGGATCAACC
193	CACTTCGCTGTCTACCATGTACCATGTATCGATGTCTCAGGTAATTTATTTTTACAGTAG
194	AATTTTTTTTATTCTTAGAAGATGAATGTCGAGTCACTAAGCAAAGACAAGACAGGGTTA
195	AAACTAGAGGGATCTACCAGAGGAGGTGTCGAGAAACACAGTGAGGAACTGATCTGTTTT
196	CAAGGAACATTGGTGATTTCCTTACCAATCGAAATATCCATATTGCTTTCACGCCATTGT
197	AATTTTCTCCCAGAGGATGGGGAACCAATCGAGCTATGCAAATGCCTCTCACGGAGATGC
198	AAAATGATCGGGATATAAATCCAGGCATTCGAGCTTGTAATCCAGCACTTTGGGAGACTG
199	ACTCCCTGCTACATGGCGCCCAGTCCCATCGACCACTCTAGATGTGTGACCTCAACACAA
200	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGAACTCCAGGTCCCTAGAGATTTCTCCCCT

Table 10.d3

151	22	42405469	42405498	42580439	42580468	22
152	11	114246668	114246697	114439741	114439770	11
153	5	76793350	76793379	76903925	76903954	5
154	1	27649540	27649569	27841044	27841073	1
155	16	22515860	22515889	22570487	22570516	16

156	5	53482719	53482748	53554766	53554795	5
157	17	7895326	7895355	7929730	7929759	17
158	2	47530515	47530544	47595214	47595243	2
159	1	36461527	36461556	36579206	36579235	1
160	16	86372876	86372905	86513167	86513196	16
161	8	53298883	53298912	53523723	53523752	8
162	6	31588790	31588819	31623674	31623703	6
163	2	219146704	219146733	219271449	219271478	2
164	14	96122095	96122124	96266461	96266490	14
165	10	73661600	73661629	73777776	73777805	10
166	6	31623674	31623703	31693389	31693418	6
167	2	47530515	47530544	47666118	47666147	2
168	1	191732098	191732127	191869198	191869227	1
169	7	104953071	104953100	105015560	105015589	7
170	12	54173793	54173822	54362865	54362894	12
171	6	27864129	27864158	28014485	28014514	6
172	5	75239534	75239563	75336769	75336798	5
173	6	31817303	31817332	31880997	31881026	6
174	17	7811364	7811393	7931195	7931224	17
175	14	24307630	24307659	24511835	24511864	14
176	1	121342022	121342051	121413900	121413929	1
177	20	1605044	1605073	1636523	1636552	20
178	5	100904230	100904259	100954391	100954420	5
179	4	145150602	145150631	145295264	145295293	4
180	17	7869107	7869136	7929730	7929759	17
181	16	85802243	85802272	85933139	85933168	16
182	1	121052781	121052810	121248863	121248892	1
183	6	106106015	106106044	106244730	106244759	6
184	17	7861817	7861846	7929730	7929759	17
185	1	121293376	121293405	121413867	121413896	1
186	12	49960827	49960856	50107333	50107362	12
187	6	32178824	32178853	32282605	32282634	6
188	11	6164442	6164471	6402028	6402057	11
189	20	181243	181272	305426	305455	20
190	17	7931195	7931224	7946534	7946563	17
191	3	55543281	55543310	55612205	55612234	3
192	2	8576781	8576810	8646352	8646381	2
193	6	32937081	32937110	33074743	33074772	6
194	3	187579608	187579637	187726558	187726587	3
195	1	39659036	39659065	39769502	39769531	1
196	12	55953310	55953339	56112357	56112386	12
197	8	53464498	53464527	53523723	53523752	8
198	X	72213377	72213406	72345933	72345962	X
199	5	60437027	60437056	60530626	60530655	5
200	6	27864129	27864158	27892396	27892425	6

Table 10.d4

151	42405469	42409468	42576469	42580468	N/A		
152	114242698	114246697	114439741	114443740	N/A		
153	76793350	76797349	76899955	76903954	N/A		
154	27649540	27653539	27837074	27841073	N/A		
155	22511890	22515889	22566517	22570516	N/A		
156	53482719	53486718	53554766	53558765	N/A		
157	7891356	7895355	7929730	7933729	N/A		
158	47526545	47530544	47595214	47599213	N/A		
159	36461527	36465526	36575236	36579235	N/A		
160	86372876	86376875	86513167	86517166	N/A		
161	53298883	53302882	53519753	53523752	N/A		
162	31588790	31592789	31619704	31623703	N/A		
163	219142734	219146733	219271449	219275448	N/A		
164	96122095	96126094	96262491	96266490	N/A		
165	73661600	73665599	73777776	73781775	N/A		
166	31619704	31623703	31693389	31697388	N/A		
167	47526545	47530544	47666118	47670117	N/A		
168	191728128	191732127	191869198	191873197	N/A		
169	104953071	104957070	105015560	105019559	N/A		
170	54173793	54177792	54358895	54362894	N/A		
171	27860159	27864158	28014485	28018484	N/A		
172	75235564	75239563	75332799	75336798	N/A		
173	31817303	31821302	31877027	31881026	N/A		
174	7811364	7815363	7927225	7931224	N/A		
175	24307630	24311629	24511835	24515834	N/A		
176	121338052	121342051	121413900	121417899	N/A		
177	1601074	1605073	1636523	1640522	N/A		
178	100900260	100904259	100950421	100954420	N/A		
179	145146632	145150631	145295264	145299263	N/A		
180	7865137	7869136	7929730	7933729	N/A		
181	85802243	85806242	85933139	85937138	N/A		
182	121052781	121056780	121248863	121252862	N/A		
183	106106015	106110014	106244730	106248729	N/A		
184	7861817	7865816	7929730	7933729	N/A		
185	121289406	121293405	121409897	121413896	N/A		
186	49956857	49960856	50103363	50107362	N/A		
187	32178824	32182823	32282605	32286604	N/A		
188	6164442	6168441	6398058	6402057	N/A		
189	177273	181272	305426	309425	N/A		
190	7927225	7931224	7942564	7946563	N/A		
191	55539311	55543310	55612205	55616204	N/A		
192	8572811	8576810	8642382	8646381	N/A		

193	32933111	32937110	33070773	33074772	N/A		
194	187575638	187579637	187726558	187730557	N/A		
195	39655066	39659065	39769502	39773501	N/A		
196	55953310	55957309	56112357	56116356	N/A		
197	53460528	53464527	53519753	53523752	N/A		
198	72209407	72213406	72341963	72345962	N/A		
199	60437027	60441026	60526656	60530655	N/A		
200	27860159	27864158	27892396	27896395	N/A		

Table 10.d5

151			Hg38_22_42405467_42408113_42578934_42580470_RF
152			Hg38_11_114241978_114246699_114439739_114443191_FR
153			Hg38_5_76793348_76797693_76897248_76903956_RF
154			Hg38_1_27649538_27652259_27838007_27841075_RF
155			Hg38_16_22513299_22515891_22559024_22570518_FF
156			Hg38_5_53482717_53490284_53554764_53563025_RR
157			Hg38_17_7889503_7895357_7929728_7931226_FR
158			Hg38_2_47522457_47530546_47595212_47601970_FR
159			Hg38_1_36461525_36463186_36575866_36579237_RF
160			Hg38_16_86372874_86378933_86513165_86515439_RR
161			Hg38_8_53298881_53306504_53518003_53523754_RF
162			Hg38_6_31588788_31590397_31621846_31623705_RF
163			Hg38_2_219136508_219146735_219271447_219273060_FR
164			Hg38_14_96122093_96130378_96263508_96266492_RF
165			Hg38_10_73661598_73666900_73777774_73781187_RR
166			Hg38_6_31621846_31623705_31693387_31703142_FR
167			Hg38_2_47522457_47530546_47666116_47672220_FR
168			Hg38_1_191729725_191732129_191869196_191881753_FR
169			Hg38_7_104953069_104957259_105015558_105026847_RR
170			Hg38_12_54173791_54182056_54361590_54362896_RF
171			Hg38_6_27860135_27864160_28014483_28022084_FR
172			Hg38_5_75236091_75239565_75334371_75336800_FF
173			Hg38_6_31817301_31818773_31878016_31881028_RF
174			Hg38_17_7811362_7813705_7929728_7931226_RF
175			Hg38_14_24307628_24311588_24511833_24515792_RR
176			Hg38_1_121333642_121342053_121413898_121422150_FR
177			Hg38_20_1589686_1605075_1636521_1641313_FR
178			Hg38_5_100903133_100904261_100940255_100954422_FF
179			Hg38_4_145148297_145150633_145295262_145303638_FR
180			Hg38_17_7861815_7869138_7929728_7931226_FR
181			Hg38_16_85802241_85804577_85933137_85934694_RR
182			Hg38_1_121052779_121056014_121248861_121256803_RR
183			Hg38_6_106106013_106107198_106244728_106262141_RR
184			Hg38_17_7861815_7869138_7929728_7931226_RR

185			Hg38_1_121289281_121293407_121403378_121413898_FF
186			Hg38_12_49954074_49960858_50101385_50107364_FF
187			Hg38_6_32178822_32181952_32282603_32287434_RR
188			Hg38_11_6164440_6172634_6399479_6402059_RF
189			Hg38_20_177034_181274_305424_309823_FR
190			Hg38_17_7929728_7931226_7944762_7946565_FF
191			Hg38_3_55535014_55543312_55612203_55618906_FR
192			Hg38_2_8571790_8576812_8640383_8646383_FF
193			Hg38_6_32934293_32937112_33060957_33074774_FF
194			Hg38_3_187569317_187579639_187726556_187727893_FR
195			Hg38_1_39655161_39659067_39769500_39772730_FR
196			Hg38_12_55953308_55956138_56112355_56115503_RR
197			Hg38_8_53448228_53464529_53518003_53523754_FF
198			Hg38_X_72208498_72213408_72340340_72345964_FF
199			Hg38_5_60437025_60452736_60528868_60530657_RF
200			Hg38_6_27860135_27864160_27892394_27893632_FR

Table 10.d6

151	OBD183-2561	GCCAGCGAGACACTCACACAACT	OBD183-2563
152	OBD183-2565	GGAACTAAAGGGAAGCGTCCACG	OBD183-2567
153	OBD183-2569	GCGTATAAAATTAGTAACGGCTAGA	OBD183-2571
154	OBD183-2573	CCAGCACACGGCACTTTCTTGGG	OBD183-2575
155	OBD183-2577	CAGTTCGTGTTCTGACGGCAGGC	OBD183-2579
156	OBD183-2581	TTCTTCGCTTGACGGAGCCAGCAGTT	OBD183-2583
157	OBD183-2585	CCTTGTGGGACCCCTATCTTCTC	OBD183-2587
158	OBD183-2589	GTCACTACTGAGGACTGAAAATGCGG	OBD183-2591
159	OBD183-2593	CAGCCCACACACGAGATACACAC	OBD183-2595
160	OBD183-2597	TCCCAAGGAACTATGGAGGCAGG	OBD183-2599
161	OBD183-2601	TATGAGCCGGGTTCATCTTTGCGC	OBD183-2603
162	OBD183-2605	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2607
163	OBD183-2609	CACCTGGAAAGAGGAAGTAGGGC	OBD183-2611
164	OBD183-2613	GAGGAGAATGGACAGGCTGGGTC	OBD183-2615
165	OBD183-2617	ACGGAGCGTATGTGAAAAGAAGTA	OBD183-2619
166	OBD183-2621	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2623
167	OBD183-2625	GTTATAGTACCGTCGTTTTAGGTGC	OBD183-2627
168	OBD183-2629	ACTTCTATGTTACACCCTCGGTC	OBD183-2631
169	OBD183-2633	CAGTCTGGGCAACATAGCAGGAGTGT	OBD183-2635
170	OBD183-2637	CAGGTGAGGTTGGCAGCAAGCAT	OBD183-2639
171	OBD183-2641	TTACGGCTTTGGTGCTCTCGGACACA	OBD183-2643
172	OBD183-2645	AAGGCAGGAGCCAACCCAGCACA	OBD183-2647
173	OBD183-2649	ACTTCCCAGAGGCTCCTGAAAGC	OBD183-2651
174	OBD183-2653	CTCGTAGTAATGGAGTTTGTAACGGC	OBD183-2655
175	OBD183-2657	TCTCCTGCTCCCCACTCCACAGT	OBD183-2659
176	OBD183-2661	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2663

177	OBD183-2665	AAGCCGTGGGACTCGCAGGTGAA	OBD183-2667
178	OBD183-2669	CACCTCTCCTCCGTCCCACCATT	OBD183-2671
179	OBD183-2673	CTGAGACTGTGACCCTGAAGAATGAC	OBD183-2675
180	OBD183-2677	GCTCGTAACTCAGGTTGTGAATCTTC	OBD183-2679
181	OBD183-2681	AGCAAGGTGAGGTGACAGGGAGC	OBD183-2683
182	OBD183-2685	GACGCAGTCTCACACACTTTGGG	OBD183-2687
183	OBD183-2689	GAATCCATACCCACTATCCCCAACC	OBD183-2691
184	OBD183-2693	GGGTGTTGCGAGATGAGCCTGAT	OBD183-2695
185	OBD183-2697	AGGCGACAGGGTTCGGGCTTTATTCT	OBD183-2699
186	OBD183-2701	TGGCAGAGGGAGAGGGTCAGAGA	OBD183-2703
187	OBD183-2705	GTGTTAATCGTCCGGGGACCAATTT	OBD183-2707
188	OBD183-2709	GAGTTACTCGTTACGGTGCTTCG	OBD183-2711
189	OBD183-2713	GGACGCTGAATGTTGTCAAGTGTTTT	OBD183-2715
190	OBD183-2717	GTGGGCGTCTCGTAGTAATGGAG	OBD183-2719
191	OBD183-2721	GGGAGTGGAGGAGTAAGGCTGAA	OBD183-2723
192	OBD183-2725	TACCGTGCTGTGTGACCTCAGAC	OBD183-2727
193	OBD183-2729	TCCCATTTCCCCATTCTGGTCCTAAG	OBD183-2731
194	OBD183-2733	GGAGGTGACAACAGTATCATAAAGTG	OBD183-2735
195	OBD183-2737	GCGAGAACGGAGGCTAAGTTGAT	OBD183-2739
196	OBD183-2741	CTGAATCCCTAGGTCATGGGTGTGG	OBD183-2743
197	OBD183-2745	TGTATACTCAAAGCCATCATAAGTG	OBD183-2747
198	OBD183-2749	GTATATACGATAAGTGATCAATTG	OBD183-2751
199	OBD183-2753	AAATCCCCCAGGGCTAGCTCGCTT	OBD183-2755
200	OBD183-2757	GCTTTGGTGCTCTCGGACACAGC	OBD183-2759

Table 10.d7

151	CCTCCCTGCTTCGGCTTTTCCCA
152	ACCTGCCACACCTGAGACCCAGA
153	GGACCGGGAGTCCGATAGACCTAC
154	TCACCATCTCCTCAGGCACAAGG
155	GGAGGCAGTCATTCTGGTGTTCC
156	GCGAACAGGACTGGAGAAAAGTATCA
157	TGAAGTGGCATCTCTCTCCCGCC
158	CTGTTTGTTGAATGGACTCTGGACCC
159	CCAGGGCTGACTGACACCAAAGC
160	TGAGGAAGGAGGTGCCAACCGCA
161	CCACTTCGGAGAAATGAGGCGCAA
162	GCTTGGGTCCCTGAACACTGTCATTC
163	GGCAGGCTCAAAGCAGGCATTGG
164	CCCCTTGTCCAGAGTTTCCACAC
165	AAGCGGTACAAAATTGTACCGTA
166	AGGTGTTGTTGAGGGTGGGTAGGAGA
167	CATTAGTAACATTTTGGCACGGTGT
168	TATTATGGGTGTGTATATCGCCGT

169	TTAGATTACCACAACATCAGCCTGGG
170	TGTCCTCTGGCTCTGTTTGGGCG
171	ATACTTCCCTTTTCCCACCTCTGGAT
172	TTACAGGTTTGAGGTGCCCGTCG
173	GGCGTTCTTGGCTGACACCCTCT
174	GAGATGGAGCAGAACAGGAAGTTGGG
175	TGCGAGGGCAAACACAGAGTGAG
176	GCCTCTCCCTCATTCAAAAGAAAGAA
177	CTGGTCGTCACCTCTTCCAACCT
178	CACTTTGGGAGACTGAGAGCGGA
179	ATTGTTCTGAGCACTGAGGACACAGC
180	AGATGAGCGGCAGGTTTGGCTGAGA
181	CACACAGAGTAGGCAGGCGGATA
182	CCCAGTCAGGGAATGAGAGGGTATG
183	GGGTAAGAAAAGTGTGTCTCATTGAT
184	TGAAGTGGCATCTCTCTCCCGCC
185	GAAGAGGACTGTAGAAGGAGACAAGA
186	CAAGGAGATGCCCAGGCTAATGG
187	TCTTCGTTAAGAAATATTTCCGTT
188	TCCACGACCGCCACAGGAAAGGTAC
189	GGTTTTCCCCTGGAGTTGGACTGTTC
190	GCTGACCTTGGGTGTGGTGTCCA
191	CTGCCACTTTGAGACTGCCCCTC
192	CCGTCTTCAGCCCTCAGTGTAGG
193	GAGAGATTCTGTTATTAGTGCTTTGC
194	AAACCCTACAAGTGTGACCGCTGCCA
195	CCCCACGCCACCATAGATGTGCGC
196	TCCCTAACCGTAAAAACATGCAGG
197	CATAGTGCTAGTCCATTCCATAAC
198	AGCCACACCTGCGCCCGGAACCC
199	TTGTGGTCGACACACATGATAAGTT
200	GCGGTGGTTTATGCGTCCTTAGC

Table 10.d8

201	Hg38_19_11340579_11345804_11418077_11420873_FF	RAB3D	75158.23965
202	Hg38_6_31621846_31623705_31658615_31662274_FR	BAG6	73476.96162
203	Hg38_6_27833806_27836574_27892394_27893632_FF	HIST1H3I	87306.02454
204	Hg38_10_30369802_30374526_30437454_30440597_RR	MAP3K8	99482.11373
205	Hg38_1_36421193_36424970_36575866_36579237_RF	CSF3R	88238.80531
206	Hg38_19_18333551_18335634_18573351_18575967_FR	UBA52	101798.2618
207	Hg38_4_137465162_137478589_137647185_137649115_FR	SLC7A11	104516.3011
208	Hg38_2_47522457_47530546_47552565_47559543_FF	EPCAM	82019.4599
209	Hg38_11_128362004_128366353_128529463_128539984_RR	ETS1	95196.97394
210	Hg38_1_20161773_20167840_20178914_20185415_RF	PLA2G2F	71067.54178

211	Hg38_1_121333642_121342053_121433689_121438873_FF	FCGR1B	74438.73456
212	Hg38_19_11261901_11265731_11340579_11345804_RF	RAB3D	81266.52708
213	Hg38_1_159779096_159781322_159863199_159866609_RF	FCRL6	102134.347
214	Hg38_14_87618180_87629304_87841922_87846485_RF	GPR65	72699.81319
215	Hg38_2_215339857_215344488_215450480_215454642_FF	FN1	96409.36325
216	Hg38_12_54361590_54362896_54482792_54487121_FF	GPR84	100643.6652
217	Hg38_1_121333642_121342053_121465918_121472610_FR	FCGR1B	75113.82198
218	Hg38_19_14087074_14088724_14138048_14139567_FF	PRKACA	100867.5092
219	Hg38_3_55486659_55489812_55535014_55543312_RF	WNT5A	101340.9799
220	Hg38_X_133584341_133592788_133714472_133717449_RF	GPC3	89298.90821
221	Hg38_6_41533263_41541541_41639865_41645770_FF	TFEB	83891.12372
222	Hg38_20_23532159_23546814_23581107_23587842_FR	CST9	103099.2686
223	Hg38_7_6241289_6247872_6305163_6306814_FR	RAC1	96671.96879
224	Hg38_8_85458958_85464677_85620981_85632239_FR	CA2	94553.62101
225	Hg38_1_39655161_39659067_39891844_39898103_FF	PPIE	85073.55945
226	Hg38_1_121080942_121088798_121333642_121342053_RF	FCGR1B	81524.31487
227	Hg38_19_50382303_50383705_50507414_50511937_FR	NR1H2	91360.83698
228	Hg38_6_27728784_27735060_27860135_27864160_RF	HIST1H3H	82074.91985
229	Hg38_13_52856863_52871994_53037034_53038116_RR	OLFM4	100019.3414
230	Hg38_19_55646678_55648748_55776223_55778463_FF	NLRP9	90744.99246
231	Hg38_3_107828110_107834026_107847362_107853810_FF	CD47	86522.95908
232	Hg38_1_121302597_121312167_121333642_121342053_RF	FCGR1B	75746.22226
233	Hg38_6_33032719_33045940_33181270_33183497_RF	HLA-DPA1	86309.24088
234	Hg38_6_108163024_108164102_108359267_108371469_RR	OSTM1	102519.1724
235	Hg38_11_6268414_6277518_6399479_6402059_RF	APBB1	88516.17938
236	Hg38_19_38359207_38361549_38528221_38534565_FF	RASGRP4	92074.97165
237	Hg38_1_203176687_203182913_203223882_203229092_FR	CHI3L1	92883.913

Table 10.e1

201	-1.13712068	0.003576526	0.003131998	Immune
202	-1.137103255	0.003361092	0.002893092	Immune
203	-1.137039484	0.001555148	0.000951462	Immune
204	-1.136815419	0.00088347	0.00029449	Immune
205	-1.136790428	0.001014024	0.000376515	Immune
206	-1.136702764	0.000439511	2.06619E-05	Immune
207	-1.136652217	0.000439511	1.71494E-05	Immune
208	-1.136614547	0.005174643	0.005065473	Immune
209	-1.136581836	0.000508234	5.9311E-05	Immune
210	-1.136555095	0.005716634	0.005620151	Immune
211	-1.136552516	0.002418599	0.001959371	Immune
212	-1.136518191	0.001509078	0.000872336	Immune
213	-1.136412937	0.000211853	3.57558E-06	Immune
214	-1.136228821	0.003834101	0.003478193	Immune
215	-1.136198655	0.00048383	3.61197E-05	Immune

216	-1.135931381	0.000580521	0.000144351	Immune
217	-1.135913696	0.002324775	0.001853935	Immune
218	-1.135824779	0.001183842	0.000566503	Immune
219	-1.135789691	0.000580521	0.000146967	Immune
220	-1.135560291	0.001529047	0.00090994	Immune
221	-1.135554297	0.001523301	0.00089984	Immune
222	-1.135513678	0.001605895	0.001002837	Immune
223	-1.135505139	0.000548965	8.86915E-05	Immune
224	-1.135279349	0.00048383	3.83401E-05	Immune
225	-1.135212221	0.002387363	0.001923993	Immune
226	-1.13504303	0.001364867	0.000755679	Immune
227	-1.134973957	0.001014024	0.00037646	Immune
228	-1.13496699	0.002266378	0.001702174	Immune
229	-1.134941098	0.000399267	1.0108E-05	Immune
230	-1.134914024	0.002900401	0.00242312	Immune
231	-1.134693113	0.003054479	0.002577619	Immune
232	-1.134660959	0.002581943	0.002124384	Immune
233	-1.134546677	0.001605895	0.001000896	Immune
234	-1.134543655	0.000336555	7.10032E-06	Immune
235	-1.134518179	0.002251343	0.001681383	Immune
236	-1.134382464	0.000749172	0.000233645	Immune
237	-1.134282194	0.001183842	0.000564588	Immune

Table 10.e2

201	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAAAGTCACAAGAAGCACCGTCGCTCTCGG
202	GCCATCAGATCTCCCACATGAGGCATTTTCGATGGCTCAGATCCTGAGATCCAAGGAACA
203	ATAGATGCTCAGAAAGATTCAATTGAACTCGATGAGATGCCGGTGTCGGGGTGGACTTGC
204	TCTGGGCCTCTGTTAGCCAGCTGTAAATTCGAGAGAGGTTACGTTACTTGCTCAACGTCA
205	ACAGGAGGCTCCTCTAACACATCTCCTCTCGAAAGAACAAAGCCCAAATTGTTTACCACC
206	ATACAAGTGGCTGGACAGCGAGAGGACGTCGAGCCCAGTGACACCATTGAGAATGTCAAA
207	CCCAGTCACGTACCCTCTGCTTGCTCAATCGATCCAATTAAAATAACATACATTATAGAC
208	CGGAGGGTATAATAACTGCTGTTGTGTATCGAAGTGCAGCAAAGAGGTAATTTCTGTCAA
209	TCACACTGCTCATAGCGTTTGTTTATTCTCGAAGTAGAGTATTGCTCTCTGCACTTTGTT
210	GCCAGGATAGGGAAGAAGCAGATTGATATCGAGGACAGTAGGCTTTCCCAGAGAGAGTCT
211	TGACCCCAAGCATTCTGGCCTGAACGATTCGAATCTTCCTTGCATCTCAAGGATAAGTCC
212	CAAAGCAGTCAAGGCCCAAAGACAACCCTCGAGGGGTTTCAAACGCCACCAAGGAGCCCA
213	CGGATTCTGGTTACAGAGAGGGATGAGATCGAGCTGGATATCAAGGAGGCAAAGAAGGAG
214	ATGAGGCTGTGGAAGAGCAAAATGAGTTTCGATTAATGGCCTGCAATTGTCATTGTTGCC
215	GGCACGTAGATGACTTGAGCTCAGGAGTTCGAGACCAAACAGCTCCTCCTAGTTGTCATT
216	CAAAGCAGAGGAACACAGCAAAACACATTCGAAAGAAAAAAGAAAAAAAAAGGCTCAAGG
217	TGACCCCAAGCATTCTGGCCTGAACGATTCGAAAAGTAAAATAAAAACTGTGCCACTGCT
218	CTCCGGGAATCCAGCCTCAGTAAAATATTCGATTTTTTAACAGCTAAAAAGAATTTTTCT
219	GGAGACAGGGTTACATCAGCCAGTAACATCGATGTTCTCAGAGCAAAAGGAAAGTCGTCA
220	ACCACACCCTGGTCCTGGTAGTTAAAGATCGACCCTCCAAGGAGTTCACTGTTATTTGGA

221	GACCATAATACCCAAATATCCACTACAATCGAGAGTGACAGGGAGAATCAAAGGGACAGT
222	GAGAAGGGGAAACACAATGTGTCTGTTATCGAGCTCTGAATTTCTTTTTCCTACTAGTTT
223	AGGGCTTACCATGGTTCCCAGGCTGGTCTCGAACTCCAAACCTCAGATGAACCACCCACC
224	TCTGATTTCCGAGTTTTCCCTTCATCTCTCGAAAAATACCAAATATATGGAAATCAAACA
225	AAACTAGAGGGATCTACCAGAGGAGGTGTCGATTTGTATATATCTAAATTGGAAAAATGT
226	TGACCCCAAGCATTCTGGCCTGAACGATTCGATGATGCAGTTGCTTTTGAAACTCTTTAA
227	CCTGAAGGAGCTGAATGAGCAATTCCAATCGACCACCTGATCTCCCCCTTTCAACCCATC
228	GCCGTCTGGATCTCCCTGGAGGTGATGGTCGAGATTAGGAAATATCCAAAACCCAGAAAT
229	GTTGGAAGGAATCCAGGGTAAGGGATATTCGAATTTCCAAGTGAGTTATTACAGCTGTCC
230	CAATTTAGGGCTTCAGCTTCCTTTTCCTTCGAACCTCTCAGCTTGCTCCTTCCTATTCTG
231	TTACCAAGCCCGATGTTCTCCACGTGACTCGAGGACAGGAACTAAATTATATGCAGTATT
232	TGACCCCAAGCATTCTGGCCTGAACGATTCGAAATCAGGACATACAGATTGATACAATAC
233	GACACACAGGAAGTAGCCATGAGAAATATCGAGAAATTTGTCTTTTTTTTTTTTGACAGG
234	AGCCTAAAACGCAGGGAAGGTTCTTTTATCGAAAGGTTGATATATAACTAGAAAGAAGGA
235	GACTCTGATGCTGGATGAACTCCCACCCTCGATTTTATCTAAATCTGCTTGGCTGTGATG
236	ACGCTGAGGAGGAAGATTCGGGCTGGATTCGATGTATCTCCTGTACCTAGCACGGGGCTA
237	GTCCCAAGTGGCATGAGAGGTAGACTCATCGACATCACCAGGGGCACATGGACACCCTAG

Table 10.e3

201	19	11345773	11345802	11420842	11420871	19
202	6	31623674	31623703	31658617	31658646	6
203	6	27836543	27836572	27893601	27893630	6
204	10	30369804	30369833	30437456	30437485	10
205	1	36421195	36421224	36579206	36579235	1
206	19	18335603	18335632	18573353	18573382	19
207	4	137478558	137478587	137647187	137647216	4
208	2	47530515	47530544	47559512	47559541	2
209	11	128362006	128362035	128529465	128529494	11
210	1	20161775	20161804	20185384	20185413	1
211	1	121342022	121342051	121438842	121438871	1
212	19	11261903	11261932	11345773	11345802	19
213	1	159779098	159779127	159866578	159866607	1
214	14	87618182	87618211	87846454	87846483	14
215	2	215344457	215344486	215454611	215454640	2
216	12	54362865	54362894	54487090	54487119	12
217	1	121342022	121342051	121465920	121465949	1
218	19	14088693	14088722	14139536	14139565	19
219	3	55486661	55486690	55543281	55543310	3
220	X	133584343	133584372	133717418	133717447	X
221	6	41541510	41541539	41645739	41645768	6
222	20	23546783	23546812	23581109	23581138	20
223	7	6247841	6247870	6305165	6305194	7
224	8	85464646	85464675	85620983	85621012	8
225	1	39659036	39659065	39898072	39898101	1

226	1	121080944	121080973	121342022	121342051	1
227	19	50383674	50383703	50507416	50507445	19
228	6	27728786	27728815	27864129	27864158	6
229	13	52856865	52856894	53037036	53037065	13
230	19	55648717	55648746	55778432	55778461	19
231	3	107833995	107834024	107853779	107853808	3
232	1	121302599	121302628	121342022	121342051	1
233	6	33032721	33032750	33183466	33183495	6
234	6	108163026	108163055	108359269	108359298	6
235	11	6268416	6268445	6402028	6402057	11
236	19	38361518	38361547	38534534	38534563	19
237	1	203182882	203182911	203223884	203223913	1

Table 10.e4

201	11341803	11345802	11416872	11420871	N/A		
202	31619704	31623703	31658617	31662616	N/A		
203	27832573	27836572	27889631	27893630	N/A		
204	30369804	30373803	30437456	30441455	N/A		
205	36421195	36425194	36575236	36579235	N/A		
206	18331633	18335632	18573353	18577352	N/A		
207	137474588	137478587	137647187	137651186	N/A		
208	47526545	47530544	47555542	47559541	N/A		
209	128362006	128366005	128529465	128533464	N/A		
210	20161775	20165774	20181414	20185413	N/A		
211	121338052	121342051	121434872	121438871	N/A		
212	11261903	11265902	11341803	11345802	N/A		
213	159779098	159783097	159862608	159866607	N/A		
214	87618182	87622181	87842484	87846483	N/A		
215	215340487	215344486	215450641	215454640	N/A		
216	54358895	54362894	54483120	54487119	N/A		
217	121338052	121342051	121465920	121469919	N/A		
218	14084723	14088722	14135566	14139565	N/A		
219	55486661	55490660	55539311	55543310	N/A		
220	133584343	133588342	133713448	133717447	N/A		
221	41537540	41541539	41641769	41645768	N/A		
222	23542813	23546812	23581109	23585108	N/A		
223	6243871	6247870	6305165	6309164	N/A		
224	85460676	85464675	85620983	85624982	N/A		
225	39655066	39659065	39894102	39898101	N/A		
226	121080944	121084943	121338052	121342051	N/A		
227	50379704	50383703	50507416	50511415	N/A		
228	27728786	27732785	27860159	27864158	N/A		
229	52856865	52860864	53037036	53041035	N/A		
230	55644747	55648746	55774462	55778461	N/A		

231	107830025	107834024	107849809	107853808	N/A		
232	121302599	121306598	121338052	121342051	N/A		
233	33032721	33036720	33179496	33183495	N/A		
234	108163026	108167025	108359269	108363268	N/A		
235	6268416	6272415	6398058	6402057	N/A		
236	38357548	38361547	38530564	38534563	N/A		
237	203178912	203182911	203223884	203227883	N/A		

Table 10.e5

201			Hg38_19_11340579_11345804_11418077_11420873_FF
202			Hg38_6_31621846_31623705_31658615_31662274_FR
203			Hg38_6_27833806_27836574_27892394_27893632_FF
204			Hg38_10_30369802_30374526_30437454_30440597_RR
205			Hg38_1_36421193_36424970_36575866_36579237_RF
206			Hg38_19_18333551_18335634_18573351_18575967_FR
207			Hg38_4_137465162_137478589_137647185_137649115_FR
208			Hg38_2_47522457_47530546_47552565_47559543_FF
209			Hg38_11_128362004_128366353_128529463_128539984_RR
210			Hg38_1_20161773_20167840_20178914_20185415_RF
211			Hg38_1_121333642_121342053_121433689_121438873_FF
212			Hg38_19_11261901_11265731_11340579_11345804_RF
213			Hg38_1_159779096_159781322_159863199_159866609_RF
214			Hg38_14_87618180_87629304_87841922_87846485_RF
215			Hg38_2_215339857_215344488_215450480_215454642_FF
216			Hg38_12_54361590_54362896_54482792_54487121_FF
217			Hg38_1_121333642_121342053_121465918_121472610_FR
218			Hg38_19_14087074_14088724_14138048_14139567_FF
219			Hg38_3_55486659_55489812_55535014_55543312_RF
220			Hg38_X_133584341_133592788_133714472_133717449_RF
221			Hg38_6_41533263_41541541_41639865_41645770_FF
222			Hg38_20_23532159_23546814_23581107_23587842_FR
223			Hg38_7_6241289_6247872_6305163_6306814_FR
224			Hg38_8_85458958_85464677_85620981_85632239_FR
225			Hg38_1_39655161_39659067_39891844_39898103_FF
226			Hg38_1_121080942_121088798_121333642_121342053_RF
227			Hg38_19_50382303_50383705_50507414_50511937_FR
228			Hg38_6_27728784_27735060_27860135_27864160_RF
229			Hg38_13_52856863_52871994_53037034_53038116_RR
230			Hg38_19_55646678_55648748_55776223_55778463_FF
231			Hg38_3_107828110_107834026_107847362_107853810_FF
232			Hg38_1_121302597_121312167_121333642_121342053_RF
233			Hg38_6_33032719_33045940_33181270_33183497_RF
234			Hg38_6_108163024_108164102_108359267_108371469_RR
235			Hg38_11_6268414_6277518_6399479_6402059_RF

236			Hg38_19_38359207_38361549_38528221_38534565_FF
237			Hg38_1_203176687_203182913_203223882_203229092_FR

Table 10.e6

201	OBD183-2761	CCCCTAGCCGTTTAATAGTATACA	OBD183-2763
202	OBD183-2765	ATAAATGTGTCCCAGGATAGGAGGC	OBD183-2767
203	OBD183-2769	TCCCATTTAGGAGAGTGCCTGGC	OBD183-2771
204	OBD183-2773	GGTAACTGGCGAAGCACTCAATAAAC	OBD183-2775
205	OBD183-2777	CCACACACGAGATACACACACCC	OBD183-2779
206	OBD183-2781	ACTCCCGCCTTCGTGCCCAAATA	OBD183-2783
207	OBD183-2785	TGAACCCACTGCTAATACCAACCG	OBD183-2787
208	OBD183-2789	TCAGTCTCCATACACCTTGGAGT	OBD183-2791
209	OBD183-2793	ACGAGCAAAGGTGAGAAAGCAAATGC	OBD183-2795
210	OBD183-2797	GCATGACTGGCAACGGCTCGCCCTG	OBD183-2799
211	OBD183-2801	AAGTAAATCCTCGGAGCTGAGACG	OBD183-2803
212	OBD183-2805	GTTCCCGCCTTCCTCCATCTTGC	OBD183-2807
213	OBD183-2809	TTGGAGGTGGAGGTCTGCCAGGT	OBD183-2811
214	OBD183-2813	TCAGCAGGGCAGGAACACAGTGG	OBD183-2815
215	OBD183-2817	CACCTGTTGTAATCCTGGCACTCTGG	OBD183-2819
216	OBD183-2821	CCAGGTGAGGTTGGCAGCAAGCA	OBD183-2823
217	OBD183-2825	AAACGTTACCCAGGCCACTACTCAT	OBD183-2827
218	OBD183-2829	ACTTAGTTTCTCACGTTGTCACA	OBD183-2831
219	OBD183-2833	GGGAGTGGAGGAGTAAGGCTGAA	OBD183-2835
220	OBD183-2837	TGTAGTCTTAGAACCCCCGTACGT	OBD183-2839
221	OBD183-2841	GGTCACAGAAGGAAGCCTACTGC	OBD183-2843
222	OBD183-2845	AATATCCATCCCCCGGAACTTGCT	OBD183-2847
223	OBD183-2849	AGTTTTGTTGTTTCTTTTCTTCA	OBD183-2851
224	OBD183-2853	GTCCGTGCCCAGTGCTTTGGCGTCG	OBD183-2855
225	OBD183-2857	GCAGACAGGCAGAAGGACAGAAC	OBD183-2859
226	OBD183-2861	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2863
227	OBD183-2865	AATCCTTCCTGCCCCTGTGCCAG	OBD183-2867
228	OBD183-2869	GCTTTGGTGCTCTCGGACACAGC	OBD183-2871
229	OBD183-2873	GACCAAAGCACCTCTGAAGGACAAAG	OBD183-2875
230	OBD183-2877	TTACCGACTCATGACGGCGATTCTC	OBD183-2879
231	OBD183-2881	CTTATCGTCCGCCTTCATTCCTATGC	OBD183-2883
232	OBD183-2885	GGTGGAAGCAGCAAGGGAAGACCAAT	OBD183-2887
233	OBD183-2889	GATTAGCGCTGGACCTTGTTGTCCA	OBD183-2891
234	OBD183-2893	CTAAACAGGTTCAGACATAGCCCCTA	OBD183-2895
235	OBD183-2897	CTATATTGTGTGATGTCAGCATGTC	OBD183-2899
236	OBD183-2901	TCTCACAAGGGGTAGGGTCACTCCA	OBD183-2903
237	OBD183-2905	GATGGGAGACAGGCAGGTGAGAG	OBD183-2907

Table 10.e7

201	TTTTTCGGCCTAGATAAGATTCCAC
202	TGAGGGCACTGCTCTTGGATTCACCA
203	GTGCTCTTTCACTCTCCTCCGCC
204	ACCCAGCCATCTGCCTCTCAGTGAAT
205	TTGCTGGCAGAGACTCGCCTGGA
206	CAGCCCTACTCACCCTCCTTGTC
207	CAGTGCGGGGGTGGGTCGGCCGAT
208	CCTTTGTCTAGGAGCTGTTGACATG
209	CCCCTCAGAACTCAGGAGAAATCAT
210	GTAGTAGACGATGTGCGCAGTCGGA
211	ATAAGCAGCCTCAACTGCCTTCCGA
212	AGGCTCCAGGCTCTGAGATTTGG
213	TCCCTACCCTCCTATGTGCTCCT
214	CTGCCCTGGAAGCCTATGTGACT
215	GATACACAGACCTTGAGGCAACAATG
216	GGAGTGGGAAAGGAAGCGACAGA
217	CAAAATTCCGGCTCTCGCATGGGTT
218	TTTACAGTGGACGCTTCCGGAAAAC
219	CCTCCATTTCCCCAACCGCCTGA
220	GAGTACCCCTAATGCCGGGTACAGT
221	CGCAGTCCGATGCTCTATCTCCC
222	GAAAGTTGAGTTCCAGGACCTTGA
223	GCACTCTGTTGGGATTGCCAGGGA
224	CCTTTAAGGGCCCAAGCTGGGTC
225	GCTGGTGCTTGGGAAGGTAGGAG
226	CTCTGATAACATCTTCCCTCTACACG
227	ATGTGGGAAGCCTGGCACTGATG
228	GCCTGAACGAGGGACCTATCAAC
229	GCCTTTTGTGCCATCCCTTTCCTAAG
230	AGGAACCTATACCTATGCTGCTCTG
231	CCCAGACATCCTACCACCAGTAAAAC
232	GCATAATCTTGGACTTTCGTTTGCCA
233	CTTCCATGCTGGGTACCAATATGAA
234	TGGACAGGGCAGGCAATAACAGGGAT
235	GTGGTCCCGCCGTTTGCAAGTGT
236	GCATCATCGAGCCCCCTATTCAC
237	GGCTCCCCAGGTCTTTACTAACC

Table 10.e8

qPCR PRIMER SET		
	probe	qPCR Primer ID
4	Hg38_3_194096425_194098698_194154195_194165166_FF	OBD183-q969
12	Hg38_2_11008274_11010451_11159160_11162827_FR	OBD183-q909
16	Hg38_22_42578934_42580470_42682810_42685060_FR	OBD183-q981

21	Hg38_16_85802241_85804577_86052797_86054069_RR	OBD183-q829
23	Hg38_2_47522457_47530546_47595212_47601970_FF	OBD183-q865
24	Hg38_2_47354005_47355988_47522457_47530546_RF	OBD183-q905
33	Hg38_11_5689507_5691245_5788110_5795433_FF	OBD183-q809
37	Hg38_11_63903088_63909160_64170615_64174763_FF	OBD183-q997
42	Hg38_X_1815902_1820657_1830879_1832345_RR	OBD183-q993
44	Hg38_19_55104500_55106500_55175439_55177687_FR	OBD183-q861
48	Hg38_12_110242070_110251176_110379081_110380448_RR	OBD183-q881
143	Hg38_8_22681793_22682820_22815485_22819827_FR	OBD183-q805

Table 11.a

qPCR PRIMER SET		
	Sequence	qPCR Primer ID
4	CGGAGAGAGGGACGCAGGAATGGAAGGG	OBD183-q971
12	GAAGCCCAGGGAGGTGTGTGAGGACTGC	OBD183-q911
16	CAGGTCCCCTCCCAGACACCAGC	OBD183-q983
21	GCACAGCAAGGTGAGGTGACAGGGAGC	OBD183-q831
23	GGACTGGACACTTGAGAGGGCACTGGGC	OBD183-q867
24	GGACTGGACACTTGAGAGGGCACTGGGC	OBD183-q907
33	CTCTGAAGGTCCAGTCACAGGGAACTTG	OBD183-q811
37	GTGGTGGGCAGTGGCGGCAACGACAAAG	OBD183-q999
42	GGTGGACCTGACACGGATGCCTGCTGAC	OBD183-q995
44	CCTCTTTGGTGTGGGCTCCGACCTC	OBD183-q863
48	GGCTCACTGACCTCCCAGGCTCAAGCGA	OBD183-q883
143	CAGGAAGCAGGCAACAGCCCGATGACAC	OBD183-q807

Table 11.b

qPCR PRIMER SET		
	qPCR Reverse Seq	Probe ID
4	CGAACCCACCACACACACACACCAGAC	OBD183-p969
12	CTCCTCCTGCCAGCCTCCTGAGC	OBD183-p909
16	AGAGGAGGCGAGACGAAGAGGTGGGAGC	OBD183-p981
21	TTAGGCTTCCTTGCGGGTGCTCCTCAGG	OBD183-p829
23	AAGGCAGCAGCCAGAGCCCCAGC	OBD183-p865
24	CACAGGTGCCCAGCCCAGTGGAC	OBD183-p905
33	TCAAGGCTGCTCATACAACATCCATTCT	OBD183-p809
37	GGAGCCTGGAAAACAGAGGATGCCCC	OBD183-p997
42	CCTCGTGAATCCGCCTGCCTTGGC	OBD183-p993
44	CCCTGGGCACTACTGACTCCTGGGCTGT	OBD183-p861
48	CTCAGGGATGCGGTTGAATAGTCCGTCC	OBD183-p881
143	GTGAGTGTTCAGCAGGAAGCGGCAGCG	OBD183-p805

Table 11.a3

qPCR PRIMER SET		
	Probe Sequence	Probe ID
4	AGCTGCAGGAAAACCCCGTTCTTATTCGACATAT	OBD183-p971
12	TGTTTCGGCTTTAGTTCGATGGTGAAGACCCC	OBD183-p911
16	TCCCTGTCTAGTCCTATCTGTTCATCGAGCCAG	OBD183-p983
21	AGGCCGTTCTAAAAGCACATTTGTATCGAATAA	OBD183-p831
23	TGTGTATCGAGCAACCCCTGAGAATAAGGTGGC	OBD183-p867
24	ACTGCTGTTGTGTATCGAGGTGTAACTCACTAGC	OBD183-p907
33	TCCTGTCTCAAGAGCCGAGCTCCTCGAAGCCATT	OBD183-p811
37	GGGGCATCCTCTGTTTTCCAGGCTCC	OBD183-p999
42	AGGAGTTCGAGACAAGCCTGGCCAACATGGTG	OBD183-p995
44	TGTCAGCACTTGGAGCTATCCAATGGTCGAAGCG	OBD183-p863
48	TCACCATATTGCCAGGGCTGGTCTCGAACTCC	OBD183-p883
143	AGGACTCATGTTCTCTCGAGGTCTAGAATCTGAG	OBD183-p807

Table 11.c

	Probe Sequence
4	AGAGAACTGAAAGCATATGTCGAATAAGAACGGG
12	ACCATCGAACTAAAGCCGAAACACATTGAGCTCT
16	TCTGGCTCGATGAACAGATAGGACTAGACAGGG
21	TTATTCGATACAAATGTGCTTTTAGAACGGCCTC
23	TTGCTCGATACACAACAGCAGTTATTATACCC
24	TGCTAGTGAGTTACACCTCGATACACAACAGCAG
33	AATGGCTTCGAGGAGCTCGGCTCTTGAGACAG
37	AGCCTGGTCTCGAACCCCGTTGAGAGAGAG
42	ACCATGTTGGCCAGGCTTGTCTCGAACTCCTG
44	TCGCTTCGACCATTGGATAGCTCCAAGTGCTGAC
48	AGGAGTTCGAGACCAGCCCTGGCAATATGGTG
143	AGACCTCGAGAGAACATGAGTCCTTTCCCCTC

Table 11.d

	27 common elements in "S_SS" and "qPCR_ICU"
	Probe
1	HG38_5_74325511_74329920_74537627_74543794_FR
2	HG38_22_38362202_38364548_38442867_38446753_FF
3	HG38_12_8956666_8971971_9041253_9052225_RF
4	HG38_15_34886920_34889054_34974237_34980574_FF
5	HG38_11_118323848_118335396_118462783_118464333_RR

6	HG38_14_56302711_56310533_56523582_56531640_RR
7	HG38_21_10469195_10476377_10561289_10564307_FF
8	HG38_8_100518647_100527202_100566246_100573436_FR
9	HG38_3_140876349_140880490_140923822_140931266_FR
10	HG38_3_10166863_10171451_10267732_10269649_RF
11	HG38_18_56075450_56084543_56148926_56154674_RF
12	HG38_6_6906046_6910447_7167574_7173314_FF
13	HG38_6_96904639_96916143_97164838_97174050_FR
14	HG38_7_38195275_38200060_38339555_38347520_RF
15	HG38_9_104713365_104717628_104860975_104864532_FR
16	HG38_8_5120591_5125403_5295149_5302540_FF
17	HG38_1_109341939_109348573_109359719_109366704_RR
18	HG38_16_73137152_73141460_73235290_73240438_RR
19	HG38_5_67178844_67182260_67213797_67219491_FR
20	HG38_1_109359719_109366704_109565116_109566579_RF
21	HG38_15_65465777_65469194_65573794_65596385_RF
22	HG38_1_17044824_17050263_17192218_17198113_FF
23	HG38_9_77019945_77021308_77093295_77095880_FR
24	HG38_22_37732067_37737457_37944696_37945909_FF
25	HG38_16_20282299_20286605_20445721_20457266_FR
26	HG38_1_220397549_220404820_220583887_220590755_FR
27	HG38_2_13572319_13584069_13777052_13783676_RR

Table 12.a

	27 common elements in "S_SS" and "qPCR_ICU"	
	gene	RPs
1	ENC1,HEXB,GFM2	0
2	CSNK1E,KCNJ4,KDELR3	0
3	KLRG1,M6PR,PHC1	0
4	AQR,ZNF770,ACTC1	0
5	CD3D,CD3G,UBE4A, ATP5L	0
6	TMEM260,PELI2,OTX2	0
7	TPTE,CH507-396I9.6,SMIM11	0
8	ANKRD46,SNX31,RNF19A	0
9	SLC25A36,SPSB4,TRIM42	0
10	IRAK2,TATDN2,RP11-438J1.1	0
11	TCF4,TXNL1,WDR7	0
12	RREB1,SSR1,CAGE1	0
13	KLHL32,MMS22L,NDUFAF4	0
14	STARD3NL,AMPH,SFRP4	0
15	NIPSNAP3A,NIPSNAP3B,ABCA1	0
16	CSMD1,MCPH1,ANGPT2	0

17	SORT1,PSMA5,MYBPHL	0
18	ZFHX3,AC004158.1,PMFBP1	0
19	CD180,MAST4,SREK1,ENC1,HEXB,GFM2	0
20	SORT1,PSMA5,SYPL2, ATXN7L2,CYB561D1,AMIGO1, GPR61,GNAI3	0
21	DPP8,PTPLAD1,VWA9	0
22	SDHB, PADI2, PADI1	0
23	FOXB2,VPS13A,PRUNE2	0
24	RP1-37E16.12,TRIOBP,H1F0,GCAT,GALR3,ANKRD54,EIF3L,MICALL1,C22orf23,	0
25	GP2,UMOD,PDILT, ACSM5,ACSM2A	0
26	MARK1,C1orf115,RAB3GAP2	0
27	TRIB2,FAM84A,NBAS	0

Table 12.b

	27 common elements in "S_SS" and "qPCR_ICU"			
	FC:(class1/class2)	pfp	P.value	CCSs
1	1.359710939	946	0.003881856	S_SS
2	1.363695069	556	0.004780674	S_SS
3	1.364393463	64	0.005040658	S_SS
4	1.357006645	495	0.005451143	S_SS
5	1.33204853	934	0.00612789	S_SS
6	1.286049269	541	0.006677679	S_SS
7	1.30336803	898	0.006727825	S_SS
8	1.393967224	112	0.006817258	S_SS
9	1.404566293	520	0.006834053	S_SS
10	1.292229756	958	0.006838559	S_SS
11	1.37980114	535	0.00763	S_SS
12	1.384554408	768	0.007802214	S_SS
13	1.379039382	656	0.007810288	S_SS
14	1.272419515	675	0.008120322	S_SS
15	1.398854779	465	0.008221288	S_SS
16	1.346863591	388	0.008240722	S_SS
17	1.36223914	433	0.008262184	S_SS
18	1.373224679	802	0.008285011	S_SS
19	1.342803094	397	0.008730791	S_SS
20	1.319227832	483	0.008821062	S_SS
21	1.351266752	995	0.008824207	S_SS
22	1.321633207	927	0.008936962	S_SS
23	1.313942476	661	0.009091699	S_SS
24	1.329740767	745	0.009593766	S_SS
25	1.326912217	710	0.009666081	S_SS
26	1.370652703	398	0.009686475	S_SS
27	1.275941414	456	0.009745654	S_SS

Table 12.c

	Probe sequence
	60 mer
1	TTCCAAAATTCTGAGATTCTTAATTATGTCGAACTCCTGACCTCAGTCAATCTGCCCACC
2	GAATGAGATCATGTATTTTGTGGGAACATCGAACTCCTGACCCTCATGTGATCCATCCAC
3	TTATCCAATTATAAGTCTATTGGCTCTTTCGAACTCCTGACCTCACGTAATTCTCCCACC
4	ATTCTAATATTCTTTAAAAACCATAAATTCGATCTCTTGACCTTGTGACTCACCCGCATC
5	TACCAGGGATGTCTGAAGGAACTAAGAGTCGATCTCCTGACTTTGTGATCCTCCCACGTC
6	TAATTTGCACTTCCCTGATGGCTAATTGTCGATCTCTTGACCTTATGATCTGCCCACCTC
7	GAAATTAAAATACCAAAAGAATTCAAGATCGAACTCCTGACCTCCAGTAAACCACCCGCC
8	AGACCCTGTCAGTTACCACATCTTAGCTTCGATCTCCTGACCTCGTAATCTACCTGCCTC
9	ATATGTCAAATTGTTTAATGCTTAAACATCGATCTCCTGACCTTGTGAACCTCCCACCTC
10	GAGCCCAGTAGTTCAAGGTTTCAGTGAGTCGAACTCCTGACCTCATGTGATTTGGCCGCT
11	AATTTTAGACCAACATCCCTGATGAACATCGAGACCAGCCTGAACAATATAGTGAGACCC
12	GCCTTCCATGCATCTTTTTTTTTTTTTTTCGAACTCCTGACCTAAGGTGATCCAAACCGC
13	GACAAAAAAGTAGAGAGACATACAGGAATCGAACTCCTGACCTCTAGTAATCCACCCACC
14	AGTACTCCTAAAGATGGGGGAATGCAAATCGAACTCCTGACCCCATGTGATCCACTTGCC
15	AATTTTAGATCAATATCCCTGATGAACATCGAACTCCTGACCTCAAGTGATTTTCCCGCC
16	TCACTCCCAAGCCATTGTGTTGTCTAAATCGAACTCCTGACCTCAACTGATTTGTCCACC
17	AGCTTTGAGCAGCTTTTATTTTTACATGTCGAACTCCTGACCTCAGGTAATCTTCCCACA
18	CTGCAGTGTAGGTATCTACAAAGCAGTATCGATCTCCTGACCTCATCATCCTCCTGCCTC
19	GACCTAAGGATTAAGAAGATTAATGGAGTCGATCTCCTGACATCGTGATCTATCCGCCTC
20	GAATGAAATGTCATTCTTTTTTGTTTGTTCGAACTCCTGACCTCAGGTAATCTTCCCACA
21	ATGTTGTAACCAAAAGAACTTAAACATTTCGATCTCCTGACCTTGTCATCCACCTACCTC
22	CCAGGATGTACTACACTGAATATCTAAGTCGAACTCCTGACCTCAGGTTATCCATCTGCC
23	AAAGCCTCATTCGCTGGTAAATTGGAAGTCGAACTCCTGACCTCAGGAGATCCATCTGCC
24	GAGGCAGGCAAATCACGAGCTCAGGAGATCGAACTCCTGACCTCATGATTTGCCTGCCTC
25	AGACTCAACCATTTGTCTAACCAATCAATCGAACTCCTGACCTCAGATGATTCACTCACC
26	TATTTATTCTACATATCCTGTGTGAAGTTCGATCTCCTGACCTCGTGATATACCCACCTC
27	CCAGTTACAACTGAGTCACTAAGGCTAGTCGAACTCCTGACCTCAAGTAATATCCCCGCC

Table 12.d

	Probe Location				
	Chr	Start1	End1	Start2	End2
1	5	74329889	74329920	74537627	74537658
2	22	38364517	38364548	38446722	38446753
3	12	8956666	8956697	9052194	9052225
4	15	34889023	34889054	34980543	34980574
5	11	118323848	118323879	118462783	118462814
6	14	56302711	56302742	56523582	56523613

7	21	10476346	10476377	10564276	10564307
8	8	100527171	100527202	100566246	100566277
9	3	140880459	140880490	140923822	140923853
10	3	10166863	10166894	10269618	10269649
11	18	56075450	56075481	56154643	56154674
12	6	6910416	6910447	7173283	7173314
13	6	96916112	96916143	97164838	97164869
14	7	38195275	38195306	38347489	38347520
15	9	104717597	104717628	104860975	104861006
16	8	5125372	5125403	5302509	5302540
17	1	109341939	109341970	109359719	109359750
18	16	73137152	73137183	73235290	73235321
19	5	67182229	67182260	67213797	67213828
20	1	109359719	109359750	109566548	109566579
21	15	65465777	65465808	65596354	65596385
22	1	17050232	17050263	17198082	17198113
23	9	77021277	77021308	77093295	77093326
24	22	37737426	37737457	37945878	37945909
25	16	20286574	20286605	20445721	20445752
26	1	220404789	220404820	220583887	220583918
27	2	13572319	13572350	13777052	13777083

Table 12.d

	4 kb Sequence Location				
	Chr	Start1	End1	Start2	End2
1	5	74325919	74329920	74537627	74541628
2	22	38360547	38364548	38442752	38446753
3	12	8956666	8960667	9048224	9052225
4	15	34885053	34889054	34976573	34980574
5	11	118323848	118327849	118462783	118466784
6	14	56302711	56306712	56523582	56527583
7	21	10472376	10476377	10560306	10564307
8	8	100523201	100527202	100566246	100570247
9	3	140876489	140880490	140923822	140927823
10	3	10166863	10170864	10265648	10269649
11	18	56075450	56079451	56150673	56154674
12	6	6906446	6910447	7169313	7173314
13	6	96912142	96916143	97164838	97168839
14	7	38195275	38199276	38343519	38347520
15	9	104713627	104717628	104860975	104864976
16	8	5121402	5125403	5298539	5302540
17	1	109341939	109345940	109359719	109363720

18	16	73137152	73141153	73235290	73239291
19	5	67178259	67182260	67213797	67217798
20	1	109359719	109363720	109562578	109566579
21	15	65465777	65469778	65592384	65596385
22	1	17046262	17050263	17194112	17198113
23	9	77017307	77021308	77093295	77097296
24	22	37733456	37737457	37941908	37945909
25	16	20282604	20286605	20445721	20449722
26	1	220400819	220404820	220583887	220587888
27	2	13572319	13576320	13777052	13781053

Table 12.e

	5 common elements in "H_SS" and "qPCR_ICU":		
	Probe	gene	RPs
1	HG38_5_112081094_112093775_112164631_112171972_FR	EPB41L4A,NREP,APC	0
2	HG38_18_539296_550050_584723_586397_RF	CETN1,CLUL1,COLEC12	0
3	HG38_6_35168716_35174569_35319888_35323579_FF	SCUBE3,ZNF76,DEF6	0
4	HG38_9_92703705_92712491_92968821_92970651_FR	BICD2,ZNF484,FGD3	0
5	HG38_10_72986605_72992630_73084937_73090858_FF	P4HA1,NUDT13,PLA2G12B	0

Table 13.a

5

	5 common elements in "H_SS" and "qPCR_ICU":			
	FC:(class1/class2)	pfp	P.value	CCSs
1	1.362600286	619	0.000224402	H_SS
2	1.505671556	508	0.00078581	H_SS
3	1.385185238	626	0.001610638	H_SS
4	1.352905103	774	0.003730504	H_SS
5	1.366480602	578	0.003960953	H_SS

Table 13.b

	Probe sequence
	60 mer
1	TCACAAATAAAATTACATAGGAATCAACTCGAGACCAGCCTCCAACATGGCAAAGCCCTG
2	GTCTTTTGCCATATTAGTCTGTCTGGTCTCGATGCAAAAATCCTCAATAAAATACTGGCA
3	CTGATTCATGTTACAACATGAATGAACCTCGAGACTAGCCTGACCAACGTAGTGAAACCA

4	AAGGTGTTGAAAGAGAACACCCTAAAAATCGAACTCCTGACCTCAGGTGGAGGTCTGCCA
5	CACAAGAGAAAGCAAGAAAGATTTAAAATCGAACTCCTGACCGGGGGTGATCCATCAGCC

Table 13.c

	Probe Location				
	Chr	Start1	End1	Start2	End2
1	5	112093744	112093775	112164631	112164662
2	18	539296	539327	586366	586397
3	6	35174538	35174569	35323548	35323579
4	9	92712460	92712491	92968821	92968852
5	10	72992599	72992630	73090827	73090858

Table 13.d

	4 kb Sequence Location				
	Chr	Start1	End1	Start2	End2
1	5	112089774	112093775	112164631	112168632
2	18	539296	543297	582396	586397
3	6	35170568	35174569	35319578	35323579
4	9	92708490	92712491	92968821	92972822
5	10	72988629	72992630	73086857	73090858

Table 13.e

	probe
1	Hg38_5_24973248_24983649_25162574_25164221_RF
2	Hg38_7_72710519_72716158_72886393_72889737_RR
3	Hg38_4_61417674_61420279_61603321_61613541_FF
4	Hg38_X_70847860_70854843_70935501_70940701_FF
5	Hg38_10_92119855_92132260_92208814_92210835_FR
6	Hg38_10_68133244_68143089_68154977_68161734_RF
7	Hg38_8_100518647_100527202_100566246_100573436_FR
8	Hg38_12_94767050_94775400_94927542_94930906_FR
9	Hg38_19_46541191_46545048_46610515_46614818_FF
10	Hg38_12_42074606_42080540_42126294_42137304_FF
11	Hg38_2_13599952_13609040_13777052_13783676_FR
12	Hg38_1_92634621_92645093_92816114_92818740_FF
13	Hg38_11_44414595_44424226_44592038_44600902_RR
14	Hg38_4_41259155_41269266_41430483_41435293_FR
15	Hg38_6_63302924_63308789_63399615_63406948_RF

16	Hg38_5_83038493_83043151_83194163_83201839_RR
17	Hg38_12_41928536_41933039_42126294_42137304_FF
18	Hg38_1_220076164_220080012_220133227_220135485_FR
19	Hg38_11_44553686_44560161_44592038_44600902_RR
20	Hg38_10_118536336_118552370_118688413_118690097_FF
21	Hg38_20_2492073_2494701_2607922_2616914_RF
22	Hg38_4_65379655_65403296_65477633_65486164_FR
23	Hg38_13_40166726_40179824_40323171_40327366_FR
24	Hg38_8_91499793_91509804_91549473_91558224_FF
25	Hg38_2_169803958_169808941_169880813_169885954_FF
26	Hg38_14_56302711_56310533_56523582_56531640_RR
27	Hg38_9_106695930_106705978_106918096_106923299_FR
28	Hg38_6_96956752_96964449_97164838_97174050_RR
29	Hg38_8_4152028_4162022_4182533_4190054_FF
30	Hg38_1_23317779_23324364_23388417_23393126_RF
31	Hg38_20_18124700_18129684_18141681_18142725_RR
32	Hg38_19_37532519_37537646_37734335_37739114_FR
33	Hg38_8_100380328_100387299_100566246_100573436_RR
34	Hg38_1_220397549_220404820_220583887_220590755_FR
35	Hg38_1_220556362_220569480_220583887_220590755_FR
36	Hg38_9_106918096_106923299_107019081_107028932_RF
37	Hg38_7_78342666_78352904_78461252_78471722_FF
38	Hg38_5_83018169_83019953_83194163_83201839_FR
39	Hg38_7_57120317_57122761_57287216_57294474_FF
40	Hg38_3_140876349_140880490_140923822_140931266_FR

Table 14.a1

	gene	RPs
1	CDH10, PRDM9, CDH9	52
2	TYW1B, POM121, TRIM74	126
3	LPHN3, TECRL, EPHA5	69
4	TEX11, SLC7A3, SNX12	88
5	CPEB3, 38412, BTAF1	127
6	MYPN, HERC4, ATOH7	134
7	ANKRD46, SNX31, RNF19A	112
8	NDUFA12, NR2C1, TMCC3	177
9	PPP5D1, CALM3, PTGIR	187
10	GXYLT1, YAF2, PPHLN1	160
11	FAM84A, TRIB2, NBAS	208
12	EVI5, RPL5, FAM69A	192
13	CD82, ALX4, TSPAN18	182
14	UCHL1, LIMCH1, APBB2	254

15	LGSN, FKBP1C, PTP4A1	258
16	TMEM167A, XRCC4, VCAN	216
17	GXYLT1, YAF2, PPHLN1	198
18	BPNT1, IARS2, RAB3GAP2	215
19	CD82, TSPAN18, ALX4	231
20	PRLHR, CACUL1, FAM204A	275
21	RP4-734P14.4, ZNF343, TMC2	305
22	EPHA5, TECRL, CENPC	251
23	FOXO1, COG6, MRPS31	288
24	SLC26A7, LRRC69, RUNX1T1	453
25	SSB, METTL5, UBR3	246
26	TMEM260, PELI2, OTX2	541
27	ZNF462, RP11-508N12.4, RAD23B	359
28	KLHL32, MMS22L, NDUFAF4	378
29	CSMD1, MYOM2, KBTBD11	327
30	HNRNPR, ZNF436, TCEA3	409
31	PET117, CSRP2BP, OVOL2	512
32	ZNF793, ZNF540, ZNF571, ZFP30, ZNF781, CTD-2528L19.4, ZNF607, ZNF573	440
33	RNF19A, ANKRD46, SNX31	369
34	MARK1, C1orf115, RAB3GAP2	398
35	MARK1, C1orf115, 37316	459
36	ZNF462, RP11-508N12.4, RAD23B	437
37	MAGI2, PHTF2, TMEM60	429
38	TMEM167A, XRCC4, VCAN	482
39	ZNF479, ZNF716, AC118758.1	461
40	SLC25A36, SPSB4, TRIM42	520

Table 14.a2

	FC:(class1/class2)	pfp	P.value	CCSs
1	1.248362984	0	7.80613E-05	1
2	1.243630678	0	4.24314E-05	1
3	1.242303902	0	0.000101016	1
4	1.237445571	0	3.09684E-05	1
5	1.23697005	0	4.54925E-05	1
6	1.233014191	0	7.58171E-05	1
7	1.232403876	0	0.000102575	1
8	1.231712844	0	5.02649E-05	1
9	1.229257491	0	5.24871E-05	1
10	1.228476181	0	5.01227E-05	1
11	1.225619635	0	9.8463E-05	1
12	1.224598629	0	2.95823E-05	1
13	1.22454015	0	6.47719E-05	1
14	1.223781195	0	4.32218E-05	1

15	1.2223357	0	4.495E-06	1
16	1.222210481	0	9.76557E-05	1
17	1.221596892	0	9.69035E-05	1
18	1.221254864	0	6.41053E-05	1
19	1.220790096	0	8.81837E-05	1
20	1.220548479	0	3.72716E-05	1
21	1.22040349	0	7.80421E-05	1
22	1.219846003	0	3.64797E-05	1
23	1.218824964	0	5.33856E-05	1
24	1.217093275	0	0.000103853	1
25	1.217066766	0	7.97666E-05	1
26	1.214793337	0	0.00010348	1
27	1.213707267	0	8.94725E-05	1
28	1.212978086	0	5.42223E-05	1
29	1.211767306	0	7.04551E-05	1
30	1.211550308	0	4.06597E-05	1
31	1.210859097	0	2.82431E-06	1
32	1.210636001	0	6.67697E-05	1
33	1.210392694	0	8.35231E-05	1
34	1.209502819	0	3.32716E-05	1
35	1.207968315	0	2.62733E-05	1
36	1.207915759	0	9.27406E-05	1
37	1.206788233	0	6.78808E-05	1
38	1.206627152	0	0.000105129	1
39	1.205661004	0	6.91294E-05	1
40	1.205530632	0	3.67623E-05	1

Table 14.a3

	60 mer
1	TATATAAATGTCCTTGTGATCTACAGCTTCGAACTCCTGACCTCAACAATTCACCCATCT
2	CCAGGCTGAAATTTAATGTCATAGGAAATCGAACTCCTGACCTCAGGTCACCCATCTGCC
3	AAAATAATATCACTATATGATGGTAGATTCGAACTCCTGACCTCAACCAATTCACCTGCC
4	GGTGGACGAATTTCTTAAGCTCAGGAGTTCGACACATACACTCTTCCAAGACTAAACCAG
5	AATCAATATTCAATTCTAAGAACGCAAATCGAACTCCTGACCCCAAATGATTCACCAGCC
6	ATCTTTTACTTTCTTTTCTTTTAGAACCTCGAACTCCTGACCTTATGCAATCCACTTGCC
7	AGACCCTGTCAGTTACCACATCTTAGCTTCGATCTCCTGACCTCGTAATCTACCTGCCTC
8	ATACAAACCATGAAATGGTCTTAACATATCGAACTCCTGACCTCAAATATTCCACCTGCC
9	GTGACATTTGGGAAAAGCATGCCACTCTTCGAACTCCTGACCTCAAATAATCTACCTGCC
10	AATTAAAATATACAAAACTGAAAACTGTTCGATCTCCTGACTTTGTGATCCTTCTGCCTC

11	AACAACAAAAAGCTGGACAAACTAAAAATCGAACTCCTGACCTCAAGTAATATCCCCGCC
12	TGCTTCATCAATTACTGAGACAGGGATGTCGAACTCCTGACCTCAGGTAATATGATGTCC
13	CATTATAAAAGACTCCATCTTAGCAGATTCGAACTCCTGACCTCAGGTCTTCTGCCAGTC
14	AATATTAACCATCACAGTTATTGACATATCGATCTCCTGACCTCAAGATCTGTCTGCCTC
15	GAATATCTAGAAGAAATGGGTAAATTCCTCGAGTCCAGCCTGGCCAATATAGTGAGACCC
16	TTTGTTTCTGTTTATTAAATACACTGAATCGAACTCCTGACCTCAGATGAACTCCACCTG
17	AGCTTATTGTTTATTTGTATGGCAAAATTCGATCTCCTGACTTTGTGATCCTTCTGCCTC
18	CTTTAATATATATTTACTAAAAGAGACTTCGAACTCCTGACCTCAGGATTTGCCAGCCTC
19	TGTGTATGTTTGTATGATATTGGATAAATCGAACTCCTGACCTCAGGTCTTCTGCCAGTC
20	CCTGTTCTTGAACTTTAAGTGAATGGAATCGATCTCCTGACCTCAAGTGATACACTTGGC
21	TGAGGACTGCATGGTTCTGGCTTGATGATCGATCTCCTGACCTCGTTTAGGTTTGTAAAC
22	AAAGTGCCCAATTCTGTATATTTATGAGTCGATCTCTTGACCTCATGATCACCCCTGCCT
23	GATCATGGGGATAAAGAGAGCCAAACTTTCGATCTCCTGACCTTGCGATGCCTTTTTAGT
24	GTTATTGTCCACTGGTAATTCTTTCTGCTCGAACTCCTGACCACAGATTATCTGCCCACC
25	TATTACTGCTATCTAGTACATCTGTAATTCGATCTCCTGACCTAGGGATCGCCCACCTCG
26	TAATTTGCACTTCCCTGATGGCTAATTGTCGATCTCTTGACCTTATGATCTGCCCACCTC
27	TCAAAACTCACAAACTGAAAGAAATGTGTCGAACTCCTGACCTCCTGATTCATCCACCTC
28	GTGCTAATACACTTAATTCTTACAACAATCGAACTCCTGACCTCTAGTAATCCACCCACC
29	CCTTTGACTAACCATTCTGTATTTGCCTTCGATCTCCTGACCTCGTGTTCTACCTGCCTT
30	CTCATGAGAAGCATGCAACTTGGTTTCCTCGAGACCAGCCTGCAATATGGTGAAATGCTG
31	GAAAATCTAGAAGAAATGGATAAATTCTTCGAGACCAGCTTGGCTGACGTGGTGAAACCC
32	TTGGTGAGAAGTCATACCTCAATGTACATCGATCTCCTGACATGTGATCCACCCTCCTCA
33	AAGTCTACTTCCTCCCAGAGGTAAGCTGTCGATCTCCTGACCTCGTAATCTACCTGCCTC
34	TATTTATTCTACATATCCTGTGTGAAGTTCGATCTCCTGACCTCGTGATATACCCACCTC
35	CTGAGACTAAAAAACACTTGCTGAACTGTCGATCTCCTGACCTCGTGATATACCCACCTC
36	GGTCTTTGGTTAATCTCACTTTAATAAGTCGAACTCCTGACCTCCTGATTCATCCACCTC
37	TTACTCTTCACTAATTCCATGGAAAACTTCGAACTCCTGACCTCATTGATTCACCCACCT
38	ATATGAGGAACTTTTTCCCTCTTCCTATTCGAACTCCTGACCTCAGATGAACTCCACCTG
39	TCTTTATAGACACATGAAAGCAAATGAGTCGAACTCCTGACCTGAGGCAATCTGCTGGCC
40	ATATGTCAAATTGTTTAATGCTTAAACATCGATCTCCTGACCTTGTGAACCTCCCACCTC

Table 14.a4

	Probe sequence	Probe Location				
	Chr	Start1	End1	Start2	End2	Chr
1	5	24973248	24973279	25164190	25164221	5
2	7	72710519	72710550	72886393	72886424	7
3	4	61420248	61420279	61613510	61613541	4
4	X	70854812	70854843	70940670	70940701	X
5	10	92132229	92132260	92208814	92208845	10

6	10	68133244	68133275	68161703	68161734	10
7	8	100527171	100527202	100566246	100566277	8
8	12	94775369	94775400	94927542	94927573	12
9	19	46545017	46545048	46614787	46614818	19
10	12	42080509	42080540	42137273	42137304	12
11	2	13609009	13609040	13777052	13777083	2
12	1	92645062	92645093	92818709	92818740	1
13	11	44414595	44414626	44592038	44592069	11
14	4	41269235	41269266	41430483	41430514	4
15	6	63302924	63302955	63406917	63406948	6
16	5	83038493	83038524	83194163	83194194	5
17	12	41933008	41933039	42137273	42137304	12
18	1	220079981	220080012	220133227	220133258	1
19	11	44553686	44553717	44592038	44592069	11
20	10	118552339	118552370	118690066	118690097	10
21	20	2492073	2492104	2616883	2616914	20
22	4	65403265	65403296	65477633	65477664	4
23	13	40179793	40179824	40323171	40323202	13
24	8	91509773	91509804	91558193	91558224	8
25	2	169808910	169808941	169885923	169885954	2
26	14	56302711	56302742	56523582	56523613	14
27	9	106705947	106705978	106918096	106918127	9
28	6	96956752	96956783	97164838	97164869	6
29	8	4161991	4162022	4190023	4190054	8
30	1	23317779	23317810	23393095	23393126	1
31	20	18124700	18124731	18141681	18141712	20
32	19	37537615	37537646	37734335	37734366	19
33	8	100380328	100380359	100566246	100566277	8
34	1	220404789	220404820	220583887	220583918	1
35	1	220569449	220569480	220583887	220583918	1
36	9	106918096	106918127	107028901	107028932	9
37	7	78352873	78352904	78471691	78471722	7
38	5	83019922	83019953	83194163	83194194	5
39	7	57122730	57122761	57294443	57294474	7
40	3	140880459	140880490	140923822	140923853	3

Table 14.a5

	4 kb Sequence Location			
	Start1	End1	Start2	End2
1	24973248	24977249	25160220	25164221

2	72710519	72714520	72886393	72890394
3	61416278	61420279	61609540	61613541
4	70850842	70854843	70936700	70940701
5	92128259	92132260	92208814	92212815
6	68133244	68137245	68157733	68161734
7	100523201	100527202	100566246	100570247
8	94771399	94775400	94927542	94931543
9	46541047	46545048	46610817	46614818
10	42076539	42080540	42133303	42137304
11	13605039	13609040	13777052	13781053
12	92641092	92645093	92814739	92818740
13	44414595	44418596	44592038	44596039
14	41265265	41269266	41430483	41434484
15	63302924	63306925	63402947	63406948
16	83038493	83042494	83194163	83198164
17	41929038	41933039	42133303	42137304
18	220076011	220080012	220133227	220137228
19	44553686	44557687	44592038	44596039
20	118548369	118552370	118686096	118690097
21	2492073	2496074	2612913	2616914
22	65399295	65403296	65477633	65481634
23	40175823	40179824	40323171	40327172
24	91505803	91509804	91554223	91558224
25	169804940	169808941	169881953	169885954
26	56302711	56306712	56523582	56527583
27	106701977	106705978	106918096	106922097
28	96956752	96960753	97164838	97168839
29	4158021	4162022	4186053	4190054
30	23317779	23321780	23389125	23393126
31	18124700	18128701	18141681	18145682
32	37533645	37537646	37734335	37738336
33	100380328	100384329	100566246	100570247
34	220400819	220404820	220583887	220587888
35	220565479	220569480	220583887	220587888
36	106918096	106922097	107024931	107028932
37	78348903	78352904	78467721	78471722
38	83015952	83019953	83194163	83198164
39	57118760	57122761	57290473	57294474
40	140876489	140880490	140923822	140927823

Table 14.a6

	qPCR PRIMER SET	
	probe	qPCR Primer ID
1	Hg38_5_24973248_24983649_25162574_25164221_RF	OBD183-q1001
2	Hg38_7_72710519_72716158_72886393_72889737_RR	OBD183-q1005
3	Hg38_4_61417674_61420279_61603321_61613541_FF	OBD183-q1009
4	Hg38_X_70847860_70854843_70935501_70940701_FF	OBD183-q1013
5	Hg38_10_92119855_92132260_92208814_92210835_FR	OBD183-q1017
6	Hg38_10_68133244_68143089_68154977_68161734_RF	OBD183-q1021
7	Hg38_8_100518647_100527202_100566246_100573436_FR	OBD183-q1025
8	Hg38_12_94767050_94775400_94927542_94930906_FR	OBD183-q1029
9	Hg38_19_46541191_46545048_46610515_46614818_FF	OBD183-q1033
10	Hg38_12_42074606_42080540_42126294_42137304_FF	OBD183-q1037
11	Hg38_2_13599952_13609040_13777052_13783676_FR	OBD183-q1041
12	Hg38_1_92634621_92645093_92816114_92818740_FF	OBD183-q1045
13	Hg38_11_44414595_44424226_44592038_44600902_RR	OBD183-q1049
14	Hg38_4_41259155_41269266_41430483_41435293_FR	OBD183-q1053
15	Hg38_6_63302924_63308789_63399615_63406948_RF	OBD183-q1057
16	Hg38_5_83038493_83043151_83194163_83201839_RR	OBD183-q1061
17	Hg38_12_41928536_41933039_42126294_42137304_FF	OBD183-q1065
18	Hg38_1_220076164_220080012_220133227_220135485_FR	OBD183-q1069
19	Hg38_11_44553686_44560161_44592038_44600902_RR	OBD183-q1073
20	Hg38_10_118536336_118552370_118688413_118690097_FF	OBD183-q1077
21	Hg38_20_2492073_2494701_2607922_2616914_RF	OBD183-q1081
22	Hg38_4_65379655_65403296_65477633_65486164_FR	OBD183-q1085
23	Hg38_13_40166726_40179824_40323171_40327366_FR	OBD183-q1089
24	Hg38_8_91499793_91509804_91549473_91558224_FF	OBD183-q1093
25	Hg38_2_169803958_169808941_169880813_169885954_FF	OBD183-q1097
26	Hg38_14_56302711_56310533_56523582_56531640_RR	OBD183-q1101
27	Hg38_9_106695930_106705978_106918096_106923299_FR	OBD183-q1105
28	Hg38_6_96956752_96964449_97164838_97174050_RR	OBD183-q1109
29	Hg38_8_4152028_4162022_4182533_4190054_FF	OBD183-q1113
30	Hg38_1_23317779_23324364_23388417_23393126_RF	OBD183-q1117
31	Hg38_20_18124700_18129684_18141681_18142725_RR	OBD183-q1121
32	Hg38_19_37532519_37537646_37734335_37739114_FR	OBD183-q1125
33	Hg38_8_100380328_100387299_100566246_100573436_RR	OBD183-q1129
34	Hg38_1_220397549_220404820_220583887_220590755_FR	OBD183-q1133
35	Hg38_1_220556362_220569480_220583887_220590755_FR	OBD183-q1137
36	Hg38_9_106918096_106923299_107019081_107028932_RF	OBD183-q1141
37	Hg38_7_78342666_78352904_78461252_78471722_FF	OBD183-q1145
38	Hg38_5_83018169_83019953_83194163_83201839_FR	OBD183-q1149
39	Hg38_7_57120317_57122761_57287216_57294474_FF	OBD183-q1153
40	Hg38_3_140876349_140880490_140923822_140931266_FR	OBD183-q1157

Table 14.a7

	qPCR PRIMER SET		
	Sequence	qPCR Primer ID	qPCR Reverse Seq
1	GAAATCAATGTTCATAAGTCATTT	OBD183-q1003	AAGGCTGAATACATTGGCATTGTT
2	ACTACAGGCGCACGCCACCAT	OBD183-q1007	ATTTAGATTTACACAAAGGAA
3	CTTTTTAATTTCCTTTAATCTGA	OBD183-q1011	TAAAAATTGTTGTGTGTTTAAAA
4	GGCAACAGGCAAGACCCTGTTTCA	OBD183-q1015	TTGTACCTCTGGTAGAATTCGGCT
5	ACCATATCTCAAGTCAAACTAGT	OBD183-q1019	AGGAATTATGGGAGGACAAACAA
6	TCCTGAGTGTGCAAGAGACTG	OBD183-q1023	TCTATATGCTTTCTACCTTTG
7	AACTAAGTCTGGCCTATTAAC	OBD183-q1027	TAAGAAGTCAGCTTGGGCCTG
8	CTCTGTTCAAAAAAGGAAGGCTC	OBD183-q1031	GGATAAACTATAGGTGAATATTA
9	GTTCCCTTCTCTGACTGTCACTTCCC	OBD183-q1035	CAGGAGTTTGAGACCAGCCTGGCCAA
10	TTTTAAACTTTCCTCAGAAGCCAT	OBD183-q1039	AAAAGTAATTTTCATTTCAAAATG
11	TTTGACAAAACCAGAAAAAAAATCA	OBD183-q1043	TGCACAAGGAGAAAACACCAAGGAG
12	GTTCTATCTTCATAAATCTTC	OBD183-q1047	ACCCCTAATCCACTGCAAATC
13	ATGATCCTGTGGCACACATACCCA	OBD183-q1051	GGTGTTGCAGTTTCAGAAAGTCCG
14	TGCCTTTCCCAGTCCACTGACTCAAG	OBD183-q1055	TTTCTTCATCATATTTAAGTTCTGAA
15	TAAAGGGGATTATCACCACCGATCT	OBD183-q1059	GTCATGACACCAGTATATTTTTAAA
16	TAGGGAATAAAGATTGTCAGGTTAA	OBD183-q1063	ATAAAGAATAAATAAATTGAAAGTA
17	GCTCCTGAACGCCCCCGCGACT	OBD183-q1067	TCAAAATGTCCAAGATAGGAGG
18	AACCGCATCAACACAGTGTTA	OBD183-q1071	AGCAGGCATTGTGTTAGACCC
19	ACCTAGAGAAACAGATTAAGT	OBD183-q1075	GTGGGGCATTCAGCAAAGGGC
20	GTAGTCTGACGAATTGTTACA	OBD183-q1079	AACCTATAACATCATACTCAG
21	CTGAGCAGCAATGCTGTTTTAT	OBD183-q1083	CTGGGGGCATGGTTTGCAAGGG
22	AATAATTTGCAATATTTTATAA	OBD183-q1087	ATTTCCTTATTTGATACTAGCA
23	AGGACAGATGTGGAAAATAAGCCCA	OBD183-q1091	TTTAAATCCAACAATGTATAAAAGG
24	TGACCATTATTTTTTCAAATATTT	OBD183-q1095	CTCCAACCCTTAGACGGAAACCAT
25	GATTGGTTAACTTTATTAGGACTTA	OBD183-q1099	AAAAGTAGGACAGTTGAAATAAAAA
26	TTACCTCTTGAGGAATGCCAAAC	OBD183-q1103	AAATTCCTGTGATTAAGTGTTTG
27	ATTGCTCTGAGGTCAAGAACCTTG	OBD183-q1107	AATTTTAACTCATATATGGGCATA
28	GCAAGAAACATTAGAACTGGGGAAA	OBD183-q1111	CTTTTCTCTATGTAGCTATTACCTT
29	CCTTTCGTTTAAATATTCAGTAAGT	OBD183-q1115	GTACGTAATACATAGCCTTGAATCA
30	GTAGAATTAGTGGGAGCCCTGAG	OBD183-q1119	CCACCTCCCAGGTTCAAGCGATT
31	GAGAAGAATCAAATAGATGCA	OBD183-q1123	GACAAGAGTCTCGCTCTGTCG
32	TGAATGTTTTTTTTGTGGGAA	OBD183-q1127	AAGACTGTTTGGCATATAGCG
33	CAGGTTTATAGACTAAGCTTGAAGG	OBD183-q1131	CTGTAGTCCCAGCTATTTGGGAGGC
34	TTCCTGGGCTAGTTGTATGGGCTGGT	OBD183-q1135	TTACATTTCAAATTTATGAACTATGA
35	TAAGGAGAGTTTTTTAAAAAA	OBD183-q1139	TTTCAAATTTATGAACTATGA
36	GAGATGTATCCAGATTGATGGAAA	OBD183-q1143	ATGGGCATATGCCCTCCAAATTTA
37	CACTAGGTTGAGCTTCTCAAAATGCA	OBD183-q1147	ATCACCTCTGGGGATTTTATTTATGA

38	ATTTTAACCTGATAGTTTAAAC	OBD183-q1151	AATAAGAAAGTTTTACCTATAT
39	TTTTCTATGCAACTGAAGTCATTT	OBD183-q1155	GAGATTGAGACCATCCTGGCCAAC
40	TATAAACGTTGTGAAAGACCAAGGA	OBD183-q1159	GAAGAAAGTACATGGCACCTTCTGC

Table 14.a8

	qPCR PRIMER SET	
	Probe ID	Probe Sequence
1	OBD183-p1001	TCCTTGTGATCTACAGCTTCGAACTCCTGACCTCAACAAT
2	OBD183-p1005	ATTTAATGTCATAGGAAATCGAACTCCTGACCTCAGGTCA
3	OBD183-p1009	CACTATATGATGGTAGATTCGAACTCCTGACCTCAACCAA
4	OBD183-p1013	TTTCTTAAGCTCAGGAGTTCGACACATACACTCTTCCAAG
5	OBD183-p1017	CAATTCTAAGAACGCAAATCGAACTCCTGACCCCAAATGA
6	OBD183-p1021	TTCTTTTCTTTTAGAACCTCGAACTCCTGACCTTATGCAA
7	OBD183-p1025	AGTTACCACATCTTAGCTTCGATCTCCTGACCTCGTAATC
8	OBD183-p1029	TGAAATGGTCTTAACATATCGAACTCCTGACCTCAAATAT
9	OBD183-p1033	GGAAAAGCATGCCACTCTTCGAACTCCTGACCTCAAATAA
10	OBD183-p1037	TACAAAACTGAAAACTGTTCGATCTCCTGACTTTGTGATC
11	OBD183-p1041	AGCTGGACAAACTAAAAATCGAACTCCTGACCTCAAGTAA
12	OBD183-p1045	ATTACTGAGACAGGGATGTCGAACTCCTGACCTCAGGTAA
13	OBD183-p1049	GACTCCATCTTAGCAGATTCGAACTCCTGACCTCAGGTCT
14	OBD183-p1053	ATCACAGTTATTGACATATCGATCTCCTGACCTCAAGATC
15	OBD183-p1057	AAGAAATGGGTAAATTCCTCGAGTCCAGCCTGGCCAATAT
16	OBD183-p1061	TTTATTAAATACACTGAATCGAACTCCTGACCTCAGATGA
17	OBD183-p1065	TTATTTGTATGGCAAAATTCGATCTCCTGACTTTGTGATC
18	OBD183-p1069	TATTTACTAAAAGAGACTTCGAACTCCTGACCTCAGGATT
19	OBD183-p1073	TGTATGATATTGGATAAATCGAACTCCTGACCTCAGGTCT
20	OBD183-p1077	AACTTTAAGTGAATGGAATCGATCTCCTGACCTCAAGTGA
21	OBD183-p1081	ATGGTTCTGGCTTGATGATCGATCTCCTGACCTCGTTTAG
22	OBD183-p1085	ATTCTGTATATTTATGAGTCGATCTCTTGACCTCATGATC
23	OBD183-p1089	ATAAAGAGAGCCAAACTTTCGATCTCCTGACCTTGCGATG
24	OBD183-p1093	ACTGGTAATTCTTTCTGCTCGAACTCCTGACCACAGATTA
25	OBD183-p1097	ATCTAGTACATCTGTAATTCGATCTCCTGACCTAGGGATC
26	OBD183-p1101	TTCCCTGATGGCTAATTGTCGATCTCTTGACCTTATGATC
27	OBD183-p1105	CAAACTGAAAGAAATGTGTCGAACTCCTGACCTCCTGATT
28	OBD183-p1109	ACTTAATTCTTACAACAATCGAACTCCTGACCTCTAGTAA
29	OBD183-p1113	ACCATTCTGTATTTGCCTTCGATCTCCTGACCTCGTGTTC
30	OBD183-p1117	GCATGCAACTTGGTTTCCTCGAGACCAGCCTGCAATATGG
31	OBD183-p1121	AAGAAATGGATAAATTCTTCGAGACCAGCTTGGCTGACGT
32	OBD183-p1125	GTCATACCTCAATGTACATCGATCTCCTGACATGTGATCC
33	OBD183-p1129	CCTCCCAGAGGTAAGCTGTCGATCTCCTGACCTCGTAATC

34	OBD183-p1133	ACATATCCTGTGTGAAGTTCGATCTCCTGACCTCGTGATA
35	OBD183-p1137	AAAACACTTGCTGAACTGTCGATCTCCTGACCTCGTGATA
36	OBD183-p1141	TAATCTCACTTTAATAAGTCGAACTCCTGACCTCCTGATT
37	OBD183-p1145	CTAATTCCATGGAAAACTTCGAACTCCTGACCTCATTGAT
38	OBD183-p1149	CTTTTTCCCTCTTCCTATTCGAACTCCTGACCTCAGATGA
39	OBD183-p1153	CACATGAAAGCAAATGAGTCGAACTCCTGACCTGAGGCAA
40	OBD183-p1157	TTGTTTAATGCTTAAACATCGATCTCCTGACCTTGTGAAC

Table 14.a9

	qPCR PRIMER SET	
	Probe ID	Probe Sequence
1	OBD183-p1003	ATTGTTGAGGTCAGGAGTTCGAAGCTGTAGATCACAAGGA
2	OBD183-p1007	TGACCTGAGGTCAGGAGTTCGATTTCCTATGACATTAAAT
3	OBD183-p1011	TTGGTTGAGGTCAGGAGTTCGAATCTACCATCATATAGTG
4	OBD183-p1015	CTTGGAAGAGTGTATGTGTCGAACTCCTGAGCTTAAGAAA
5	OBD183-p1019	TCATTTGGGGTCAGGAGTTCGATTTGCGTTCTTAGAATTG
6	OBD183-p1023	TTGCATAAGGTCAGGAGTTCGAGGTTCTAAAAGAAAAGAA
7	OBD183-p1027	GATTACGAGGTCAGGAGATCGAAGCTAAGATGTGGTAACT
8	OBD183-p1031	ATATTTGAGGTCAGGAGTTCGATATGTTAAGACCATTTCA
9	OBD183-p1035	TTATTTGAGGTCAGGAGTTCGAAGAGTGGCATGCTTTTCC
10	OBD183-p1039	GATCACAAAGTCAGGAGATCGAACAGTTTTCAGTTTTGTA
11	OBD183-p1043	TTACTTGAGGTCAGGAGTTCGATTTTTAGTTTGTCCAGCT
12	OBD183-p1047	TTACCTGAGGTCAGGAGTTCGACATCCCTGTCTCAGTAAT
13	OBD183-p1051	AGACCTGAGGTCAGGAGTTCGAATCTGCTAAGATGGAGTC
14	OBD183-p1055	GATCTTGAGGTCAGGAGATCGATATGTCAATAACTGTGAT
15	OBD183-p1059	ATATTGGCCAGGCTGGACTCGAGGAATTTACCCATTTCTT
16	OBD183-p1063	TCATCTGAGGTCAGGAGTTCGATTCAGTGTATTTAATAAA
17	OBD183-p1067	GATCACAAAGTCAGGAGATCGAATTTTGCCATACAAATAA
18	OBD183-p1071	AATCCTGAGGTCAGGAGTTCGAAGTCTCTTTTAGTAAATA
19	OBD183-p1075	AGACCTGAGGTCAGGAGTTCGATTTATCCAATATCATACA
20	OBD183-p1079	TCACTTGAGGTCAGGAGATCGATTCCATTCACTTAAAGTT
21	OBD183-p1083	CTAAACGAGGTCAGGAGATCGATCATCAAGCCAGAACCAT
22	OBD183-p1087	GATCATGAGGTCAAGAGATCGACTCATAAATATACAGAAT
23	OBD183-p1091	CATCGCAAGGTCAGGAGATCGAAAGTTTGGCTCTCTTTAT
24	OBD183-p1095	TAATCTGTGGTCAGGAGTTCGAGCAGAAAGAATTACCAGT
25	OBD183-p1099	GATCCCTAGGTCAGGAGATCGAATTACAGATGTACTAGAT
26	OBD183-p1103	GATCATAAGGTCAAGAGATCGACAATTAGCCATCAGGGAA
27	OBD183-p1107	AATCAGGAGGTCAGGAGTTCGACACATTTCTTTCAGTTTG
28	OBD183-p1111	TTACTAGAGGTCAGGAGTTCGATTGTTGTAAGAATTAAGT
29	OBD183-p1115	GAACACGAGGTCAGGAGATCGAAGGCAAATACAGAATGGT

30	OBD183-p1119	CCATATTGCAGGCTGGTCTCGAGGAAACCAAGTTGCATGC
31	OBD183-p1123	ACGTCAGCCAAGCTGGTCTCGAAGAATTTATCCATTTCTT
32	OBD183-p1127	GGATCACATGTCAGGAGATCGATGTACATTGAGGTATGAC
33	OBD183-p1131	GATTACGAGGTCAGGAGATCGACAGCTTACCTCTGGGAGG
34	OBD183-p1135	TATCACGAGGTCAGGAGATCGAACTTCACACAGGATATGT
35	OBD183-p1139	TATCACGAGGTCAGGAGATCGACAGTTCAGCAAGTGTTTT
36	OBD183-p1143	AATCAGGAGGTCAGGAGTTCGACTTATTAAAGTGAGATTA
37	OBD183-p1147	ATCAATGAGGTCAGGAGTTCGAAGTTTTCCATGGAATTAG
38	OBD183-p1151	TCATCTGAGGTCAGGAGTTCGAATAGGAAGAGGGAAAAAG
39	OBD183-p1155	TTGCCTCAGGTCAGGAGTTCGACTCATTTGCTTTCATGTG
40	OBD183-p1159	GTTCACAAGGTCAGGAGATCGATGTTTAAGCATTAAACAA

Table 14.a10

41	Hg38_2_13572319_13584069_13777052_13783676_RR
42	Hg38_11_61654302_61657376_61791076_61796129_RF
43	Hg38_2_27449755_27453484_27499977_27502563_RR
44	Hg38_1_166345772_166352895_166479691_166484996_RF
45	Hg38_3_122215059_122223774_122357299_122361064_FR
46	Hg38_9_104713365_104717628_104860975_104864532_FR
47	Hg38_8_113409304_113413871_113438847_113446082_RF
48	Hg38_11_44592038_44600902_44834704_44845205_RF
49	Hg38_6_35168716_35174569_35319888_35323579_FF
50	Hg38_5_112081094_112093775_112164631_112171972_FR
51	Hg38_22_38362202_38364548_38442867_38446753_FF
52	Hg38_21_10469195_10476377_10561289_10564307_FF
53	Hg38_10_72986605_72992630_73084937_73090858_FF
54	Hg38_6_96904639_96916143_97164838_97174050_RR
55	Hg38_2_13749083_13760607_13777052_13783676_FR
56	Hg38_7_38195275_38200060_38339555_38347520_RF
57	Hg38_6_96904639_96916143_97164838_97174050_FR
58	Hg38_12_121858404_121860997_122071931_122075862_RF
59	Hg38_16_73137152_73141460_73235290_73240438_RR
60	Hg38_22_32150471_32156851_32349194_32357683_FF
61	Hg38_16_73147488_73153243_73235290_73240438_FR
62	Hg38_5_55433718_55442449_55494916_55505697_RF
63	Hg38_9_77019945_77021308_77093295_77095880_FR
64	Hg38_1_220583887_220590755_220691405_220698377_RF
65	Hg38_15_65682913_65689631_65754053_65760294_RR
66	Hg38_1_220583887_220590755_220623254_220625991_RF
67	Hg38_12_42093320_42097578_42126294_42137304_FF

68	Hg38_10_29911467_29915859_30105543_30110107_FR
69	Hg38_3_115079613_115090182_115274886_115279463_FR
70	Hg38_2_130327268_130331286_130407716_130423252_FF
71	Hg38_6_6906046_6910447_7167574_7173314_FF
72	Hg38_18_54377256_54387140_54418492_54423189_RF
73	Hg38_9_96648122_96650296_96800444_96805664_RR
74	Hg38_20_25436043_25440608_25559938_25567438_RF
75	Hg38_9_92703705_92712491_92968821_92970651_FR
76	Hg38_5_118079546_118087664_118263492_118280818_FR
77	Hg38_X_458696_461140_599978_602768_RF
78	Hg38_19_22089092_22092256_22115487_22122996_FF
79	Hg38_13_40199951_40204969_40323171_40327366_FR

Table 14.b1

41	TRIB2, FAM84A, NBAS	456
42	DAGLA, MYRF, TMEM258, FEN1, FADS2	602
43	IFT172, FNDC4, GCKR	484
44	FAM78B, POGK, TADA1	591
45	CASR, CSTA, CCDC58	436
46	NIPSNAP3A, NIPSNAP3B, ABCA1	465
47	CSMD3, TRPS1, EIF3H	467
48	CD82, TSPAN18, TP53I11	518
49	SCUBE3, ZNF76, DEF6	626
50	EPB41L4A, NREP, APC	619
51	CSNK1E, KCNJ4, KDELR3	556
52	TPTE, CH507-396I9.6, SMIM11	898
53	P4HA1, NUDT13, PLA2G12B	578
54	KLHL32, MMS22L, NDUFAF4	554
55	FAM84A, TRIB2, NBAS	593
56	STARD3NL, AMPH, SFRP4	675
57	KLHL32, MMS22L, NDUFAF4	656
58	HPD, PSMD9, RP11-87C12.2, WDR66, BCL7A	643
59	ZFHX3, AC004158.1, PMFBP1	802
60	C22orf42, RFPL2, AL008723.1, SLC5A4, RFPL3	691
61	ZFHX3, AC004158.1, PMFBP1	783
62	PPAP2A, SKIV2L2, SLC38A9	731
63	FOXB2, VPS13A, PRUNE2	661
64	MARK1, C1orf115, 37316	707
65	DENND4A, RAB11A, SLC24A1	1158
66	MARK1, C1orf115, 37316	796
67	GXYLT1, YAF2, PPHLN1	673
68	KIAA1462, SVIL, MTPAP	819

69	ZBTB20, AC069063.1, AC069063.2	955
70	CCDC115, IMP4, PTPN18	687
71	RREB1, SSR1, CAGE1	768
72	C18orf54, STARD6, POLI	988
73	AAED1, ZNF510, ZNF782	1117
74	GINS1, NINL, ABHD12	1082
75	BICD2, ZNF484, FGD3	774
76	DTWD2, DMXL1, TNFAIP8	1033
77	SHOX, PPP2R3B, GTPBP6	1231
78	ZNF257, ZNF676, ZNF208	889
79	FOXO1, MRPS31, COG6	1039

Table 14.b2

41	1.205449904	0	0.000104438	1
42	1.205372719	0	7.99093E-05	1
43	1.204948353	0	4.47347E-05	1
44	1.204620445	0	3.14205E-05	1
45	1.204574665	0	4.51801E-05	1
46	1.204393887	0	2.18724E-05	1
47	1.204307036	0	4.76577E-05	1
48	1.203827073	0	4.13664E-05	1
49	1.202650814	0	2.19116E-05	1
50	1.202454994	0	1.90202E-05	1
51	1.20235937	0	5.29631E-05	1
52	1.20221134	0	1.19812E-05	1
53	1.202189482	0	5.09102E-05	1
54	1.202184391	0	5.95453E-05	1
55	1.201245724	0	8.13727E-05	1
56	1.20083295	0	2.17255E-05	1
57	1.200676807	0	4.74233E-05	1
58	1.199713596	0	3.1358E-05	1
59	1.197509015	0	4.49332E-05	1
60	1.196752615	0	0.000101486	1
61	1.196748478	0	5.71207E-05	1
62	1.196153322	0	5.44167E-05	1
63	1.19597974	0	2.84553E-05	1
64	1.19562989	0	5.25832E-05	1
65	1.19544322	0	4.79492E-05	1
66	1.193546721	0	3.23423E-05	1
67	1.193220497	0	8.08471E-05	1
68	1.193026967	0	8.6263E-05	1
69	1.192701056	0	9.93345E-05	1

70	1.192674461	0	7.33223E-05	1
71	1.19262132	0	5.17657E-05	1
72	1.192368785	0	1.22061E-05	1
73	1.192299516	0	4.96742E-06	1
74	1.192008806	0	1.20838E-05	1
75	1.191854775	0	5.93788E-05	1
76	1.190959743	0	3.29164E-05	1
77	1.190632952	0	1.28636E-05	1
78	1.190556313	0	8.19261E-05	1
79	1.190475822	0	2.47832E-05	1

Table 14.b3

41	CCAGTTACAACTGAGTCACTAAGGCTAGTCGAACTCCTGACCTCAAGTAATATCCCCGCC
42	GTGGACCTCATCCAGAAGCACAAGAGCATCGAACTCCTGACCTTAAGCAACCTACCTGCC
43	CTGAATCTGGACCTTGTCAAGGAAGCAATCGAACTCCTGACATCAGGTGCTCCACCTGCC
44	TTCCCCAAGCTTGAAATTATCTCCAGCTTCGAACTCCTGACCTTATGATGCACCTGCCTT
45	AAACTTCAGACAATATTCCTGATGAACATCGAACTCCTGGGCTCTTGATCCTTCCGACTC
46	AATTTTAGATCAATATCCCTGATGAACATCGAACTCCTGACCTCAAGTGATTTTCCCGCC
47	GATGTAACTATGTTAAGGATGTTGAGATTCGAACTCCTGACCTCGTGAAGCACCCCTCTC
48	ATTTAGTCCTGCATTTGGGCATTCAAAGTCGAACTCCTGACCTCAGGTCTTCTGCCAGTC
49	CTGATTCATGTTACAACATGAATGAACCTCGAGACTAGCCTGACCAACGTAGTGAAACCA
50	TCACAAATAAAATTACATAGGAATCAACTCGAGACCAGCCTCCAACATGGCAAAGCCCTG
51	GAATGAGATCATGTATTTTGTGGGAACATCGAACTCCTGACCCTCATGTGATCCATCCAC
52	GAAATTAAAATACCAAAAGAATTCAAGATCGAACTCCTGACCTCCAGTAAACCACCCGCC
53	CACAAGAGAAAGCAAGAAAGATTTAAAATCGAACTCCTGACCGGGGGTGATCCATCAGCC
54	TTTTCTGGATGAACTTTATTATCAGTGATCGAACTCCTGACCTCTAGTAATCCACCCACC
55	GATTCTGGGTAAAGGGTATCATTGTAAGTCGAACTCCTGACCTCAAGTAATATCCCCGCC
56	AGTACTCCTAAAGATGGGGGAATGCAAATCGAACTCCTGACCCCATGTGATCCACTTGCC
57	GACAAAAAAGTAGAGAGACATACAGGAATCGAACTCCTGACCTCTAGTAATCCACCCACC
58	GCTGCCCGCTACTCAGCAGGAGGGGAAGTCGAACTCCTGACCTCAAGTATTTGCCTGCCT
59	CTGCAGTGTAGGTATCTACAAAGCAGTATCGATCTCCTGACCTCATCATCCTCCTGCCTC
60	GGTTGTTTCATATTTATGGAGTATACCCTCGAGACCAGCCTGATGGGTGAAACCCCATCT
61	CTCTCAACTTTGGATGTAAGAATCATCTTCGATCTCCTGACCTCATCATCCTCCTGCCTC
62	TAAAAGTGAACAAGGAAAATACCACAAGTCGATCTCCTGACCTCATGATTCTCCTGCCTC
63	AAAGCCTCATTCGCTGGTAAATTGGAAGTCGAACTCCTGACCTCAGGAGATCCATCTGCC
64	CTTCACTTCCTGAAGCTTCAACTTCATGTCGATCTCCTGACCTCGTGATATACCCACCTC
65	CTGTTCCCATATAAGATGGTAAACTTCATCGAACGCCTGACCTCAGTTGATCTACCCACC
66	CTTGCGCTCCATCTCTTCAGATACATGTTCGATCTCCTGACCTCGTGATATACCCACCTC
67	AATTGCTTCCATATATACAATGATCTGGTCGATCTCCTGACTTTGTGATCCTTCTGCCTC
68	GCAGTGAAATGTTTGATTGGCCCACACTTCGAACTCCTGACCTCAGATGATTCATCTGCC
69	GATTCCGACATATAATAATCAACTAAAGTCGAACTCCTGACCTTGGCATCTGCCCACCTT
70	CTCCCTGAAAGGATCAGTAACTTCAACATCGATCTCCTGATCTCATGATCCACTTGCCTT

71	GCCTTCCATGCATCTTTTTTTTTTTTTTTCGAACTCCTGACCTAAGGTGATCCAAACCGC
72	GGAGTTTTTAAATGAAAGGAAACAGGAATCGAACTCCTGACCTCAGGTGGTCATATCATC
73	GGTGGGAGGACTTCTTGAGTGTAGGAGTTCGACACATACACTCTCACAAGACTAAACCAG
74	GAGCACCACACAGGATAATACCAAAAAATCGATCTCCTGACCTTGTGATCTCACCTTGGC
75	AAGGTGTTGAAAGAGAACACCCTAAAAATCGAACTCCTGACCTCAGGTGGAGGTCTGCCA
76	TTTTCATAACCTAATATCAAAAGTGACATCGAACTCTTGACATCATGATCTGCCTGCCTC
77	GAGACGGGTGGATCATGACTCCAGGAGATCGAACTCCTGACCGCAGGTTACCTGCCCGAG
78	AAGGTGACTTATTAGAAAACTAAAAACCTCGAGACCATCCTGACCAACATGTTGAAACCC
79	TGCTAAGGCCATGACCACAGGAGGAAGGTCGATCTCCTGACCTTGCGATGCCTTTTTAGT

Table 14.b4

41	2	13572319	13572350	13777052	13777083	2
42	11	61654302	61654333	61796098	61796129	11
43	2	27449755	27449786	27499977	27500008	2
44	1	166345772	166345803	166484965	166484996	1
45	3	122223743	122223774	122357299	122357330	3
46	9	104717597	104717628	104860975	104861006	9
47	8	113409304	113409335	113446051	113446082	8
48	11	44592038	44592069	44845174	44845205	11
49	6	35174538	35174569	35323548	35323579	6
50	5	112093744	112093775	112164631	112164662	5
51	22	38364517	38364548	38446722	38446753	22
52	21	10476346	10476377	10564276	10564307	21
53	10	72992599	72992630	73090827	73090858	10
54	6	96904639	96904670	97164838	97164869	6
55	2	13760576	13760607	13777052	13777083	2
56	7	38195275	38195306	38347489	38347520	7
57	6	96916112	96916143	97164838	97164869	6
58	12	121858404	121858435	122075831	122075862	12
59	16	73137152	73137183	73235290	73235321	16
60	22	32156820	32156851	32357652	32357683	22
61	16	73153212	73153243	73235290	73235321	16
62	5	55433718	55433749	55505666	55505697	5
63	9	77021277	77021308	77093295	77093326	9
64	1	220583887	220583918	220698346	220698377	1
65	15	65682913	65682944	65754053	65754084	15
66	1	220583887	220583918	220625960	220625991	1
67	12	42097547	42097578	42137273	42137304	12
68	10	29915828	29915859	30105543	30105574	10
69	3	115090151	115090182	115274886	115274917	3
70	2	130331255	130331286	130423221	130423252	2
71	6	6910416	6910447	7173283	7173314	6

72	18	54377256	54377287	54423158	54423189	18
73	9	96648122	96648153	96800444	96800475	9
74	20	25436043	25436074	25567407	25567438	20
75	9	92712460	92712491	92968821	92968852	9
76	5	118087633	118087664	118263492	118263523	5
77	X	458696	458727	602737	602768	X
78	19	22092225	22092256	22122965	22122996	19
79	13	40204938	40204969	40323171	40323202	13

Table 14.b5

41	13572319	13576320	13777052	13781053
42	61654302	61658303	61792128	61796129
43	27449755	27453756	27499977	27503978
44	166345772	166349773	166480995	166484996
45	122219773	122223774	122357299	122361300
46	104713627	104717628	104860975	104864976
47	113409304	113413305	113442081	113446082
48	44592038	44596039	44841204	44845205
49	35170568	35174569	35319578	35323579
50	112089774	112093775	112164631	112168632
51	38360547	38364548	38442752	38446753
52	10472376	10476377	10560306	10564307
53	72988629	72992630	73086857	73090858
54	96904639	96908640	97164838	97168839
55	13756606	13760607	13777052	13781053
56	38195275	38199276	38343519	38347520
57	96912142	96916143	97164838	97168839
58	121858404	121862405	122071861	122075862
59	73137152	73141153	73235290	73239291
60	32152850	32156851	32353682	32357683
61	73149242	73153243	73235290	73239291
62	55433718	55437719	55501696	55505697
63	77017307	77021308	77093295	77097296
64	220583887	220587888	220694376	220698377
65	65682913	65686914	65754053	65758054
66	220583887	220587888	220621990	220625991
67	42093577	42097578	42133303	42137304
68	29911858	29915859	30105543	30109544
69	115086181	115090182	115274886	115278887
70	130327285	130331286	130419251	130423252
71	6906446	6910447	7169313	7173314
72	54377256	54381257	54419188	54423189

73	96648122	96652123	96800444	96804445
74	25436043	25440044	25563437	25567438
75	92708490	92712491	92968821	92972822
76	118083663	118087664	118263492	118267493
77	458696	462697	598767	602768
78	22088255	22092256	22118995	22122996
79	40200968	40204969	40323171	40327172

Table 14.b6

41	Hg38_2_13572319_13584069_13777052_13783676_RR	OBD183-q1161
42	Hg38_11_61654302_61657376_61791076_61796129_RF	OBD183-q1165
43	Hg38_2_27449755_27453484_27499977_27502563_RR	OBD183-q1169
44	Hg38_1_166345772_166352895_166479691_166484996_RF	OBD183-q1173
45	Hg38_3_122215059_122223774_122357299_122361064_FR	OBD183-q1177
46	Hg38_9_104713365_104717628_104860975_104864532_FR	OBD183-q1181
47	Hg38_8_113409304_113413871_113438847_113446082_RF	OBD183-q1185
48	Hg38_11_44592038_44600902_44834704_44845205_RF	OBD183-q1189
49	Hg38_6_35168716_35174569_35319888_35323579_FF	OBD183-q1193
50	Hg38_5_112081094_112093775_112164631_112171972_FR	OBD183-q1197
51	Hg38_22_38362202_38364548_38442867_38446753_FF	OBD183-q1201
52	Hg38_21_10469195_10476377_10561289_10564307_FF	OBD183-q1205
53	Hg38_10_72986605_72992630_73084937_73090858_FF	OBD183-q1209
54	Hg38_6_96904639_96916143_97164838_97174050_RR	OBD183-q1213
55	Hg38_2_13749083_13760607_13777052_13783676_FR	OBD183-q1217
56	Hg38_7_38195275_38200060_38339555_38347520_RF	OBD183-q1221
57	Hg38_6_96904639_96916143_97164838_97174050_FR	OBD183-q1225
58	Hg38_12_121858404_121860997_122071931_122075862_RF	OBD183-q1229
59	Hg38_16_73137152_73141460_73235290_73240438_RR	OBD183-q1233
60	Hg38_22_32150471_32156851_32349194_32357683_FF	OBD183-q1237
61	Hg38_16_73147488_73153243_73235290_73240438_FR	OBD183-q1241
62	Hg38_5_55433718_55442449_55494916_55505697_RF	OBD183-q1245
63	Hg38_9_77019945_77021308_77093295_77095880_FR	OBD183-q1249
64	Hg38_1_220583887_220590755_220691405_220698377_RF	OBD183-q1253
65	Hg38_15_65682913_65689631_65754053_65760294_RR	OBD183-q1257
66	Hg38_1_220583887_220590755_220623254_220625991_RF	OBD183-q1261
67	Hg38_12_42093320_42097578_42126294_42137304_FF	OBD183-q1265
68	Hg38_10_29911467_29915859_30105543_30110107_FR	OBD183-q1269
69	Hg38_3_115079613_115090182_115274886_115279463_FR	OBD183-q1273
70	Hg38_2_130327268_130331286_130407716_130423252_FF	OBD183-q1277
71	Hg38_6_6906046_6910447_7167574_7173314_FF	OBD183-q1281
72	Hg38_18_54377256_54387140_54418492_54423189_RF	OBD183-q1285
73	Hg38_9_96648122_96650296_96800444_96805664_RR	OBD183-q1289

74	Hg38_20_25436043_25440608_25559938_25567438_RF	OBD183-q1293
75	Hg38_9_92703705_92712491_92968821_92970651_FR	OBD183-q1297
76	Hg38_5_118079546_118087664_118263492_118280818_FR	OBD183-q1301
77	Hg38_X_458696_461140_599978_602768_RF	OBD183-q1305
78	Hg38_19_22089092_22092256_22115487_22122996_FF	OBD183-q1309
79	Hg38_13_40199951_40204969_40323171_40327366_FR	OBD183-q1313

Table 14.b7

41	AACCAAAGAAATCATGAAGAA	OBD183-q1163	TCACCGAATTAGGAGGTTTAG
42	GAACAGTTTGTGGATCTGTGCATC	OBD183-q1167	TTGGCAAGTCCTGGATGGGGCAGG
43	AGGAAGGTGTGTGAGGTGGGCC	OBD183-q1171	AAAACAACAACGACAACCAAAA
44	GACACCACCACCAACATCCTG	OBD183-q1175	ATGCAAAGAAACTCTGTTGGA
45	ACTGAAATTATTCCAAAAAATTG	OBD183-q1179	TAATGCCCTTGTCTTTGAAAAGT
46	CTCCCTAACTCATTTTATGAGGCCA	OBD183-q1183	AATAAGGCTTTAAATCTCTCCAATT
47	TCATTCCTCATGTATCAAAATATCA	OBD183-q1187	GGAGTTTACAATGCGTCTCTCCTTG
48	GATGACTGTCTTATTCCATCA	OBD183-q1191	AGCCTCACGGTGGGGCATTCA
49	GGTCCATCAACAGATGTATGGATA	OBD183-q1195	CTGGAGCACAGTGCCTGATCAGTC
50	GATATAATCTTATATTAAAATCTAA	OBD183-q1199	GCAGCCTCCACTTACTGGGTTAAGC
51	CATATGAATGTTCACTGCAGCACTAT	OBD183-q1203	CCCAGCAGTGCCCTTGAGTGGTTGGG
52	GTATAAAAATGAACAAGATGC	OBD183-q1207	AGATGGTGCCACTGCACTCCA
53	TGCTCCTGAATGACTACTGGGTACAT	OBD183-q1211	AAATTGAGGTCTATTTTCAAAATATC
54	TTTGCCTATTCCTGTAACAATACC	OBD183-q1215	AATATTTGTATTTTATACTGTATA
55	GAGAGCTAAATAGTTTTATTGCTCTG	OBD183-q1219	ATGAATGTATGCACAAGGAGAAAACA
56	ACATTGGATAAAGGGTCATCATCTCT	OBD183-q1223	TCAAGGTGCATAATTAAGCTCTGCAA
57	CAGAAAGTGTTAAAAGAAAAACTTCA	OBD183-q1227	TCATCAGATAAACAATATTTGTATTT
58	ATTCGTGGAGAAGAGACGACA	OBD183-q1231	GTGGATACATGACGTGCATGC
59	AAAAGAAAGGGGTAGGTGAGAGAGGC	OBD183-q1235	CTGGTGTGCACAGGTCCCTGGAGATT
60	TTTAGGTGGAAGTACCAGTTAATT	OBD183-q1239	TGCCCAGGCCGGAGTGCAATGGCA
61	TTTTAGCATCTCCTCAGGAAGC	OBD183-q1243	TTTCCGAGTTATGACCCCTGGT
62	ACGGAGAAAAAAAAAAGGTCTCCCC	OBD183-q1247	AAAGTGCTGGGATTACAGGCGTAA
63	CCGAAAAGTGGATTCTCCAGTGGT	OBD183-q1251	CATAAGCCACTGCACCCAGCCTTC
64	TGTTGTCCCAAGGCATACAAAGG	OBD183-q1255	TGAAAAATATTATTTTATTGTCT
65	CAAACTTTTTTGTTATTATATCTGT	OBD183-q1259	AGGATTCATGCAGTTGCTATGATTA
66	CCATCCAATGAAGCCTCACCAAATCT	OBD183-q1263	AATTGATGTGTCCAAGTTTCAAAACT
67	AAAGTTAAAAAAAAGGAAAGGCAAAT	OBD183-q1267	ATGCAAAACTTACCAAAGAGTCAGTG
68	ATTATGACTTTTTCTTTTCCTGTGC	OBD183-q1271	TGATTCTTAATTTTCTGAAACTAAT
69	GATTCTCAAACCTTGCAATATT	OBD183-q1275	GTGCTTTCAGATTTATGCTCTT
70	CCATCCTCTTGTAGAAAGCAGTCT	OBD183-q1279	AATGGCAGGTGAGTTTAATATTTG
71	CGTGACATACACAAAAACTTAAA	OBD183-q1283	TGTTGTGGAGACTCTGCACTGTG
72	AAAAATGACAACTGAAAACCATTA	OBD183-q1287	GAAGGATATTAAGGAAAAACAGAG
73	CTTTGGACATAAGAAGAGAGT	OBD183-q1291	ATCCATCTGGTCCTGGACTCT
74	TATCAAAGGTGTAACACATGCATA	OBD183-q1295	ACCAGCCTAGGCAACATAGGGAGA

75	AGCTCTTCCCTGCTCGCTTTTG	OBD183-q1299	AGGCCCAGGGCACCCTGGCCAT
76	TAGATCTCTCCATTGGGTAGATCACA	OBD183-q1303	ATGTTGAAACCTAATCGGTAATGTAA
77	GAGCCACTGTGCCTGGCCAAG	OBD183-q1307	GCAGGATTGCAGGCGTGAGCC
78	GTAAGAAAATTATGAAGTAAGT	OBD183-q1311	CTGTCGCCAGGCTGGAGTGCAG
79	GATATGGAAAGAAAGCCATATA	OBD183-q1315	AAACCCAAGAAGACATCACAAG

Table 14.b8

41	OBD183-p1161	CTGAGTCACTAAGGCTAGTCGAACTCCTGACCTCAAGTAA
42	OBD183-p1165	TCCAGAAGCACAAGAGCATCGAACTCCTGACCTTAAGCAA
43	OBD183-p1169	ACCTTGTCAAGGAAGCAATCGAACTCCTGACATCAGGTGC
44	OBD183-p1173	TTGAAATTATCTCCAGCTTCGAACTCCTGACCTTATGATG
45	OBD183-p1177	CAATATTCCTGATGAACATCGAACTCCTGGGCTCTTGATC
46	OBD183-p1181	CAATATCCCTGATGAACATCGAACTCCTGACCTCAAGTGA
47	OBD183-p1185	TGTTAAGGATGTTGAGATTCGAACTCCTGACCTCGTGAAG
48	OBD183-p1189	GCATTTGGGCATTCAAAGTCGAACTCCTGACCTCAGGTCT
49	OBD183-p1193	TTACAACATGAATGAACCTCGAGACTAGCCTGACCAACGT
50	OBD183-p1197	AATTACATAGGAATCAACTCGAGACCAGCCTCCAACATGG
51	OBD183-p1201	ATGTATTTTGTGGGAACATCGAACTCCTGACCCTCATGTG
52	OBD183-p1205	TACCAAAAGAATTCAAGATCGAACTCCTGACCTCCAGTAA
53	OBD183-p1209	AGCAAGAAAGATTTAAAATCGAACTCCTGACCGGGGGTGA
54	OBD183-p1213	GAACTTTATTATCAGTGATCGAACTCCTGACCTCTAGTAA
55	OBD183-p1217	AAAGGGTATCATTGTAAGTCGAACTCCTGACCTCAAGTAA
56	OBD183-p1221	AAGATGGGGGAATGCAAATCGAACTCCTGACCCCATGTGA
57	OBD183-p1225	TAGAGAGACATACAGGAATCGAACTCCTGACCTCTAGTAA
58	OBD183-p1229	ACTCAGCAGGAGGGGAAGTCGAACTCCTGACCTCAAGTAT
59	OBD183-p1233	GGTATCTACAAAGCAGTATCGATCTCCTGACCTCATCATC
60	OBD183-p1237	TATTTATGGAGTATACCCTCGAGACCAGCCTGATGGGTGA
61	OBD183-p1241	TGGATGTAAGAATCATCTTCGATCTCCTGACCTCATCATC
62	OBD183-p1245	CAAGGAAAATACCACAAGTCGATCTCCTGACCTCATGATT
63	OBD183-p1249	TCGCTGGTAAATTGGAAGTCGAACTCCTGACCTCAGGAGA
64	OBD183-p1253	TGAAGCTTCAACTTCATGTCGATCTCCTGACCTCGTGATA
65	OBD183-p1257	ATAAGATGGTAAACTTCATCGAACGCCTGACCTCAGTTGA
66	OBD183-p1261	ATCTCTTCAGATACATGTTCGATCTCCTGACCTCGTGATA
67	OBD183-p1265	ATATATACAATGATCTGGTCGATCTCCTGACTTTGTGATC
68	OBD183-p1269	GTTTGATTGGCCCACACTTCGAACTCCTGACCTCAGATGA
69	OBD183-p1273	TATAATAATCAACTAAAGTCGAACTCCTGACCTTGGCATC
70	OBD183-p1277	GGATCAGTAACTTCAACATCGATCTCCTGATCTCATGATC
71	OBD183-p1281	CATCTTTTTTTTTTTTTTTCGAACTCCTGACCTAAGGTGA
72	OBD183-p1285	AATGAAAGGAAACAGGAATCGAACTCCTGACCTCAGGTGG
73	OBD183-p1289	CTTCTTGAGTGTAGGAGTTCGACACATACACTCTCACAAG
74	OBD183-p1293	CAGGATAATACCAAAAAATCGATCTCCTGACCTTGTGATC
75	OBD183-p1297	AAGAGAACACCCTAAAAATCGAACTCCTGACCTCAGGTGG

76	OBD183-p1301	CTAATATCAAAAGTGACATCGAACTCTTGACATCATGATC
77	OBD183-p1305	GATCATGACTCCAGGAGATCGAACTCCTGACCGCAGGTTA
78	OBD183-p1309	ATTAGAAAACTAAAAACCTCGAGACCATCCTGACCAACAT
79	OBD183-p1313	ATGACCACAGGAGGAAGGTCGATCTCCTGACCTTGCGATG

Table 14.b9

41	OBD183-p1163	TTACTTGAGGTCAGGAGTTCGACTAGCCTTAGTGACTCAG
42	OBD183-p1167	TTGCTTAAGGTCAGGAGTTCGATGCTCTTGTGCTTCTGGA
43	OBD183-p1171	GCACCTGATGTCAGGAGTTCGATTGCTTCCTTGACAAGGT
44	OBD183-p1175	CATCATAAGGTCAGGAGTTCGAAGCTGGAGATAATTTCAA
45	OBD183-p1179	GATCAAGAGCCCAGGAGTTCGATGTTCATCAGGAATATTG
46	OBD183-p1183	TCACTTGAGGTCAGGAGTTCGATGTTCATCAGGGATATTG
47	OBD183-p1187	CTTCACGAGGTCAGGAGTTCGAATCTCAACATCCTTAACA
48	OBD183-p1191	AGACCTGAGGTCAGGAGTTCGACTTTGAATGCCCAAATGC
49	OBD183-p1195	ACGTTGGTCAGGCTAGTCTCGAGGTTCATTCATGTTGTAA
50	OBD183-p1199	CCATGTTGGAGGCTGGTCTCGAGTTGATTCCTATGTAATT
51	OBD183-p1203	CACATGAGGGTCAGGAGTTCGATGTTCCCACAAAATACAT
52	OBD183-p1207	TTACTGGAGGTCAGGAGTTCGATCTTGAATTCTTTTGGTA
53	OBD183-p1211	TCACCCCCGGTCAGGAGTTCGATTTTAAATCTTTCTTGCT
54	OBD183-p1215	TTACTAGAGGTCAGGAGTTCGATCACTGATAATAAAGTTC
55	OBD183-p1219	TTACTTGAGGTCAGGAGTTCGACTTACAATGATACCCTTT
56	OBD183-p1223	TCACATGGGGTCAGGAGTTCGATTTGCATTCCCCCATCTT
57	OBD183-p1227	TTACTAGAGGTCAGGAGTTCGATTCCTGTATGTCTCTCTA
58	OBD183-p1231	ATACTTGAGGTCAGGAGTTCGACTTCCCCTCCTGCTGAGT
59	OBD183-p1235	GATGATGAGGTCAGGAGATCGATACTGCTTTGTAGATACC
60	OBD183-p1239	TCACCCATCAGGCTGGTCTCGAGGGTATACTCCATAAATA
61	OBD183-p1243	GATGATGAGGTCAGGAGATCGAAGATGATTCTTACATCCA
62	OBD183-p1247	AATCATGAGGTCAGGAGATCGACTTGTGGTATTTTCCTTG
63	OBD183-p1251	TCTCCTGAGGTCAGGAGTTCGACTTCCAATTTACCAGCGA
64	OBD183-p1255	TATCACGAGGTCAGGAGATCGACATGAAGTTGAAGCTTCA
65	OBD183-p1259	TCAACTGAGGTCAGGCGTTCGATGAAGTTTACCATCTTAT
66	OBD183-p1263	TATCACGAGGTCAGGAGATCGAACATGTATCTGAAGAGAT
67	OBD183-p1267	GATCACAAAGTCAGGAGATCGACCAGATCATTGTATATAT
68	OBD183-p1271	TCATCTGAGGTCAGGAGTTCGAAGTGTGGGCCAATCAAAC
69	OBD183-p1275	GATGCCAAGGTCAGGAGTTCGACTTTAGTTGATTATTATA
70	OBD183-p1279	GATCATGAGATCAGGAGATCGATGTTGAAGTTACTGATCC
71	OBD183-p1283	TCACCTTAGGTCAGGAGTTCGAAAAAAAAAAAAAAAGATG
72	OBD183-p1287	CCACCTGAGGTCAGGAGTTCGATTCCTGTTTCCTTTCATT
73	OBD183-p1291	CTTGTGAGAGTGTATGTGTCGAACTCCTACACTCAAGAAG
74	OBD183-p1295	GATCACAAGGTCAGGAGATCGATTTTTTGGTATTATCCTG
75	OBD183-p1299	CCACCTGAGGTCAGGAGTTCGATTTTTAGGGTGTTCTCTT
76	OBD183-p1303	GATCATGATGTCAAGAGTTCGATGTCACTTTTGATATTAG
77	OBD183-p1307	TAACCTGCGGTCAGGAGTTCGATCTCCTGGAGTCATGATC

78	OBD183-p1311	ATGTTGGTCAGGATGGTCTCGAGGTTTTTAGTTTTCTAAT
79	OBD183-p1315	CATCGCAAGGTCAGGAGATCGACCTTCCTCCTGTGGTCAT

Table 14.b10

	probe
1	Hg38_19_57094212_57098345_57233951_57237158_FF
2	Hg38_11_58003371_58011882_58059493_58060635_FF
3	Hg38_11_423049_424869_471314_474762_FR
4	Hg38_3_56607355_56616652_56720571_56723572_FR
5	Hg38_4_146008815_146016663_146119983_146126521_RF
6	Hg38_9_67783001_67787510_67902085_67907948_RF
7	Hg38_8_12770254_12777389_12847600_12851939_FF
8	Hg38_2_12250302_12255740_12311885_12323082_RF
9	Hg38_3_56607355_56616652_56720571_56723572_RR
10	Hg38_12_73177806_73182173_73290158_73302144_FR
11	Hg38_5_24973248_24983649_25125334_25130628_RF
12	Hg38_6_112124976_112130576_112348080_112349398_RF
13	Hg38_21_19716572_19725961_19893386_19899115_FF
14	Hg38_3_5191109_5196776_5335426_5339895_RR
15	Hg38_11_61654302_61657376_61784148_61789549_RF
16	Hg38_9_106745510_106754100_106918096_106923299_RR
17	Hg38_X_73452508_73461775_73496823_73501374_FF
18	Hg38_12_73230046_73239105_73290158_73302144_FR
19	Hg38_17_65419734_65426249_65591380_65595913_FF
20	Hg38_1_209668643_209679016_209760730_209763950_FR
21	Hg38_11_109262743_109271459_109410929_109414834_RF
22	Hg38_14_45200381_45204127_45351931_45360707_FR
23	Hg38_7_90352830_90358229_90537883_90542286_FF
24	Hg38_12_73170357_73177806_73290158_73302144_FR
25	Hg38_8_119806687_119811442_119882110_119888009_RF
26	Hg38_10_68133244_68143089_68227286_68228362_RF
27	Hg38_12_42048317_42055061_42126294_42137304_FF
28	Hg38_11_62904910_62910094_62999851_63003941_RF
29	Hg38_14_67749309_67754286_67764440_67773348_FR
30	Hg38_11_58059493_58060635_58217294_58225742_FF
31	Hg38_13_42841670_42853806_43043327_43045089_FR
32	Hg38_22_46128634_46134707_46231440_46235124_FR
33	Hg38_6_136250099_136253568_136360365_136366092_FR
34	Hg38_9_106918096_106923299_107077276_107084447_RF
35	Hg38_6_13822111_13826619_13862508_13871589_RF
36	Hg38_3_155824853_155826680_155955915_155960464_RR
37	Hg38_4_146008815_146016663_146187649_146189946_RF

38	Hg38_18_11833251_11835410_11882578_11887235_RF
39	Hg38_20_23826570_23834331_23940914_23949115_FF
40	Hg38_19_55526300_55531217_55609240_55610480_RR
41	Hg38_2_90190573_90199040_90333145_90337129_FR
42	Hg38_19_12529097_12534237_12582615_12585911_FR
43	Hg38_5_126808091_126812950_126922767_126931015_RF
44	Hg38_6_136288490_136289547_136360365_136366092_RR
45	Hg38_1_184918101_184920707_185055640_185064440_FR
46	Hg38_12_84283330_84285940_84364785_84372231_RR
47	Hg38_10_58233406_58242253_58413385_58420204_FF
48	Hg38_10_68016760_68020562_68133244_68143089_RR
49	Hg38_1_12733037_12738871_12861407_12863549_RR
50	Hg38_4_166975421_166983791_167206121_167210789_FR
51	Hg38_7_57219761_57227269_57287216_57294474_FF
52	Hg38_11_77608671_77611162_77692897_77698671_RR

Table 15.a1

	gene	RPs
1	USP29, ZIM3, DUXA, ZNF264, AURKC	26
2	OR9Q1, OR6Q1, OR9I1	28
3	ANO9, PTDSS2, SIGIRR	35
4	CCDC66, FAM208A, ARHGEF3	43
5	LSM6, ZNF827, SLC10A7	46
6	ANKRD20A1, CBWD3, FOXD4L3	56
7	LONRF1, KIAA1456, DLC1	57
8	TRIB2, LPIN1, NTSR2	51
9	CCDC66, FAM208A, ARHGEF3	78
10	TRHDE, TPH2, ATXN7L3B	107
11	CDH10, PRDM9, CDH9	108
12	LAMA4, RP11-506B6.7, RFPL4B	82
13	NCAM2, TMPRSS15, CHODL	159
14	EDEM1, ARL8B, BHLHE40	183
15	DAGLA, MYRF, TMEM258	151
16	ZNF462, RP11-508N12.4, RAD23B	201
17	CDX4, CHIC1, NAP1L2	132
18	TRHDE, TPH2, ATXN7L3B	230
19	AXIN2, CTD-2535L24.2, CEP112	232
20	G0S2, HSD11B1, TRAF3IP3	264
21	C11orf87, DDX10, EXPH5	225
22	FANCM, MIS18BP1, FKBP3	188
23	GTPBP10, CLDN12, CDK14	343
24	TRHDE, TPH2, ATXN7L3B	346

25	TAF2, DSCC1, DEPTOR	372
26	MYPN, ATOH7, PBLD	308
27	GXYLT1, YAF2, PPHLN1	303
28	CHRM1, SLC22A6, SLC22A8	469
29	ZFYVE26, RDH12, RAD51B	324
30	OR9Q1, OR9I1, OR9Q2, OR1S2, OR1S1	377
31	EPSTI1, DNAJC15, FAM216B	374
32	PPARA, CDPF1, PKDREJ	511
33	MTFR2, BCLAF1, MAP7	454
34	ZNF462, RP11-508N12.4, RAD23B	530
35	MCUR1, RNF182, RANBP9	479
36	SLC33A1, GMPS, C3orf33	532
37	LSM6, SLC10A7, ZNF827	464
38	GNAL, CHMP1B, MPPE1	534
39	CST2, CST5, GGTLC1	592
40	SBK2, SBK3, ZNF579, FIZ1, ZNF524, ZNF865	477
41	RPIA, EIF2AK3, TEX37	443
42	ZNF709, ZNF564, CTD-2192J16.20, ZNF490	522
43	LMNB1, 37681, C5orf63	598
44	BCLAF1, MAP7, MTFR2	579
45	FAM129A, RNF2, TRMT1L	502
46	SLC6A15, TSPAN19, LRRIQ1	558
47	IPMK, CISD1, UBE2D1, TFAM	753
48	HERC4, MYPN, ATOH7	762
49	C1orf158, PRAMEF12, PRAMEF1, PRAMEF11, PRAMEF11, HNRNPCL1, PRAMEF2	513
50	SPOCK3, TLL1, ANXA10	847
51	ZNF479, ZNF716, AC118758.1	953
52	CLNS1A, AQP11, RSF1	821

Table 15.a2

	FC:(class1/class2)	pfp	P.value	CCSs
1	1.272779004	0	4.15782E-05	1
2	1.268510446	0	6.15774E-05	1
3	1.266504681	0	5.75011E-05	1
4	1.264873268	0	9.71546E-06	1
5	1.260180676	0	1.86301E-05	1
6	1.253907413	0	2.81331E-05	1
7	1.248845685	0	9.03124E-05	1
8	1.247523197	0	9.3376E-05	1
9	1.246398025	0	2.41246E-05	1
10	1.242656697	0	1.32214E-05	1
11	1.242089241	0	2.01246E-05	1

12	1.241840904	0	8.81792E-05	1
13	1.234757028	0	1.38001E-05	1
14	1.232227857	0	5.59721E-05	1
15	1.23078193	0	8.77958E-05	1
16	1.229932177	0	4.94274E-05	1
17	1.22906246	0	5.67182E-05	1
18	1.226410896	0	2.62328E-05	1
19	1.226407137	0	3.28754E-05	1
20	1.225642341	0	2.90598E-05	1
21	1.224481364	0	6.05515E-05	1
22	1.224430968	0	3.43145E-05	1
23	1.219870413	0	2.24252E-05	1
24	1.217613216	0	5.25926E-05	1
25	1.216586669	0	9.38493E-05	1
26	1.216513651	0	8.88499E-05	1
27	1.216226656	0	7.77692E-05	1
28	1.21498261	0	1.5613E-05	1
29	1.214946013	0	6.58305E-05	1
30	1.214645136	0	1.1329E-05	1
31	1.211519329	0	7.63934E-05	1
32	1.211210897	0	1.88954E-05	1
33	1.210388246	0	2.4845E-05	1
34	1.209113296	0	1.27264E-05	1
35	1.207377604	0	6.40239E-05	1
36	1.207230774	0	2.44924E-05	1
37	1.206467348	0	9.40322E-05	1
38	1.206388534	0	4.4671E-05	1
39	1.206192943	0	6.1883E-05	1
40	1.206056247	0	8.76297E-05	1
41	1.205269496	0	5.28476E-05	1
42	1.203906289	0	7.81098E-05	1
43	1.202571961	0	3.9925E-05	1
44	1.202376975	0	4.18914E-05	1
45	1.201462248	0	8.39572E-05	1
46	1.201397033	0	4.63023E-05	1
47	1.20009129	0	3.92449E-05	1
48	1.199976527	0	6.89421E-05	1
49	1.199072247	0	8.77321E-05	1
50	1.198487768	0	2.07144E-05	1
51	1.198399541	0	5.47263E-06	1
52	1.197796032	0	9.37507E-05	1

Table 15.a3

	60 mer
1	TAAAAAAGAATCAACTTTTATTTTAGAATCGAACTCCTGACCTCACATGTTTATCTGCCT
2	TAAACATAATTGATAACATTGTTTGCCTTCGAACTCCTGACCATAGCTCCTGAAATATTT
3	ATTGTTAAACGTAAAACAAAGAAATCAATCGAACTCCTGACCTTTAATGATCCACCTACC
4	TAGATTTTTGTGGATGTACATTTTTAGTTCGAACTCCTGACCTCAGTTAACCTACCTGCC
5	ACTTTTCTAATTGGAAGACTCCTGACAATCGAACTCCTGACCTAAGGTAATTCACCTGCC
6	TAATATCATCACTGAAGTATAATGTGAATCGATCTCCTGACCCAGTGATCTAACCCCCTT
7	TTGGTTCAGATTATTAGGGAAATAAAAATCGAACTCCTGACCTTAAGTGATTTTCCCACC
8	AAAACAAATTATGTTCAAATGTATACATTCGATCTCCTGACCTTTTGATACACCCATCTT
9	ATACTTAGGAATATACCTAACAAAGGAGTCGAACTCCTGACCTCAGTTAACCTACCTGCC
10	CTGATTCTTCAAGTCTCTATGGATCACTTCGATCTCCTGACCACCTGATCCATTCACCTC
11	AAATTGAGGAGTTCTGTAATAAATGTATTCGAACTCCTGACCTCAACAATTCACCCATCT
12	CTTGTGATTATCTAGAGTTTGAAGAGTTTCGATCTCCTGACCTCTTTTTCCACCTGCCTT
13	AAATATGTAGTCAATGAAAGTATCAAAATCGAGACCAGCCGAAATTACAAGAATTAGCCA
14	GTTTTAAACTTTCCTCAAGGCCTAGTATTCGAACTCCTGACCTTTTTATTCCTCACTTTG
15	CTTCTAGGTGGTACATCCCAAAGGCAGATCGAACTCCTGACCTTAAGCAACCTACCTGCC
16	GAAAGTCACTACCTTTCTTTTCTATTCTTCGAACTCCTGACCTCCTGATTCATCCACCTC
17	GAAGCAACTTGTCACATCTAAGAGATCCTCGATTTTAGATCTTTCCTGCTTTCTCTTATG
18	AATATGGAATTTCACAAAGGACTAAGAATCGATCTCCTGACCACCTGATCCATTCACCTC
19	TATCTGACATATGAAATGGCTCTAAATTTCGAACTCCTGACCTCAAATTATCCATCCTCC
20	AAAAAGGATTTGCTTAATAATTTCAGAATCGAGACCAGCCTTTTGATAGAGACAAGACCC
21	CAATAAAAAGACTCTAAGACATAAAAGGTCGAACTCCTGACACCAGTGATCCAGCTTCCT
22	TTCTCATTTTACTATGCAGAATCAGAGTTCGAGGAATTTATCCATTTCTTCTAGATTTTC
23	AAATACCAAAGAATATACGTAACCAAGGTCGAACTCCTGACTTCATTATCTGCTCACCTC
24	GCTTTTTATATTTTTATTTTGCTTTTCATCGATCTCCTGACCACCTGATCCATTCACCTC
25	TGGCTAATTTTTTTAATTTTTAGTAGAGTCGAACTCCTAACCTCTAGTGATCCATTCACC
26	CTATAGCAAGTTTTAGGTTGCTTGGTAATCGAACTCCTGACCTTATGCAATCCACTTGCC
27	TTTTCCTTTTGTAAAATAAGTTTGTCTTTCGATCTCCTGACTTTGTGATCCTTCTGCCTC
28	ATGAGAAAGAGAAACACTTCAATATTTTTCGAACTCCTGACCTTAGGCAATTCGTCCACC
29	AGGTGACTGAGGCCAGGAGACTGAGAAGTCGAACTCCTGGCCTCGGGATCCTCTTCCCTC
30	AAATATTTCAGGAGCTATGGTCAGGAGTTCGAATTGTAATCCCTATGTGCAGGGGACAGG
31	ATCTAGTGTAAAAAGCCTTCTGGGTAAGTCGAACTCCTGACTCTCAGTTGATCTACCCGC
32	TGTTTTTATTTTCATGTTTTAATTTTGTTCGAACTCTTGACCTCAGGTAAACCACCCACC
33	GTGGTATTTAAAATAATGTGAGGAAAGTTCGAACTCCTGACTTCGGTGATCTACCTGCCG
34	AAAATTTCAGTTAGACACAGGAATAAGTTCGAACTCCTGACCTCCTGATTCATCCACCTC
35	CCCCACTAAAGCAGCTAGATACAGACTGTCGATCTCCTTACCTCGTAATCTGCCTGCATA
36	ATTTTTTAAAAATATTAAACCTTTGAAATCGAACTCCTGGCCTTAAGTGATTTGTCTGCC
37	CTTCCTACAAGATTATTTAACTTAAGTTTCGAACTCCTGACCTAAGGTAATTCACCTGCC
38	ATTACTGGGAGTTCTGTCTAAGACACGATCGAACTCCTGACCCAAGTGTTCTCCCCACCT
39	TCATGACTGTCCAATCTTTGAGGAATCTTCGAGACCATCCTGGTAATACAATGAAACCCT
40	GCTCCTGTGGAGTGACCCCAAGGAGCCTTCGAACTCCTGACTATAGTTGATCCACCCACC

41	TTCATTTTTCCACTATTAAATATAAATTTCGATCTCCTGGTCTCGTGATAAGCCCGCCTT
42	CAACAAGACAGAGGAAATAAAAAGTATATCGATCTCCTGATCTCATGATCCACTGGCCTC
43	ATTCATGAAAAATGTGTATTTTGGGAAATCGAACTCCTGAACTCAAGTGCTCCATCTGCC
44	TGTTCCTCTTGTGAATTCTCATTTCAGTTCGAACTCCTGACTTCGGTGATCTACCTGCCG
45	TCTATCAACTGCTTTAAAATTATAAAAGTCGAACTCCTGATTTCAAGTGATCCATCTGCC
46	AGCCAAATTGTTTTCTTGATAGGAACATTCGATCTCCTGACCATCCTGATCCACCAGCCT
47	GATGAAAAGACATCACGAGGTAAGGAGATCGATGCAAAAATCCTCCATAAAGTACTGGCA
48	ATGTAACTGTTGGATCGGGGGTAAAATTTCGAACTCCTGACCTTATGCAATCCACTTGCC
49	AAGTTCAGACTAATATCCCTGATGAACATCGAGACCCTCGTGTTAGAGGGCTGTCAGATC
50	CCCCTATGTGGAATTATGTAGTTATCTCTCGAGACCAGCCTAGCTAATGTGGTGAAATTC
51	TACAGTTTAATTCTAAAAATATGTATTTTCGAACTCCTGACCTGAGGCAATCTGCTGGCC
52	CAAATAAAATATCTAAACAAAATTTCAGTCGATCTCTTGACCTTGTAATATGCCCATCTC

Table 15.a4

	Probe sequence	Probe Location				
	Chr	Start1	End1	Start2	End2	Chr
1	19	57098314	57098345	57237127	57237158	19
2	11	58011851	58011882	58060604	58060635	11
3	11	424838	424869	471314	471345	11
4	3	56616621	56616652	56720571	56720602	3
5	4	146008815	146008846	146126490	146126521	4
6	9	67783001	67783032	67907917	67907948	9
7	8	12777358	12777389	12851908	12851939	8
8	2	12250302	12250333	12323051	12323082	2
9	3	56607355	56607386	56720571	56720602	3
10	12	73182142	73182173	73290158	73290189	12
11	5	24973248	24973279	25130597	25130628	5
12	6	112124976	112125007	112349367	112349398	6
13	21	19725930	19725961	19899084	19899115	21
14	3	5191109	5191140	5335426	5335457	3
15	11	61654302	61654333	61789518	61789549	11
16	9	106745510	106745541	106918096	106918127	9
17	X	73461744	73461775	73501343	73501374	X
18	12	73239074	73239105	73290158	73290189	12
19	17	65426218	65426249	65595882	65595913	17
20	1	209678985	209679016	209760730	209760761	1
21	11	109262743	109262774	109414803	109414834	11
22	14	45204096	45204127	45351931	45351962	14
23	7	90358198	90358229	90542255	90542286	7
24	12	73177775	73177806	73290158	73290189	12
25	8	119806687	119806718	119887978	119888009	8

26	10	68133244	68133275	68228331	68228362	10
27	12	42055030	42055061	42137273	42137304	12
28	11	62904910	62904941	63003910	63003941	11
29	14	67754255	67754286	67764440	67764471	14
30	11	58060604	58060635	58225711	58225742	11
31	13	42853775	42853806	43043327	43043358	13
32	22	46134676	46134707	46231440	46231471	22
33	6	136253537	136253568	136360365	136360396	6
34	9	106918096	106918127	107084416	107084447	9
35	6	13822111	13822142	13871558	13871589	6
36	3	155824853	155824884	155955915	155955946	3
37	4	146008815	146008846	146189915	146189946	4
38	18	11833251	11833282	11887204	11887235	18
39	20	23834300	23834331	23949084	23949115	20
40	19	55526300	55526331	55609240	55609271	19
41	2	90199009	90199040	90333145	90333176	2
42	19	12534206	12534237	12582615	12582646	19
43	5	126808091	126808122	126930984	126931015	5
44	6	136288490	136288521	136360365	136360396	6
45	1	184920676	184920707	185055640	185055671	1
46	12	84283330	84283361	84364785	84364816	12
47	10	58242222	58242253	58420173	58420204	10
48	10	68016760	68016791	68133244	68133275	10
49	1	12733037	12733068	12861407	12861438	1
50	4	166983760	166983791	167206121	167206152	4
51	7	57227238	57227269	57294443	57294474	7
52	11	77608671	77608702	77692897	77692928	11

Table 15.a5

	4 kb Sequence Location			
	Start1	End1	Start2	End2
1	57094344	57098345	57233157	57237158
2	58007881	58011882	58056634	58060635
3	420868	424869	471314	475315
4	56612651	56616652	56720571	56724572
5	146008815	146012816	146122520	146126521
6	67783001	67787002	67903947	67907948
7	12773388	12777389	12847938	12851939
8	12250302	12254303	12319081	12323082
9	56607355	56611356	56720571	56724572
10	73178172	73182173	73290158	73294159

11	24973248	24977249	25126627	25130628
12	112124976	112128977	112345397	112349398
13	19721960	19725961	19895114	19899115
14	5191109	5195110	5335426	5339427
15	61654302	61658303	61785548	61789549
16	106745510	106749511	106918096	106922097
17	73457774	73461775	73497373	73501374
18	73235104	73239105	73290158	73294159
19	65422248	65426249	65591912	65595913
20	209675015	209679016	209760730	209764731
21	109262743	109266744	109410833	109414834
22	45200126	45204127	45351931	45355932
23	90354228	90358229	90538285	90542286
24	73173805	73177806	73290158	73294159
25	119806687	119810688	119884008	119888009
26	68133244	68137245	68224361	68228362
27	42051060	42055061	42133303	42137304
28	62904910	62908911	62999940	63003941
29	67750285	67754286	67764440	67768441
30	58056634	58060635	58221741	58225742
31	42849805	42853806	43043327	43047328
32	46130706	46134707	46231440	46235441
33	136249567	136253568	136360365	136364366
34	106918096	106922097	107080446	107084447
35	13822111	13826112	13867588	13871589
36	155824853	155828854	155955915	155959916
37	146008815	146012816	146185945	146189946
38	11833251	11837252	11883234	11887235
39	23830330	23834331	23945114	23949115
40	55526300	55530301	55609240	55613241
41	90195039	90199040	90333145	90337146
42	12530236	12534237	12582615	12586616
43	126808091	126812092	126927014	126931015
44	136288490	136292491	136360365	136364366
45	184916706	184920707	185055640	185059641
46	84283330	84287331	84364785	84368786
47	58238252	58242253	58416203	58420204
48	68016760	68020761	68133244	68137245
49	12733037	12737038	12861407	12865408
50	166979790	166983791	167206121	167210122
51	57223268	57227269	57290473	57294474
52	77608671	77612672	77692897	77696898

Table 15.a6

	probe	Primer ID
1	Hg38_19_57094212_57098345_57233951_57237158_FF	OBD183-2909
2	Hg38_11_58003371_58011882_58059493_58060635_FF	OBD183-2913
3	Hg38_11_423049_424869_471314_474762_FR	OBD183-2917
4	Hg38_3_56607355_56616652_56720571_56723572_FR	OBD183-2921
5	Hg38_4_146008815_146016663_146119983_146126521_RF	OBD183-2925
6	Hg38_9_67783001_67787510_67902085_67907948_RF	OBD183-2929
7	Hg38_8_12770254_12777389_12847600_12851939_FF	OBD183-2933
8	Hg38_2_12250302_12255740_12311885_12323082_RF	OBD183-2937
9	Hg38_3_56607355_56616652_56720571_56723572_RR	OBD183-2941
10	Hg38_12_73177806_73182173_73290158_73302144_FR	OBD183-2945
11	Hg38_5_24973248_24983649_25125334_25130628_RF	OBD183-2949
12	Hg38_6_112124976_112130576_112348080_112349398_RF	OBD183-2953
13	Hg38_21_19716572_19725961_19893386_19899115_FF	OBD183-2957
14	Hg38_3_5191109_5196776_5335426_5339895_RR	OBD183-2961
15	Hg38_11_61654302_61657376_61784148_61789549_RF	OBD183-2965
16	Hg38_9_106745510_106754100_106918096_106923299_RR	OBD183-2969
17	Hg38_X_73452508_73461775_73496823_73501374_FF	OBD183-2973
18	Hg38_12_73230046_73239105_73290158_73302144_FR	OBD183-2977
19	Hg38_17_65419734_65426249_65591380_65595913_FF	OBD183-2981
20	Hg38_1_209668643_209679016_209760730_209763950_FR	OBD183-2985
21	Hg38_11_109262743_109271459_109410929_109414834_RF	OBD183-2989
22	Hg38_14_45200381_45204127_45351931_45360707_FR	OBD183-2993
23	Hg38_7_90352830_90358229_90537883_90542286_FF	OBD183-2997
24	Hg38_12_73170357_73177806_73290158_73302144_FR	OBD183-3001
25	Hg38_8_119806687_119811442_119882110_119888009_RF	OBD183-3005
26	Hg38_10_68133244_68143089_68227286_68228362_RF	OBD183-3009
27	Hg38_12_42048317_42055061_42126294_42137304_FF	OBD183-3013
28	Hg38_11_62904910_62910094_62999851_63003941_RF	OBD183-3017
29	Hg38_14_67749309_67754286_67764440_67773348_FR	OBD183-3021
30	Hg38_11_58059493_58060635_58217294_58225742_FF	OBD183-3025
31	Hg38_13_42841670_42853806_43043327_43045089_FR	OBD183-3029
32	Hg38_22_46128634_46134707_46231440_46235124_FR	OBD183-3033
33	Hg38_6_136250099_136253568_136360365_136366092_FR	OBD183-3037
34	Hg38_9_106918096_106923299_107077276_107084447_RF	OBD183-3041
35	Hg38_6_13822111_13826619_13862508_13871589_RF	OBD183-3045
36	Hg38_3_155824853_155826680_155955915_155960464_RR	OBD183-3049
37	Hg38_4_146008815_146016663_146187649_146189946_RF	OBD183-3053
38	Hg38_18_11833251_11835410_11882578_11887235_RF	OBD183-3057
39	Hg38_20_23826570_23834331_23940914_23949115_FF	OBD183-3061
40	Hg38_19_55526300_55531217_55609240_55610480_RR	OBD183-3065

41	Hg38_2_90190573_90199040_90333145_90337129_FR	OBD183-3069
42	Hg38_19_12529097_12534237_12582615_12585911_FR	OBD183-3073
43	Hg38_5_126808091_126812950_126922767_126931015_RF	OBD183-3077
44	Hg38_6_136288490_136289547_136360365_136366092_RR	OBD183-3081
45	Hg38_1_184918101_184920707_185055640_185064440_FR	OBD183-3085
46	Hg38_12_84283330_84285940_84364785_84372231_RR	OBD183-3089
47	Hg38_10_58233406_58242253_58413385_58420204_FF	OBD183-3093
48	Hg38_10_68016760_68020562_68133244_68143089_RR	OBD183-3097
49	Hg38_1_12733037_12738871_12861407_12863549_RR	OBD183-3101
50	Hg38_4_166975421_166983791_167206121_167210789_FR	OBD183-3105
51	Hg38_7_57219761_57227269_57287216_57294474_FF	OBD183-3109
52	Hg38_11_77608671_77611162_77692897_77698671_RR	OBD183-3113

Table 15.a7

	Primer Sequence	Primer ID	Primer Sequence
1	CCCTTAGCTCTGCACTGGGGTT	OBD183-2911	AATAATGAAAACTCTGTCATGC
2	ATGTGTGTATAAAAGGAAGAAAAAA	OBD183-2915	AACATAAAAATCTTAGGTGAGTCCA
3	GAACATAAAAACACGGAAGGGATG	OBD183-2919	CCCAGAGGCCAGCTCAGACCGGGT
4	CATGTGTCAGTACTTCATTCC	OBD183-2923	AATATAATTTCTACAGATGAA
5	TGATTGCACAGATTCCTCCTTG	OBD183-2927	AAAAAGAGTGAAGAAGGCCTAC
6	TTATAAAATGCACTTTATACACCT	OBD183-2931	ATTTCTGTTACAGTGAAAAAATAC
7	TCTTGAAAGAGAAAATATATAAT	OBD183-2935	CTTGAAGTAGCGAGTAAAACAAA
8	CCATGAAACTCAAAGAACATTTCA	OBD183-2939	AGTGTAAGTATGTCTCATGCAATA
9	TCTATATACCAACAGCGACCAAGC	OBD183-2943	TGTTATAGCTGTATTCCATATTTT
10	CTGCCTCATATGGCTGATCATAT	OBD183-2947	GGTTCTCTGTTCTCAATCAGGCC
11	TTAAGATATACTTGCATTTTACTT	OBD183-2951	CATGTATCTGATGTGTAGGTATTA
12	TACTGAGATTCTGTTAAAGACC	OBD183-2955	AAAATGAAAAGAGATGCTCTGA
13	AATCTGAAATAGCACCAATAGCTAA	OBD183-2959	TCTCTCTCTCCTTTTATTTATTTTT
14	CCCTGTCAATTAAACAAACAAA	OBD183-2963	CAAATTTTGTGTTGAGTAACTT
15	TTAAGCCCTGGATCTTGACCCCCTT	OBD183-2967	ATGTTCTTGGCAAGTCCTGGATGGG
16	TCCAGTGGGACTTGTTCCAAACTG	OBD183-2971	AATGACATCGGTACTATCTCCATG
17	AAAAGTCTCAATTTTAATCATAG	OBD183-2975	TTTGAAACCAACGAGAACAAAGA
18	GATATTATTCAAAGATTATCAT	OBD183-2979	CTGGGAGTAATAATATGAAGGG
19	TGACCACCTAGATATACAGCAGG	OBD183-2983	AACTTCTACTTGAATTGGAGGGA
20	CAGCCCCCAACACAAAGAATT	OBD183-2987	CTTCAAACTCCTGGGTTCAAG
21	TTCTTCCTAGTCAGTCATACT	OBD183-2991	ATGATGATGAATAAGTCACTT
22	AAACATATGAAACCTTCAAAAAAGT	OBD183-2995	GGACTCTTCTAGGGAAAAAAAGTCC
23	TATACACCAACAACAACCAAGCTGA	OBD183-2999	TCGGAGTCCTTAAAACACTCCAATC
24	TATAATTTTAGATTCCGTTAA	OBD183-3003	AGCCTCAAAATTTGTGGGGCT
25	ACACTGCACCCTTAACCCTACCCGC	OBD183-3007	ATATAAGAAGATAAAATGCTTACAA
26	GTGTCGGTACTTGATAATATTTGTTG	OBD183-3011	AAACTGTGTACACTTCAGGACCCACA
27	AACTAGGCAATTACAATTGTG	OBD183-3015	AGGAGGCTTCAGTGAAAACTA

28	GTCTGGGTCCCTGAATGACTCTG	OBD183-3019	TATACTTAAATGAGCATGGCTGT
29	GAGGTCCCAGCACTTTCGCACC	OBD183-3023	CTCACATGTGTCGCCATGCAAA
30	GCTGGGAGGCTTTTGGAGCAG	OBD183-3027	ATGTTACATTGCTGCAGGCAA
31	GTATGTCATGGAATGCCATAGAAGC	OBD183-3031	ACACTGTCAGAAAAGGTCTAGAATA
32	TCCTTGTCATTCCCCATGAGC	OBD183-3035	TAATAGAGAACAAACAGTATA
33	AATCTGTATTGCCTTTCTACTT	OBD183-3039	CTTACTTCCACTTCATGTAGCT
34	CATGTTAGTGAAATAAGCCAGGCA	OBD183-3043	TTTAACTCATATATGGGCATATGC
35	TCTCCAAGGCCCCAGCAGAGTAA	OBD183-3047	CTCCTGACCTCATGATCCTCCTG
36	GCCTTGACCTCTCAAAATGCTGGGA	OBD183-3051	CATTTGATCTTTGACAAAGTTGACA
37	ATGTGAGTAAGATAAATGTATACA	OBD183-3055	ATCATTAAGCAAATAAATTTTTGC
38	CGCAGGTGAGGCCGCTGGGGGTATCA	OBD183-3059	CTACCTACCTAGTCCCTGCTGCTACA
39	ATGTTTCCTGTTTATTTCTCA	OBD183-3063	CGCCATTCTCCTGCCTCAGCC
40	CCTTGGCCTCAGGCCCAGAGCAAGGC	OBD183-3067	TAACCCTAGAAGATGGTTACAAGCAT
41	AGGTGGCAGGCCAGTGGTGCTC	OBD183-3071	AATATTGACATTATAAAAGACA
42	ACAAGACCAGAAACAGGGTAAGA	OBD183-3075	TATTTCATAAATTTCAAAAGCCA
43	CAGTTAGATATTAAAACAGAGTAA	OBD183-3079	CAAGACCGTACCACTGCACACCAG
44	AAATTAAGACTGAAGTTGAAA	OBD183-3083	CTTACTTCCACTTCATGTAGC
45	TATGAGATGAACTTTTTTAAGCTTC	OBD183-3087	GGTTCATAAAACTAAACAACAGATA
46	CCCCAAGTTAGACTTAATTCT	OBD183-3091	AAGAACAAAAAAATGTAGATA
47	AACAGATAAAAAAGCAAGGAAAATA	OBD183-3095	TTATGTTTATTGATTTGCGTATGTT
48	AGTCCTTTGTGAAGTATCACAA	OBD183-3099	TATATGCTTTCTACCTTTGAGA
49	CTTCTGAAACTATTCCAAACAGTAC	OBD183-3103	CGTCAATAGACATGCAATTGCTGCC
50	AATAGCTAGAAGAGAGGATTTT	OBD183-3107	TGGCAAGATCTCAGCTCACTGC
51	GGCCTGTTCTTTGCACTTGCGGTGG	OBD183-3111	GACCATCCTGGCCAACATGGTTGAT
52	AAAACAATGTTAGGTTACTTTC	OBD183-3115	CTTTTAGAAACTGAAGAATCAG

Table 15.a8

53	Hg38_6_13651621_13658122_13822111_13826619_FR
54	Hg38_11_109262743_109271459_109299522_109301796_RF
55	Hg38_9_39437177_39452023_39582372_39586482_RR
56	Hg38_9_39354909_39358822_39582372_39586482_FR
57	Hg38_16_58543809_58546477_58562300_58568481_FR
58	Hg38_14_104502188_104508476_104617335_104622438_FR
59	Hg38_6_135898071_135904698_135916612_135930758_FR
60	Hg38_12_94413073_94417027_94523831_94528817_RF
61	Hg38_X_458696_461140_510375_518392_RF
62	Hg38_2_90287178_90294507_90333145_90337129_RR
63	Hg38_19_55562835_55568514_55609240_55610480_FR
64	Hg38_13_38320425_38329510_38537765_38539537_FF
65	Hg38_7_20213040_20221826_20334106_20338424_FF
66	Hg38_10_17475515_17484041_17588250_17593259_RF
67	Hg38_2_35364541_35376857_35410245_35413009_FF

68	Hg38_4_55256274_55264763_55389969_55392472_FR
69	Hg38_3_186029644_186033045_186196358_186204775_RR
70	Hg38_1_98980591_98992932_99140223_99144899_RR
71	Hg38_21_45869510_45874341_46036338_46042184_FF
72	Hg38_X_16371410_16382110_16645214_16647487_RR
73	Hg38_17_40875117_40878199_40974993_40978260_RR
74	Hg38_22_49729061_49733478_49865819_49868377_FF
75	Hg38_3_186121192_186124989_186196358_186204775_FR
76	Hg38_17_34866977_34875220_35076808_35078777_FF
77	Hg38_16_4059378_4065517_4136959_4138893_FR
78	Hg38_11_47497688_47501453_47634992_47637905_RR
79	Hg38_3_113626158_113631643_113781133_113785237_FF
80	Hg38_8_100427552_100431117_100566246_100573436_FR
81	Hg38_16_4059378_4065517_4136959_4138893_RR
82	Hg38_10_104492138_104497504_104612999_104618776_RF
83	Hg38_6_143932094_143936306_144020508_144030049_FR
84	Hg38_3_127239888_127246012_127487537_127491643_FF
85	Hg38_16_78585317_78592026_78737355_78740003_FR
86	Hg38_19_22083468_22086340_22115487_22122996_FF
87	Hg38_13_18427215_18437906_18455870_18459317_FR
88	Hg38_2_135760228_135765033_135928040_135933751_RF
89	Hg38_3_186196358_186204775_186335868_186340163_RF
90	Hg38_17_62402718_62405668_62571720_62577177_RF
91	Hg38_2_96810595_96813126_96951221_96955306_FF
92	Hg38_2_90319634_90323094_90333145_90337129_FR
93	Hg38_2_27499977_27502563_27626184_27635183_RF
94	Hg38_8_124679022_124686487_124844862_124848841_FR
95	Hg38_19_37692803_37698986_37734335_37739114_FR
96	Hg38_3_122297501_122303796_122357299_122361064_FR
97	Hg38_9_97327737_97334688_97421780_97430188_FR
98	Hg38_17_2244050_2248570_2310967_2312391_FR
99	Hg38_13_86162707_86169148_86370408_86375203_FF
100	Hg38_17_2310967_2312391_2404102_2407120_RF
101	Hg38_5_83044159_83047415_83194163_83201839_FR
102	Hg38_17_8317002_8318575_8465380_8468547_RF
103	Hg38_20_25436043_25440608_25643268_25648365_RF
104	Hg38_10_106531472_106538179_106719632_106724155_FR

Table 15.b1

53	RANBP9, MCUR1, NOL7	781
54	C11orf87, DDX10, EXPH5	937
55	SPATA31A1, CNTNAP3, ANKRD20A2	780

56	SPATA31A1, CNTNAP3, ANKRD20A2	740
57	CNOT1, AC010287.1, SETD6	769
58	TMEM179, C14orf180, INF2	864
59	PDE7B, MTFR2, BCLAF1	654
60	CEP83, TMCC3, PLXNC1	926
61	PPP2R3B, SHOX, GTPBP6	679
62	RPIA, EIF2AK3, TEX37	763
63	ZNF579, FIZ1, ZNF524, ZNF865	1403
64	UFM1, FREM2, STOML3	809
65	MACC1, ITGB8, ABCB5	1103
66	PTPLA, ST8SIA6, STAM	1301
67	CRIM1, FEZ2, VIT	906
68	SRD5A3, TMEM165, CLOCK	1058
69	ETV5, DGKG, TRA2B	1285
70	LPPR5, LPPR4, SNX7	1233
71	PCBP3, COL6A1, COL6A2	967
72	CTPS2, S100G, SYAP1	1063
73	KRT20, KRT23, KRT39, KRT40	1218
74	BRD1, ZBED4, ALG12	1423
75	DGKG, ETV5, TRA2B	1096
76	CCT6B, ZNF830, LIG3, RFFL, RAD51L3-RFFL	1348
77	ADCY9, SRL, TFAP4	1179
78	CELF1, NDUFS3, PTPMT1, KBTBD4, FAM180B, C1QTNF4, MTCH2	959
79	SIDT1, KIAA2018, NAA50, ATP6V1A	1130
80	ANKRD46, SNX31, RNF19A	807
81	ADCY9, SRL, TFAP4	1466
82	SORCS3, CFAP58, ITPRIP	1051
83	RP3-468K18.7, ZC2HC1B, PLAGL1	990
84	C3orf56, TPRA1, MCM2	994
85	WWOX, CLEC3A, VAT1L	1019
86	ZNF257, ZNF676, ZNF208	1224
87	AL356585.2, TUBA3C, TPTE2	1468
88	UBXN4, LCT, MCM6, DARS	1290
89	DGKG, ETV5, CRYGS	1176
90	EFCAB3, METTL2A, TLK2	853
91	CNNM4, CNNM3, ANKRD23, ANKRD39, SEMA4C, FAM178B	1136
92	RPIA, EIF2AK3, TEX37	1106
93	GCKR, AC109829.1, AC109829.2, C2orf16, ZNF512, CCDC121, GPN1	1199
94	MTSS1, NDUFB9, ZNF572	976
95	CTD-2528L19.4, ZNF607, ZNF573	1029
96	CSTA, CCDC58, CASR	1259
97	CCDC180, TDRD7, TMOD1	1319
98	SMG6, SRR, TSR1	1164

99	SLITRK6, SLITRK5, SLITRK1	1149
100	SRR, TSR1, SGSM2, MNT, METTL16	1284
101	TMEM167A, XRCC4, VCAN	1155
102	ARHGEF15, ODF4, KRBA2, RP11-849F2.7, RPL26, RNF222, NDEL1	1271
103	GINS1, NINL, NANP	1023
104	SORCS1, SORCS3, CFAP58	1525

Table 15.b2

53	1.197580138	0	4.97678E-05	1
54	1.197377721	0	8.15385E-05	1
55	1.1973556	0	4.00278E-05	1
56	1.197258152	0	6.21142E-05	1
57	1.197149562	0	4.19587E-05	1
58	1.196967801	0	7.55242E-05	1
59	1.195984545	0	6.94169E-05	1
60	1.195032134	0	8.68368E-05	1
61	1.194996143	0	5.03574E-05	1
62	1.194773293	0	5.30731E-05	1
63	1.192241907	0	1.60683E-05	1
64	1.191938366	0	8.98521E-05	1
65	1.191552053	0	5.95308E-05	1
66	1.191523361	0	1.10543E-05	1
67	1.191050008	0	5.47707E-05	1
68	1.190541469	0	1.95483E-05	1
69	1.190515678	0	2.23503E-05	1
70	1.190431942	0	1.49215E-05	1
71	1.190402171	0	2.9352E-05	1
72	1.190296077	0	4.54438E-05	1
73	1.190183505	0	6.85199E-05	1
74	1.189975235	0	1.85898E-05	1
75	1.189948487	0	4.16628E-05	1
76	1.189736169	0	2.01334E-05	1
77	1.189537848	0	1.01708E-05	1
78	1.18951171	0	2.84403E-05	1
79	1.189333524	0	3.19468E-05	1
80	1.189281993	0	0.000100437	1
81	1.189183951	0	1.29335E-05	1
82	1.188925639	0	1.87607E-05	1
83	1.188598812	0	2.86448E-05	1
84	1.188140985	0	8.32975E-05	1
85	1.188041135	0	5.05104E-05	1
86	1.187954643	0	3.3294E-05	1

87	1.187861057	0	1.90741E-05	1
88	1.187845707	0	3.67662E-05	1
89	1.187739215	0	3.38344E-05	1
90	1.187681065	0	2.73429E-05	1
91	1.187630355	0	2.65725E-05	1
92	1.187247796	0	1.7679E-05	1
93	1.187205611	0	2.99571E-05	1
94	1.18710832	0	0.000101632	1
95	1.187089661	0	6.92267E-05	1
96	1.186954365	0	9.63658E-05	1
97	1.186892139	0	1.72958E-05	1
98	1.186882958	0	1.51952E-05	1
99	1.186202204	0	4.54695E-05	1
100	1.186158973	0	1.89074E-05	1
101	1.186147318	0	0.000104402	1
102	1.186142668	0	8.05E-05	1
103	1.185911778	0	5.8288E-05	1
104	1.185831949	0	9.41733E-06	1

Table 15.b3

53	CTCTTCCTTAGTTTACTTTAAGTATTAGTCGATCTCCTTACCTCGTAATCTGCCTGCATA
54	AATTTATTGAACACTCAATAGGCACTAATCGAACTCCTGACACCAGTGATCCAGCTTCCT
55	GTAGACAAGAACACTTAGAATGCTACTGTCGAACTCCTGACCTCTAGAGTCAGGCCTCCT
56	AAAAAGAAAATGTTGGATCATTTACAGATCGAACTCCTGACCTCTAGAGTCAGGCCTCCT
57	GTCTAATGCAAGGTTCTTGCAGAGAACCTCGAGACCAGCCTGTGAACACAGCCAAGACTT
58	AGAACTAGACCCATAAATACATTTCCCATCGAACTCCTGACCTGATCTCGGGTGATCCAC
59	GGACATAGTCTTACTTTTAGTCATAGCATCGATCTCTTGATCCCATGATCCACCTGCCTC
60	ATGGAATACTTTGCCTTTTCTCATGAATTCGAACTCCTGACATCAGGCATTCTGCCTGCC
61	TTTGTTCACCTCTAACAATGTATTTTGTTCGAACTCCTGACCGCAGGTTACCTGCCCGAG
62	AAATATTCATCTTAGATATGGCCCGTGTTCGATCTCCTGGTCTCGTGATAAGCCCGCCTT
63	AATGACACGCTAAAAGGAAAAAGGAACGTCGAACTCCTGACTATAGTTGATCCACCCACC
64	GACTTTCCAGGTTCCTAAATATCCATTTTCGAACTCCTGACTTCTTGATCTGTCCGCCTC
65	AGTGAGTAAGTTCTTTGAGAATGGAATATCGAACTCCTGACATCAAGTGTTCCTCCCACC
66	TCCTTTAGATGAAATAATTTGTATCATGTCGAACTCTCAACCTCAGGTAATCCTCCCACC
67	TTTTTTATACATATAATTAAGGTATATTTCGAACTCCTGACTTCATGATACACCCACCTT
68	GTATTTTTCTTCATTTTGGAGCTTCAGGTCGAACTCCTGAGCTCAGGTTATCCACCTGCC
69	TCACAGGGATTTTTTTTTAACCATAATTTCGAACTCCTGACTGCAGGTGTTCCACCTGCC
70	AAAAACACTGATTGTAATTAATGTGAAGTCGAACTCTTGACCTCTGGTGATCTACCCACC
71	AGAATTAACATTTTAAATTATGGAGAGTTCGAACTCCTGGCCTCAGGTGATATCCATCTG
72	GAAATGACCTCTTGCTGGTTGCAGTAAGTCGATCTCCTGACCCTGTGAACCACACGCCTC
73	CTGATACATGCTATAACAGAGATGAACTTCGATCTCTTGACCTTGTAATCCATCCTCCTT
74	CTTCATTTGGTTAACATGGTGTACAACATCGAACTCCTGATCCTGGGTGATCCACCAGCC
75	GAGTCATTTATTGATTCAGGAATATTTGTCGAACTCCTGACTGCAGGTGTTCCACCTGCC

76	AATGTGTCAGAAACCTCATCTTTAATCTTCGAACTCCTGACCTAAAGCGATCTGTCTGCC
77	GGTGCGAAATCTGAAATAATGGCAGAAGTCGAACTCCTGACCTCATGATCCTCTCACCTC
78	CAGCATGTTTTTTTGTGCACACTAAAGTTCGATTTCCTGACCTCGTGATCTCCACCTGCC
79	TAAATCTTAGGCCTTAACCCCCATGAATTCGATCTCCTGACCTTGTGCTCTGCCCATCTC
80	ATTTAACCCTCGCAATAACCATCTGAGGTCGATCTCCTGACCTCGTAATCTACCTGCCTC
81	TTTCTTTTTTTTTCTTTTTTTTTTTTTTTTCGAACTCCTGACCTCATGATCCTCTCACCTC
82	TTTGCCAGATCAGGTGGCTACAGGGAAGTCGATCTCCTGACCTCGTGACTGGCCCACCTC
83	ATTTAATTCTCACAATAGCGTGAGGAGGTCGAACTCCTGACCTTGTATCCACCCACCTCG
84	TCATTTCTATGGAAAGTGGGTGACACAGTCGAACTCCTGACCAAAAAGTGATCCACCCGC
85	CCAGATTGATTATCCCTCAAGGTAAGCATCGAACTTCTGACCTCAGAATGATCCGCCTGC
86	CAAAAATTTTTCCTCATTACATCTGCCCTCGAGACCATCCTGACCAACATGTTGAAACCC
87	GAAAAAATTAGGGAAGAATTAGGAAAAATCGAGACCAGCCTGATGAACCTGGTGAAACCC
88	AATTATTTTTAATAATGTAAAAGGCAACTCGAGACCAGCCTCGGCAGTGTGACAAAACCC
89	AAAGTATGAATTTAGAGATGAAAAATCTTCGAACTCCTGACTGCAGGTGTTCCACCTGCC
90	AGACGGGGGTCTCACCATTAGGCTGGTCTCGATGTTCATCAGGGATATTGGTCTAAAATT
91	TAGCTCCAATAACCTTGAGCCAACCTAGTCGATCTCCTGACCTCATGATCTTCCCACCTT
92	TATTTGAAAGTTCAAGATTTTTGAGCTTTCGATCTCCTGGTCTCGTGATAAGCCCGCCTT
93	AACAGTTGTCATCTATGTAATGGACACATCGAACTCCTGACATCAGGTGCTCCACCTGCC
94	TTTTTCAGATGAAACAATGCATGGACTGTCGAGACCATACTGGCCAACAAGGTAAAACCC
95	GTTTCTTACCACTATGAATACCCTGATGTCGATCTCCTGACATGTGATCCACCCTCCTCA
96	CATTCAAAAGATGTCTGTTCTTCCCAAGTCGAACTCCTGGGCTCTTGATCCTTCCGACTC
97	TAGGCTATTTTTTCCCACTGATGAAATGTCGAACTCCTGAGCTCAGGTGACCCATGTGCC
98	GCCACTACCGTATTTTAACTGCAAAAAGTCGATCTCCTGACCTTGTGATCTTCCCACCTC
99	TTTTAGCATGAAGAGTTGTTGAATTTTGTCGATCTCCTGACCTCGTGATTTACTTAGGTG
100	TGAGCTCTTCTGAGAAACCAGAGCCCAGTCGATCTCCTGACCTTGTGATCTTCCCACCTC
101	AATGTTCTGTGGTATGCCCACAGCCTCATCGAACTCCTGACCTCAGATGAACTCCACCTG
102	TGTTGTCATTCTGGGATTAGAAGTCGCTTCGAACTCCTGACCTCATGTAGTCCACCTGCC
103	CAGTGATGTGTCTCCTTTTTTTTTTTTTTCGATCTCCTGACCTTGTGATCTCACCTTGGC
104	TCATTTTACCGAGTGTAAATTGTTGTTTTCGATCTCTTGATGTTGTGATCCACCTGCCTC

Table 15.b4

53	6	13658091	13658122	13822111	13822142	6
54	11	109262743	109262774	109301765	109301796	11
55	9	39437177	39437208	39582372	39582403	9
56	9	39358791	39358822	39582372	39582403	9
57	16	58546446	58546477	58562300	58562331	16
58	14	104508445	104508476	104617335	104617366	14
59	6	135904667	135904698	135916612	135916643	6
60	12	94413073	94413104	94528786	94528817	12
61	X	458696	458727	518361	518392	X
62	2	90287178	90287209	90333145	90333176	2
63	19	55568483	55568514	55609240	55609271	19

64	13	38329479	38329510	38539506	38539537	13
65	7	20221795	20221826	20338393	20338424	7
66	10	17475515	17475546	17593228	17593259	10
67	2	35376826	35376857	35412978	35413009	2
68	4	55264732	55264763	55389969	55390000	4
69	3	186029644	186029675	186196358	186196389	3
70	1	98980591	98980622	99140223	99140254	1
71	21	45874310	45874341	46042153	46042184	21
72	X	16371410	16371441	16645214	16645245	X
73	17	40875117	40875148	40974993	40975024	17
74	22	49733447	49733478	49868346	49868377	22
75	3	186124958	186124989	186196358	186196389	3
76	17	34875189	34875220	35078746	35078777	17
77	16	4065486	4065517	4136959	4136990	16
78	11	47497688	47497719	47634992	47635023	11
79	3	113631612	113631643	113785206	113785237	3
80	8	100431086	100431117	100566246	100566277	8
81	16	4059378	4059409	4136959	4136990	16
82	10	104492138	104492169	104618745	104618776	10
83	6	143936275	143936306	144020508	144020539	6
84	3	127245981	127246012	127491612	127491643	3
85	16	78591995	78592026	78737355	78737386	16
86	19	22086309	22086340	22122965	22122996	19
87	13	18437875	18437906	18455870	18455901	13
88	2	135760228	135760259	135933720	135933751	2
89	3	186196358	186196389	186340132	186340163	3
90	17	62402718	62402749	62577146	62577177	17
91	2	96813095	96813126	96955275	96955306	2
92	2	90323063	90323094	90333145	90333176	2
93	2	27499977	27500008	27635152	27635183	2
94	8	124686456	124686487	124844862	124844893	8
95	19	37698955	37698986	37734335	37734366	19
96	3	122303765	122303796	122357299	122357330	3
97	9	97334657	97334688	97421780	97421811	9
98	17	2248539	2248570	2310967	2310998	17
99	13	86169117	86169148	86375172	86375203	13
100	17	2310967	2310998	2407089	2407120	17
101	5	83047384	83047415	83194163	83194194	5
102	17	8317002	8317033	8468516	8468547	17
103	20	25436043	25436074	25648334	25648365	20
104	10	106538148	106538179	106719632	106719663	10

Table 15.b5

53	13654121	13658122	13822111	13826112
54	109262743	109266744	109297795	109301796
55	39437177	39441178	39582372	39586373
56	39354821	39358822	39582372	39586373
57	58542476	58546477	58562300	58566301
58	104504475	104508476	104617335	104621336
59	135900697	135904698	135916612	135920613
60	94413073	94417074	94524816	94528817
61	458696	462697	514391	518392
62	90287178	90291179	90333145	90337146
63	55564513	55568514	55609240	55613241
64	38325509	38329510	38535536	38539537
65	20217825	20221826	20334423	20338424
66	17475515	17479516	17589258	17593259
67	35372856	35376857	35409008	35413009
68	55260762	55264763	55389969	55393970
69	186029644	186033645	186196358	186200359
70	98980591	98984592	99140223	99144224
71	45870340	45874341	46038183	46042184
72	16371410	16375411	16645214	16649215
73	40875117	40879118	40974993	40978994
74	49729477	49733478	49864376	49868377
75	186120988	186124989	186196358	186200359
76	34871219	34875220	35074776	35078777
77	4061516	4065517	4136959	4140960
78	47497688	47501689	47634992	47638993
79	113627642	113631643	113781236	113785237
80	100427116	100431117	100566246	100570247
81	4059378	4063379	4136959	4140960
82	104492138	104496139	104614775	104618776
83	143932305	143936306	144020508	144024509
84	127242011	127246012	127487642	127491643
85	78588025	78592026	78737355	78741356
86	22082339	22086340	22118995	22122996
87	18433905	18437906	18455870	18459871
88	135760228	135764229	135929750	135933751
89	186196358	186200359	186336162	186340163
90	62402718	62406719	62573176	62577177
91	96809125	96813126	96951305	96955306
92	90319093	90323094	90333145	90337146
93	27499977	27503978	27631182	27635183

94	124682486	124686487	124844862	124848863
95	37694985	37698986	37734335	37738336
96	122299795	122303796	122357299	122361300
97	97330687	97334688	97421780	97425781
98	2244569	2248570	2310967	2314968
99	86165147	86169148	86371202	86375203
100	2310967	2314968	2403119	2407120
101	83043414	83047415	83194163	83198164
102	8317002	8321003	8464546	8468547
103	25436043	25440044	25644364	25648365
104	106534178	106538179	106719632	106723633

Table 15.b6

53	Hg38_6_13651621_13658122_13822111_13826619_FR	OBD183-3117
54	Hg38_11_109262743_109271459_109299522_109301796_RF	OBD183-3121
55	Hg38_9_39437177_39452023_39582372_39586482_RR	OBD183-3125
56	Hg38_9_39354909_39358822_39582372_39586482_FR	OBD183-3129
57	Hg38_16_58543809_58546477_58562300_58568481_FR	OBD183-3133
58	Hg38_14_104502188_104508476_104617335_104622438_FR	OBD183-3137
59	Hg38_6_135898071_135904698_135916612_135930758_FR	OBD183-3141
60	Hg38_12_94413073_94417027_94523831_94528817_RF	OBD183-3145
61	Hg38_X_458696_461140_510375_518392_RF	OBD183-3149
62	Hg38_2_90287178_90294507_90333145_90337129_RR	OBD183-3153
63	Hg38_19_55562835_55568514_55609240_55610480_FR	OBD183-3157
64	Hg38_13_38320425_38329510_38537765_38539537_FF	OBD183-3161
65	Hg38_7_20213040_20221826_20334106_20338424_FF	OBD183-3165
66	Hg38_10_17475515_17484041_17588250_17593259_RF	OBD183-3169
67	Hg38_2_35364541_35376857_35410245_35413009_FF	OBD183-3173
68	Hg38_4_55256274_55264763_55389969_55392472_FR	OBD183-3177
69	Hg38_3_186029644_186033045_186196358_186204775_RR	OBD183-3181
70	Hg38_1_98980591_98992932_99140223_99144899_RR	OBD183-3185
71	Hg38_21_45869510_45874341_46036338_46042184_FF	OBD183-3189
72	Hg38_X_16371410_16382110_16645214_16647487_RR	OBD183-3193
73	Hg38_17_40875117_40878199_40974993_40978260_RR	OBD183-3197
74	Hg38_22_49729061_49733478_49865819_49868377_FF	OBD183-3201
75	Hg38_3_186121192_186124989_186196358_186204775_FR	OBD183-3205
76	Hg38_17_34866977_34875220_35076808_35078777_FF	OBD183-3209
77	Hg38_16_4059378_4065517_4136959_4138893_FR	OBD183-3213
78	Hg38_11_47497688_47501453_47634992_47637905_RR	OBD183-3217
79	Hg38_3_113626158_113631643_113781133_113785237_FF	OBD183-3221
80	Hg38_8_100427552_100431117_100566246_100573436_FR	OBD183-3225
81	Hg38_16_4059378_4065517_4136959_4138893_RR	OBD183-3229

82	Hg38_10_104492138_104497504_104612999_104618776_RF	OBD183-3233
83	Hg38_6_143932094_143936306_144020508_144030049_FR	OBD183-3237
84	Hg38_3_127239888_127246012_127487537_127491643_FF	OBD183-3241
85	Hg38_16_78585317_78592026_78737355_78740003_FR	OBD183-3245
86	Hg38_19_22083468_22086340_22115487_22122996_FF	OBD183-3249
87	Hg38_13_18427215_18437906_18455870_18459317_FR	OBD183-3253
88	Hg38_2_135760228_135765033_135928040_135933751_RF	OBD183-3257
89	Hg38_3_186196358_186204775_186335868_186340163_RF	OBD183-3261
90	Hg38_17_62402718_62405668_62571720_62577177_RF	OBD183-3265
91	Hg38_2_96810595_96813126_96951221_96955306_FF	OBD183-3269
92	Hg38_2_90319634_90323094_90333145_90337129_FR	OBD183-3273
93	Hg38_2_27499977_27502563_27626184_27635183_RF	OBD183-3277
94	Hg38_8_124679022_124686487_124844862_124848841_FR	OBD183-3281
95	Hg38_19_37692803_37698986_37734335_37739114_FR	OBD183-3285
96	Hg38_3_122297501_122303796_122357299_122361064_FR	OBD183-3289
97	Hg38_9_97327737_97334688_97421780_97430188_FR	OBD183-3293
98	Hg38_17_2244050_2248570_2310967_2312391_FR	OBD183-3297
99	Hg38_13_86162707_86169148_86370408_86375203_FF	OBD183-3301
100	Hg38_17_2310967_2312391_2404102_2407120_RF	OBD183-3305
101	Hg38_5_83044159_83047415_83194163_83201839_FR	OBD183-3309
102	Hg38_17_8317002_8318575_8465380_8468547_RF	OBD183-3313
103	Hg38_20_25436043_25440608_25643268_25648365_RF	OBD183-3317
104	Hg38_10_106531472_106538179_106719632_106724155_FR	OBD183-3321

Table 15.b7

53	TTCATGTAGTTTGACATTGACAGTT	OBD183-3119	AGAGGCATGAGCCACAGCGCCCAGC
54	TAAAAAATTTTAAAAGTTTGGATG	OBD183-3123	AACAGTATAAATCTCACTGATAAA
55	ATTACCAAGAATTCAAGGGAGAA	OBD183-3127	ACTTCTCCAGGGACTTTCATTAT
56	AGACCTACCAGATGGAAGCTG	OBD183-3131	TACTTCTCCAGGGACTTTCAT
57	TCTTTGGAGCAGAGAGTTGCT	OBD183-3135	TTATTTTTTTTAGAGACAGGG
58	AAAAGAAACATGATCCTGGATAA	OBD183-3139	TGGGGGAACAGGTTAAGACTGCA
59	AACCATCTCATGGTAATAGTAT	OBD183-3143	GAAGAAAACATTCTGAATATAT
60	TATTGTGTTTTGAGCCTCATCAGAA	OBD183-3147	TATTTGCATTTTGTTTTATGAACAA
61	TGGGGTGGGAGGTGAAGGGGC	OBD183-3151	CAGGCTGGTCTTAAACTCCTT
62	TATAAACATATATTTTTATATGTTA	OBD183-3155	ATTGACATTATAAAAGACAGTAAAA
63	GGATGGATGTGGGAATGGATG	OBD183-3159	ACGAATCCTCCCAGTAACCCT
64	CTATATATATAACTATATATATAAC	OBD183-3163	GGTTTTGATGCTTCCATAATAGCTA
65	CATTCCATTAACAAATATATGTGTAT	OBD183-3167	AGTCTGTTATGCTCACTGCTATTTGT
66	CTGAGATGGCGCCACTGCACTCCAG	OBD183-3171	GTAACAGTTGGAAGAAAGAATGCTA
67	TGATAGCTGAAAAAAACTGTAAA	OBD183-3175	GGTAAAAGCATATCAGTTCTAGT
68	CTGTACATATTTTGACATTTGT	OBD183-3179	TGCTTAAAAGTAATGACTTCTA
69	GAAATGGGTGAGTTTCTAGGAAAA	OBD183-3183	TATTTGGACTGGTTCACCTTTCAA

70	GTGTGTTCACCTGTATAATAC	OBD183-3187	GGGCTACAACACTGTATAGCA
71	ATCTCTAGTAAAATAAATCGGCTCAC	OBD183-3191	AACACAGACACATCACACACTCAAGA
72	TTTCTTTCCATTTCCAAGGGTAA	OBD183-3195	GTCTCCCCTGTTAGTTTTTAATA
73	TCATAAAAGCCCCAAAGCGAAAC	OBD183-3199	TGGCAGGTATGTCACCATAAACC
74	TCCTACATGGCCATTGTTATGTTG	OBD183-3203	TAACATCAGAGGATTGTGGTTTTA
75	CGCCTGCACAATTGGTTCCAC	OBD183-3207	ACCTTTCAAGCCCTTCAGGTC
76	GCCCAATGACCTTCAATGCAAACC	OBD183-3211	CCTCCCAAAGTGCCAGAATTACAG
77	GGAATAATACTTACTACTTGG	OBD183-3215	TAATCCCGGCAATTTGGGAGG
78	GCTTTCTAATCTTTTAAGAGATTG	OBD183-3219	CTTGAGTCCAGGACGTCAAGACTG
79	ATAGTAGTTTTGTTTTTTGTTTTTT	OBD183-3223	TGTTTAGGCATAGAATAGACTTTGA
80	TTACTAACAAAAATAGCAACAA	OBD183-3227	AAGTCCAGACTGCAGTAAGTCA
81	CTTGTCTAGTTTTGTTGTTACTTTTT	OBD183-3231	AATCCCGGCAATTTGGGAGGCTGCGG
82	GGGTTTCTCTCGTTGCACCATCTT	OBD183-3235	ATGTGTCTGTATGTAGAGCGTATG
83	GTCAACAGCCTTATTGATCCCAGAG	OBD183-3239	ACATAGTAAGTCCTTGTCTCTAAAA
84	GCCTGGTGGAAAAGGGAGAAACA	OBD183-3243	TGGGGTATGGGGAGTTAGTGTTT
85	GCCTCTGTGAGCTACCACCACT	OBD183-3247	CATGTAACCAAACACCACCTGT
86	TCCATTGTGTCTGTTTCATTT	OBD183-3251	GGCTCACTGCAACCTCTGCCT
87	CTAACAAAATGAATTTTAAGATAA	OBD183-3255	TTAATATTTTTTCTAATAGGAGCA
88	ACTACATATGCAAACATGTAT	OBD183-3259	GATCTTGGCTCACTGCAACCT
89	GGCACAGGTCTCCACAGATGTTAATT	OBD183-3263	CAGTTTTCTCTTCTATAAAATGAGAT
90	TGCAACCTCCACCTCCCGGGCTC	OBD183-3267	ACTATTCCAATCAATAGAAAAAG
91	AGCCTCACAAGGGTAGGGACTTAATT	OBD183-3271	CAGCACTTTGGGAGGCCAAGGCAGGT
92	TATAATTTTATATGAAAAAAAT	OBD183-3275	GAATCCACATTTTAAAAAAAGC
93	TATTTTTAATTGCCTTGGACTTTAT	OBD183-3279	AACGACAACCAAAACAAAAACAAAA
94	AAAAAGGAAGCAGTCTTTTTTTAGT	OBD183-3283	CTAGCTCTGTTGCCAGGCTGGAGTT
95	TTTGTAACCAGTATGAATTCTGTT	OBD183-3287	GGGAAGACTGTTTGGCATATAGCG
96	CAAAATCGGTATGAAGAAAATTTTGA	OBD183-3291	AAAAAGGGTGTTTTCTAATATGTCAT
97	GTACATACACCTTTATGCTCTG	OBD183-3295	TTCTAAAAAATACACAGGAGTA
98	GGAAACTCATACTGTTTGAACCAC	OBD183-3299	CCAGCACTTTTGGAGGCCAAAGCA
99	GATATTGGCTGTGGGTTTGTCATAG	OBD183-3303	AGCAAATCATATATGTCAGGCAAGT
100	GCATGAAAGGTGACGGGAGAAAGG	OBD183-3307	CCAGCACTTTTGGAGGCCAAAGCA
101	CAATCTCCTACAACTTCCATTA	OBD183-3311	ATAAAGAATAAATAAATTGAAA
102	GAAAATCTGAAAGGAAGGACC	OBD183-3315	GCCGTGATCGTGCCAGTGCTC
103	GGGGGACCCTAGGCTAAGGCAAGTG	OBD183-3319	AGAGAGGGCTGGGCAGGGTGGCTCA
104	CACACACAGAAAACTCAAGGCTG	OBD183-3323	CATACTGTTCTTTGTTGAGCATC

Table 15.b8

105	Hg38_13_33292777_33300074_33379042_33381537_FF
106	Hg38_13_33157099_33165940_33379042_33381537_FF
107	Hg38_14_20125056_20127850_20254086_20264765_FF
108	Hg38_22_22390196_22400635_22417372_22422635_RF
109	Hg38_2_90319634_90323094_90333145_90337129_FF

110	Hg38_1_205467613_205472592_205597487_205602829_RF
111	Hg38_8_105814873_105824107_105983420_105991962_RR
112	Hg38_3_139359866_139369158_139422950_139429189_FF
113	Hg38_11_93646250_93651617_93812658_93816548_FF
114	Hg38_2_218413367_218414625_218468442_218469889_FR
115	Hg38_21_33535825_33540136_33702336_33704782_RF
116	Hg38_15_25940901_25954083_26010869_26013845_RR
117	Hg38_2_152664286_152673031_152810778_152818515_FR
118	Hg38_16_88673445_88677147_88717058_88720423_RF
119	Hg38_11_55658006_55664056_55913134_55916714_FR
120	Hg38_19_12529097_12534237_12582615_12585911_RR
121	Hg38_9_106918096_106923299_106956084_106960240_RF
122	Hg38_5_178637588_178642104_178716116_178719743_FR
123	Hg38_5_55225977_55227096_55433718_55442449_RR
124	Hg38_1_212366521_212376213_212479522_212483636_FF
125	Hg38_3_155955915_155960464_156024474_156028938_RF
126	Hg38_6_135916612_135930758_136101114_136107621_RF
127	Hg38_6_13822111_13826619_13925547_13933665_RF
128	Hg38_19_16814077_16821664_16982325_16986644_FR
129	Hg38_20_47283636_47287468_47423313_47430412_FF
130	Hg38_2_127661293_127665982_127811240_127815683_FF
131	Hg38_11_47497688_47501453_47634992_47637905_FR
132	Hg38_9_35866168_35873586_35894481_35899234_RR
133	Hg38_12_113432110_113434599_113565905_113569926_RF
134	Hg38_2_74592023_74597081_74625034_74640403_RF
135	Hg38_2_27611917_27620712_27682649_27683957_FF
136	Hg38_3_63854804_63862312_63879711_63888574_FF
137	Hg38_7_72635553_72638872_72886393_72889737_RR
138	Hg38_11_20372802_20380788_20390846_20402338_RR
139	Hg38_9_72302739_72305851_72372195_72373448_FF
140	Hg38_Y_22235354_22244714_22295566_22300306_FF
141	Hg38_12_11258018_11266085_11544315_11547606_RR
142	Hg38_3_15171181_15180791_15414574_15417883_FR
143	Hg38_2_12713910_12715388_12794236_12801750_RR
144	Hg38_3_63794524_63806241_63879711_63888574_FF
145	Hg38_1_228460859_228462578_228712981_228719527_FF
146	Hg38_3_122243786_122250257_122357299_122361064_RR
147	Hg38_7_8143002_8149481_8188538_8195338_FF
148	Hg38_20_47296001_47298222_47423313_47430412_FF
149	Hg38_3_62505737_62515246_62564826_62570608_RR
150	Hg38_15_65754053_65760294_65952282_65960161_RF
151	Hg38_16_2687219_2688470_2801058_2807279_RR
152	Hg38_12_41964098_41967819_42126294_42137304_FF

153	Hg38_12_113432110_113434599_113654632_113664477_RF
154	Hg38_22_49757913_49762178_49865819_49868377_FF
155	Hg38_11_77692897_77698671_77781318_77787851_RF

Table 15.c1

105	STARD13, KL, RFC3	1162
106	STARD13, KL, PDS5B	1150
107	OR4N5, OR11G2, OR11H6, OR11H4, TTC5	1347
108	ZNF280B, ZNF280A, PRAME	1174
109	RPIA, EIF2AK3, TEX37	1156
110	CDK18, MFSD4, ELK4	2075
111	ZFPM2, OXR1, ABRA	1632
112	COPB2, MRPS22, RBP2	1254
113	CEP295, TAF1D, C11orf54, MED17	1191
114	VIL1, USP37, CTDSP1	1343
115	GART, SON, DONSON, AP000304.12, CRYZL1, ITSN1	1569
116	ATP10A, UBE3A, GABRB3	1354
117	PRPF40A, ARL6IP6, FMNL2	1545
118	SNAI3, AC138028.1, RNF166, CTU2, PIEZO1	1442
119	OR4C6, OR5D13, OR5D14, OR5L1, OR5D18, OR5L2, OR5D16, TRIM51, OR5W2	1391
120	ZNF709, ZNF564, CTD-2192J16.20, ZNF490	1461
121	ZNF462, RP11-508N12.4, RAD23B	1427
122	ZNF354A, CLK4, COL23A1	1696
123	MCIDAS, CCNO, DHX29, SKIV2L2, PPAP2A	1480
124	TMEM206, NENF, PPP2R5A	1596
125	KCNAB1, GMPS, SLC33A1	1383
126	PDE7B, MTFR2, BCLAF1	1351
127	RNF182, MCUR1, RANBP9	1584
128	NWD1, SIN3B, F2RL3, CPAMD8	1812
129	ZMYND8, NCOA3, EYA2	1345
130	LIMS2, WDR33, SFT2D3	1428
131	CELF1, NDUFS3, PTPMT1, KBTBD4, FAM180B, C1QTNF4, MTCH2	1324
132	OR13J1, HRCT1, TMEM8B	1236
133	SDSL, LHX5, SDS	1325
134	M1AP, SEMA4F, DOK1	1184
135	ZNF512, CCDC121, GPN1, SUPT7L, SLC4A1AP	1559
136	THOC7, ATXN7, C3orf49	1368
137	TYW1B, POM121, TRIM74	1300
138	HTATIP2, PRMT3, SLC6A5	1477
139	ZFAND5, GDA, TMC1	1404
140	RBMY1J, RBMY1F, PRY2	1745
141	PRB3, PRB4, PRB1, PRB2	1416
142	CAPN7, SH3BP5, METTL6	1607

143	TRIB2, LPIN1, NTSR2	1017
144	C3orf49, THOC7, ATXN7	1139
145	RNF187, HIST3H2BB, HIST3H2A	1733
146	CASR, CSTA, CCDC58	1845
147	ICA1, GLCCI1, NXPH1	1495
148	ZMYND8, NCOA3, EYA2	1454
149	CADPS, FEZF2, C3orf14	1688
150	DENND4A, RAB11A, MEGF11	1747
151	KCTD5, PRSS27, SRRM2, TCEB2, PRSS33	1697
152	GXYLT1, YAF2, PPHLN1	1520
153	SDSL, LHX5, SDS	1781
154	BRD1, ZBED4, ALG12	1847
155	RSF1, AAMDC, CLNS1A	1807

Table 15.c2

105	1.185806036	0	4.02275E-05	1
106	1.185774508	0	7.85908E-05	1
107	1.185456961	0	7.64782E-05	1
108	1.185377481	0	4.86717E-05	1
109	1.185363774	0	5.62754E-05	1
110	1.185254901	0	2.15225E-05	1
111	1.18486403	0	2.0681E-05	1
112	1.184855428	0	6.56875E-05	1
113	1.184736602	0	8.53256E-05	1
114	1.184435662	0	2.98335E-05	1
115	1.184397162	0	3.35116E-05	1
116	1.184290346	0	4.04684E-05	1
117	1.184152777	0	4.18896E-05	1
118	1.184123958	0	2.7662E-05	1
119	1.183990252	0	4.52014E-05	1
120	1.183745573	0	1.76209E-05	1
121	1.183724391	0	8.3569E-05	1
122	1.183521321	0	1.75208E-05	1
123	1.183474385	0	2.13304E-05	1
124	1.183343163	0	9.39209E-05	1
125	1.183279337	0	5.20407E-05	1
126	1.1832702	0	3.8987E-05	1
127	1.18310412	0	1.66998E-05	1
128	1.1830933	0	3.57588E-05	1
129	1.183088494	0	6.65706E-05	1
130	1.182903809	0	7.16202E-05	1
131	1.182844511	0	2.22498E-05	1

132	1.182673185	0	9.90263E-05	1
133	1.182516099	0	6.24329E-05	1
134	1.182473004	0	8.10701E-05	1
135	1.182368422	0	3.71456E-05	1
136	1.182308028	0	4.25684E-05	1
137	1.182181908	0	7.40079E-05	1
138	1.182021449	0	5.8333E-05	1
139	1.181788051	0	4.64856E-05	1
140	1.181763292	0	6.59963E-05	1
141	1.181643659	0	1.187E-05	1
142	1.181540055	0	6.24772E-05	1
143	1.18144712	0	7.22288E-05	1
144	1.181443612	0	4.75063E-05	1
145	1.18139825	0	2.87469E-05	1
146	1.181386664	0	4.5188E-05	1
147	1.180957541	0	7.28191E-05	1
148	1.180919534	0	4.66965E-05	1
149	1.180904051	0	3.61204E-05	1
150	1.180673349	0	5.56902E-05	1
151	1.180660229	0	1.12106E-05	1
152	1.18051619	0	7.05768E-05	1
153	1.180414981	0	7.44108E-05	1
154	1.180158626	0	5.2818E-05	1
155	1.180096347	0	0.000103236	1

Table 15.c3

105	AAGAACACCTAGAAATGTGGCTTTGGAGTCGAACTCCTGACCTCAAATGGTCAGCCCACC
106	CAAATTGATTCTATCCAAAAAGAATAATTCGAACTCCTGACCTCAAATGGTCAGCCCACC
107	TTTGGGGTTGAGGAATATGTTCACAATCTCGAGGAATTTATCCATTTCTTCTAGATTTTC
108	TAAAAATTAACACCATGTAACACTAAAATCGAACTCCTGACCTCAGGTGAGGTGATCCAC
109	TATTTGAAAGTTCAAGATTTTTGAGCTTTCGATCTCCTGACCTCGTGATGAACCCACCCC
110	GATTTAGAAAGAAGAATCAATGGCTATATCGAACTCCTGGCCTTAAGCCACTCACCTGCT
111	CTGGGTTGGTTACTGAAACAGAAAAAGGTCGAACTCCTGATCTCAAGTTATACACCTGCC
112	GTTTTATATTTTAAATGGCTTTTGATAATCGAACTCCTGACCTCAGGTAATCCATTACTT
113	GATTAAAAGTGCTTTATCTACATAAGATTCGAACTCCTGACCTCAGGTTATCGGCCTACC
114	TTGTCAATCAAACTGATAGAGAGCTTCATCGAACTCCTGACGTCAGGTGATCCATCAGCC
115	AAGTTGTCATTTGAATGAGATAAGGACCTCGAGACCAGCCTGAACAATATGATGAAACCC
116	TTCTTCTTTAATGCTGTTTGAAACAAAATCGAACTCCTGACCTCAAGTTATCCAACCGCT
117	ATTTTCATAGCCTGCTCCCATGAAGCATTCGAACTCCTGACTTTGGGTGATCCACTCACC
118	CCAGAAGCCAAAAATGATGATGATGAAGTCGAACTCCTGGCCTCAGATGATCTATCCACC
119	TCATGTGGTGGGATATACTAGGTATGAATCGAGACCAGCCTGGTCAAAATGTTGGAACCC
120	AATGTTTGGAGACTGCCACATCGTTTTGTCGATCTCCTGATCTCATGATCCACTGGCCTC

121	ACCCAGATGTGCTCTTTCCTCTTGATTATCGAACTCCTGACCTCCTGATTCATCCACCTC
122	CCTTATCTCCTTGAAGGATGGAGCCTCTTCGAACTCCTGATCTCATGTTCCGCCCACCTC
123	GCGCTTTTTCAAAGTCCTGTTCAGCCCTTCGATCTCCTGACCTCATGATTCTCCTGCCTC
124	AGCTCCACCCAGAGGCTCAGATCCATCATCGAACTCCTGACCTCAATTGATCCATTTGCC
125	TCGTGTAATAGCCAGCGATAAGATCCAGTCGAACTCCTGGCCTTAAGTGATTTGTCTGCC
126	TTATTTTAGCTTCTCTGACAAGGACACTTCGATCTCTTGATCCCATGATCCACCTGCCTC
127	TAAACATTTTCATTTTGCACAAACTATTTCGATCTCCTTACCTCGTAATCTGCCTGCATA
128	GAGTTTCATCATATTTATCAGGCTGGTCTCGATGTGCGGTGAGTCATGATCATGCCACTG
129	TCACATTATGTGATTCCTCCCATCAATGTCGATCTCTTGACCTCGTGATTTGCTCACCTT
130	CAACAAATATTTACTATAAAAGCGGACATCGAACTCCTGATCTTAGTTGATCCGCCCGCT
131	AAGCTGCCTAGACCAAAGAATAACTGAGTCGATTTCCTGACCTCGTGATCTCCACCTGCC
132	GACTGGAAGCCTTATCAATAACATAAAGTCGAATTCCTGATCTTAGGTGATCCACCCACC
133	CGGCTGGCCACAATCACGGGCCCAGCAGTCGAACTCCTGACCTCAGGTAATCTTCCTGTC
134	TGTGCTCTGTTGAAATATAAAATACAAGTCGAACTACTGACCTAAGTGATCCACCCACCT
135	CCTACCCCTTAATTTTTTAAAGTGAGCCTCGAGACCAGTCTGGCCATGGTGAAAAACTGT
136	TATTTATTCTTCAAAAATGGGATTAACTTCGATCTCTTGACCTCAAGATCCACCTGCCTC
137	ACTGTAGGATTTTTCAACGTTGGCACCATCGAACTCCTGACCTCAGGTCACCCATCTGCC
138	ATTCTATTTACAGATGAAAGGAGCGATCTCGAGACCATCCTGGCTAACCCAGTGAAAACC
139	AAGATTAGCAGCAAAAGCGCATGTGATGTCGATCTTCTGACCTCGTGATCTTCCTGCCTC
140	ATCTAAAGATGATTTCCTATATTTTTGTTCGAACTCCTGACATGAAGAGATCTGCCCACC
141	ATGATTATATGTTTTGGGGTTGCTCTTCTCGAACTCCTGAGCTCAGTGAGACTCCCACCT
142	GATTCTGACTAAATTCTCCTTCAATGAATCGAACTCCTGACCTCAAGTAATTTGCCCACC
143	AAAGCGAGCCGATCACGAGGTCAAGAGATCGAACTCCTGACCTCGTGATTGGCCCACTTT
144	CACTGGATTCCTGAGTACCCCAATGAAATCGATCTCTTGACCTCAAGATCCACCTGCCTC
145	ATAAAGAATATGTGGTACATTTACACATTCGAACTCCAGACCTCAAGTGATTCACCAACC
146	TAACACATTTTTTGTATCCATTCATCTTTCGAACTCCTGGGCTCTTGATCCTTCCGACTC
147	GATCAGCGTGACAGAGGAAACTCGCAGATCGAACTCCTGACCTCAAGAGATCCAGGGATC
148	AATGATCCATGCCTGTTTTTGTGCACTGTCGATCTCTTGACCTCGTGATTTGCTCACCTT
149	CAGGGCCAGAAGTGCTCAAGTAGAAGCATCGAACTCCTGACCTTGTAATCCACCTGACTC
150	AATCTAAAATATGAAAACGATATAGACATCGAACGCCTGACCTCAGTTGATCTACCCACC
151	TCAGAAACGTTCCATTTCATCACCAGAGTCGAACTCCTGACCTCAGGTGAACTACCCACC
152	CCAACTCTCTGTTTCATTTTATGCAGTGTCGATCTCCTGACTTTGTGATCCTTCTGCCTC
153	CATCCTCCTAAGTGTTTGACCAACAAAATCGAACTCCTGACCTCAGGTAATCTTCCTGTC
154	CATTTTTATTAAACAATCGTTCCTGTCATCGAACTCCTGATCCTGGGTGATCCACCAGCC
155	CTTCAGAACAGTAAAAAAAAAAAAAAGTTCGATCTCTTGACCTTGTAATATGCCCATCTC

Table 15.c4

105	13	33300043	33300074	33381506	33381537	13
106	13	33165909	33165940	33381506	33381537	13
107	14	20127819	20127850	20264734	20264765	14
108	22	22390196	22390227	22422604	22422635	22
109	2	90323063	90323094	90337098	90337129	2

110	1	205467613	205467644	205602798	205602829	1
111	8	105814873	105814904	105983420	105983451	8
112	3	139369127	139369158	139429158	139429189	3
113	11	93651586	93651617	93816517	93816548	11
114	2	218414594	218414625	218468442	218468473	2
115	21	33535825	33535856	33704751	33704782	21
116	15	25940901	25940932	26010869	26010900	15
117	2	152673000	152673031	152810778	152810809	2
118	16	88673445	88673476	88720392	88720423	16
119	11	55664025	55664056	55913134	55913165	11
120	19	12529097	12529128	12582615	12582646	19
121	9	106918096	106918127	106960209	106960240	9
122	5	178642073	178642104	178716116	178716147	5
123	5	55225977	55226008	55433718	55433749	5
124	1	212376182	212376213	212483605	212483636	1
125	3	155955915	155955946	156028907	156028938	3
126	6	135916612	135916643	136107590	136107621	6
127	6	13822111	13822142	13933634	13933665	6
128	19	16821633	16821664	16982325	16982356	19
129	20	47287437	47287468	47430381	47430412	20
130	2	127665951	127665982	127815652	127815683	2
131	11	47501422	47501453	47634992	47635023	11
132	9	35866168	35866199	35894481	35894512	9
133	12	113432110	113432141	113569895	113569926	12
134	2	74592023	74592054	74640372	74640403	2
135	2	27620681	27620712	27683926	27683957	2
136	3	63862281	63862312	63888543	63888574	3
137	7	72635553	72635584	72886393	72886424	7
138	11	20372802	20372833	20390846	20390877	11
139	9	72305820	72305851	72373417	72373448	9
140	Y	22244683	22244714	22300275	22300306	Y
141	12	11258018	11258049	11544315	11544346	12
142	3	15180760	15180791	15414574	15414605	3
143	2	12713910	12713941	12794236	12794267	2
144	3	63806210	63806241	63888543	63888574	3
145	1	228462547	228462578	228719496	228719527	1
146	3	122243786	122243817	122357299	122357330	3
147	7	8149450	8149481	8195307	8195338	7
148	20	47298191	47298222	47430381	47430412	20
149	3	62505737	62505768	62564826	62564857	3
150	15	65754053	65754084	65960130	65960161	15
151	16	2687219	2687250	2801058	2801089	16
152	12	41967788	41967819	42137273	42137304	12

153	12	113432110	113432141	113664446	113664477	12
154	22	49762147	49762178	49868346	49868377	22
155	11	77692897	77692928	77787820	77787851	11

Table 15.c5

105	33296073	33300074	33377536	33381537
106	33161939	33165940	33377536	33381537
107	20123849	20127850	20260764	20264765
108	22390196	22394197	22418634	22422635
109	90319093	90323094	90333128	90337129
110	205467613	205471614	205598828	205602829
111	105814873	105818874	105983420	105987421
112	139365157	139369158	139425188	139429189
113	93647616	93651617	93812547	93816548
114	218410624	218414625	218468442	218472443
115	33535825	33539826	33700781	33704782
116	25940901	25944902	26010869	26014870
117	152669030	152673031	152810778	152814779
118	88673445	88677446	88716422	88720423
119	55660055	55664056	55913134	55917135
120	12529097	12533098	12582615	12586616
121	106918096	106922097	106956239	106960240
122	178638103	178642104	178716116	178720117
123	55225977	55229978	55433718	55437719
124	212372212	212376213	212479635	212483636
125	155955915	155959916	156024937	156028938
126	135916612	135920613	136103620	136107621
127	13822111	13826112	13929664	13933665
128	16817663	16821664	16982325	16986326
129	47283467	47287468	47426411	47430412
130	127661981	127665982	127811682	127815683
131	47497452	47501453	47634992	47638993
132	35866168	35870169	35894481	35898482
133	113432110	113436111	113565925	113569926
134	74592023	74596024	74636402	74640403
135	27616711	27620712	27679956	27683957
136	63858311	63862312	63884573	63888574
137	72635553	72639554	72886393	72890394
138	20372802	20376803	20390846	20394847
139	72301850	72305851	72369447	72373448
140	22240713	22244714	22296305	22300306
141	11258018	11262019	11544315	11548316

142	15176790	15180791	15414574	15418575
143	12713910	12717911	12794236	12798237
144	63802240	63806241	63884573	63888574
145	228458577	228462578	228715526	228719527
146	122243786	122247787	122357299	122361300
147	8145480	8149481	8191337	8195338
148	47294221	47298222	47426411	47430412
149	62505737	62509738	62564826	62568827
150	65754053	65758054	65956160	65960161
151	2687219	2691220	2801058	2805059
152	41963818	41967819	42133303	42137304
153	113432110	113436111	113660476	113664477
154	49758177	49762178	49864376	49868377
155	77692897	77696898	77783850	77787851

Table 15.c6

105	Hg38_13_33292777_33300074_33379042_33381537_FF	OBD183-3325
106	Hg38_13_33157099_33165940_33379042_33381537_FF	OBD183-3329
107	Hg38_14_20125056_20127850_20254086_20264765_FF	OBD183-3333
108	Hg38_22_22390196_22400635_22417372_22422635_RF	OBD183-3337
109	Hg38_2_90319634_90323094_90333145_90337129_FF	OBD183-3341
110	Hg38_1_205467613_205472592_205597487_205602829_RF	OBD183-3345
111	Hg38_8_105814873_105824107_105983420_105991962_RR	OBD183-3349
112	Hg38_3_139359866_139369158_139422950_139429189_FF	OBD183-3353
113	Hg38_11_93646250_93651617_93812658_93816548_FF	OBD183-3357
114	Hg38_2_218413367_218414625_218468442_218469889_FR	OBD183-3361
115	Hg38_21_33535825_33540136_33702336_33704782_RF	OBD183-3365
116	Hg38_15_25940901_25954083_26010869_26013845_RR	OBD183-3369
117	Hg38_2_152664286_152673031_152810778_152818515_FR	OBD183-3373
118	Hg38_16_88673445_88677147_88717058_88720423_RF	OBD183-3377
119	Hg38_11_55658006_55664056_55913134_55916714_FR	OBD183-3381
120	Hg38_19_12529097_12534237_12582615_12585911_RR	OBD183-3385
121	Hg38_9_106918096_106923299_106956084_106960240_RF	OBD183-3389
122	Hg38_5_178637588_178642104_178716116_178719743_FR	OBD183-3393
123	Hg38_5_55225977_55227096_55433718_55442449_RR	OBD183-3397
124	Hg38_1_212366521_212376213_212479522_212483636_FF	OBD183-3401
125	Hg38_3_155955915_155960464_156024474_156028938_RF	OBD183-3405
126	Hg38_6_135916612_135930758_136101114_136107621_RF	OBD183-3409
127	Hg38_6_13822111_13826619_13925547_13933665_RF	OBD183-3413
128	Hg38_19_16814077_16821664_16982325_16986644_FR	OBD183-3417
129	Hg38_20_47283636_47287468_47423313_47430412_FF	OBD183-3421
130	Hg38_2_127661293_127665982_127811240_127815683_FF	OBD183-3425

131	Hg38_11_47497688_47501453_47634992_47637905_FR	OBD183-3429
132	Hg38_9_35866168_35873586_35894481_35899234_RR	OBD183-3433
133	Hg38_12_113432110_113434599_113565905_113569926_RF	OBD183-3437
134	Hg38_2_74592023_74597081_74625034_74640403_RF	OBD183-3441
135	Hg38_2_27611917_27620712_27682649_27683957_FF	OBD183-3445
136	Hg38_3_63854804_63862312_63879711_63888574_FF	OBD183-3449
137	Hg38_7_72635553_72638872_72886393_72889737_RR	OBD183-3453
138	Hg38_11_20372802_20380788_20390846_20402338_RR	OBD183-3457
139	Hg38_9_72302739_72305851_72372195_72373448_FF	OBD183-3461
140	Hg38_Y_22235354_22244714_22295566_22300306_FF	OBD183-3465
141	Hg38_12_11258018_11266085_11544315_11547606_RR	OBD183-3469
142	Hg38_3_15171181_15180791_15414574_15417883_FR	OBD183-3473
143	Hg38_2_12713910_12715388_12794236_12801750_RR	OBD183-3477
144	Hg38_3_63794524_63806241_63879711_63888574_FF	OBD183-3481
145	Hg38_1_228460859_228462578_228712981_228719527_FF	OBD183-3485
146	Hg38_3_122243786_122250257_122357299_122361064_RR	OBD183-3489
147	Hg38_7_8143002_8149481_8188538_8195338_FF	OBD183-3493
148	Hg38_20_47296001_47298222_47423313_47430412_FF	OBD183-3497
149	Hg38_3_62505737_62515246_62564826_62570608_RR	OBD183-3501
150	Hg38_15_65754053_65760294_65952282_65960161_RF	OBD183-3505
151	Hg38_16_2687219_2688470_2801058_2807279_RR	OBD183-3509
152	Hg38_12_41964098_41967819_42126294_42137304_FF	OBD183-3513
153	Hg38_12_113432110_113434599_113654632_113664477_RF	OBD183-3517
154	Hg38_22_49757913_49762178_49865819_49868377_FF	OBD183-3521
155	Hg38_11_77692897_77698671_77781318_77787851_RF	OBD183-3525

Table 15.c7

5

105	TGGATGGGCCACTGGAACTCTAC	OBD183-3327	GGAGAGGCTATATACATATGGGC
106	GGTTTCACGAAATACTTAATTTGGC	OBD183-3331	AATAGGCAATAAGGGTGTGACCCAG
107	AAGGAAAGAAGCCAGACTAAAAAAA	OBD183-3335	AAGAAACAAATAGATGCCATAAAAA
108	TAAATATTTGGTTATTTTCTTTTT	OBD183-3339	AGAACTAAATAAAATTCAAACAAA
109	TGGGTTTATCATCAGATCCGCTAA	OBD183-3343	TCAATGAAATCACAAACTTCCTTA
110	TATAGTTTTAATTATATTTGTAAA	OBD183-3347	AGCCTGAGCACGGAGCCTTGTGAC
111	TGTAGGCCAACCAGAAGAAAAAAAAA	OBD183-3351	ATGAGCTTAAAATAGCCTGTTATAAG
112	TCAAAGCATGCTTTTTTCCTGTCAAA	OBD183-3355	CAGCTGAATATAAGCTCTAGTGGGGC
113	TTAAGTACAAAACAACAAAACATA	OBD183-3359	CTAGCCTGATACATAGAAAGTTTG
114	GGCAAATTACCAGCCTTAAGACATTA	OBD183-3363	CGTATACAAACTCAATAACAGTATGT

115	AGGTGTACTTGCAAGCACTTAAA	OBD183-3367	TTTTTTTGAGACAGAGTTTCGT
116	CCCTGCAGGCACCTTGATGTT	OBD183-3371	AAATTGGAGCACAAAGTGACA
117	TTAGACATAAAACAACTCTATACTTG	OBD183-3375	AAAAAATAGATTTTTTAAAAGCTATG
118	GACGTGATGTCTGTGGCCGCCGAGTG	OBD183-3379	TCTTGAGGGGTTGAGTTAGTCACAAA
119	TGAGGCATTCTTTACTGCAGGTTTTT	OBD183-3383	GTGATGGAATCTGACCCTATTGCCCA
120	AGACCAATAAAACTTGTAGTG	OBD183-3387	TAATTATATAGCCCCTGAGAG
121	CTCTGTGCTTTGAAATGTGGCTG	OBD183-3391	AACTCATATATGGGCATATGCCC
122	TGTGTACACCAAAGCTGAGAC	OBD183-3395	TCAAGACTCTTAAGAGACTTC
123	TTTGCAGTTGGAAGAAGCAGGAA	OBD183-3399	TCCCAAAGTGCTGGGATTACAGG
124	ACTTAGTAGGTGTGCTTGGTGAGAT	OBD183-3403	GGTGTCAGACACGGGCCTCTAGGGT
125	GAGATTTGGCTATTGCTTTCTAATA	OBD183-3407	TACCATTTGATCTTTGACAAAGTTG
126	TACCAGACAGCATTCAAAGTGCTATT	OBD183-3411	AGTCAATTAACTACAGTTAGTAATAA
127	ATTTTTAGTAGTAGATTTTAT	OBD183-3415	GCCTCCCAAAGTGCTGGGATT
128	TCAAGAGATTCCCCTGTCTCAGCCT	OBD183-3419	TTCCAAATTTGGCTGTGGGAGTCCC
129	AACAGGATTAATTCTAATGGAAA	OBD183-3423	GGACTTTAGAAGGCCGAGACCAG
130	TAGCACTGGAAAGGAGGCTAC	OBD183-3427	CTCCCCCCTTTCTAGAGGCAG
131	GCCCATGCCTGTCAGGCAGAAG	OBD183-3431	GAGGTTGAGGTGAGAGGATCAC
132	GAAATATTGGGGAGATAGATATAGAT	OBD183-3435	TTCCTCCCCAACTATTTTAATAATTG
133	GAAAGATGAGAAGGTACTGAGG	OBD183-3439	GAGAGAGAGAGAAAGAAAGAAA
134	CAGCAAAACCAGAGGGGGAAC	OBD183-3443	ACAAAAATGCATGTATATACA
135	CAGAGAGATTGGGCTCAACTCCCTAT	OBD183-3447	GTTTCATTGAGAGACAGTCTCACACT
136	TCTAGCAATACTTGTCAGCTTT	OBD183-3451	ATTTTCATGTAATCACTACCAC
137	CTAAAATGTACATGGATATGCA	OBD183-3455	CCTTCAGGCAGAAGTAAAATGA
138	GGTCAACAGCTTTCAAAGACTTAAA	OBD183-3459	TTTTTTTTTTTTTGAGACGGCGTCT
139	TTAAGGTTTGTGTACTTTACTG	OBD183-3463	AAACATTAGCTTCACCAAAGAA
140	TCACAGCATCCATGCACTGTTTTCAT	OBD183-3467	TAGTTGTTTTGTAAACATAAAGCATT
141	TACAGGGTTTCTGCAGAGAGA	OBD183-3471	TAGAGGATGATATTTCAACAT
142	AAGTTTTTAATATCTATTTTTTT	OBD183-3475	TGTAGAGATGGGGTCTCACTATA
143	ATATTTTAATCTATAAAGTGAA	OBD183-3479	CAAAGCGTTCAACTTCACAGCA
144	TCTCCTGCACAAAGGATAAGCCAGAG	OBD183-3483	AGTACATATATGGTTCTGTGTCATCT
145	CATTGCTGGGTATATATCCAAAAG	OBD183-3487	TTTATAAAATCGTGTGTTTTCCAA
146	TCACTTAACATAATGATCTCCA	OBD183-3491	TACCAAGTAAGTGCAGTAATAA
147	CTAAGAAACTTTTCTCTGTTAA	OBD183-3495	TAGGGAACTGCAAATTAAAACA
148	CCATCCTGAATTTGTTTTCTT	OBD183-3499	AAGGCCGAGACCAGAGGATTG
149	TCTACCAATATTTGATGACCTAC	OBD183-3503	GGCCAACTTATCACCCATATCAG
150	TATACAAAGCCATTTCTATCAATCA	OBD183-3507	CATTAGGATTCATGCAGTTGCTATG
151	GAATGCCGAAGACCGCGGGCCCATG	OBD183-3511	TACAACAATAGTTGGAGATGTTAAT
152	AGGGAGACACTGACTCTTACTTACA	OBD183-3515	TTCAGTGAAAACTATGCAAAACTTA
153	GCCTAAACCCTTCCTACCCTGAACC	OBD183-3519	AGAAAGAAAGAAAGAAAGAAAGAAA
154	AACAGCCAGCCCCAGACTGCGTA	OBD183-3523	TGGTTTTACTGTTCTAGTTTTCC
155	GAACAAATATCAAGAATATCA	OBD183-3527	TCTCACAAACCTACTTTCATT

Table 15.c8

	probe
1	Hg38_9_68303527_68306746_68525104_68533571_RF
2	Hg38_9_68229567_68233653_68303527_68306746_FR
3	Hg38_9_68303527_68306746_68514399_68520631_RF
4	Hg38_9_68257826_68261506_68303527_68306746_RR
5	Hg38_4_123688_131841_56291_68086_RR
6	Hg38_9_68303527_68306746_68456540_68471355_RF
7	Hg38_9_41124595_41127807_41231309_41234910_FR
8	Hg38_9_42182844_42186868_42375307_42380261_FF
9	Hg38_9_41124595_41127807_41178751_41183992_FF
10	Hg38_19_55776223_55778463_55877718_55881612_FR
11	Hg38_9_68242804_68246345_68303527_68306746_RR
12	Hg38_9_68242804_68246345_68303527_68306746_FR
13	Hg38_19_55776223_55778463_55820651_55823597_FR
14	Hg38_19_55776223_55778463_55881612_55885514_FR
15	Hg38_9_68235316_68242804_68303527_68306746_FR
16	Hg38_9_68303527_68306746_68412497_68421040_RF
17	Hg38_9_41124595_41127807_41166195_41173449_FF
18	Hg38_9_68303527_68306746_68329298_68333260_RF
19	Hg38_9_68257826_68261506_68303527_68306746_FR
20	Hg38_9_68303527_68306746_68504141_68510372_RR
21	Hg38_9_42088567_42092704_42182844_42186868_RF
22	Hg38_9_40955464_40963306_41124595_41127807_FF
23	Hg38_9_68303527_68306746_68378236_68383399_RF
24	Hg38_9_41124595_41127807_41382785_41386749_FF
25	Hg38_9_41124595_41127807_41277212_41282871_FR
26	Hg38_19_55776223_55778463_55915657_55927416_FF
27	Hg38_9_41124595_41127807_41188485_41195978_FR
28	Hg38_9_41124595_41127807_41266229_41270939_FF
29	Hg38_9_68303527_68306746_68359355_68363452_RR
30	Hg38_9_68303527_68306746_68482926_68489040_RF
31	Hg38_9_41068286_41072384_41124595_41127807_FF
32	Hg38_9_68303527_68306746_68421040_68425366_RR
33	Hg38_19_55776223_55778463_55885514_55887939_FF
34	Hg38_9_68229567_68233653_68303527_68306746_RR
35	Hg38_9_68303527_68306746_68525104_68533571_RR
36	Hg38_9_41124595_41127807_41188485_41195978_FF
37	Hg38_19_14562521_14568972_14688475_14695766_RF
38	Hg38_9_42182844_42186868_42196959_42202881_FF
39	Hg38_6_160589652_160594057_160698179_160704800_RR
40	Hg38_9_41048707_41054187_41124595_41127807_FF

41	Hg38_19_55776223_55778463_55854191_55856013_FF
42	Hg38_9_41124595_41127807_41303420_41308041_FF
43	Hg38_9_41124595_41127807_41318958_41323334_FF
44	Hg38_7_44468808_44471840_44579216_44580744_FR
45	Hg38_9_42182844_42186868_42337524_42343490_FR
46	Hg38_9_41124595_41127807_41359875_41368304_FF
47	Hg38_16_33810752_33813317_33866559_33876905_FR
48	Hg38_9_41124595_41127807_41372258_41379258_FF
49	Hg38_1_52914878_52920522_53043894_53056058_FR
50	Hg38_9_42004836_42010624_42182844_42186868_RF
51	Hg38_9_68303527_68306746_68378236_68383399_RR

Table 16.a

	gene	RPs	FC:(class1/class2)
1	FOXD4L3, PGM5, TMEM252	110	-1.290134865
2	CBWD3, FOXD4L3, PGM5	158	-1.254348408
3	FOXD4L3, PGM5, CBWD3	224	-1.219042046
4	CBWD3, FOXD4L3, PGM5	207	-1.217965422
5	ZNF595, ZNF718, ZNF732	318	-1.216393188
6	FOXD4L3, PGM5, CBWD3	245	-1.212078575
7	FOXD4L6, CBWD7, CNTNAP3B	266	-1.210652608
8	SPATA31A6, CNTNAP3B, FP325317.1	377	-1.209875096
9	FOXD4L6, CBWD7, CNTNAP3B	344	-1.205770516
10	NLRP11, NLRP4, RFPL4AL1	374	-1.20555403
11	CBWD3, FOXD4L3, PGM5	287	-1.205119193
12	CBWD3, FOXD4L3, PGM5	326	-1.203167293
13	NLRP11, RFPL4AL1, NLRP4	425	-1.201939263
14	NLRP11, NLRP4, RFPL4AL1	484	-1.201300719
15	CBWD3, FOXD4L3, PGM5	453	-1.20126487
16	FOXD4L3, PGM5, CBWD3	296	-1.200977647
17	FOXD4L6, CBWD7, CNTNAP3B	325	-1.200419041
18	FOXD4L3, PGM5, CBWD3	384	-1.200314977
19	CBWD3, FOXD4L3, PGM5	408	-1.19957175
20	FOXD4L3, PGM5, CBWD3	354	-1.197651144
21	CNTNAP3B, SPATA31A6, CBWD7	447	-1.197247871
22	FOXD4L6, CBWD7, ANKRD20A2	438	-1.197034408
23	FOXD4L3, PGM5, CBWD3	393	-1.196839438
24	FOXD4L6, CBWD7, CNTNAP3B	417	-1.196163732
25	FOXD4L6, CBWD7, CNTNAP3B	410	-1.195190919
26	NLRP11, NLRP4, NLRP13	539	-1.192636225
27	FOXD4L6, CBWD7, CNTNAP3B	480	-1.19231014
28	FOXD4L6, CBWD7, CNTNAP3B	473	-1.190017758

29	FOXD4L3, PGM5, CBWD3	462	-1.189773923
30	FOXD4L3, PGM5, CBWD3	642	-1.188681121
31	FOXD4L6, CBWD7, CNTNAP3B	489	-1.188452991
32	FOXD4L3, PGM5, CBWD3	512	-1.188210085
33	NLRP11, NLRP4, RFPL4AL1	696	-1.187556712
34	CBWD3, FOXD4L3, PGM5	552	-1.186657847
35	FOXD4L3, PGM5, TMEM252	543	-1.186301372
36	FOXD4L6, CBWD7, CNTNAP3B	625	-1.185271258
37	TECR, NDUFB7, CLEC17A, EMR3, ZNF333	391	-1.183247059
38	SPATA31A6, CNTNAP3B, FP325317.1	918	-1.182902642
39	LPA, PLG, SLC22A3	644	-1.181168734
40	FOXD4L6, CBWD7, CNTNAP3B	728	-1.181031129
41	NLRP11, NLRP4, RFPL4AL1	749	-1.180850253
42	FOXD4L6, CBWD7, CNTNAP3B	691	-1.180838599
43	FOXD4L6, CBWD7, CNTNAP3B	722	-1.180746186
44	NUDCD3, NPC1L1, DDX56, TMED4	772	-1.177479228
45	SPATA31A6, CNTNAP3B, FP325317.1	1193	-1.175718431
46	FOXD4L6, CBWD7, CNTNAP3B	892	-1.175338282
47	RP11-812E19.9, TP53TG3C, TP53TG3B	560	-1.175336428
48	FOXD4L6, CBWD7, CNTNAP3B	903	-1.175282894
49	ECHDC2, SCP2, AL445183.1	1392	-1.171331332
50	CNTNAP3B, SPATA31A6, CBWD7	1241	-1.171176337
51	FOXD4L3, PGM5, CBWD3	987	-1.170887047

Table 16.b

					Probe sequence
	pfp	P.value	CCSs	60 mer	Chr
1	0	0.001084986	-1	9	68303527
2	0	0.000686863	-1	9	68233622
3	0	0.000173094	-1	9	68303527
4	0	0.000277015	-1	9	68257826
5	0	0.000759224	-1	4	123688
6	0	0.000537615	-1	9	68303527
7	0	0.000151233	-1	9	41127776
8	0	0.000268632	-1	9	42186837
9	0	0.000151381	-1	9	41127776
10	0	9.19074E-05	-1	19	55778432
11	0	0.000725742	-1	9	68242804
12	0	0.000653777	-1	9	68246314
13	0	0.000100087	-1	19	55778432

14	0	5.13774E-05	-1	19	55778432
15	0	0.000183863	-1	9	68242773
16	0	0.001110921	-1	9	68303527
17	0	0.000412487	-1	9	41127776
18	0	0.000293966	-1	9	68303527
19	0	0.000251118	-1	9	68261475
20	0	0.0004102	-1	9	68303527
21	0	0.000137602	-1	9	42088567
22	0	0.000324869	-1	9	40963275
23	0	0.000615417	-1	9	68303527
24	0	0.000535934	-1	9	41127776
25	0	0.000436084	-1	9	41127776
26	0	0.000146252	-1	19	55778432
27	0	0.000607614	-1	9	41127776
28	0	0.000704153	-1	9	41127776
29	0	0.000586521	-1	9	68303527
30	0	0.000178992	-1	9	68303527
31	0	0.001065991	-1	9	41072353
32	0	0.000876809	-1	9	68303527
33	0	0.000168308	-1	19	55778432
34	0	0.001049628	-1	9	68229567
35	0	0.000890121	-1	9	68303527
36	0	0.000499625	-1	9	41127776
37	0	0.001064797	-1	19	14562521
38	0	7.25727E-05	-1	9	42186837
39	0	0.000361285	-1	6	160589652
40	0	0.000923513	-1	9	41054156
41	0	0.000446969	-1	19	55778432
42	0	0.000661902	-1	9	41127776
43	0	0.000859979	-1	9	41127776
44	0	0.001148017	-1	7	44471809
45	0	5.24152E-05	-1	9	42186837
46	0	0.00073806	-1	9	41127776
47	0	0.001283737	-1	16	33813286
48	0	0.001209464	-1	9	41127776
49	0	0.001791256	-1	1	52920491
50	0	0.00012103	-1	9	42004836
51	0	0.001013134	-1	9	68303527

Table 16.c

	Probe Location

	Start1	End1	Start2	End2	Chr
1	68303558	68533540	68533571	9	68303527
2	68233653	68303527	68303558	9	68229652
3	68303558	68520600	68520631	9	68303527
4	68257857	68303527	68303558	9	68257826
5	123719	56291	56322	4	123688
6	68303558	68471324	68471355	9	68303527
7	41127807	41231309	41231340	9	41123806
8	42186868	42380230	42380261	9	42182867
9	41127807	41183961	41183992	9	41123806
10	55778463	55877718	55877749	19	55774462
11	68242835	68303527	68303558	9	68242804
12	68246345	68303527	68303558	9	68242344
13	55778463	55820651	55820682	19	55774462
14	55778463	55881612	55881643	19	55774462
15	68242804	68303527	68303558	9	68238803
16	68303558	68421009	68421040	9	68303527
17	41127807	41173418	41173449	9	41123806
18	68303558	68333229	68333260	9	68303527
19	68261506	68303527	68303558	9	68257505
20	68303558	68504141	68504172	9	68303527
21	42088598	42186837	42186868	9	42088567
22	40963306	41127776	41127807	9	40959305
23	68303558	68383368	68383399	9	68303527
24	41127807	41386718	41386749	9	41123806
25	41127807	41277212	41277243	9	41123806
26	55778463	55927385	55927416	19	55774462
27	41127807	41188485	41188516	9	41123806
28	41127807	41270908	41270939	9	41123806
29	68303558	68359355	68359386	9	68303527
30	68303558	68489009	68489040	9	68303527
31	41072384	41127776	41127807	9	41068383
32	68303558	68421040	68421071	9	68303527
33	55778463	55887908	55887939	19	55774462
34	68229598	68303527	68303558	9	68229567
35	68303558	68525104	68525135	9	68303527
36	41127807	41195947	41195978	9	41123806
37	14562552	14695735	14695766	19	14562521
38	42186868	42202850	42202881	9	42182867
39	160589683	160698179	160698210	6	160589652
40	41054187	41127776	41127807	9	41050186
41	55778463	55855982	55856013	19	55774462

42	41127807	41308010	41308041	9	41123806
43	41127807	41323303	41323334	9	41123806
44	44471840	44579216	44579247	7	44467839
45	42186868	42337524	42337555	9	42182867
46	41127807	41368273	41368304	9	41123806
47	33813317	33866559	33866590	16	33809316
48	41127807	41379227	41379258	9	41123806
49	52920522	53043894	53043925	1	52916521
50	42004867	42186837	42186868	9	42004836
51	68303558	68378236	68378267	9	68303527

Table 16.d

	4 kb Sequence Location		
	Start1	End1	Start2
1	68307528	68529570	68533571
2	68233653	68303527	68307528
3	68307528	68516630	68520631
4	68261827	68303527	68307528
5	127689	56291	60292
6	68307528	68467354	68471355
7	41127807	41231309	41235310
8	42186868	42376260	42380261
9	41127807	41179991	41183992
10	55778463	55877718	55881719
11	68246805	68303527	68307528
12	68246345	68303527	68307528
13	55778463	55820651	55824652
14	55778463	55881612	55885613
15	68242804	68303527	68307528
16	68307528	68417039	68421040
17	41127807	41169448	41173449
18	68307528	68329259	68333260
19	68261506	68303527	68307528
20	68307528	68504141	68508142
21	42092568	42182867	42186868
22	40963306	41123806	41127807
23	68307528	68379398	68383399
24	41127807	41382748	41386749
25	41127807	41277212	41281213
26	55778463	55923415	55927416

27	41127807	41188485	41192486
28	41127807	41266938	41270939
29	68307528	68359355	68363356
30	68307528	68485039	68489040
31	41072384	41123806	41127807
32	68307528	68421040	68425041
33	55778463	55883938	55887939
34	68233568	68303527	68307528
35	68307528	68525104	68529105
36	41127807	41191977	41195978
37	14566522	14691765	14695766
38	42186868	42198880	42202881
39	160593653	160698179	160702180
40	41054187	41123806	41127807
41	55778463	55852012	55856013
42	41127807	41304040	41308041
43	41127807	41319333	41323334
44	44471840	44579216	44583217
45	42186868	42337524	42341525
46	41127807	41364303	41368304
47	33813317	33866559	33870560
48	41127807	41375257	41379258
49	52920522	53043894	53047895
50	42008837	42182867	42186868
51	68307528	68378236	68382237

Table 16.e

	qPCR PRIMER SET	
	probe	qPCR Primer ID
1	Hg38_9_68303527_68306746_68525104_68533571_RF	OBD183-q1317
2	Hg38_9_68229567_68233653_68303527_68306746_FR	OBD183-q1321
3	Hg38_9_68303527_68306746_68514399_68520631_RF	OBD183-q1325
4	Hg38_9_68257826_68261506_68303527_68306746_RR	OBD183-q1329
5	Hg38_4_123688_131841_56291_68086_RR	OBD183-q1333
6	Hg38_9_68303527_68306746_68456540_68471355_RF	OBD183-q1337
7	Hg38_9_41124595_41127807_41231309_41234910_FR	OBD183-q1341
8	Hg38_9_42182844_42186868_42375307_42380261_FF	OBD183-q1345
9	Hg38_9_41124595_41127807_41178751_41183992_FF	OBD183-q1349
10	Hg38_19_55776223_55778463_55877718_55881612_FR	OBD183-q1353
11	Hg38_9_68242804_68246345_68303527_68306746_RR	OBD183-q1357
12	Hg38_9_68242804_68246345_68303527_68306746_FR	OBD183-q1361

13	Hg38_19_55776223_55778463_55820651_55823597_FR	OBD183-q1365
14	Hg38_19_55776223_55778463_55881612_55885514_FR	OBD183-q1369
15	Hg38_9_68235316_68242804_68303527_68306746_FR	OBD183-q1373
16	Hg38_9_68303527_68306746_68412497_68421040_RF	OBD183-q1377
17	Hg38_9_41124595_41127807_41166195_41173449_FF	OBD183-q1381
18	Hg38_9_68303527_68306746_68329298_68333260_RF	OBD183-q1385
19	Hg38_9_68257826_68261506_68303527_68306746_FR	OBD183-q1389
20	Hg38_9_68303527_68306746_68504141_68510372_RR	OBD183-q1393
21	Hg38_9_42088567_42092704_42182844_42186868_RF	OBD183-q1397
22	Hg38_9_40955464_40963306_41124595_41127807_FF	OBD183-q1401
23	Hg38_9_68303527_68306746_68378236_68383399_RF	OBD183-q1405
24	Hg38_9_41124595_41127807_41382785_41386749_FF	OBD183-q1409
25	Hg38_9_41124595_41127807_41277212_41282871_FR	OBD183-q1413
26	Hg38_19_55776223_55778463_55915657_55927416_FF	OBD183-q1417
27	Hg38_9_41124595_41127807_41188485_41195978_FR	OBD183-q1421
28	Hg38_9_41124595_41127807_41266229_41270939_FF	OBD183-q1425
29	Hg38_9_68303527_68306746_68359355_68363452_RR	OBD183-q1429
30	Hg38_9_68303527_68306746_68482926_68489040_RF	OBD183-q1433
31	Hg38_9_41068286_41072384_41124595_41127807_FF	OBD183-q1437
32	Hg38_9_68303527_68306746_68421040_68425366_RR	OBD183-q1441
33	Hg38_19_55776223_55778463_55885514_55887939_FF	OBD183-q1445
34	Hg38_9_68229567_68233653_68303527_68306746_RR	OBD183-q1449
35	Hg38_9_68303527_68306746_68525104_68533571_RR	OBD183-q1453
36	Hg38_9_41124595_41127807_41188485_41195978_FF	OBD183-q1457
37	Hg38_19_14562521_14568972_14688475_14695766_RF	OBD183-q1461
38	Hg38_9_42182844_42186868_42196959_42202881_FF	OBD183-q1465
39	Hg38_6_160589652_160594057_160698179_160704800_RR	OBD183-q1469
40	Hg38_9_41048707_41054187_41124595_41127807_FF	OBD183-q1473
41	Hg38_19_55776223_55778463_55854191_55856013_FF	OBD183-q1477
42	Hg38_9_41124595_41127807_41303420_41308041_FF	OBD183-q1481
43	Hg38_9_41124595_41127807_41318958_41323334_FF	OBD183-q1485
44	Hg38_7_44468808_44471840_44579216_44580744_FR	OBD183-q1489
45	Hg38_9_42182844_42186868_42337524_42343490_FR	OBD183-q1493
46	Hg38_9_41124595_41127807_41359875_41368304_FF	OBD183-q1497
47	Hg38_16_33810752_33813317_33866559_33876905_FR	OBD183-q1501
48	Hg38_9_41124595_41127807_41372258_41379258_FF	OBD183-q1505
49	Hg38_1_52914878_52920522_53043894_53056058_FR	OBD183-q1509
50	Hg38_9_42004836_42010624_42182844_42186868_RF	OBD183-q1513
51	Hg38_9_68303527_68306746_68378236_68383399_RR	OBD183-q1517

Table 16.f

	qPCR PRIMER SET		
	Sequence	qPCR Primer ID	qPCR Reverse Seq
1	TGAGATCGTTTGTCAACTTTTACTG	OBD183-q1319	GATGCGGGTGCAGCAGAGCGTAAGG
2	TAAGAAATTAATATTAAAATATATTG	OBD183-q1323	GGGTAGGCCCCCGGGACTGGCTGCGG
3	TAACACACCTGACTTAATAGGCACA	OBD183-q1327	CCCGGGGGCGGTGTTGGGGTAGGCC
4	AGAATGAGTTTAATTATGCTAA	OBD183-q1331	GGGCCTGGGCGGGGGTTGTGCA
5	GCATACACAAACTTGTTCACAAA	OBD183-q1335	AAACTTGTATTTCTCAAATAAAA
6	TAGTCAGAGACTGAAGACTTCCA	OBD183-q1339	CCGGGACTGGCTGCGGCGGGGCA
7	CAGGGCGGCGTGTGCAGCAGGT	OBD183-q1343	GACTAAATGGCATTAAAAGAGG
8	AAATGTTGGATCATTTACAAATCAA	OBD183-q1347	CTTAAGGCACAAATACAAAATAATG
9	CCCGGGGGCGGTGTTGGGGTA	OBD183-q1351	TATTCATGCAGCCTTGATACC
10	AAATATTTGGGTCTGTGCAGTAGA	OBD183-q1355	CTGCCAAAATTTATACGTTGAAGT
11	CGGAAACAGTATTATTTTATT	OBD183-q1359	GAGCGTAAGGGCGTCTCCCGG
12	AGACGATTTCTTTTAAAATGTACT	OBD183-q1363	ATGCGGGTGCAGCAGAGCGTAAGG
13	CTGTGCAGTAGAAAGGCAGAG	OBD183-q1367	CAACACGACACCTGTATGTAC
14	GTGTGTGTCTTTGCTGAACTAC	OBD183-q1371	CAGTGACTCATCCAAGGCCACA
15	CAGGAAGTGCTCCTATCTTAAA	OBD183-q1375	GACTGGCTGCGGCGGGGCAGGG
16	GCACAGATGGTTTTGAATGTGCTTT	OBD183-q1379	GTAGGCCCCCGGGACTGGCTGCGGC
17	AGGGCCTGGGTGGGGGTTGTGC	OBD183-q1383	TACCAATTCATTTTGCAATCTC
18	CTCCCAAAGTGCTGGGATTACAGG	OBD183-q1387	GCGGGTGCAGCAGAGCGTAAGGGC
19	CCCTATAGCCCTTCATGAAGTTAGGT	OBD183-q1391	CCCGGGGGCGGTGTTGGGGTAGGCCC
20	GCGGCGTGTGCAGCAGGTAGA	OBD183-q1395	CTGAGATGGAGAAGAATGAAA
21	ACAGAAACAGCCAAGGTCAACATTT	OBD183-q1399	ACTAAATTTTTTATCTGTGCCTTTT
22	CTAGACGTGCTGGCACACACCT	OBD183-q1403	GGGCCCCAAGCAGAGGGCCTGG
23	CACATACATACTTTACATTTTTA	OBD183-q1407	TGCGGCGGGGCAGGGGCCCCAAG
24	GGGCGGTGTTGGGGTAGGCCCCC	OBD183-q1411	AGACTGTCAATGACAACTGTGTC
25	GCAGGGCGGCGTGTGCAGCAGGTAGA	OBD183-q1415	AAACACCTATGTCAAAAAGTATGAAA
26	GTGTGTGTCTTTGCTGAACTACCG	OBD183-q1419	CTGGGTGTGGTGGTGGGCGCCTGT
27	GGGTTGTGCAGGGCGGCGTGTGC	OBD183-q1423	AGTGCTCCTATCTTAAACACTTT
28	GCGTCTCCCGGGGGCGGTGTT	OBD183-q1427	GGAGTATACTGTGAACAACTG
29	CAGGGGCCCCAAGCAGAGGGCCTGG	OBD183-q1431	TTGCTTATAATTATCCAGTTCTTTT
30	GCTAAGTAGTTAAAGGAGTTCCCAG	OBD183-q1435	CTGGGCGGGGGTTGTGCAGGGCGGC
31	TTCACTTTAGCATAAGCCCCCAAG	OBD183-q1439	GGCGGTGTTGGGGTAGGCCCCCGG
32	TTGGGGTAGGCCCCCGGGACTGGC	OBD183-q1443	AGAAGAAGCAGGCCCTAGGCAGAG
33	TAAAATATTTGGGTCTGTGCAGTAGA	OBD183-q1447	TTTTATAAGCTATGAAATGCTAAATG
34	TAGCACTATTGTTTTAAAGGTGAGA	OBD183-q1451	GGGCGGTGTTGGGGTAGGCCCCCGG
35	CGGCGGGGCAGGGGCCCCAAGCAGA	OBD183-q1455	AATGAATGATATATTTGATGAAAAG
36	GAGGGCCTGGGTGGGGGTTGTGCAG	OBD183-q1459	GTATGGTGTAATAGTTTAGGAGAGA
37	GTTGGTGAGTACCAGGCAGGCTGT	OBD183-q1463	TCCTGGGCTATAAGGATTGGGGTC
38	GACCCCAGAAAAGCACTTAAAT	OBD183-q1467	AATATGTTGTTATTAACTATAG
39	CTCATGCTTCTGTGTTCTGGAAA	OBD183-q1471	AACTGCCATTCTAGGACAGCTCA

40	GCAGGGTAGGGGGAGCACTGAC	OBD183-q1475	TCTCCCGGGGGCGGTGTTGGGG
41	TTCTTTGCACAGTGGATATGAC	OBD183-q1479	GGGAAGCTCACTGTTAGAACTG
42	CCAAGCAGAGGGCCTGGGTGG	OBD183-q1483	CCATCACTAACCTCTGGAAAT
43	CAGGGCGGCGTGTGCAGCAGG	OBD183-q1487	GCTGCCCTCCAGATCCCAGAA
44	CCTACTCAGGGACACACTGAGGCCAC	OBD183-q1491	AACCATTCAGATCAGCCACTTGCTGA
45	AAGGTCAACATTTGGGAAGAAA	OBD183-q1495	AATTCTTCCCATTACCGTGTTT
46	GCGGTGTTGGGGTAGGCCCCCGGGA	OBD183-q1499	TAACTTAATCACAAGCATTGCCATA
47	TTCTTCCTCCCATCCCTCTCCT	OBD183-q1503	TTCCAAAATTGTATGAGATCCA
48	GCCCCCGGGACTGGCTGCGGCGGGGC	OBD183-q1507	GCCATAGACTGTGATAAATTATTCCA
49	ATGGCAAAGCCCCGCTTCAAAC	OBD183-q1511	AAATCACTGAAACAAGATAGAA
50	GTCACAGAAACAGCCAAGGTCA	OBD183-q1515	GAAAATTAAAGATAGAGATCAA
51	GCGTCTCCCGGGGGCGGTGTTGGG	OBD183-q1519	TATAATAATATAAGAGGAAAGAAA

Table 16.g

	qPCR PRIMER SET	
	Probe ID	Probe Sequence
1	OBD183-p1317	GGCTTTCTGCACAGGAAGTCGACAATGGCAGCTTTCTCCG
2	OBD183-p1321	AATATGTTGAATTTACTTTCGACAATGGCAGCTTTCTCCG
3	OBD183-p1325	TTATAAGGGCAACTGAATTCGACAATGGCAGCTTTCTCCG
4	OBD183-p1329	TGAAAAAGTAAGAAAATTTCGACAATGGCAGCTTTCTCCG
5	OBD183-p1333	AATTTTTTATTAGCCACATCGATTAAACCTGAGAAATTCT
6	OBD183-p1337	AATCCCTAAAGTTGTGCTTCGACAATGGCAGCTTTCTCCG
7	OBD183-p1341	CGGAGAAAGCTGCCATTGTCGAAAATATTTTTCTTGGAAT
8	OBD183-p1345	TGGAACATGGGAGAGAACTCGATCAGTCAGTGAGACTTGC
9	OBD183-p1349	CGGAGAAAGCTGCCATTGTCGATTTAGAAAGTTTACCCTG
10	OBD183-p1353	AGGAGCAAGCTGAGAGGTTCGATAACCATCTGTCTTCTCC
11	OBD183-p1357	GTTCACAAACTTGTGGTTTCGACAATGGCAGCTTTCTCCG
12	OBD183-p1361	GTTATATTCCAGTTATATTCGACAATGGCAGCTTTCTCCG
13	OBD183-p1365	AGGAGCAAGCTGAGAGGTTCGAAAACTTAGTTTTTCAAAA
14	OBD183-p1369	AGGAGCAAGCTGAGAGGTTCGAACACCTGCAAAGGACAGG
15	OBD183-p1373	TAGAGTGTACAGGGATACTCGACAATGGCAGCTTTCTCCG
16	OBD183-p1377	AAGCTGATGAAAGCTAGGTCGACAATGGCAGCTTTCTCCG
17	OBD183-p1381	CGGAGAAAGCTGCCATTGTCGAAATTTTCTTACTTTTTCA
18	OBD183-p1385	TGTATTAATGAATGAGGTTCGACAATGGCAGCTTTCTCCG
19	OBD183-p1389	AATTACATTATCAAACAATCGACAATGGCAGCTTTCTCCG
20	OBD183-p1393	CGGAGAAAGCTGCCATTGTCGATCTCTGTCTTCTAGACTT
21	OBD183-p1397	TGGAACATGGGAGAGAACTCGAAACACATTTTGCTATAGA
22	OBD183-p1401	GTGTATTATGAGCTACGATCGACAATGGCAGCTTTCTCCG
23	OBD183-p1405	TAAAAATTATTAATGCAATCGACAATGGCAGCTTTCTCCG
24	OBD183-p1409	CGGAGAAAGCTGCCATTGTCGAAGACAACAAGAGTATGTG
25	OBD183-p1413	CGGAGAAAGCTGCCATTGTCGATTTTGTTTATCTTTTCAA

26	OBD183-p1417	AGGAGCAAGCTGAGAGGTTCGAAGGCAAATGTGTCATATA
27	OBD183-p1421	CGGAGAAAGCTGCCATTGTCGAGTATCCCTGTACACTCTA
28	OBD183-p1425	CGGAGAAAGCTGCCATTGTCGATTACTAATTCAATCTGCT
29	OBD183-p1429	CGGAGAAAGCTGCCATTGTCGACTCTTAAATAATCTGAAA
30	OBD183-p1433	GACTTCATTGTGCAAACATCGACAATGGCAGCTTTCTCCG
31	OBD183-p1437	TTTCAGATTCTTTAAGAGTCGACAATGGCAGCTTTCTCCG
32	OBD183-p1441	CGGAGAAAGCTGCCATTGTCGACGAATAATGTGTGATGAG
33	OBD183-p1445	AGGAGCAAGCTGAGAGGTTCGATGTGTCATGGATGGAAAT
34	OBD183-p1449	AAGGCTTTGCATCGTATTTCGACAATGGCAGCTTTCTCCG
35	OBD183-p1453	CGGAGAAAGCTGCCATTGTCGATGACATGAGAGAAGAGTT
36	OBD183-p1457	CGGAGAAAGCTGCCATTGTCGAGGGAATAGAAAGGGGAAG
37	OBD183-p1461	CTTTGTTCTGAGGGGACATCGAGGTGGAGATTCTGGACGC
38	OBD183-p1465	TGGAACATGGGAGAGAACTCGAATCTGAAAAAGCTAAACT
39	OBD183-p1469	TGGTGATGGACAGAGTTATCGAAGGCACAGATAAACTTGC
40	OBD183-p1473	AACATCTGCTTCTGATAATCGACAATGGCAGCTTTCTCCG
41	OBD183-p1477	AGGAGCAAGCTGAGAGGTTCGAAAACTAAAACCAGTTGCT
42	OBD183-p1481	CGGAGAAAGCTGCCATTGTCGACACATGCAATAACTTGCA
43	OBD183-p1485	CGGAGAAAGCTGCCATTGTCGATGTTCCAAAATAATCTGC
44	OBD183-p1489	ATGAAGCAACAGGTCTAATCGAGGCAAAAGAAGCAGGACT
45	OBD183-p1493	TGGAACATGGGAGAGAACTCGATCTTATATTTTCATGGTG
46	OBD183-p1497	CGGAGAAAGCTGCCATTGTCGAGTTTAGTAGGCCGAATAG
47	OBD183-p1501	CTGCATCCGTCCTGAGCATCGAATAGCCATGGTTAAAGGC
48	OBD183-p1505	CGGAGAAAGCTGCCATTGTCGATGCATTTTGGTTGCATTT
49	OBD183-p1509	AAGAGGAGCAGAAGAAACTCGAGTATTAAGAGAAGATTTT
50	OBD183-p1513	TGGAACATGGGAGAGAACTCGATGAATACACAAAGCTTTC
51	OBD183-p1517	CGGAGAAAGCTGCCATTGTCGACACCTGCGGTCTCCTGCA

Table 16.h

	qPCR PRIMER SET	
	Probe ID	Probe Sequence
1	OBD183-p1319	CGGAGAAAGCTGCCATTGTCGACTTCCTGTGCAGAAAGCC
2	OBD183-p1323	CGGAGAAAGCTGCCATTGTCGAAAGTAAATTCAACATATT
3	OBD183-p1327	CGGAGAAAGCTGCCATTGTCGAATTCAGTTGCCCTTATAA
4	OBD183-p1331	CGGAGAAAGCTGCCATTGTCGAAATTTTCTTACTTTTTCA
5	OBD183-p1335	AGAATTTCTCAGGTTTAATCGATGTGGCTAATAAAAAATT
6	OBD183-p1339	CGGAGAAAGCTGCCATTGTCGAAGCACAACTTTAGGGATT
7	OBD183-p1343	ATTCCAAGAAAAATATTTTCGACAATGGCAGCTTTCTCCG
8	OBD183-p1347	GCAAGTCTCACTGACTGATCGAGTTCTCTCCCATGTTCCA
9	OBD183-p1351	CAGGGTAAACTTTCTAAATCGACAATGGCAGCTTTCTCCG

10	OBD183-p1355	GGAGAAGACAGATGGTTATCGAACCTCTCAGCTTGCTCCT
11	OBD183-p1359	CGGAGAAAGCTGCCATTGTCGAAACCACAAGTTTGTGAAC
12	OBD183-p1363	CGGAGAAAGCTGCCATTGTCGAATATAACTGGAATATAAC
13	OBD183-p1367	TTTTGAAAAACTAAGTTTTCGAACCTCTCAGCTTGCTCCT
14	OBD183-p1371	CCTGTCCTTTGCAGGTGTTCGAACCTCTCAGCTTGCTCCT
15	OBD183-p1375	CGGAGAAAGCTGCCATTGTCGAGTATCCCTGTACACTCTA
16	OBD183-p1379	CGGAGAAAGCTGCCATTGTCGACCTAGCTTTCATCAGCTT
17	OBD183-p1383	TGAAAAAGTAAGAAAATTTCGACAATGGCAGCTTTCTCCG
18	OBD183-p1387	CGGAGAAAGCTGCCATTGTCGAACCTCATTCATTAATACA
19	OBD183-p1391	CGGAGAAAGCTGCCATTGTCGATTGTTTGATAATGTAATT
20	OBD183-p1395	AAGTCTAGAAGACAGAGATCGACAATGGCAGCTTTCTCCG
21	OBD183-p1399	TCTATAGCAAAATGTGTTTCGAGTTCTCTCCCATGTTCCA
22	OBD183-p1403	CGGAGAAAGCTGCCATTGTCGATCGTAGCTCATAATACAC
23	OBD183-p1407	CGGAGAAAGCTGCCATTGTCGATTGCATTAATAATTTTTA
24	OBD183-p1411	CACATACTCTTGTTGTCTTCGACAATGGCAGCTTTCTCCG
25	OBD183-p1415	TTGAAAAGATAAACAAAATCGACAATGGCAGCTTTCTCCG
26	OBD183-p1419	TATATGACACATTTGCCTTCGAACCTCTCAGCTTGCTCCT
27	OBD183-p1423	TAGAGTGTACAGGGATACTCGACAATGGCAGCTTTCTCCG
28	OBD183-p1427	AGCAGATTGAATTAGTAATCGACAATGGCAGCTTTCTCCG
29	OBD183-p1431	TTTCAGATTATTTAAGAGTCGACAATGGCAGCTTTCTCCG
30	OBD183-p1435	CGGAGAAAGCTGCCATTGTCGATGTTTGCACAATGAAGTC
31	OBD183-p1439	CGGAGAAAGCTGCCATTGTCGACTCTTAAAGAATCTGAAA
32	OBD183-p1443	CTCATCACACATTATTCGTCGACAATGGCAGCTTTCTCCG
33	OBD183-p1447	ATTTCCATCCATGACACATCGAACCTCTCAGCTTGCTCCT
34	OBD183-p1451	CGGAGAAAGCTGCCATTGTCGAAATACGATGCAAAGCCTT
35	OBD183-p1455	AACTCTTCTCTCATGTCATCGACAATGGCAGCTTTCTCCG
36	OBD183-p1459	CTTCCCCTTTCTATTCCCTCGACAATGGCAGCTTTCTCCG
37	OBD183-p1463	GCGTCCAGAATCTCCACCTCGATGTCCCCTCAGAACAAAG
38	OBD183-p1467	AGTTTAGCTTTTTCAGATTCGAGTTCTCTCCCATGTTCCA
39	OBD183-p1471	GCAAGTTTATCTGTGCCTTCGATAACTCTGTCCATCACCA
40	OBD183-p1475	CGGAGAAAGCTGCCATTGTCGATTATCAGAAGCAGATGTT
41	OBD183-p1479	AGCAACTGGTTTTAGTTTTCGAACCTCTCAGCTTGCTCCT
42	OBD183-p1483	TGCAAGTTATTGCATGTGTCGACAATGGCAGCTTTCTCCG
43	OBD183-p1487	GCAGATTATTTTGGAACATCGACAATGGCAGCTTTCTCCG
44	OBD183-p1491	AGTCCTGCTTCTTTTGCCTCGATTAGACCTGTTGCTTCAT
45	OBD183-p1495	CACCATGAAAATATAAGATCGAGTTCTCTCCCATGTTCCA
46	OBD183-p1499	CTATTCGGCCTACTAAACTCGACAATGGCAGCTTTCTCCG
47	OBD183-p1503	GCCTTTAACCATGGCTATTCGATGCTCAGGACGGATGCAG
48	OBD183-p1507	AAATGCAACCAAAATGCATCGACAATGGCAGCTTTCTCCG
49	OBD183-p1511	AAAATCTTCTCTTAATACTCGAGTTTCTTCTGCTCCTCTT
50	OBD183-p1515	GAAAGCTTTGTGTATTCATCGAGTTCTCTCCCATGTTCCA
51	OBD183-p1519	TGCAGGAGACCGCAGGTGTCGACAATGGCAGCTTTCTCCG

Table 16.i

	probe
1	Hg38_8_1065878_1072182_1294593_1298847_FR
2	Hg38_8_1065878_1072182_1251550_1259542_FF
3	Hg38_21_32595335_32598768_32668930_32673465_RR
4	Hg38_7_30804622_30809524_31042032_31049335_RR
5	Hg38_8_1065878_1072182_1294593_1298847_FF
6	Hg38_20_62119683_62122759_62181248_62187845_FF
7	Hg38_5_21320172_21325144_21521563_21530474_FR
8	Hg38_8_127032863_127038478_127164971_127180591_FR
9	Hg38_X_471766_472952_572091_577133_FF
10	Hg38_2_226398167_226405087_226440513_226448036_RF
11	Hg38_9_79741852_79744338_79874571_79886027_FR
12	Hg38_X_471766_472952_505129_507941_FR
13	Hg38_8_1065878_1072182_1234660_1244165_FF
14	Hg38_3_115538014_115553821_115677249_115687258_FR
15	Hg38_10_16636423_16644321_16683873_16690220_RR
16	Hg38_4_189601545_189607715_189807488_189815403_FR
17	Hg38_2_103810436_103819784_103869265_103870416_RF
18	Hg38_19_56611172_56614578_56759775_56765600_FF
19	Hg38_8_1065878_1072182_1234660_1244165_FR
20	Hg38_11_44700518_44702687_44834704_44845205_FR
21	Hg38_16_85802241_85804577_85821758_85824343_RR
22	Hg38_9_42157848_42164656_42182844_42186868_RF
23	Hg38_16_33810752_33813317_33866559_33876905_FF
24	Hg38_5_21320172_21325144_21422901_21430361_FF
25	Hg38_9_42094972_42099378_42182844_42186868_RF
26	Hg38_2_103801409_103809996_103869265_103870416_RF
27	Hg38_9_42054487_42058368_42182844_42186868_RF
28	Hg38_19_21616344_21621521_21718358_21724849_RF
29	Hg38_9_42182844_42186868_42375307_42380261_FR
30	Hg38_4_56291_68086_79642_82274_RF
31	Hg38_16_1478329_1482863_1534600_1537498_FR
32	Hg38_16_69335108_69337953_69444355_69445761_RR
33	Hg38_9_42182844_42186868_42204492_42209146_FR
34	Hg38_1_94081020_94084795_94209095_94219006_FF
35	Hg38_5_21320172_21325144_21422901_21430361_FR
36	Hg38_9_40955464_40963306_41124595_41127807_RF
37	Hg38_20_62119683_62122759_62223291_62234122_FF
38	Hg38_4_9448543_9452043_9532817_9534912_FR
39	Hg38_9_41124595_41127807_41266229_41270939_FR
40	Hg38_9_42182844_42186868_42404332_42409995_FF

41	Hg38_7_39117241_39123206_39259249_39270867_RF
42	Hg38_4_189601545_189607715_189644283_189649909_FF
43	Hg38_21_32595335_32598768_32631264_32636348_RR
44	Hg38_5_141776058_141780266_141939429_141944431_FF
45	Hg38_15_21705062_21710035_21848007_21855007_FF
46	Hg38_16_5093594_5094678_5173945_5180731_FF
47	Hg38_9_42182844_42186868_42248403_42250983_FR
48	Hg38_2_103869265_103870416_103906343_103916480_FF
49	Hg38_7_94000334_94003926_94158341_94164583_FF
50	Hg38_16_33810752_33813317_33958121_33967789_FF

Table 17.a1

	gene	RPs	FC:(class1/class2)
1	DLGAP2, ERICH1, CLN8	119	-1.23793833
2	DLGAP2, ERICH1, CLN8	139	-1.226289768
3	AP000275.65, C21orf59, SYNJ1	412	-1.216645834
4	INMT-FAM188B, FAM188B, RP5-877J2.1, AQP1, GHRHR	684	-1.203429214
5	DLGAP2, ERICH1, CLN8	295	-1.201900393
6	LSM14B, PSMA7, SS18L1, MTG2	861	-1.197039833
7	CDH12, CDH18, PRDM9	327	-1.195159185
8	POU5F1B, AC108925.1, FAM84B	1097	-1.193537364
9	SHOX, PPP2R3B, GTPBP6	565	-1.188392584
10	IRS1, RHBDD1, COL4A4	1020	-1.183418789
11	TLE4, PSAT1, CEP78	616	-1.182899683
12	PPP2R3B, SHOX, GTPBP6	558	-1.182630747
13	DLGAP2, ERICH1, CLN8	634	-1.179579992
14	GAP43, LSAMP, ZBTB20	1313	-1.179068051
15	RSU1, C1QL3, PTER	926	-1.17493306
16	FRG1, FRG2, DUX4	1022	-1.174925237
17	TMEM182, POU3F3, MFSD9	1483	-1.173689703
18	ZNF71, SMIM17, ZNF835	1215	-1.172676432
19	DLGAP2, ERICH1, CLN8	1321	-1.172621568
20	TSPAN18, TP53I11, CD82	1652	-1.170738776
21	COX4I1, EMC8, C16orf74	1368	-1.170192605
22	SPATA31A6, CNTNAP3B, FP325317.1	1171	-1.169675778
23	RP11-812E19.9, TP53TG3C, TP53TG3B	761	-1.169120815
24	CDH12, CDH18, PRDM9	773	-1.169064746
25	CNTNAP3B, SPATA31A6, CBWD7	1515	-1.168675229
26	TMEM182, POU3F3, MFSD9	1677	-1.168583316
27	CNTNAP3B, SPATA31A6, CBWD7	1608	-1.168290973
28	ZNF100, ZNF429, ZNF43	1787	-1.167969398
29	SPATA31A6, CNTNAP3B, FP325317.1	1400	-1.167520389

30	ZNF595, ZNF718, ZNF732	955	-1.167473267
31	PTX4, TELO2, IFT140, TMEM204	806	-1.166920761
32	COG8, RP11-343C2.9, RP11-343C2.7, NIP7, TMED6, TERF2, CYB5B	1350	-1.166582325
33	SPATA31A6, CNTNAP3B, FP325317.1	1501	-1.166315555
34	ABCA4, ARHGAP29, GCLM	1647	-1.165938152
35	CDH12, CDH18, PRDM9	906	-1.165580525
36	FOXD4L6, CBWD7, ANKRD20A2	1733	-1.164984704
37	LSM14B, PSMA7, SS18L1, MTG2, HRH3, OSBPL2	1328	-1.164299779
38	DEFB131, USP17L15, USP17L30	2441	-1.163893743
39	FOXD4L6, CBWD7, CNTNAP3B	1158	-1.163865819
40	SPATA31A6, CNTNAP3B, FP325317.1	1421	-1.163129452
41	POU6F2, VPS41, YAE1D1	2150	-1.162901966
42	FRG1, FRG2, DUX4	1656	-1.162286788
43	AP000275.65, C21orf59, SYNJ1	1195	-1.162265158
44	PCDH1, KIAA0141, PCDH12	2112	-1.161771328
45	POTEB, RP11-294C11.3, OR4M2	1804	-1.161135608
46	EEF2KMT, ALG1, C16orf89	1131	-1.161106067
47	SPATA31A6, CNTNAP3B, FP325317.1	1690	-1.160839091
48	POU3F3, TMEM182, MRPS9	1803	-1.160442309
49	BET1, GNG11, GNGT1	1452	-1.16038179
50	RP11-812E19.9, TP53TG3C, TP53TG3B	1004	-1.160341404

Table 17.a2

	pfp	P.value	CCSs
1	0	0.001784796	-1
2	0	0.00193567	-1
3	0	0.000368309	-1
4	0	0.000225818	-1
5	0	0.001020966	-1
6	0	0.001274619	-1
7	0	0.000289277	-1
8	0	0.000280234	-1
9	0	0.000359034	-1
10	0	0.000662327	-1
11	0	0.000291335	-1
12	0	0.001939547	-1
13	0	0.001357498	-1
14	0	0.000330681	-1
15	0	6.77948E-05	-1
16	0	6.36884E-05	-1
17	0	5.17509E-05	-1

18	0	0.000338224	-1
19	0	5.75019E-05	-1
20	0	5.77177E-06	-1
21	0	4.62594E-05	-1
22	0	0.000227127	-1
23	0	0.001974945	-1
24	0	0.000898865	-1
25	0	9.78953E-05	-1
26	0	0.000219581	-1
27	0	3.6277E-05	-1
28	0	0.00109603	-1
29	0	0.000193365	-1
30	0	0.000407507	-1
31	0	0.001321661	-1
32	0	0.00011115	-1
33	0	0.000118324	-1
34	0	0.000285345	-1
35	0	0.00089429	-1
36	0	4.83736E-05	-1
37	0	0.000336618	-1
38	0	0.000677404	-1
39	0	0.001351499	-1
40	0	0.000565001	-1
41	0	1.11237E-05	-1
42	0	4.87373E-05	-1
43	0	0.000583107	-1
44	0	0.000645745	-1
45	0	0.000349873	-1
46	0	0.000435284	-1
47	0	0.0002076	-1
48	0	0.001791928	-1
49	0	0.000206356	-1
50	0	0.001652134	-1

Table 17.a3

	60 mer	Chr
1	TGATGCAGTTACAGAAAAGTTGGTGACATCGAATTGGAATTTTAAAATTAAGAGTACATA	8
2	TGATGCAGTTACAGAAAAGTTGGTGACATCGAAATCAAAGCTCCAGTTAATTCAGAGTCC	8
3	GAAGTCCAACACCGTGATGCAGGATTCATCGAATTTAGGCACCAAACTATACTAGTCATC	21
4	CAGTCAGATAGTGAGGACTCAACAGATATCGATTGTTACAAAATTCCTCCTAAAAATTTC	7
5	TGATGCAGTTACAGAAAAGTTGGTGACATCGAATTACCAGCACCTGTTCATGAGCTGCCA	8
6	ATCCGCTACGAGGGCATTCTCTACACCATCGAGTAGAAGGAGGAGAATAATACAGAGCAG	20

7	GTTACCCTAGCCACTTCACAAAATATGTTCGAAAAAAATAAAATATATGAATGCTGGATC	5
8	GAGCTAGCCCAGACCTACTAAATTAGAATCGAGGCACCAGAAGGTTAAGACAATTGCCCA	8
9	GCCAGAAAATCGTACCATTTCCTTTCCTTCGAAGAGATAGTTCACAATGGATGACACAGC	X
10	GAATGGGGTATGAATCATGCAACTGGCTTCGAAGTATAATAGTAAGCTACAGAATAATTT	2
11	GTGCTAGCCCTGCTTAAATGCACGGAAATCGAGAACAGGATCAGTTTAAGATGAGATAGC	9
12	GCCAGAAAATCGTACCATTTCCTTTCCTTCGATGTATCTATTATATCTATGTATCTATAT	X
13	TGATGCAGTTACAGAAAAGTTGGTGACATCGAAGAGCCTCTGGCATGTACAGGAGCCCAC	8
14	ATAAATGTTTCAGTATAAGCAGTAGGACTCGATGTTGCCAAAAACAAAAGAAAAACCCCA	3
15	GAGAAGTCGTAAAATGCTAGGTATTTATTCGAAGCTGGGTCTTCTAGGCTTTAGGTAAAT	10
16	GAAGACCCAGAGCTTACACAAAATCATGTCGAAAAAAAAAATAAAAGGGAATCTGCATAA	4
17	AATTCTCAAGCTCAAAGTGCTCGCAGATTCGAATGCCTACTACTACTAGGACCACGCAGG	2
18	TAAGACTGACTGAACGTATCAAGGCCTATCGAACAAACACACCTTCAAACACATCACGCG	19
19	TGATGCAGTTACAGAAAAGTTGGTGACATCGAGAACGAGGCTTAAAATTATGTCCCACGA	8
20	GAGTGAGAGTGATGCAGTAATAGCAGTATCGATGTCTTTATCTGAAAAATGAGAATAATC	11
21	GAGAGGCCGTTCTAAAAGCACATTTGTATCGAAAATCCATGGGAATTTCCCATTTTGCTC	16
22	AAAACCCTTCTGGAACATGGGAGAGAACTCGAAATTTGATTCAGGATAATTTAAAAATAT	9
23	CGGCTTCACTCTGCATCCGTCCTGAGCATCGAGCTAGATTGGTCAATATATGAATGAGGA	16
24	GTTACCCTAGCCACTTCACAAAATATGTTCGATAAATTCTCATAAAAATAAAATGGTGCA	5
25	AAAACCCTTCTGGAACATGGGAGAGAACTCGAATCAGGCTAATCAGCATATCAGTCACCT	9
26	AATTCTCAAGCTCAAAGTGCTCGCAGATTCGATTGTAAACTAAGCTATGTTCGGTAGCCC	2
27	AAAACCCTTCTGGAACATGGGAGAGAACTCGAAGGTGAGGAAGCTCACAGGTGTTGAGCA	9
28	GGCAGGCAAATCATTTAAGGTCAGGAGTTCGAGACCAGTCTGAGCAACCTTGAGAATCCC	19
29	AAAACCCTTCTGGAACATGGGAGAGAACTCGATGCCTCGCAAAATGACAATTGAGAGGAT	9
30	AGAGATTGCATTTAATCTGTAGATTACATCGATTAAACCTGAGAAATTCTGCTCCCTCCC	4
31	GCAAATTCTGAGAACCAGGCCTGTTCTCTCGAGGGCACATGGGAGATGTTAGGCGCGGAC	16
32	GATCCCTATTTCCATATTACAAAAACCATCGAGGCCTTCGTATGCTCCTCAGCCTGGGCA	16
33	AAAACCCTTCTGGAACATGGGAGAGAACTCGACACAGTGGTCTGATGAATTTCACTTCTT	9
34	TCTTGCCGGGAGTACTCTTCAAACTCCTTCGAAAAGGTCAAGTAGGCATTAACTGGGCTG	1
35	GTTACCCTAGCCACTTCACAAAATATGTTCGAAGTATATTTATACCTTTACATGATGAGG	5
36	CTTCCTACGCCGGAGAAAGCTGCCATTGTCGAATAAGAAGAATTGTCTTGGGCCACACAT	9
37	ATCCGCTACGAGGGCATTCTCTACACCATCGACAGAGTAGAAACGTACTTTTCTCTCGGT	20
38	GTTTTTGGGTACCAGCCCTTCACCTGCGTCGACTTCCTGATTCTCCCACGACGTCCCTGG	4
39	CTTCCTACGCCGGAGAAAGCTGCCATTGTCGAGTCTGCGGAAGGAGGAAGAAGCTCATTT	9
40	AAAACCCTTCTGGAACATGGGAGAGAACTCGAAAGAAACTGTCAGTAAACAGACAACCTA	9
41	TGACATAACTTCAATTCAGCTAGTAACTTCGAGCAAGGGAAGAGTAAACAACCATGCCTC	7
42	GAAGACCCAGAGCTTACACAAAATCATGTCGAATGAGAAAGACGTAAGTTTTATTTTAAG	4
43	GAAGTCCAACACCGTGATGCAGGATTCATCGAAGGTTACCCATCCTTTCGGGTTGCTAAT	21
44	AGACTCCCCTGAGATTGCACTGCTTTATTCGAGCTCCCTCGGGAAACACTGTTGAAAGGA	5
45	CTCGTTATTAGATGCATTGTAGACAACATCGATGAGCATCAACTGTCCTAGAATTGGCTG	15
46	TGCGAGATAACTTCAGGTATCTCCATGCTCGAAGCAAAAAAAATGGGACAACTTGAAGCA	16
47	AAAACCCTTCTGGAACATGGGAGAGAACTCGATAATTTTGATTTTTGTTCTTTTTTCTTC	9
48	AATTCTCAAGCTCAAAGTGCTCGCAGATTCGAGGAAGTTCAGAGAACACAATGCAAGATT	2
49	CCACGCTCAGTCAATAACACTAAAACACTCGACTAAGTTTCTTCATGAAAGTAAATGGTG	7

50	CGGCTTCACTCTGCATCCGTCCTGAGCATCGAATCTCTAGGTTTCCATTGGAAGAACAGG	16

Table 17.a4

	Probe Location				
	Start1	End1	Start2	End2	Chr
1	1072151	1072182	1294593	1294624	8
2	1072151	1072182	1259511	1259542	8
3	32595335	32595366	32668930	32668961	21
4	30804622	30804653	31042032	31042063	7
5	1072151	1072182	1298816	1298847	8
6	62122728	62122759	62187814	62187845	20
7	21325113	21325144	21521563	21521594	5
8	127038447	127038478	127164971	127165002	8
9	472921	472952	577102	577133	X
10	226398167	226398198	226448005	226448036	2
11	79744307	79744338	79874571	79874602	9
12	472921	472952	505129	505160	X
13	1072151	1072182	1244134	1244165	8
14	115553790	115553821	115677249	115677280	3
15	16636423	16636454	16683873	16683904	10
16	189607684	189607715	189807488	189807519	4
17	103810436	103810467	103870385	103870416	2
18	56614547	56614578	56765569	56765600	19
19	1072151	1072182	1234660	1234691	8
20	44702656	44702687	44834704	44834735	11
21	85802241	85802272	85821758	85821789	16
22	42157848	42157879	42186837	42186868	9
23	33813286	33813317	33876874	33876905	16
24	21325113	21325144	21430330	21430361	5
25	42094972	42095003	42186837	42186868	9
26	103801409	103801440	103870385	103870416	2
27	42054487	42054518	42186837	42186868	9
28	21616344	21616375	21724818	21724849	19
29	42186837	42186868	42375307	42375338	9
30	56291	56322	82243	82274	4
31	1482832	1482863	1534600	1534631	16
32	69335108	69335139	69444355	69444386	16
33	42186837	42186868	42204492	42204523	9
34	94084764	94084795	94218975	94219006	1
35	21325113	21325144	21422901	21422932	5
36	40955464	40955495	41127776	41127807	9

37	62122728	62122759	62234091	62234122	20
38	9452012	9452043	9532817	9532848	4
39	41127776	41127807	41266229	41266260	9
40	42186837	42186868	42409964	42409995	9
41	39117241	39117272	39270836	39270867	7
42	189607684	189607715	189649878	189649909	4
43	32595335	32595366	32631264	32631295	21
44	141780235	141780266	141944400	141944431	5
45	21710004	21710035	21854976	21855007	15
46	5094647	5094678	5180700	5180731	16
47	42186837	42186868	42248403	42248434	9
48	103870385	103870416	103916449	103916480	2
49	94003895	94003926	94164552	94164583	7
50	33813286	33813317	33967758	33967789	16

Table 17.a5

	4 kb Sequence Location			
	Start1	End1	Start2	End2
1	1068181	1072182	1294593	1298594
2	1068181	1072182	1255541	1259542
3	32595335	32599336	32668930	32672931
4	30804622	30808623	31042032	31046033
5	1068181	1072182	1294846	1298847
6	62118758	62122759	62183844	62187845
7	21321143	21325144	21521563	21525564
8	127034477	127038478	127164971	127168972
9	468951	472952	573132	577133
10	226398167	226402168	226444035	226448036
11	79740337	79744338	79874571	79878572
12	468951	472952	505129	509130
13	1068181	1072182	1240164	1244165
14	115549820	115553821	115677249	115681250
15	16636423	16640424	16683873	16687874
16	189603714	189607715	189807488	189811489
17	103810436	103814437	103866415	103870416
18	56610577	56614578	56761599	56765600
19	1068181	1072182	1234660	1238661
20	44698686	44702687	44834704	44838705
21	85802241	85806242	85821758	85825759
22	42157848	42161849	42182867	42186868
23	33809316	33813317	33872904	33876905

24	21321143	21325144	21426360	21430361
25	42094972	42098973	42182867	42186868
26	103801409	103805410	103866415	103870416
27	42054487	42058488	42182867	42186868
28	21616344	21620345	21720848	21724849
29	42182867	42186868	42375307	42379308
30	56291	60292	78273	82274
31	1478862	1482863	1534600	1538601
32	69335108	69339109	69444355	69448356
33	42182867	42186868	42204492	42208493
34	94080794	94084795	94215005	94219006
35	21321143	21325144	21422901	21426902
36	40955464	40959465	41123806	41127807
37	62118758	62122759	62230121	62234122
38	9448042	9452043	9532817	9536818
39	41123806	41127807	41266229	41270230
40	42182867	42186868	42405994	42409995
41	39117241	39121242	39266866	39270867
42	189603714	189607715	189645908	189649909
43	32595335	32599336	32631264	32635265
44	141776265	141780266	141940430	141944431
45	21706034	21710035	21851006	21855007
46	5090677	5094678	5176730	5180731
47	42182867	42186868	42248403	42252404
48	103866415	103870416	103912479	103916480
49	93999925	94003926	94160582	94164583
50	33809316	33813317	33963788	33967789

Table 17.a6

	probe	Primer ID
1	Hg38_8_1065878_1072182_1294593_1298847_FR	OBD183-3529
2	Hg38_8_1065878_1072182_1251550_1259542_FF	OBD183-3533
3	Hg38_21_32595335_32598768_32668930_32673465_RR	OBD183-3537
4	Hg38_7_30804622_30809524_31042032_31049335_RR	OBD183-3541
5	Hg38_8_1065878_1072182_1294593_1298847_FF	OBD183-3545
6	Hg38_20_62119683_62122759_62181248_62187845_FF	OBD183-3549
7	Hg38_5_21320172_21325144_21521563_21530474_FR	OBD183-3553
8	Hg38_8_127032863_127038478_127164971_127180591_FR	OBD183-3557
9	Hg38_X_471766_472952_572091_577133_FF	OBD183-3561
10	Hg38_2_226398167_226405087_226440513_226448036_RF	OBD183-3565
11	Hg38_9_79741852_79744338_79874571_79886027_FR	OBD183-3569
12	Hg38_X_471766_472952_505129_507941_FR	OBD183-3573

13	Hg38_8_1065878_1072182_1234660_1244165_FF	OBD183-3577
14	Hg38_3_115538014_115553821_115677249_115687258_FR	OBD183-3581
15	Hg38_10_16636423_16644321_16683873_16690220_RR	OBD183-3585
16	Hg38_4_189601545_189607715_189807488_189815403_FR	OBD183-3589
17	Hg38_2_103810436_103819784_103869265_103870416_RF	OBD183-3593
18	Hg38_19_56611172_56614578_56759775_56765600_FF	OBD183-3597
19	Hg38_8_1065878_1072182_1234660_1244165_FR	OBD183-3601
20	Hg38_11_44700518_44702687_44834704_44845205_FR	OBD183-3605
21	Hg38_16_85802241_85804577_85821758_85824343_RR	OBD183-3609
22	Hg38_9_42157848_42164656_42182844_42186868_RF	OBD183-3613
23	Hg38_16_33810752_33813317_33866559_33876905_FF	OBD183-3617
24	Hg38_5_21320172_21325144_21422901_21430361_FF	OBD183-3621
25	Hg38_9_42094972_42099378_42182844_42186868_RF	OBD183-3625
26	Hg38_2_103801409_103809996_103869265_103870416_RF	OBD183-3629
27	Hg38_9_42054487_42058368_42182844_42186868_RF	OBD183-3633
28	Hg38_19_21616344_21621521_21718358_21724849_RF	OBD183-3637
29	Hg38_9_42182844_42186868_42375307_42380261_FR	OBD183-3641
30	Hg38_4_56291_68086_79642_82274_RF	OBD183-3645
31	Hg38_16_1478329_1482863_1534600_1537498_FR	OBD183-3649
32	Hg38_16_69335108_69337953_69444355_69445761_RR	OBD183-3653
33	Hg38_9_42182844_42186868_42204492_42209146_FR	OBD183-3657
34	Hg38_1_94081020_94084795_94209095_94219006_FF	OBD183-3661
35	Hg38_5_21320172_21325144_21422901_21430361_FR	OBD183-3665
36	Hg38_9_40955464_40963306_41124595_41127807_RF	OBD183-3669
37	Hg38_20_62119683_62122759_62223291_62234122_FF	OBD183-3673
38	Hg38_4_9448543_9452043_9532817_9534912_FR	OBD183-3677
39	Hg38_9_41124595_41127807_41266229_41270939_FR	OBD183-3681
40	Hg38_9_42182844_42186868_42404332_42409995_FF	OBD183-3685
41	Hg38_7_39117241_39123206_39259249_39270867_RF	OBD183-3689
42	Hg38_4_189601545_189607715_189644283_189649909_FF	OBD183-3693
43	Hg38_21_32595335_32598768_32631264_32636348_RR	OBD183-3697
44	Hg38_5_141776058_141780266_141939429_141944431_FF	OBD183-3701
45	Hg38_15_21705062_21710035_21848007_21855007_FF	OBD183-3705
46	Hg38_16_5093594_5094678_5173945_5180731_FF	OBD183-3709
47	Hg38_9_42182844_42186868_42248403_42250983_FR	OBD183-3713
48	Hg38_2_103869265_103870416_103906343_103916480_FF	OBD183-3717
49	Hg38_7_94000334_94003926_94158341_94164583_FF	OBD183-3721
50	Hg38_16_33810752_33813317_33958121_33967789_FF	OBD183-3725

Table 17.a7

	Primer Sequence	Primer ID	Primer Sequence
1	ATTGGCCGGCCAGCGCTGCCTGGG	OBD183-3531	CACACCCAGCCAAAATAAGCTTTT

2	GATCTTTGGCTCCGTCCTGCCATG	OBD183-3535	ATTTAACTTTCTACGCAAGTCTCC
3	ATGTTTGTGAAATGCAGGGCCC	OBD183-3539	ATCACACAGAATATTAAAAAGA
4	TAAGACTAAGGCCCCAAAAGCCAGAA	OBD183-3543	TGGTGGGTGAGTGATCCTGGAGGTGG
5	CTGCAGACACCACTCGGATCAG	OBD183-3547	GAACTAGAATGTCAAAAGGGCA
6	GCCGCGGCCCGGCGCTCCTTC	OBD183-3551	TGTAAGGTGTGTCCTGATAAC
7	ATATTTTGCTAAGCCTATAATATTA	OBD183-3555	TCAGCCCTGACAAAAGACTGTGCCA
8	GGTCAAGATCAGGAGTCCACAGA	OBD183-3559	CCCCTGGCATGATAAGAGGCAGT
9	CTGAATAATTAATATACTCCT	OBD183-3563	ATAAAAGAGTGCCACTGATTA
10	AACCCAAGGGCATATATGGGGATGAC	OBD183-3567	CTGCACGGTTGCTCCTGAGAGCAGTC
11	GAAAAGAAAAAAAGAAAAGTGATA	OBD183-3571	GTATAAAATGAAAACCTTCCCAAA
12	AGGGACCTCCTCTGAATAATTAATA	OBD183-3575	AAATAGATACATAGAATACATAAAT
13	TTTGGCTCCGTCCTGCCATGAA	OBD183-3579	GCACTCCACCATAGGGATGGTG
14	GATGCAATGTAATTCACTTGTT	OBD183-3583	TGAAAACCCTCCAACTTTCAAG
15	AGGAGGTAAAAAGGGAAGCGCAG	OBD183-3587	AGTATGACACTTCAAGAATCTTG
16	CTTCCTTCTGTCCATGACCAACC	OBD183-3591	TCTTAAACATCATCCACCTCTTT
17	TTCTGAGTGTAGCAGGGCTCTG	OBD183-3595	ATAAGAGGGAAAGATGGCATGA
18	GCCTTATCAGTCAAATATTGAAGGA	OBD183-3599	AGTGTGTACAGGTGAGTTTGTCCGT
19	GCTGCCTGGGCCTTGAAGGCAGA	OBD183-3603	CGCCGTGAACTCACTCACTTGAG
20	GGAGTCACACAGGGAAGCACAGGC	OBD183-3607	ATATCTTCTGTTCACAAATGCTTG
21	TACACTCTAAGAGGCTGAGACAGCAA	OBD183-3611	CCAAGAAACCTGTAAAAGCAGGTGCA
22	GAAGAAAAAGAAAATGTTGGATCAT	OBD183-3615	TAAGATTACTTTCGTGTTCAAGGTC
23	TTGGCCCAAGGGGCTGTCCTGGTT	OBD183-3619	TATAATAGGTCAGCACTGGAGAAT
24	TAACAATGGTTCTAGAGTCAG	OBD183-3623	CTATCCATTTTAGCCTTACTT
25	TTGGATCATTTACAAATCAAAT	OBD183-3627	TTCTTTTGCACAGCATAGTGAA
26	GCTCTGTACTAGTCTGCTTTGGC	OBD183-3631	TACTAGTTGCAGAATGTGATAAA
27	ATTTGGGAAGAAAAAGAAAATGTT	OBD183-3635	TCCTGGGTCATCAGTCCTTGACCA
28	AAAAATAAATTTAAATAAAATAAACA	OBD183-3639	GGAGTGCAATGGCGCGATCTCGGCTC
29	CAACATTTGGGAAGAAAAAGAA	OBD183-3643	AGTGCCTAACTACCAAAGGAAG
30	TGTCCCTTGAAATTCCCTATAATTTG	OBD183-3647	AAATCTCAGGACATAAATTCAGAATT
31	GCCAGCTGGGCAGGGTCCAGGCAT	OBD183-3651	GAGGGGGCCTTGGGGCCTGGTTCC
32	GCCAGCTGATCCAGCAACTGAGGA	OBD183-3655	GCAAAAAGACGTCAGGGAGCTTTT
33	GTCACAGAAACAGCCAAGGTCAAC	OBD183-3659	CACCCAATAGATCCACAGACAGAT
34	AAAGAACAACTAAGCTGCTAT	OBD183-3663	AAGTATATGAACTATATTTTG
35	TGCTAAGCCTATAATATTAAATCAG	OBD183-3667	TCTTGAACTCCCGACCTCAGGTAAT
36	GTGTTGGGGTAGGCCCCCGGG	OBD183-3671	AACCCATGGTCTGTGGGCCAT
37	GAGCGCAGGAGCGGGCGGCCA	OBD183-3675	TTTTGGGCCATGAGGTGACAC
38	CGCCATTCCACCCCACTTCAG	OBD183-3679	CCCGCCTACCCCCACCACAAG
39	CCGGGACTGGCTGCGGCGGGGCAG	OBD183-3683	TTTTGGTGCAGTTTCAGCATAACA
40	TTACAAATCAAATGACCCCAGAAA	OBD183-3687	TTAATGGGGTTATTTGTTTGTTTT
41	TTTTTGCTGGTCACTATGAGGCC	OBD183-3691	GTTTCAGAAGACAGTGAAGAAAA
42	TTGTGCTTTCATGGTGTCCCTGC	OBD183-3695	AGAAAATGAGAAAAGAAATAGGG
43	TGTTTAGAGCAGAGCACAGGGCC	OBD183-3699	TCCTTTCCCTTCTCTGCAGCCTC
44	ACTCAATAATCAGCTCACTTT	OBD183-3703	GCAATGACAGAGGAAGGTTTA

45	TTAGATCGCTTTTTGTTCAAAATCT	OBD183-3707	ATGTGGCATTAAAAATGCCAGACCA
46	TGACCTTAGGTGATCTGTCCA	OBD183-3711	GATAAATGCATACCTGATTGC
47	AACATTTGGGAAGAAAAAGAAAAT	OBD183-3715	CATGGCCTGAACTGATTTTCCAGG
48	CATGCATGGCCTCCTGGCCAAGGAC	OBD183-3719	AGGTATGGTTTTCCTCTAGCTTCTT
49	TGCTTTGGGTGCAACCACCCACTCT	OBD183-3723	AGGAAGGAATTTAGAATTCTCGTCT
50	TGGTTCTCTAAGGAGTAATTT	OBD183-3727	AATCATGATGTCAGAGGCTTC

Table 17.a8

51	Hg38_7_94000334_94003926_94146280_94149796_FR
52	Hg38_18_11516972_11518112_11528618_11539966_FF
53	Hg38_2_109124530_109134042_109210767_109212132_FF
54	Hg38_1_145402816_145406156_145449894_145452902_RF
55	Hg38_2_91751706_91757809_91909591_91921665_FR
56	Hg38_15_24184226_24195543_24431582_24434907_RF
57	Hg38_6_160650437_160655495_160698179_160704800_RR
58	Hg38_21_5557784_5565142_5719379_5720673_RR
59	Hg38_9_42182844_42186868_42429659_42436448_FR
60	Hg38_16_1534600_1537498_1749198_1753243_RF
61	Hg38_6_167352089_167354695_167428251_167436785_FF
62	Hg38_12_75043130_75044420_75166435_75186315_RR
63	Hg38_18_11516972_11518112_11528618_11539966_FR
64	Hg38_19_56588683_56590880_56759775_56765600_FF
65	Hg38_15_20797293_20803768_20948381_20955965_FR
66	Hg38_9_61619699_61621686_61711281_61720732_FR
67	Hg38_5_806836_810381_920775_927647_FR
68	Hg38_16_15064962_15066918_15233930_15244390_FR
69	Hg38_6_40889262_40897462_41052663_41057245_FR
70	Hg38_14_19797252_19799778_19929983_19935285_FR
71	Hg38_4_9448543_9452043_9534912_9537113_FF
72	Hg38_15_20153091_20157477_20357423_20363969_FF
73	Hg38_2_108509957_108517619_108739198_108742215_RR
74	Hg38_7_75258693_75266916_75406820_75408524_RF
75	Hg38_15_20797293_20803768_20837052_20844052_FF
76	Hg38_2_33600570_33607718_33651599_33657715_FF
77	Hg38_21_10143615_10147587_9959597_9968377_RF
78	Hg38_9_42182844_42186868_42390575_42393785_FF
79	Hg38_11_31800547_31803053_32032359_32040532_FR
80	Hg38_7_94000334_94003926_94039975_94045978_FR
81	Hg38_20_62119683_62122759_62135182_62136799_FF
82	Hg38_7_39259249_39270867_39356013_39363331_FR
83	Hg38_5_21241067_21254297_21320172_21325144_RF
84	Hg38_12_123390897_123393358_123422833_123425871_FR

85	Hg38_2_169739256_169744898_169880813_169885954_RF
86	Hg38_18_74466744_74475258_74511010_74512821_RR
87	Hg38_2_18404989_18410464_18528007_18530990_RF
88	Hg38_20_23380285_23385557_23532159_23546814_RF
89	Hg38_7_94000334_94003926_94191093_94197578_FR
90	Hg38_14_64993226_65000616_65046195_65050388_RF
91	Hg38_5_21320172_21325144_21534899_21542153_FR
92	Hg38_4_131841_144167_50378_53838_FF
93	Hg38_5_355623_362397_389569_392763_RF
94	Hg38_1_216576987_216584477_216659571_216671566_RR

Table 17.b1

51	BET1, GNG11, GNGT1	1740	-1.160286906
52	GNAL, CHMP1B, MPPE1	2147	-1.160156154
53	SH3RF3, FLJ20019, EDAR	2249	-1.159847704
54	NBPF8, GPR89A, PPIAL4D	1708	-1.159674679
55	RP11-407P15.2, TEKT4, RPIA	1262	-1.159504911
56	NPAP1, SNRPN, NDN	1356	-1.158505854
57	LPA, PLG, SLC22A3	1244	-1.158353168
58	CH507-42P11.8, CH507-9B2.9, CH507-9B2.5	813	-1.158294531
59	SPATA31A6, CNTNAP3B, FP325317.1	1618	-1.158262862
60	IFT140, TMEM204, CRAMP1L, LA16c-431H6.6, HN1L, MAPK8IP3	1055	-1.158187682
61	TTLL2, TCP10, UNC93A	1881	-1.158056103
62	KCNC2, CAPS2, GLIPR1L1	1160	-1.157373931
63	GNAL, CHMP1B, MPPE1	2281	-1.157213772
64	ZNF470, ZNF71, SMIM17, ZNF835	2066	-1.156944107
65	POTEB2, GOLGA6L6, POTEB3	1236	-1.15679391
66	FAM27C, SPATA31A7, SPATA31A5	1463	-1.156598458
67	ZDHHC11, BRD9, TRIP13	1508	-1.156533885
68	PDXDC1, RRN3, NTAN1	1659	-1.156467279
69	UNC5CL, OARD1, TSPO2, APOBEC2	1785	-1.156225624
70	OR4N2, OR4K2, OR4K5	1763	-1.15600386
71	DEFB131, USP17L15, USP17L30	2748	-1.155921957
72	GOLGA6L6, POTEB2, POTEB3	1541	-1.155806345
73	LIMS1, RANBP2, GCC2	1955	-1.15463192
74	TRIM73, POM121C, SPDYE5	1036	-1.154472412
75	POTEB2, GOLGA6L6, POTEB3	1231	-1.154419358
76	FAM98A, RASGRP3, LTBP1	2715	-1.154391517
77	TPTE, CH507-396I9.6, SMIM11	1021	-1.15418626
78	SPATA31A6, CNTNAP3B, FP325317.1	2019	-1.153736014
79	PAX6, RCN1, ELP4	1667	-1.153593085
80	BET1, GNG11, GNGT1	1786	-1.153121095

81	LSM14B, PSMA7, SS18L1	1861	-1.152732803
82	POU6F2, YAE1D1, RALA	3539	-1.152629432
83	CDH12, CDH18, PRDM9	1525	-1.152314812
84	SETD8, RILPL2, SBNO1	2406	-1.152284974
85	KLHL23, SSB, METTL5, UBR3	2901	-1.152139637
86	CNDP2, FAM69C, CNDP1	1739	-1.151981304
87	RDH14, NT5C1B-RDH14, NT5C1B	1777	-1.151099988
88	NAPB, CSTL1, CST11, CST8	3109	-1.151069419
89	BET1, GNG11, GNGT1	1799	-1.150926905
90	CHURC1-FNTB, FNTB, MAX	3481	-1.150545383
91	CDH12, CDH18, PRDM9	1893	-1.150394303
92	ZNF595, ZNF718, ZNF732	1752	-1.150381428
93	AHRR, PDCD6, EXOC3	1613	-1.150182036
94	ESRRG, USH2A, GPATCH2	2924	-1.150149344

Table 17.b2

51	0	3.27435E-05	-1
52	0	0.000452907	-1
53	0	0.000536964	-1
54	0	0.001997083	-1
55	0	0.000611881	-1
56	0	0.00092964	-1
57	0	0.001228258	-1
58	0	0.00213922	-1
59	0	0.000477541	-1
60	0	0.001829308	-1
61	0	0.001016209	-1
62	0	0.000468199	-1
63	0	0.000842999	-1
64	0	0.000198141	-1
65	0	0.000899913	-1
66	0	0.000772455	-1
67	0	0.001145457	-1
68	0	0.000172242	-1
69	0	4.27276E-05	-1
70	0	0.001188185	-1
71	0	5.74879E-05	-1
72	0	0.000623203	-1
73	0	0.000167442	-1
74	0	0.001727828	-1
75	0	0.001503405	-1
76	0	0.000122298	-1

77	0	0.00127281	-1
78	0	0.000143833	-1
79	0	0.00033896	-1
80	0	0.000212938	-1
81	0	0.000379855	-1
82	0	2.56658E-06	-1
83	0	0.001681494	-1
84	0	0.001226771	-1
85	0	0.000180882	-1
86	0	0.00027211	-1
87	0	0.000249271	-1
88	0	2.23737E-05	-1
89	0	0.000260024	-1
90	0	0.002059753	-1
91	0	0.000446634	-1
92	0	0.00160563	-1
93	0	0.00067062	-1
94	0	0.001940467	-1

Table 17.b3

51	CCACGCTCAGTCAATAACACTAAAACACTCGACTAGATTTCATACAATCTAGTAGAATTT	7
52	GAACAGGACTGTACTGTGGGGGACCTACTCGAAAGGTTCTCTTGACTCTGAAAAACAGAA	18
53	GGAAGCTAGTTACCATGTTCTTTGGGTCTCGATTCGGACCATTGCCCGGCAAGCCGCACC	2
54	CAGAACCTTGAAGGCATGAGCCCCAGACTCGAGAAGGCAACATTGATTGAGTGAAAGAAT	1
55	TTTATGTGAACCCTTGTTGTGGAAAATGTCGAGGATCTAGAACTAGAATTACCATTTGAC	2
56	TAACACACCTCAAGGAAGGATACGTACCTCGATCTCAATTGGAACGGTTTTCTGAGTTTT	15
57	ATTGCTACCATGGTGATGGACAGAGTTATCGAAGGCACAGATAAACTTGCCGAGGACCCT	6
58	AGAGGACAAATAACTGATTTCTCTTCTTTCGACTCCAGAGTAGGTCACCCATCCCTGCAC	21
59	AAAACCCTTCTGGAACATGGGAGAGAACTCGATCACTTGTTCCAAGTAAAAGCAAGAGAG	9
60	GCCCAGGTCGGGCATCTGTTGTATTCCATCGAGGGCACATGGGAGATGTTAGGCGCGGAC	16
61	GCATTGAGCCAAGAGCAAAAAATAAGAGTCGAAGTATTTCCTATTAGTACTTGGGATAGT	6
62	ACAACTCTCCTTGTCCTCTGAGGCGCTCTCGAATGATCTAAAAAAAAAAAAAGTTAGACC	12
63	GAACAGGACTGTACTGTGGGGGACCTACTCGAGACACCAGACTCATGAGTAAAGCTATCT	18
64	AAGAACAGAGTTGGAGAGCGGATACTACTCGAACAAACACACCTTCAAACACATCACGCG	19
65	CGGGAATCATCACAGGAATCGCGCCCATTCGAGAATGTTTCAGACAGTAGAGTAAGATAG	15
66	CCAGAGTCAAGGCAGGCAAAGAGACTCCTCGAACAACCATTTTGGAAACAAATTTCATAT	9
67	GCTGGTCAGCTACGTCCACCCATTCCCTTCGATACTAGGTTAGCCATGCTGACTTTTGAT	5
68	TGCCTCCAATGCGCATGCCAACCCCAAATCGACTCTCTTTTCCTCTGAGTTCAACATTTT	16
69	CTGTGGGAAAAGACACAAACCCCTTAGCTCGATTTGACATTACATTATGGCTTTGTAACA	6
70	TTAGGATTCATCAAGGAAGCAACTGCAATCGAACATAATTTTACAATCTTTAACTTTTTT	14
71	GTTTTTGGGTACCAGCCCTTCACCTGCGTCGACAGGGAAATATCTATATCTCGGCAGAGA	4
72	ATGAAGCCAGAGTTCAGTATGAGGGTTTTCGAGAATGAGTAATTTATAAAGAAAAGAGGT	15

73	TCCAAAGAAATTAATTACCTCCAGGAGATCGAGACCATCCCAGCTAACAATGGTGAAACC	2
74	GCCCAAACTGAAAACCTATGAGTTATTCTCGACTTTTCCATCTATAAATTGGGGTTGTTA	7
75	CGGGAATCATCACAGGAATCGCGCCCATTCGATGAGCATCAACTGTCCTAGAATTGGCTG	15
76	AGCTAGTCTAGTAATAATTAAAGGCAGCTCGATTAGGATGAACCCGGGCACTTAGCCGTG	2
77	CTGTGTAACTTTTGAGACCTGGCCTAAATCGACTTCATTAAGAATATCTTTGTGTTCCAC	21
78	AAAACCCTTCTGGAACATGGGAGAGAACTCGACCGTATAGGACATCTTCAAATTACAAAA	9
79	GCCAACCTCGGCGGTCAGTTCCCTGCTATCGATTCATATTATAGCTCCATCTGCAGCAGA	11
80	CCACGCTCAGTCAATAACACTAAAACACTCGACTTATATTAAGAGGATATACACTGTGGT	7
81	ATCCGCTACGAGGGCATTCTCTACACCATCGATGTGTAGGCCTTTCCATTCCATTTATTC	20
82	TGACATAACTTCAATTCAGCTAGTAACTTCGAGCTTCACATCCAAAGTACCTGGAACTTT	7
83	GTTACCCTAGCCACTTCACAAAATATGTTCGAAATCAGCAGTATTGGTAGGTAGAAGAAT	5
84	CCAGAAAGGTACCCATTAGGCGTCACCTTCGATGAATTAATATATGCCAAGTGCCTAGGC	12
85	CGAGGTGGGCGATCCCTAGGTCAGGAGATCGAGACCGCCCACCCTGGCCAGTAACTAGAT	2
86	GGAGGATCAAGACTTCCAGTGACAAATATCGAGGTACAGTGCCAAGCTGTACGGGTCACT	18
87	AGGGGATTTTACATGTGCTTGTCTGACATCGAGGAAGACATCTTTTTCCTGCTTCTGCCA	2
88	GAGAAGGGGAAACACAATGTGTCTGTTATCGAAGCTGACAGAAAGAACAGTTTCTCTTAC	20
89	CCACGCTCAGTCAATAACACTAAAACACTCGACCTTTCCAGTAGGATCTTCCCATATTTC	7
90	GCCGAGTTGGGCAGATCATTTTAGGAGTTCGAGACAGCCTGGGCAACAGGGTGAGACTCC	14
91	GTTACCCTAGCCACTTCACAAAATATGTTCGAGTGGGCGAAAGAACCTGTTAACTTAAAG	5
92	AGCTCCCAAAAATTCTGTAAGGGGGCCTTCGATCTCATTCCGAACAGGGTAAAGTAGGGA	4
93	TGACTCTTCAGACCTGGCTCATTTCACGTCGATTCTGGTGTTTCCAGCAAGTTTGGACAC	5
94	CACCTCCTCTTGAGCAGAAATAAAAGGTTCGACTTCTACCCCATCTCAAGCTCACCCCCT	1

Table 17.b4

51	94003895	94003926	94146280	94146311	7
52	11518081	11518112	11539935	11539966	18
53	109134011	109134042	109212101	109212132	2
54	145402816	145402847	145452871	145452902	1
55	91757778	91757809	91909591	91909622	2
56	24184226	24184257	24434876	24434907	15
57	160650437	160650468	160698179	160698210	6
58	5557784	5557815	5719379	5719410	21
59	42186837	42186868	42429659	42429690	9
60	1534600	1534631	1753212	1753243	16
61	167354664	167354695	167436754	167436785	6
62	75043130	75043161	75166435	75166466	12
63	11518081	11518112	11528618	11528649	18
64	56590849	56590880	56765569	56765600	19
65	20803737	20803768	20948381	20948412	15
66	61621655	61621686	61711281	61711312	9
67	810350	810381	920775	920806	5
68	15066887	15066918	15233930	15233961	16

69	40897431	40897462	41052663	41052694	6
70	19799747	19799778	19929983	19930014	14
71	9452012	9452043	9537082	9537113	4
72	20157446	20157477	20363938	20363969	15
73	108509957	108509988	108739198	108739229	2
74	75258693	75258724	75408493	75408524	7
75	20803737	20803768	20844021	20844052	15
76	33607687	33607718	33657684	33657715	2
77	10143615	10143646	9968346	9968377	21
78	42186837	42186868	42393754	42393785	9
79	31803022	31803053	32032359	32032390	11
80	94003895	94003926	94039975	94040006	7
81	62122728	62122759	62136768	62136799	20
82	39270836	39270867	39356013	39356044	7
83	21241067	21241098	21325113	21325144	5
84	123393327	123393358	123422833	123422864	12
85	169739256	169739287	169885923	169885954	2
86	74466744	74466775	74511010	74511041	18
87	18404989	18405020	18530959	18530990	2
88	23380285	23380316	23546783	23546814	20
89	94003895	94003926	94191093	94191124	7
90	64993226	64993257	65050357	65050388	14
91	21325113	21325144	21534899	21534930	5
92	144136	144167	53807	53838	4
93	355623	355654	392732	392763	5
94	216576987	216577018	216659571	216659602	1

Table 17.b5

51	93999925	94003926	94146280	94150281
52	11514111	11518112	11535965	11539966
53	109130041	109134042	109208131	109212132
54	145402816	145406817	145448901	145452902
55	91753808	91757809	91909591	91913592
56	24184226	24188227	24430906	24434907
57	160650437	160654438	160698179	160702180
58	5557784	5561785	5719379	5723380
59	42182867	42186868	42429659	42433660
60	1534600	1538601	1749242	1753243
61	167350694	167354695	167432784	167436785
62	75043130	75047131	75166435	75170436
63	11514111	11518112	11528618	11532619
64	56586879	56590880	56761599	56765600

65	20799767	20803768	20948381	20952382
66	61617685	61621686	61711281	61715282
67	806380	810381	920775	924776
68	15062917	15066918	15233930	15237931
69	40893461	40897462	41052663	41056664
70	19795777	19799778	19929983	19933984
71	9448042	9452043	9533112	9537113
72	20153476	20157477	20359968	20363969
73	108509957	108513958	108739198	108743199
74	75258693	75262694	75404523	75408524
75	20799767	20803768	20840051	20844052
76	33603717	33607718	33653714	33657715
77	10143615	10147616	9964376	9968377
78	42182867	42186868	42389784	42393785
79	31799052	31803053	32032359	32036360
80	93999925	94003926	94039975	94043976
81	62118758	62122759	62132798	62136799
82	39266866	39270867	39356013	39360014
83	21241067	21245068	21321143	21325144
84	123389357	123393358	123422833	123426834
85	169739256	169743257	169881953	169885954
86	74466744	74470745	74511010	74515011
87	18404989	18408990	18526989	18530990
88	23380285	23384286	23542813	23546814
89	93999925	94003926	94191093	94195094
90	64993226	64997227	65046387	65050388
91	21321143	21325144	21534899	21538900
92	140166	144167	49837	53838
93	355623	359624	388762	392763
94	216576987	216580988	216659571	216663572

Table 17.b6

51	Hg38_7_94000334_94003926_94146280_94149796_FR	OBD183-3729
52	Hg38_18_11516972_11518112_11528618_11539966_FF	OBD183-3733
53	Hg38_2_109124530_109134042_109210767_109212132_FF	OBD183-3737
54	Hg38_1_145402816_145406156_145449894_145452902_RF	OBD183-3741
55	Hg38_2_91751706_91757809_91909591_91921665_FR	OBD183-3745
56	Hg38_15_24184226_24195543_24431582_24434907_RF	OBD183-3749
57	Hg38_6_160650437_160655495_160698179_160704800_RR	OBD183-3753
58	Hg38_21_5557784_5565142_5719379_5720673_RR	OBD183-3757
59	Hg38_9_42182844_42186868_42429659_42436448_FR	OBD183-3761
60	Hg38_16_1534600_1537498_1749198_1753243_RF	OBD183-3765

61	Hg38_6_167352089_167354695_167428251_167436785_FF	OBD183-3769
62	Hg38_12_75043130_75044420_75166435_75186315_RR	OBD183-3773
63	Hg38_18_11516972_11518112_11528618_11539966_FR	OBD183-3777
64	Hg38_19_56588683_56590880_56759775_56765600_FF	OBD183-3781
65	Hg38_15_20797293_20803768_20948381_20955965_FR	OBD183-3785
66	Hg38_9_61619699_61621686_61711281_61720732_FR	OBD183-3789
67	Hg38_5_806836_810381_920775_927647_FR	OBD183-3793
68	Hg38_16_15064962_15066918_15233930_15244390_FR	OBD183-3797
69	Hg38_6_40889262_40897462_41052663_41057245_FR	OBD183-3801
70	Hg38_14_19797252_19799778_19929983_19935285_FR	OBD183-3805
71	Hg38_4_9448543_9452043_9534912_9537113_FF	OBD183-3809
72	Hg38_15_20153091_20157477_20357423_20363969_FF	OBD183-3813
73	Hg38_2_108509957_108517619_108739198_108742215_RR	OBD183-3817
74	Hg38_7_75258693_75266916_75406820_75408524_RF	OBD183-3821
75	Hg38_15_20797293_20803768_20837052_20844052_FF	OBD183-3825
76	Hg38_2_33600570_33607718_33651599_33657715_FF	OBD183-3829
77	Hg38_21_10143615_10147587_9959597_9968377_RF	OBD183-3833
78	Hg38_9_42182844_42186868_42390575_42393785_FF	OBD183-3837
79	Hg38_11_31800547_31803053_32032359_32040532_FR	OBD183-3841
80	Hg38_7_94000334_94003926_94039975_94045978_FR	OBD183-3845
81	Hg38_20_62119683_62122759_62135182_62136799_FF	OBD183-3849
82	Hg38_7_39259249_39270867_39356013_39363331_FR	OBD183-3853
83	Hg38_5_21241067_21254297_21320172_21325144_RF	OBD183-3857
84	Hg38_12_123390897_123393358_123422833_123425871_FR	OBD183-3861
85	Hg38_2_169739256_169744898_169880813_169885954_RF	OBD183-3865
86	Hg38_18_74466744_74475258_74511010_74512821_RR	OBD183-3869
87	Hg38_2_18404989_18410464_18528007_18530990_RF	OBD183-3873
88	Hg38_20_23380285_23385557_23532159_23546814_RF	OBD183-3877
89	Hg38_7_94000334_94003926_94191093_94197578_FR	OBD183-3881
90	Hg38_14_64993226_65000616_65046195_65050388_RF	OBD183-3885
91	Hg38_5_21320172_21325144_21534899_21542153_FR	OBD183-3889
92	Hg38_4_131841_144167_50378_53838_FF	OBD183-3893
93	Hg38_5_355623_362397_389569_392763_RF	OBD183-3897
94	Hg38_1_216576987_216584477_216659571_216671566_RR	OBD183-3901

Table 17.b7

51	TCCGCTTCTGAAGAAACTAAGATCC	OBD183-3731	CCTTGTACATAAACAATTTCTAACC
52	TCACAGCCTCTGCCCATGTTTCACC	OBD183-3735	ACACTCTGTCTTAAAAAATTAATTA
53	TTCCCCAGGCAGGAGTGGCTGG	OBD183-3739	TGAATGCCACTGAATTCAATAA
54	TGGGGGCAGCACCCCGGGATC	OBD183-3743	TACATAACACAAAATTAACCA
55	AAGAGGCTCAGGGAAGAGGCTGTTTT	OBD183-3747	ATCATTAATGGACATTTGGGTTGGTT
56	AGGCCAGGGCATCCTGGCTGAGCACA	OBD183-3751	AGTCAAACTCTGACTGTTTGCAAATG

57	CACATTTTTTTCTGTTCTAAGAACT	OBD183-3755	CTCTGCATAGCCCCAAGAGGACAGC
58	AAACCATCAGGTCTTGTGGCCTAAAG	OBD183-3759	TTGAAAAACCACAGACAATTGCAAAA
59	GAAAATGTTGGATCATTTACAAATC	OBD183-3763	CCTTATATTCCTTACTCTAGTTGTG
60	GTGACGGGAGGGTGCTTCTGC	OBD183-3767	TAAAAGAGCTGGAGGCAGATT
61	TTATTCCCTTTAATAAATGAGG	OBD183-3771	CCAGGCTGATCTTGAACTCCTG
62	CTGCATGGTATTATTTGTCTGTCT	OBD183-3775	TTGCTTGTGATCGCAGAATGTAGT
63	TCCCTCTCAGAACGAAAGCAG	OBD183-3779	CTTCAGCATATAATTTTCAAA
64	AAAATCCCAGCAAGTTATTCTGTGG	OBD183-3783	TGATCAAGTGTGGGGGCGAGTGTTG
65	AGAATAGGTTTTCATATATCAAAAA	OBD183-3787	TCCTATGAGGAGGGTATTTTTATTA
66	AACGGGCTGCACCAGCTCTCT	OBD183-3791	TACTGCATATGTGCATACAAT
67	GAAAGCACCCTGGATGCTTGGC	OBD183-3795	CTGGATAAAAATATGAGACCCA
68	ACCATATCTGTACCTAGGCAGAGAC	OBD183-3799	AAGCACCTCTGATTGTCTAAGTGGA
69	CTCCTACATGGGTCCCACCGCCCC	OBD183-3803	GTTCAGGAAAGGAGGGGTCCTGGC
70	GTAGGATAACGTTGCTCATGTATTA	OBD183-3807	CTGGAAAAAACCTAAGTACATATAT
71	ATAACTGAGATTATTAATTGCGGTAA	OBD183-3811	GGTTCTCAGGGTCCAGGATTCCAGGA
72	GATAAAGCCTACATAATTTTG	OBD183-3815	AAGTTTGTGGCACCTCCTTCC
73	AGTCCTATGCAGGGTTAGCTCTG	OBD183-3819	CTCCCAGGTTCAAGCGATTCTTC
74	CTGCTCTCTCTGGGTGGCCGTTGTTC	OBD183-3823	CCCAAAATGCTGGGGTTATAGGTATG
75	TATTCCTTACAGCTCCTGATTAACT	OBD183-3827	ATACACATGTGGCATTAAAAATGCC
76	TGGCCTCTCATTAGCTTTACAAAGGC	OBD183-3831	TGGTCCGTGTTTGTTACAGCTTGAGC
77	ATTTCATTGAGATGTGGGGACTGGGG	OBD183-3835	ACCAATTTCAATGACAAATGCATGGT
78	AGAAACAGCCAAGGTCAACATTTG	OBD183-3839	GCTTTGCATGATTATCCAAGTACA
79	GAGTGAAGAGGAAGAAGAGGGAGAAG	OBD183-3843	AGTAAGCAAGGCAGCTCCTGCCTGGA
80	TCTGAAGAAACTAAGATCCAGGG	OBD183-3847	TACATATGTATGTATGTATATAT
81	AGGAGCGGGCGGCCAGGCCAC	OBD183-3851	TAGCCACAAGGAACAGAAAGG
82	TTGCTGGTCACTATGAGGCCTG	OBD183-3855	GAGTGTCCAGGCTAAACAGGCC
83	ACAATGGTTCTAGAGTCAGGACGTTA	OBD183-3859	TAGCAAAACAGCAGCAATAGCAGTTC
84	GAGTCGGTGGTTTTTAGTATAT	OBD183-3863	TAAAAAAGCTGTAAGTGTCACC
85	CAAAAATAATAGCAAAAGTAGG	OBD183-3867	TACTTACTGATGCCCAACAAAG
86	TGGAGGAGGGAGGAGTCAAGTGAGG	OBD183-3871	TGCTGTGAGATTAACTTCTGATCAC
87	TCGGTTCTGATTTTCTCCAGGAA	OBD183-3875	AAGTGAGTCTGGTAAGGGACTCA
88	TGGAGGGTACGTCCCAAGACGATGGT	OBD183-3879	TGAGGACTGGGAAGAAGTTGAAAAGC
89	CCAGATTAACGACCATTACTAG	OBD183-3883	AAACCAGCTCCTGGATTCATTG
90	CTATTTCTTTTTACCATTTTA	OBD183-3887	CAATACCCTAAAACAACCTCA
91	ATATTTTGCTAAGCCTATAATAT	OBD183-3891	CTTTAAGTCAATATCTCCTTAAA
92	AGGGACCATAAGCCCAATTCACACTT	OBD183-3895	CGGCGGCTCTGGCCCAGCCTGCGGCC
93	CTCAAAGCAGCAGGAAGTGAT	OBD183-3899	GGTGCCCCTGCACAGGATGGC
94	CCTTTTGAATAGGAGATTTCCTTTAA	OBD183-3903	CACAAAGACCCCTAACTCAGTCTTGG

Table 17.b8

CLAIMS

1. A method of determining the immune health of an individual, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in Table 1 or 3, to thereby determine the immune health of the individual.

2. A method according to claim 1 wherein:
(i) at least 3 chromosome interactions are typed from Table 1, and/or
(ii) at least 3 chromosome interactions are typed from Table 3.

3. A method according to claim 1 or 2 wherein:
(i) at least 10 chromosome interactions are typed from Table 1, and/or
(ii) at least 10 chromosome interactions are typed from Table 3.

4. A method according to any one of the preceding claims wherein:
(i) at least 3 or at least 10 chromosome interactions are typed from Table 2, and/or
(ii) at least 3 or at least 10 chromosome interactions are typed from Table 4.

5. A method according to any one of the preceding claims wherein the chromosome interactions are typed:
- in a sample from an individual, and/or
- by detecting the presence or absence of a DNA loop at the site of the chromosome interactions, and/or
- detecting the presence or absence of distal regions of a chromosome being brought together in a chromosome conformation, and/or
- by detecting the presence of a ligated nucleic acid which is generated during said typing and whose sequence comprises two regions each corresponding to the regions of the chromosome which come together in the chromosome interaction, and/or
- by a process which detects the proximity of the chromosome regions which have come together in the chromosome interaction.

6. A method according to any one of the preceding claims wherein said detecting of the presence or absence of the chromosome interactions is by a process comprising:
(i) in vitro crosslinking of epigenetic chromosomal interactions which are present;
(ii) optionally isolating the cross-linked DNA;

(iii) subjecting said cross-linked DNA to cleaving;

(iv) ligating said cross-linked cleaved DNA ends to form ligated DNA; and

(v) identifying the presence or absence of said ligated DNA;

to thereby determine the presence or absence of the chromosome interaction.

7. A method according to claim 5 or 6 wherein said ligated DNA is detected by PCR or by use of a probe.

8. A method according to claim 7 wherein:

(i) detection is by use of a probe, wherein said probe has at least 70% identity to any of the probes shown in Table 1 or 3, or

(ii) detection is by use of PCR, wherein the PCR uses a primer pair that has at least 70% identity to any of the primer pairs shown in Table 1 or 3.

9. A method according to any one of the preceding claims wherein:

(i) the method is carried out to select an individual for receiving therapy or a treatment, and/or

(ii) the method is carried out on individual that has been preselected based on a physical characteristic, risk factor or the presence of a symptom, and/or

(iii) the method is carried out to determine a prognosis, optionally for severity of a disease condition, and/or

(iv) the method is carried out to determine an immune response to a therapy, preferably to determine prognosis of an immune-related side effect of the therapy.

10. A method according to any one of the preceding claims wherein the individual:

(i) is suspected of having a condition relating to the immune system, which is optionally an infection, and/or

(ii) has been admitted to hospital.

11. A method according to any one of the preceding claims in which the individual:

- is at an early or pre-symptomatic stage of a disease;

- will be given a therapy (for example within 1 year), and optionally the method is carried out to determine susceptibility to an immune response to the therapy, for example as a side effect;

- has, or is suspected of having, an infection, for example caused by a viral, bacterial or fungal pathogen;

- is undergoing, or about to undergo, cancer therapy, for example cancer immunotherapy;

- has, or is suspected of having, a neurodegenerative disease;

- has, or is suspected of having, an autoimmune disease;

- has, or is at risk of, sepsis;

- is undergoing, or about to undergo, therapy for sepsis;

- is immunocompromised, for example due to having been administered with immunosuppressants;

- has an allergy;

- is pregnant; or

- has a chronic condition.

12. A method according to any one of the preceding claims which is carried out to determine prognosis to:
(i) an immune overreaction in a condition, or
(ii) an immune-related side effect, optionally to a therapy;
wherein the individual does not yet have the condition or has not yet had the therapy.

13. A method according to any one of the preceding claims wherein at least 5 chromosome interactions are typed which are present in:
(i) any 4kb region shown in Table 1 or 3, and/or
(ii) a gene shown in Table 1 or 3.

14. A method according to any one of the preceding claims in which at least 10, 20, 30 or 50 chromosome interactions are typed, and preferably 5 to 50 chromosome interactions are typed.

15. A method of determining the immune health of an individual optionally dependent on any one of the preceding claims, comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in Table 7, to thereby determine the immune health of the individual.

16. A method according to claim 15 wherein at least 3, 4, 5 or 6 chromosome interactions are typed from Table 7.

17. A method according to claim 15 or 16 wherein the chromosome interactions are typed:

- in a sample from an individual, and/or

- by detecting the presence or absence of a DNA loop at the site of the chromosome interactions, and/or

- detecting the presence or absence of distal regions of a chromosome being brought together in a chromosome conformation, and/or

- by detecting the presence of a ligated nucleic acid which is generated during said typing and whose sequence comprises two regions each corresponding to the regions of the chromosome which come together in the chromosome interaction, and/or

- by a process which detects the proximity of the chromosome regions which have come together in the chromosome interaction.

18. A method according to any one of claims 15 to 17 wherein said detecting of the presence or absence of the chromosome interactions is by a process comprising:

(i) in vitro crosslinking of epigenetic chromosomal interactions which are present;

(ii) optionally isolating the cross-linked DNA;

(iii) subjecting said cross-linked DNA to cleaving;

(iv) ligating said cross-linked cleaved DNA ends to form ligated DNA; and

(v) identifying the presence or absence of said ligated DNA;

to thereby determine the presence or absence of the chromosome interaction.

19. A method according to any one of claims 15 to 18 wherein said ligated DNA is detected by PCR or by use of a probe.

20. A method according to claim 19 wherein:

(i) detection is by use of a probe, wherein said probe has at least 70% identity to any of the probes shown in Table 7, or

(ii) detection is by use of PCR, wherein the PCR uses a primer pair that has at least 70% identity to any of the primer pairs shown in Table 7.

21. A method according to any claim 19 or 20 wherein said ligated DNA is detected using a qPCR system in which the probe has at least 70% identity to any of the probes shown in Table 7 and the primer pairs have at least 70% identity to any of the primer pairs shown in Table 7; wherein preferably the probe

sequence is or comprises the sequence of a probe sequence shown in Table 7 and/or each primer has or comprises the sequence of a primer shown in Table 7.

22. A method according to any one of claims 19 to 21 wherein the presence or absence of all 6 of the chromosome interactions represented by the probes of Table 7 is detected, optionally using all the probes and/or all primer pairs shown in Table 7.

23. A method according to any one of claims 15 to 22 wherein:

(i) the method is carried out to select an individual for receiving therapy or a treatment, and/or

(ii) the method is carried out on individual that has been preselected based on a physical characteristic, risk factor or the presence of a symptom, and/or

(iii) the method is carried out to determine a prognosis, optionally for severity of a disease condition, and/or

(iv) the method is carried out to determine an immune response to a therapy, preferably to determine prognosis of an immune-related side effect of the therapy.

24. A method according to any one of the claims 15 to 23 wherein the individual:

(i) is suspected of having a condition relating to the immune system, which is optionally an infection, and/or

(ii) has been admitted to hospital.

25. A method according to any one of claims 15 to 24 in which the individual:

- is at an early or pre-symptomatic stage of a disease;

- will be given a therapy (for example within 1 year), and optionally the method is carried out to determine susceptibility to an immune response to the therapy, for example as a side effect;

- has, or is suspected of having, an infection, for example caused by a viral, bacterial or fungal pathogen;

- is undergoing, or about to undergo, cancer therapy, for example cancer immunotherapy;

- has, or is suspected of having, a neurodegenerative disease;

- has, or is suspected of having, an autoimmune disease;

- has, or is at risk of, sepsis;

- is undergoing, or about to undergo, therapy for sepsis;

- is immunocompromised, for example due to having been administered with immunosuppressants;

- has an allergy;

- is pregnant; or

- has a chronic condition.

26. A method according to any one of claims 15 to 25 which is carried out to determine prognosis to:
(i) an immune overreaction in a condition, or
(ii) an immune-related side effect, optionally to a therapy;
wherein the individual does not yet have the condition or has not yet had the therapy.

27. A method according to any one of the preceding claims, wherein the typing of chromosome interactions comprises specific detection of the ligated product by quantitative PCR (qPCR) which uses primers capable of amplifying the ligated product and a probe which binds the ligation site during the PCR reaction, wherein said probe comprises sequence which is complementary to sequence from each of the chromosome regions that have come together in the chromosome interaction, wherein preferably said probe comprises:
- an oligonucleotide which specifically binds to said ligated product, and/or
- a fluorophore covalently attached to the 5' end of the oligonucleotide, and/or
- a quencher covalently attached to the 3' end of the oligonucleotide, and
optionally
- said fluorophore is selected from HEX, Texas Red and FAM; and/or
- said probe comprises a nucleic acid sequence of length 10 to 40 nucleotide bases, preferably a length of
- 20 to 30 nucleotide bases.

28. A method according to any one of the preceding claims comprising determining the presence or absence of one or more chromosome interactions represented by the probes shown in any of Tables 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17.

29. A method according to any one of the preceding claims comprising determining the presence or absence of:
- one or more chromosome interactions associated with an immune overreaction, wherein preferably said chromosome interactions are shown in Table 8, 9, 14 or 15, and/or

- one or more chromosome interactions associated with a lack of an immune overreaction infection, wherein preferably said chromosome interactions are shown in Table 10, 11, 16 or 17.

30. A method according to any one of the preceding wherein the presence or absence of the chromosome interactions is determined by the method of claim 18 and:
(i) detection is by use of a probe, wherein said probe has at least 70% identity to any of the probes shown in Table 9 or 11, or
(ii) detection is by use of PCR, wherein the PCR uses a primer pair that has at least 70% identity to any of the primer pairs shown in Table 9 or 11.

31. A method according to claim 30 wherein said ligated DNA is detected using a qPCR system in which the probe has at least 70% identity to any of the probes shown in Table 9, 11, 14 or 16 and the primer pairs have at least 70% identity to any of the primer pairs shown in Table 9, 11, 14 or 16; wherein preferably the probe sequence is or comprises the sequence of a probe sequence shown in Table 9, 11, 14 or 16 and/or each primer has or comprises the sequence of a primer shown in Table 9, 11, 14 or 16.

32. A method according to any one of the preceding claims wherein the presence or absence of at least 5 of the chromosome interactions represented by the probes of Table 9 or 11 is detected, optionally using all the probes and/or all primer pairs shown in Table 9 or 11.

33. A method according to any one of the preceding claims which is carried out to detect sepsis status of the individual by detecting the presence or absence of any of the chromosome interactions shown in Tables 12 or 13.

34. A therapeutic agent selected from any of the agents shown in Table 6 for use in a method of treatment of an immune overreaction or immune side effect, said method comprising:
- identifying whether an individual is susceptible to an immune overreaction or immune side effect by the method of any one of the preceding claims, and
- administering to any individual identified as being susceptible to an immune overreaction or immune side effect said agent.

35. An agent which:
- controls or modulates the immune system; or

- which prevents or treats an aberrant immune response; or

- prevents or treats an overreaction of an immune response;

for use in treating an individual whose immune health has been determined according to any one of claims 1 to 33.

36. A therapeutic agent which treats sepsis for use in a method of treatment of sepsis, said method comprising:

- identifying whether an individual is susceptible to or has sepsis by the method of any one of the claims 1 to 33, and

- administering agent to any individual identified as being susceptible to or having sepsis.

37. An agent which prevents or treats sepsis for use in treating an individual that has been identified as being susceptible to or having sepsis according to any one of claims 1 to 33.

FIGURE 1

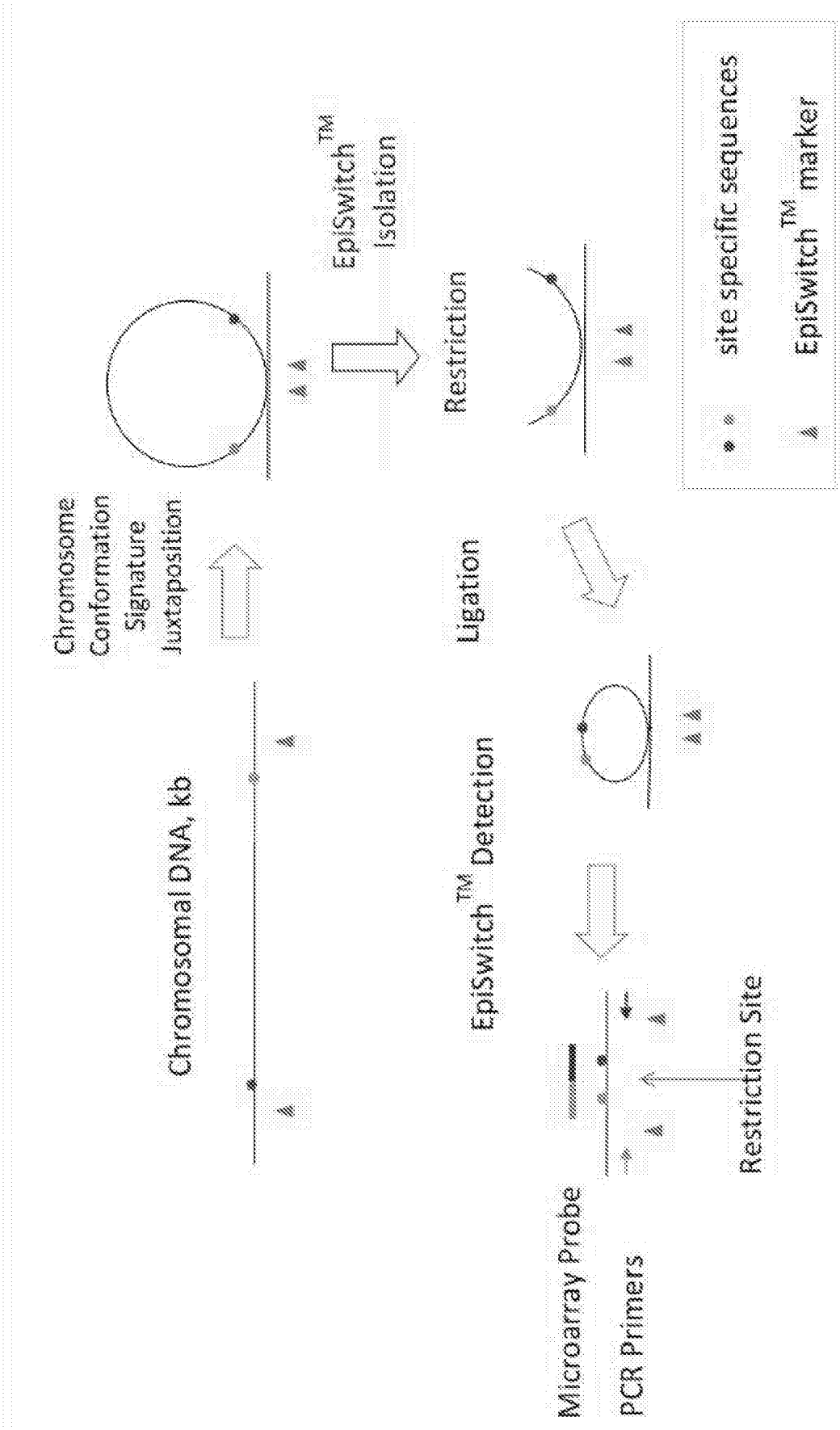

Chromosomal DNA, kb
Chromosome Conformation Signature Juxtaposition
EpiSwitch™ Isolation
Restriction
Ligation
EpiSwitch™ Detection
Microarray Probe
PCR Primers
Restriction Site
site specific sequences
EpiSwitch™ marker

FIGURE 2

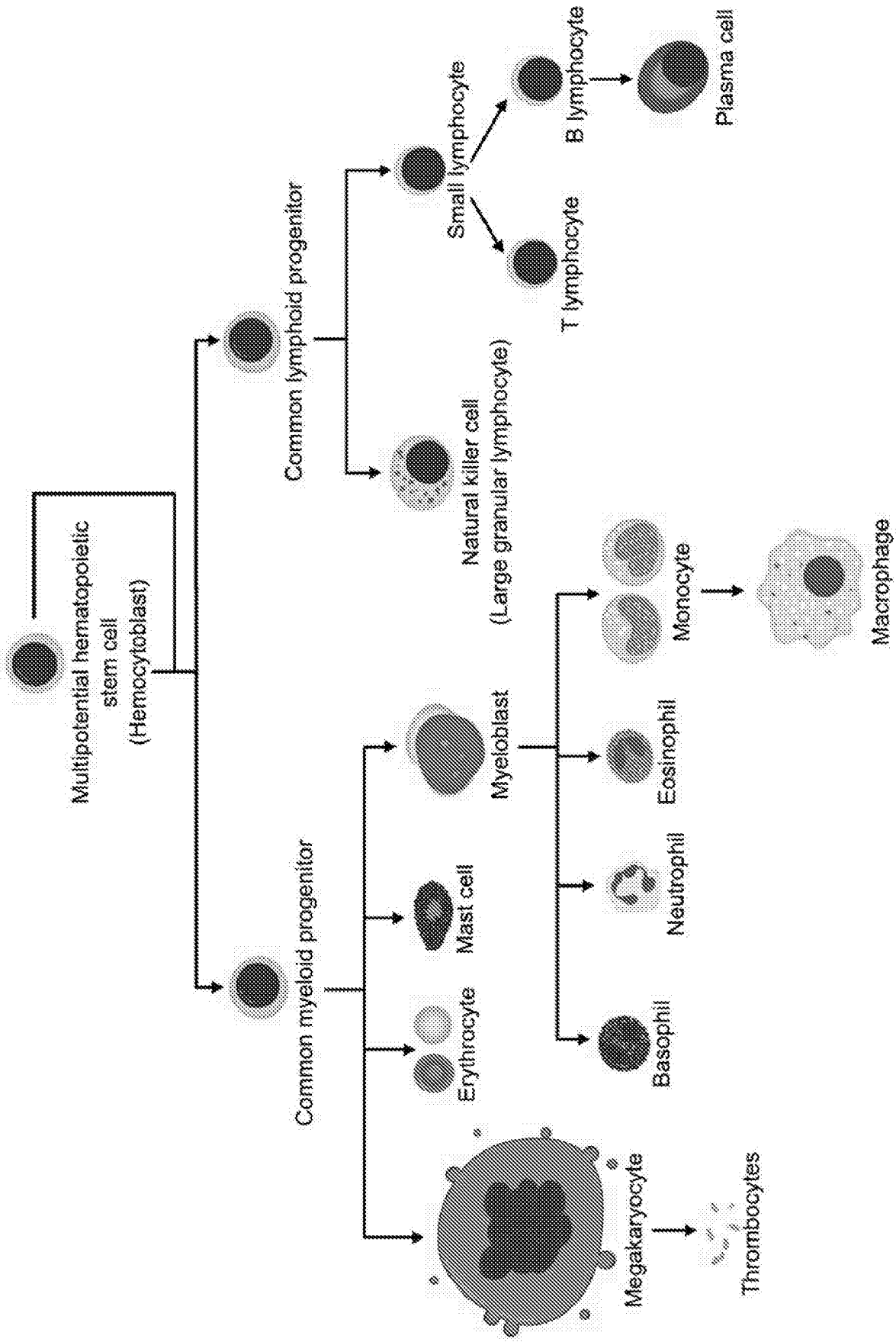

Multipotential hematopoietic stem cell (Hemocytoblast)
Common lymphoid progenitor
Small lymphocyte
B lymphocyte
Plasma cell
T lymphocyte
Natural killer cell (Large granular lymphocyte)
Common myeloid progenitor
Myeloblast
Monocyte
Macrophage
Eosinophil
Neutrophil
Basophil
Mast cell
Erythrocyte
Megakaryocyte
Thrombocytes

FIGURE 3

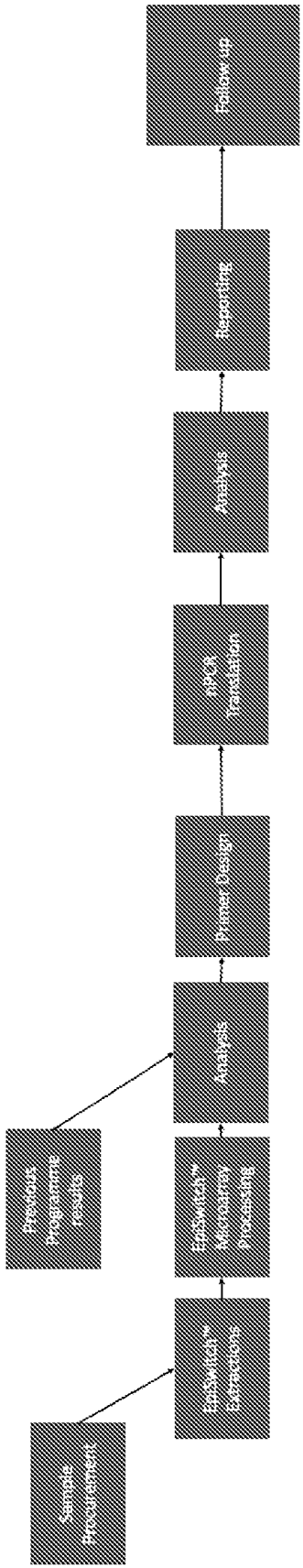

Sample Assessment
EpiMatch® Extractions
EpiMatch® Microarray Processing
Previous Programme Data
Analysis
Primer Design
MPCR Validation
Analysis
Reporting
Follow up

FIGURE 4

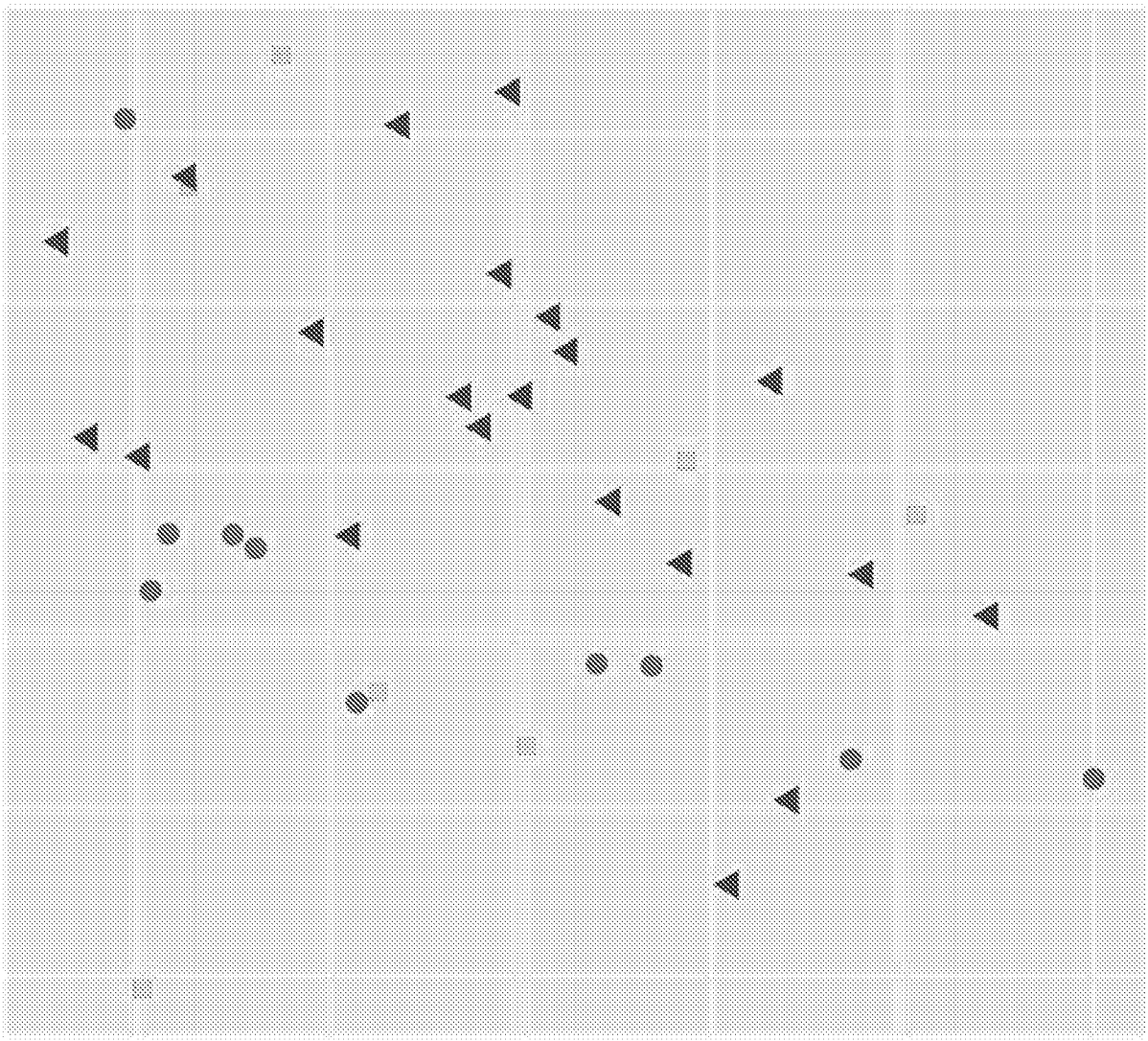


FIGURE 5

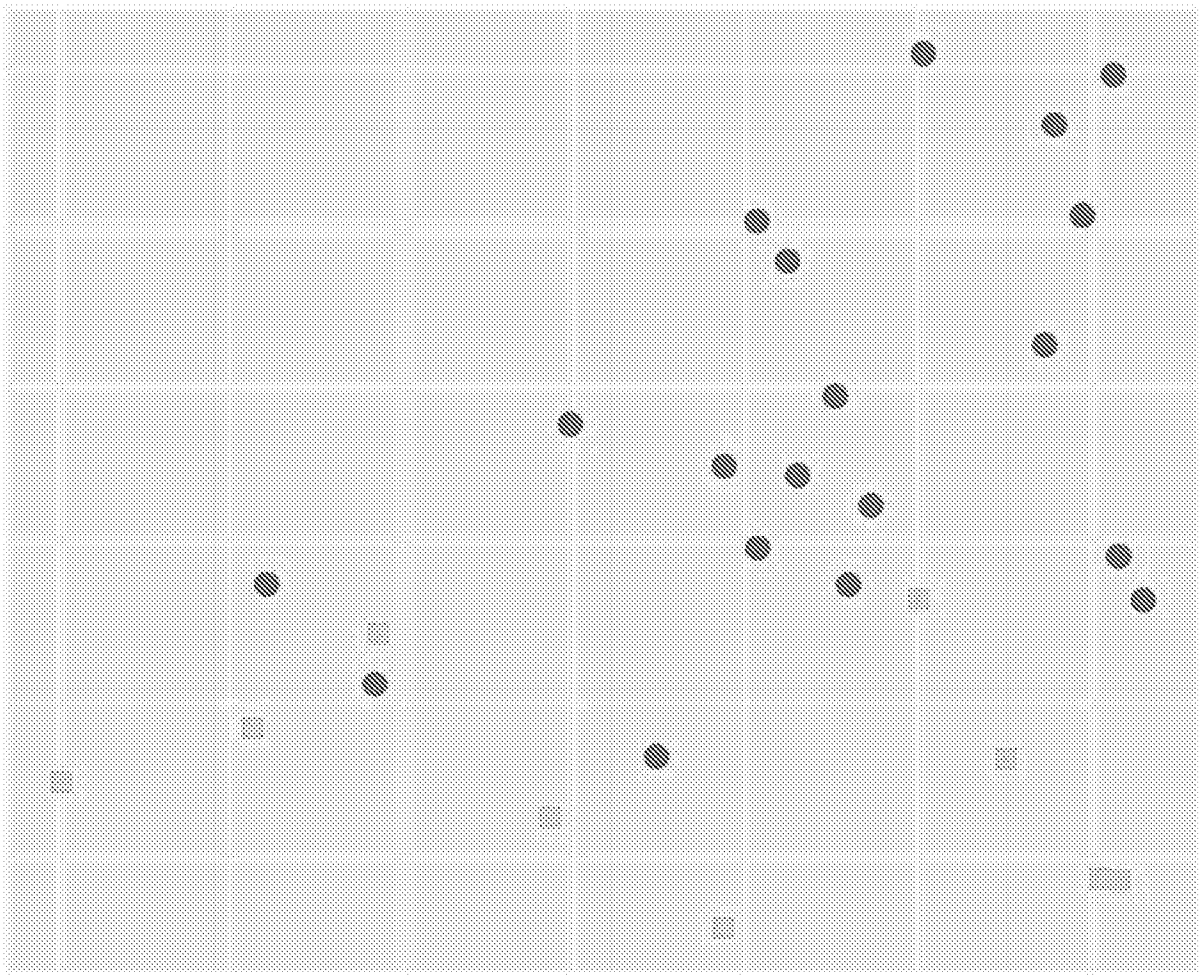


FIGURE 6

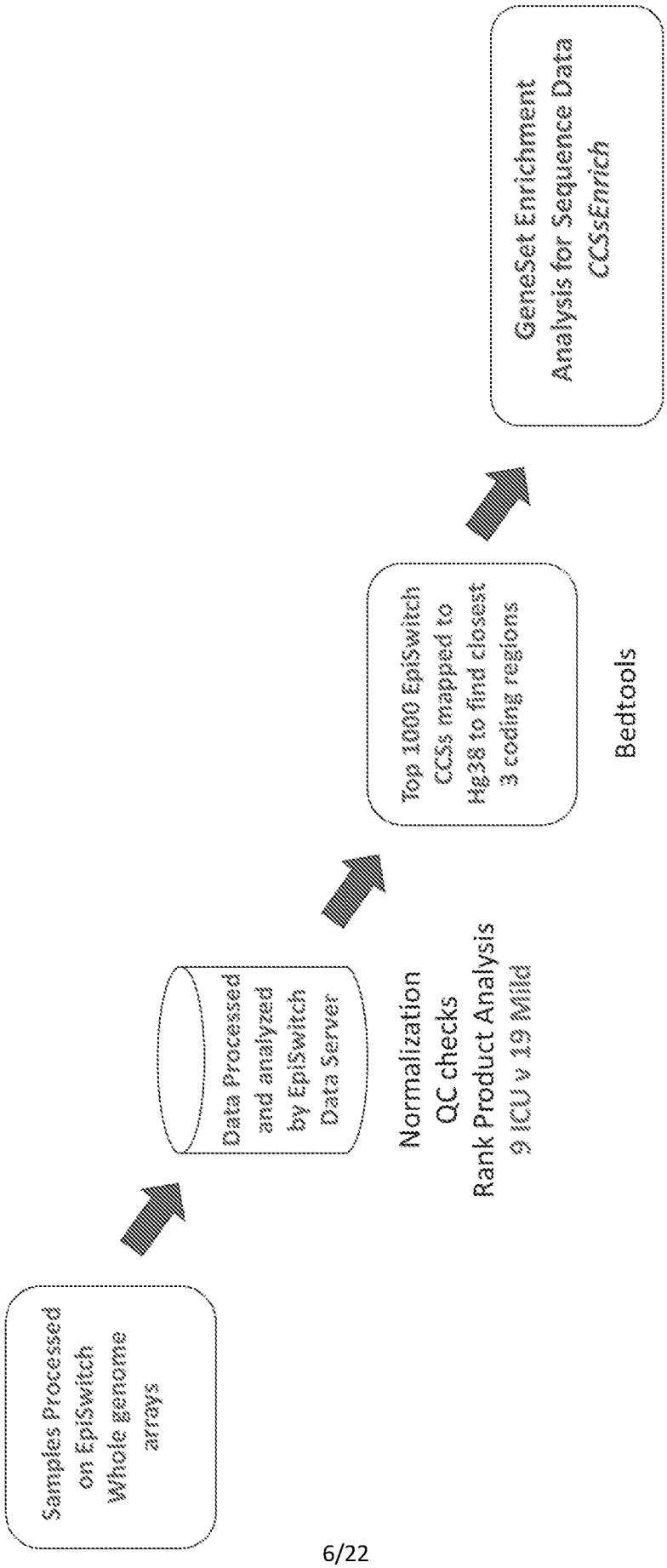

Samples Processed on EpiSwitch Whole genome arrays
Data Processed and analyzed by EpiSwitch Data Server
Normalization
QC checks
Rank Product Analysis
9 ICU v 19 Mild
Top 1000 EpiSwitch CCSs mapped to Hg38 to find closest 3 coding regions
Bedtools
GeneSet Enrichment Analysis for Sequence Data CCSsEnrich

FIGURE 7

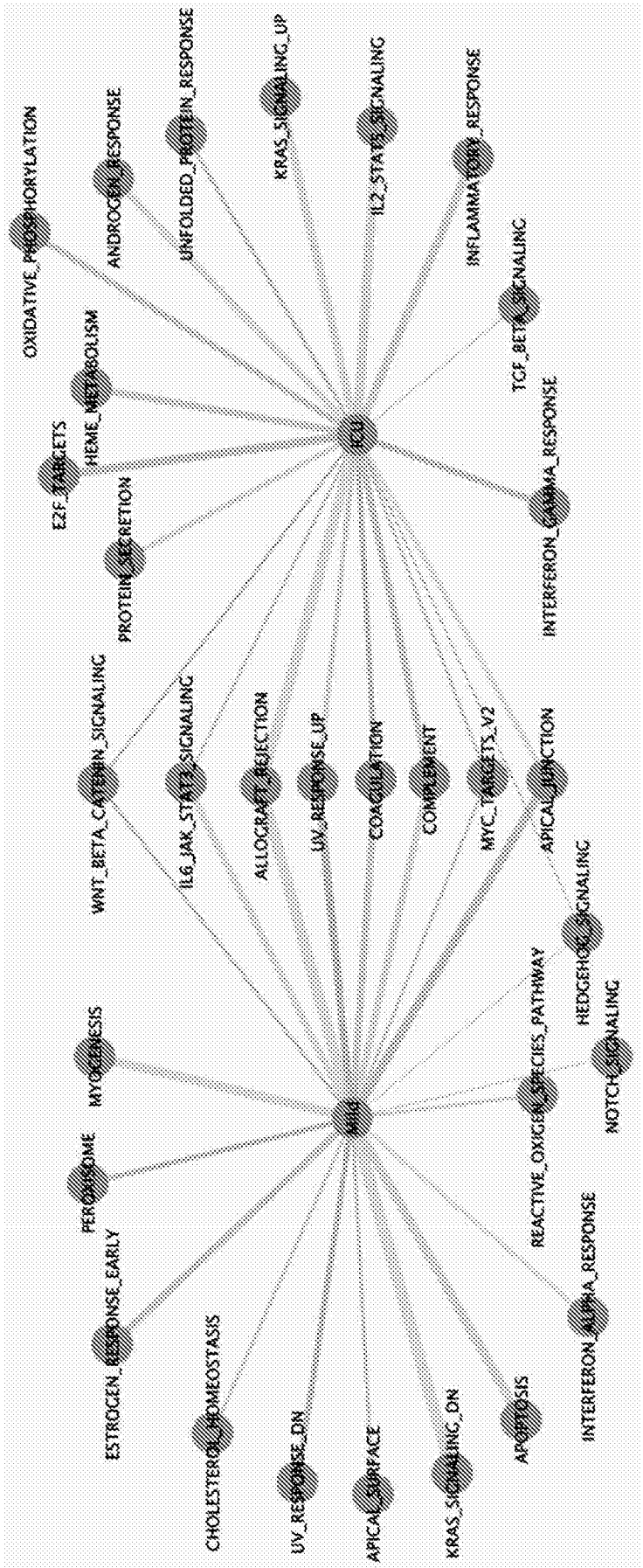

OXIDATIVE_PHOSPHORYLATION
ANDROGEN_RESPONSE
UNFOLDED_PROTEIN_RESPONSE
KRAS_SIGNALING_UP
IL2_STAT5_SIGNALING
INFLAMMATORY_RESPONSE
TGF_BETA_SIGNALING
INTERFERON_GAMMA_RESPONSE
E2F_TARGETS
HEME_METABOLISM
PROTEIN_SECRETION
WNT_BETA_CATENIN_SIGNALING
IL6_JAK_STAT3_SIGNALING
ALLOGRAFT_REJECTION
UV_RESPONSE_UP
COAGULATION
COMPLEMENT
MYC_TARGETS_V2
APICAL_JUNCTION
HEDGEHOG_SIGNALING
NOTCH_SIGNALING
REACTIVE_OXIGEN_SPECIES_PATHWAY
INTERFERON_ALPHA_RESPONSE
APOPTOSIS
KRAS_SIGNALING_DN
APICAL_SURFACE
UV_RESPONSE_DN
CHOLESTEROL_HOMEOSTASIS
ESTROGEN_RESPONSE_EARLY
PEROXISOME
MYOGENESIS
MYC
IL2

FIGURE 8

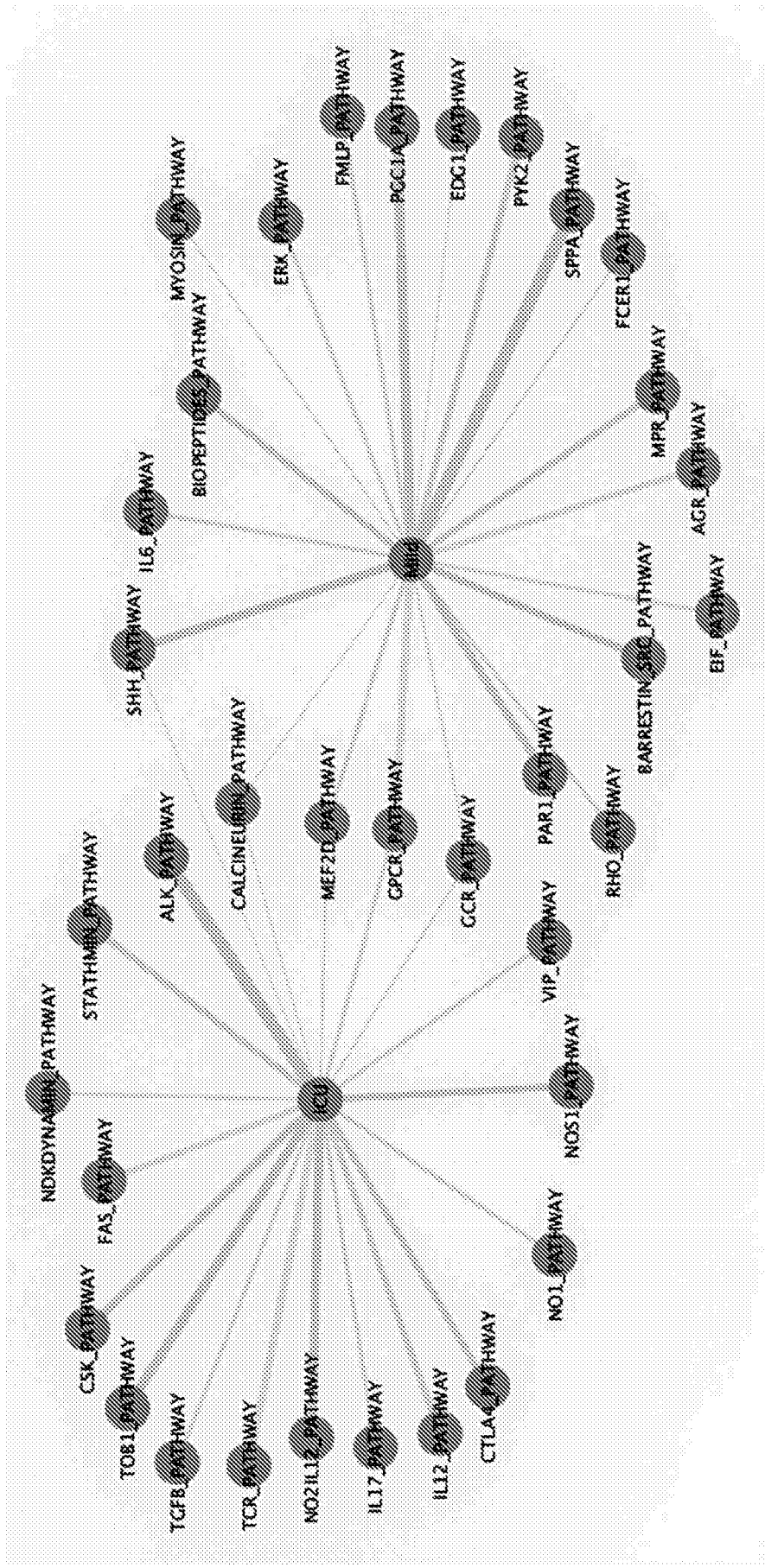

MYOSIN_PATHWAY
ERK_PATHWAY
FMLP_PATHWAY
PGC1A_PATHWAY
EDG1_PATHWAY
PYK2_PATHWAY
SPPA_PATHWAY
FCER1_PATHWAY
MPR_PATHWAY
AGR_PATHWAY
EIF_PATHWAY
BARRESTIN_SRC_PATHWAY
RHO_PATHWAY
PAR1_PATHWAY
GCR_PATHWAY
GPCR_PATHWAY
MEF2D_PATHWAY
CALCINEURIN_PATHWAY
ALK_PATHWAY
STATHMIN_PATHWAY
NOKDYNA_PATHWAY
FAS_PATHWAY
CSK_PATHWAY
TOB1_PATHWAY
TGFB_PATHWAY
TCR_PATHWAY
NO2IL12_PATHWAY
IL17_PATHWAY
IL12_PATHWAY
CTLA_PATHWAY
NO1_PATHWAY
NOS1_PATHWAY
VIP_PATHWAY
ICB
SHH_PATHWAY
IL6_PATHWAY
BIOPEPTIDES_PATHWAY
ERK

FIGURE 9

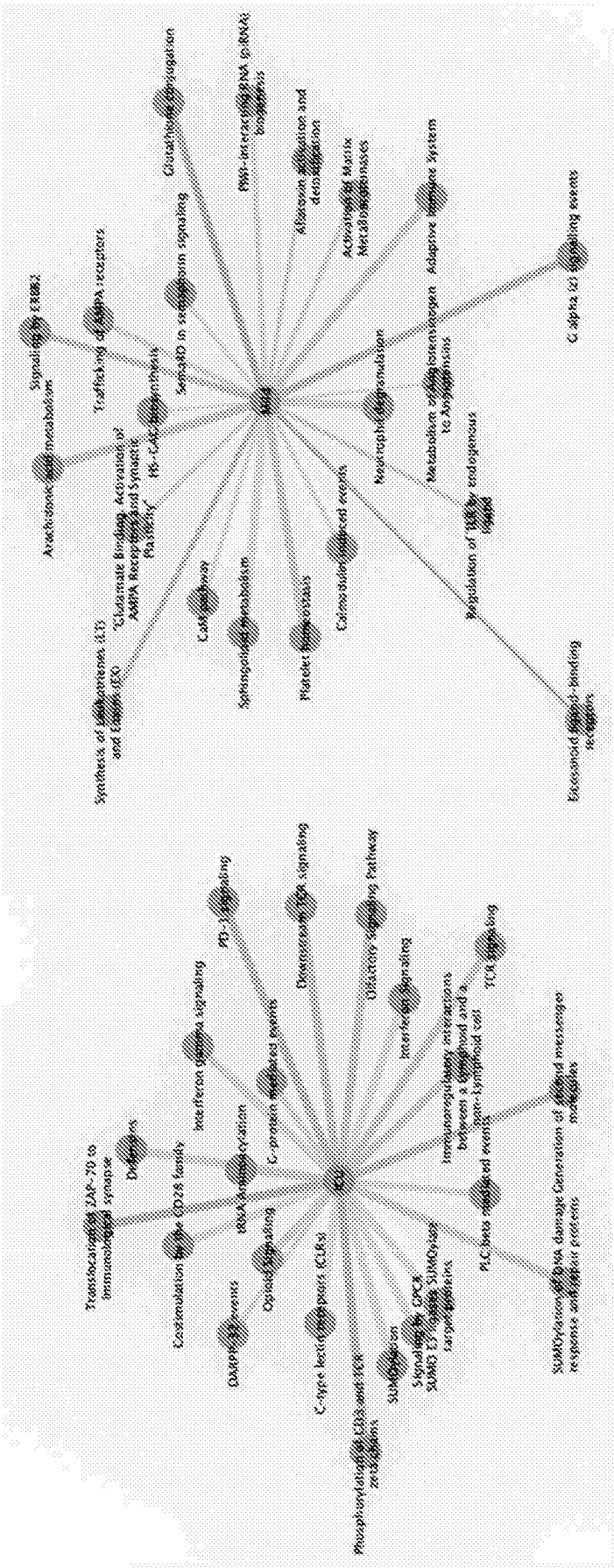

Signaling by ERBB2
Trafficking of AMPA receptors
Glutathione conjugation
Arachidonic acid metabolism
Synthesis of Leukotrienes (LTs) and Eoxins (EXs)
Glutamate Binding, Activation of AMPA Receptors and Synaptic Plasticity
RHO GTPase Cycle
Cell cycle
Sphingolipid metabolism
Platelet homeostasis
Caloreticulin-induced events
Neutrophil degranulation
Metabolism of vitamins and cofactors
Regulation of TLR by endogenous ligand
Cytokine Signaling in Immune system
Interferon gamma signaling
PD-1 signaling
Downstream TCR signaling
Olfactory Signaling Pathway
Interferon Signaling
Immunoregulatory interactions between a Lymphoid and a non-Lymphoid cell
TCR signaling
PLC beta mediated events
Generation of second messenger molecules
Translocation of ZAP-70 to Immunological synapse
Phosphorylation of CD3 and TCR zeta chains
Co-stimulation by the CD28 family
Co-inhibition by CTLA4
Opioid Signalling
Co-stimulation by ICOS
Cytokine Signaling in Immune system
Adaptive Immune System
Activation of Matrix Metalloproteinases
Regulation of RUNX3 expression and activity
Metabolism of steroids
Ribosomal scanning and start codon recognition
G alpha (i) signalling events
DNA damage/telomere stress induced senescence
SUMOylation of DNA damage response and repair proteins
SUMOylation of ubiquitinylation proteins
SUMOylation of DNA replication proteins

FIGURE 10

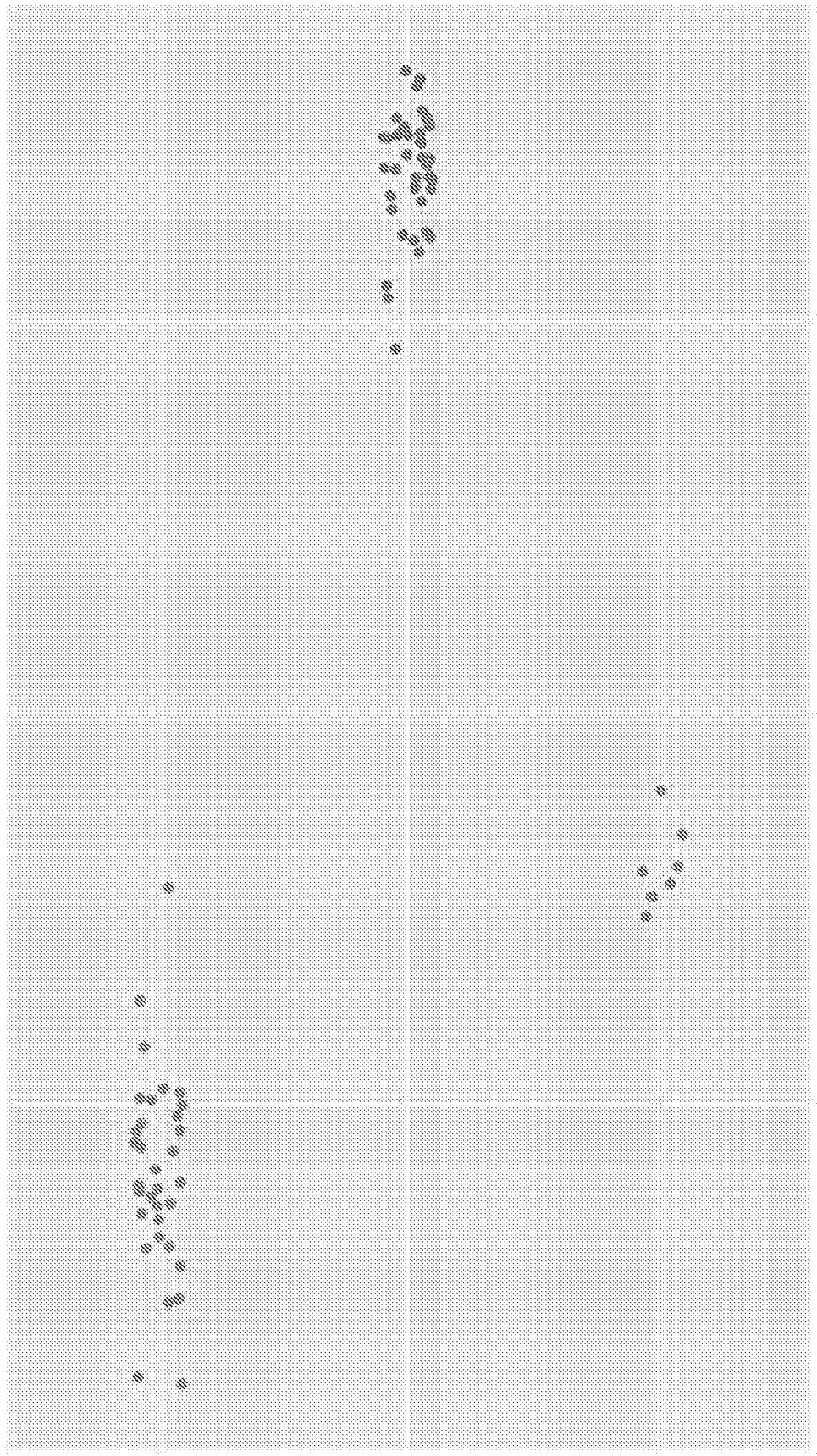


FIGURE 11

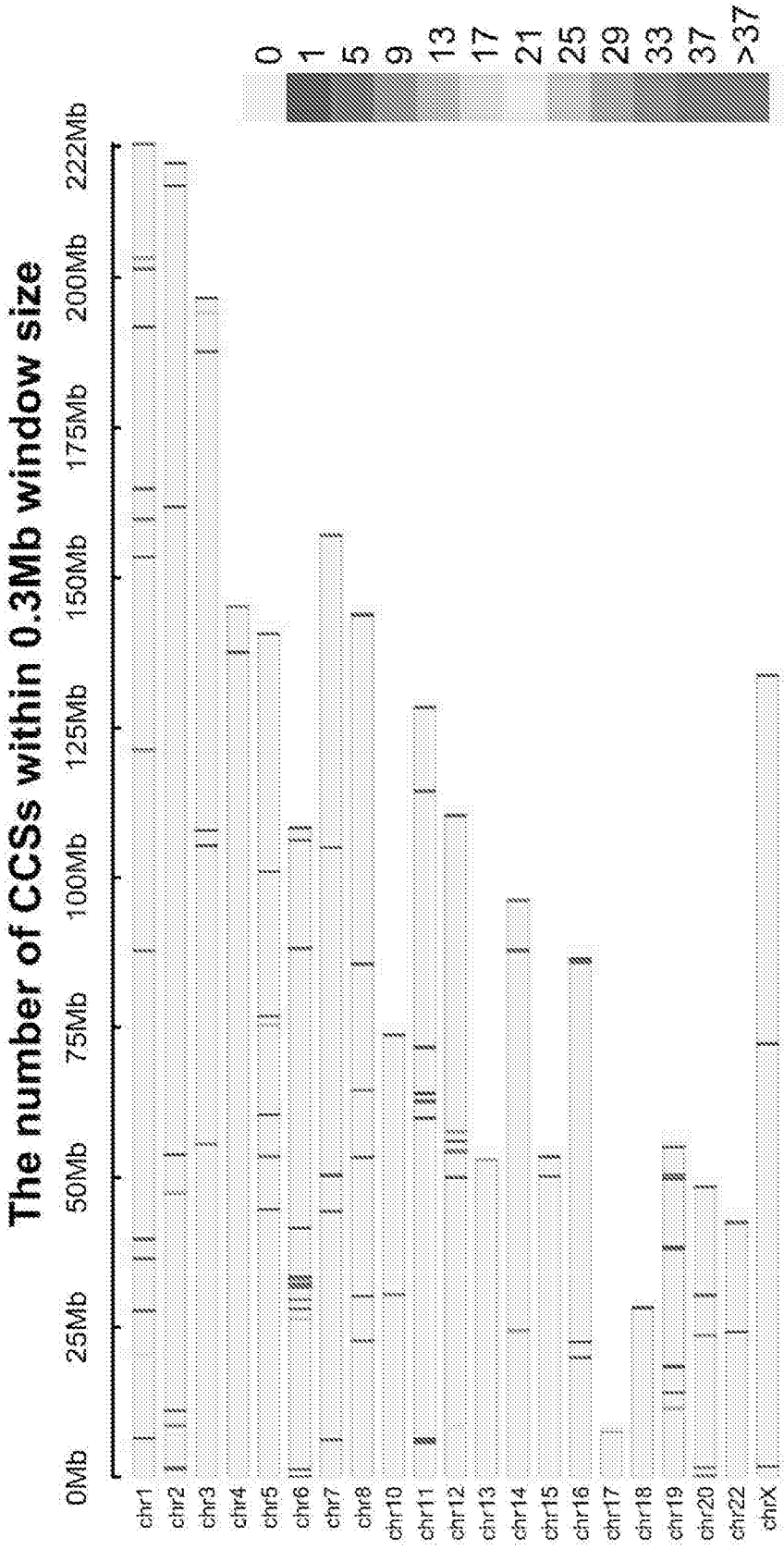

The number of CCSs within 0.3Mb window size
0 1 5 9 13 17 21 25 29 33 37 >37
0Mb 25Mb 50Mb 75Mb 100Mb 125Mb 150Mb 175Mb 200Mb 222Mb
chr1 chr2 chr3 chr4 chr5 chr6 chr7 chr8 chr10 chr11 chr12 chr13 chr14 chr15 chr16 chr17 chr18 chr19 chr20 chr22 chrX

FIGURE 12

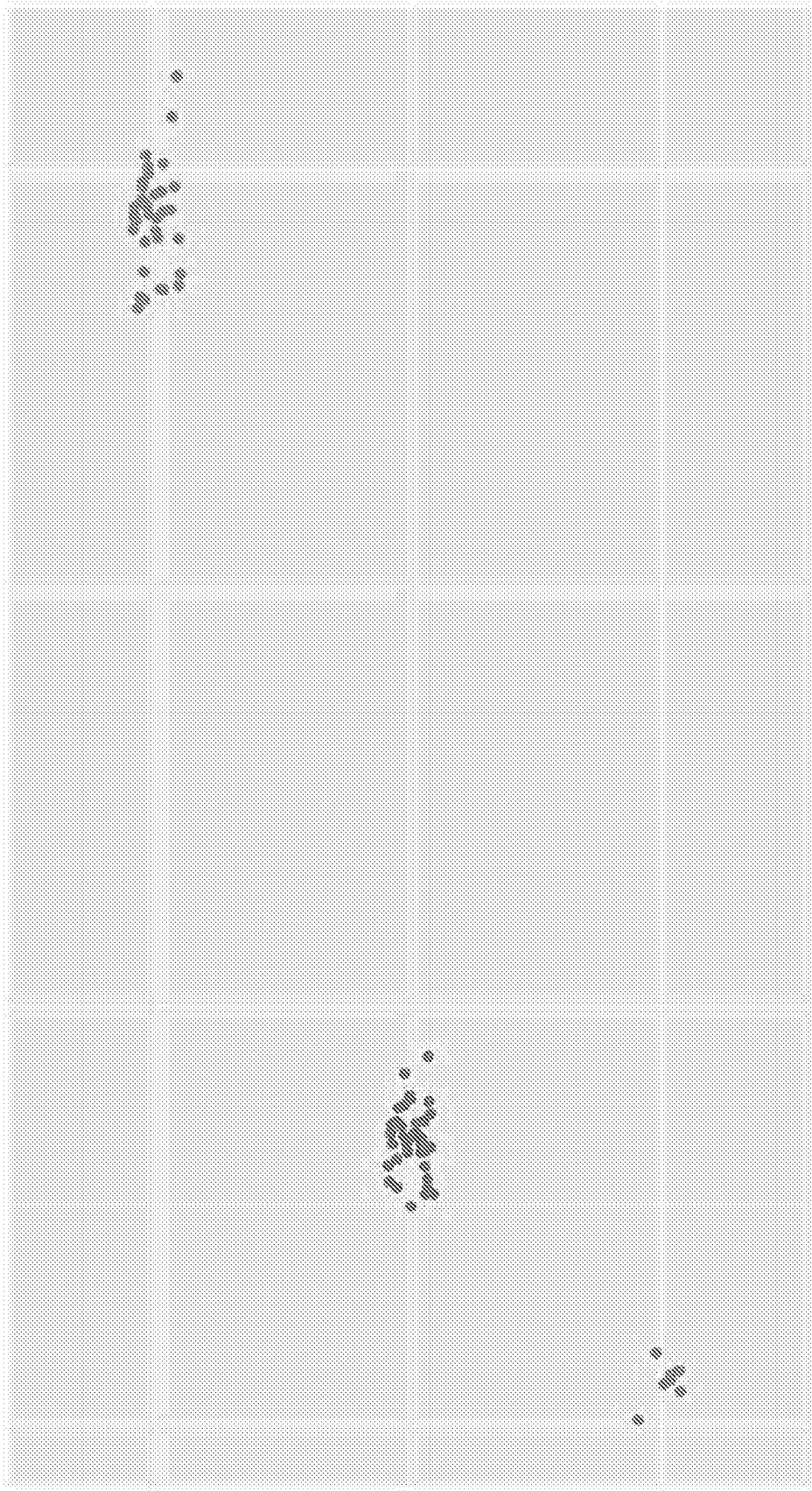


FIGURE 13

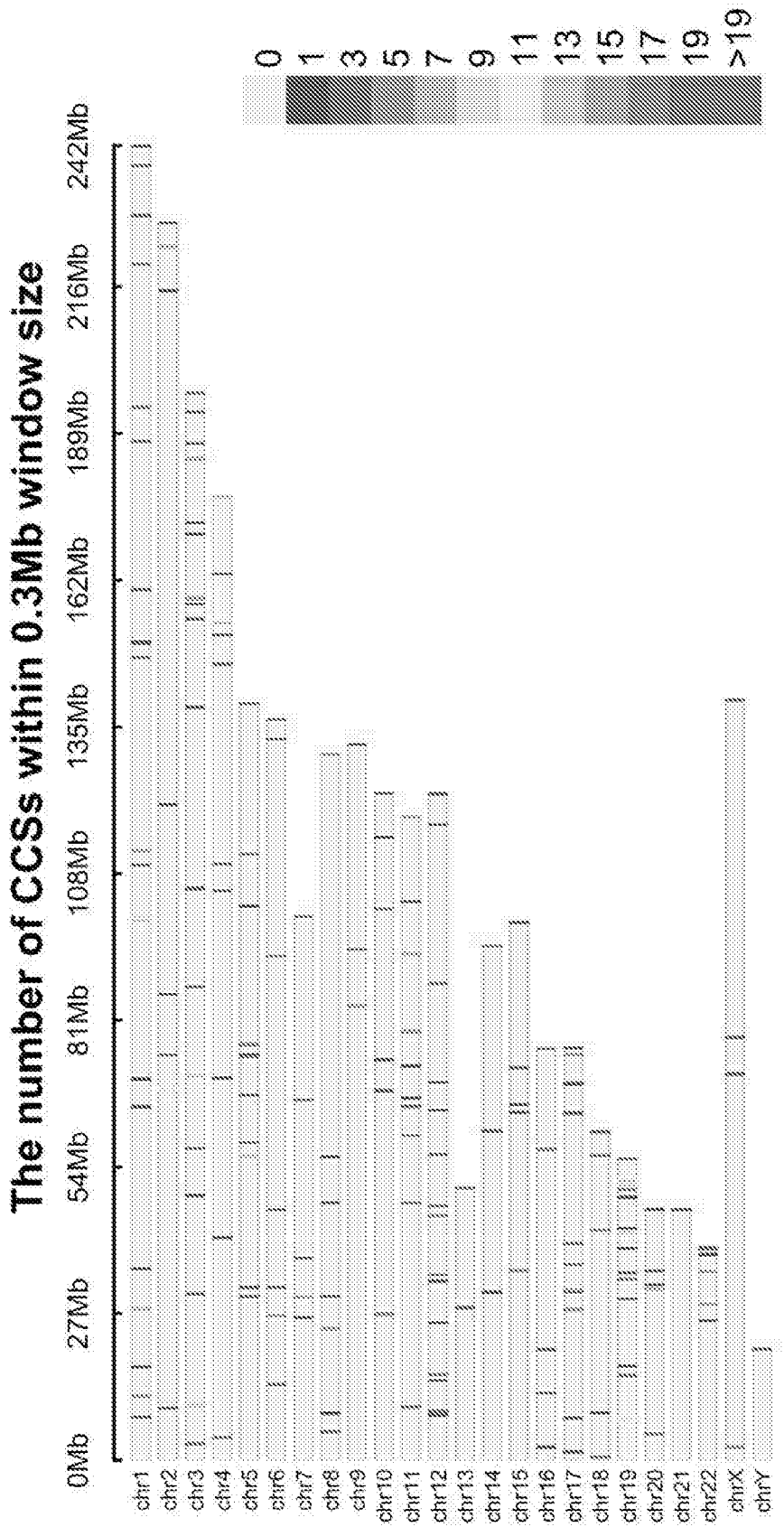
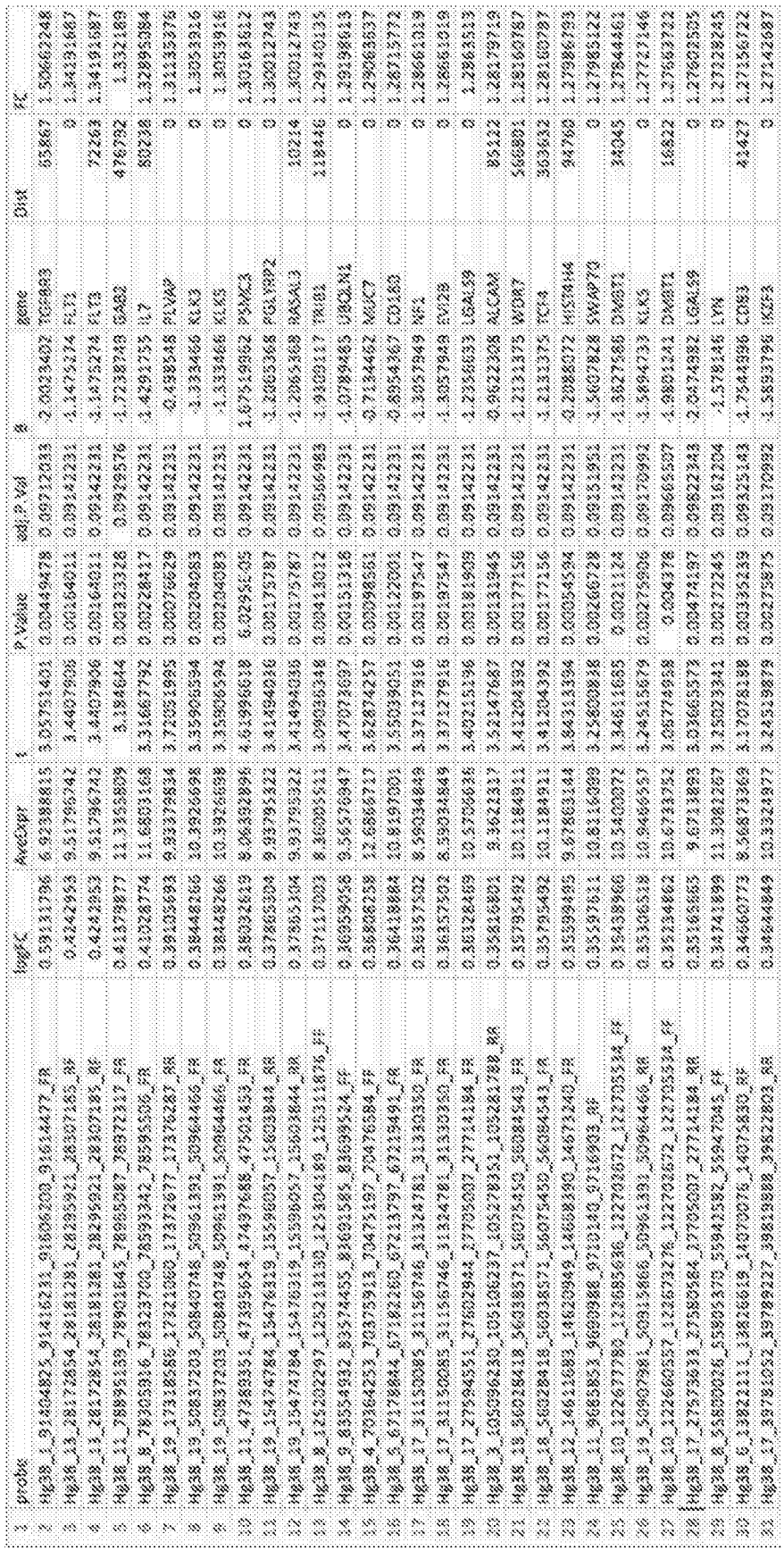

The number of CCSs within 0.3Mb window size
0
1
3
5
7
9
11
13
15
17
19
>19
0Mb
27Mb
54Mb
81Mb
108Mb
135Mb
162Mb
189Mb
216Mb
242Mb
chr1
chr2
chr3
chr4
chr5
chr6
chr7
chr8
chr9
chr10
chr11
chr12
chr13
chr14
chr15
chr16
chr17
chr18
chr19
chr20
chr21
chr22
chrX
chrY

FIGURE 14



	probe	logFC	AveExpr	t	P.Value	adj.P.Val	B	gene	Dist	FC
2	Hg38_1_91404825_91416231_91606203_91614477_FR	0.581311736	6.923888615	3.051751471	0.004494478	0.097122033	-2.00234402	TGFB3	65867	1.596622348
3	Hg38_13_28172854_28181281_28195321_28307185_RF	0.42442953	9.517396742	3.44079626	0.001164011	0.091342231	-1.14752374	FLT3	0	1.34139687
4	Hg38_13_28172854_28181281_28195321_28307185_RF	0.42442953	9.517396742	3.44079626	0.001164011	0.091342231	-1.14752374	FLT3	72268	1.34139687
5	Hg38_11_78995139_78995287_78972117_FR	0.411373877	11.13558629	3.1846414	0.00323328	0.2939576	-1.72338249	GAB2	476782	1.3321289
6	Hg38_8_78305316_78323702_78593342_78595536_FR	0.410328774	11.6853168	3.316677792	0.002284417	0.091342231	-1.42991755	IL7	80238	1.328953084
7	Hg38_19_17318585_17321803_17372677_17376287_RR	0.381335683	9.933778834	3.720551985	0.000756629	0.091342231	-0.4985848	PLVAP	0	1.311353276
8	Hg38_19_52837203_52843766_52961391_52964466_FR	0.384482166	10.3826698	3.358966394	0.002084283	0.091342231	-1.3334466	KLK3	0	1.30533816
9	Hg38_19_52837203_52840748_52961391_52964466_FR	0.384482166	10.39266689	3.359036594	0.002084283	0.091342231	-1.3334466	KLK5	0	1.305539816
10	Hg38_11_47288331_47305654_47497688_47501453_FR	0.380328819	9.063928996	4.619966038	6.02956E-05	0.009242231	1.675149952	PSMC3	0	1.301636812
11	Hg38_19_15474784_15476319_15596557_15603844_RR	0.378653204	9.937953422	3.414684216	0.001135787	0.091342231	-1.2665368	POLYPP2	0	1.30012743
12	Hg38_19_15474784_15476319_15596557_15603844_RR	0.378653204	9.937953422	3.414944295	0.001135787	0.091342231	-1.2665368	RASAL3	10214	1.30012743
13	Hg38_8_125022297_125211335_125304189_125311876_FF	0.371117023	8.362025511	3.09035348	0.004410212	0.095566983	-1.3400117	TRIB1	218446	1.294140135
14	Hg38_3_83554932_83574455_83691565_83699524_FF	0.369539558	9.566760847	3.477213697	0.001131118	0.091342231	-1.0789485	UBQLN1	0	1.293196613
15	Hg38_4_72364223_72375913_72471197_72476584_FF	0.368268238	12.68667217	3.628742217	0.000998561	0.091342231	-0.7134462	MAK7	0	1.292663537
16	Hg38_5_67178844_67182263_67211937_67219491_FR	0.364138864	10.81910031	3.550396031	0.001222601	0.091342231	-0.8954367	CD163	0	1.287157722
17	Hg38_17_31150085_31156746_31324781_31333350_FR	0.363357502	8.599348449	3.371277916	0.001997547	0.091342231	-1.3057949	KIF1	0	1.286661019
18	Hg38_17_31150085_31156746_31324781_31333350_FR	0.363357502	8.599348449	3.371277916	0.001997547	0.091342231	-1.3057949	ZWINT	0	1.286661019
19	Hg38_17_27594351_27602944_27705037_27714184_FR	0.361284469	10.53756036	3.402151396	0.001819509	0.091342231	-1.2356833	LGALS9	0	1.28663313
20	Hg38_3_105096230_105100237_105278351_105281780_RR	0.358318021	8.36021317	3.321477687	0.002133845	0.091342231	-0.9622208	ALCAM	85122	1.281797119
21	Hg38_19_36018418_36038871_36075450_36084543_FR	0.357984382	10.11884911	3.412044392	0.001777156	0.091342231	-1.2131375	WDR87	566891	1.281603787
22	Hg38_18_56028418_56038871_56075450_56084543_FR	0.357984382	10.11884911	3.412044393	0.001777156	0.091342231	-1.2131375	TCF4	353632	1.281603787
23	Hg38_12_14611883_14620949_14668330_14671240_FR	0.355994895	9.678631144	3.364313394	0.000954594	0.091342231	-0.2086072	HIST1H4	94769	1.279867793
24	Hg38_11_96685853_96699888_97100140_97116903_RF	0.355976111	10.81166089	3.256003838	0.002666728	0.093331951	-1.5607828	SWAP70	0	1.279851322
25	Hg38_10_122677780_122685636_122720672_122725534_FF	0.354389966	10.54400272	3.346111695	0.0022124	0.091342231	-1.3627586	DMBT1	34045	1.278444461
26	Hg38_19_50907981_50915966_50961391_50964466_RR	0.353306518	10.94466557	3.245158579	0.002275906	0.091709952	-1.5694733	KLK3	0	1.27727146
27	Hg38_10_122665557_122673276_122720672_122725534_FF	0.351194862	10.67333752	3.087744558	0.0043478	0.096655527	-1.9801141	DMBT1	16822	1.276837722
28	Hg38_17_27573833_27580584_27705037_27714184_RR	0.351165653	9.67113893	3.036653773	0.004741497	0.098223343	-2.0474882	LGALS9	0	1.276628535
29	Hg38_8_55800036_55803373_55941582_55947045_FF	0.347431899	11.33081287	3.350223441	0.002122245	0.091612204	-1.5708146	LYN	0	1.271229245
30	Hg38_6_13822111_13826619_14070078_14075830_RF	0.346603773	8.566733369	3.170781308	0.003352139	0.093231143	-1.7544996	CD83	414427	1.271556722
31	Hg38_17_39781052_39789227_39819888_39822803_RR	0.346448849	10.33224977	3.245139879	0.002273875	0.091709952	-1.5893796	KRT3	0	1.271426087

FIGURE 15

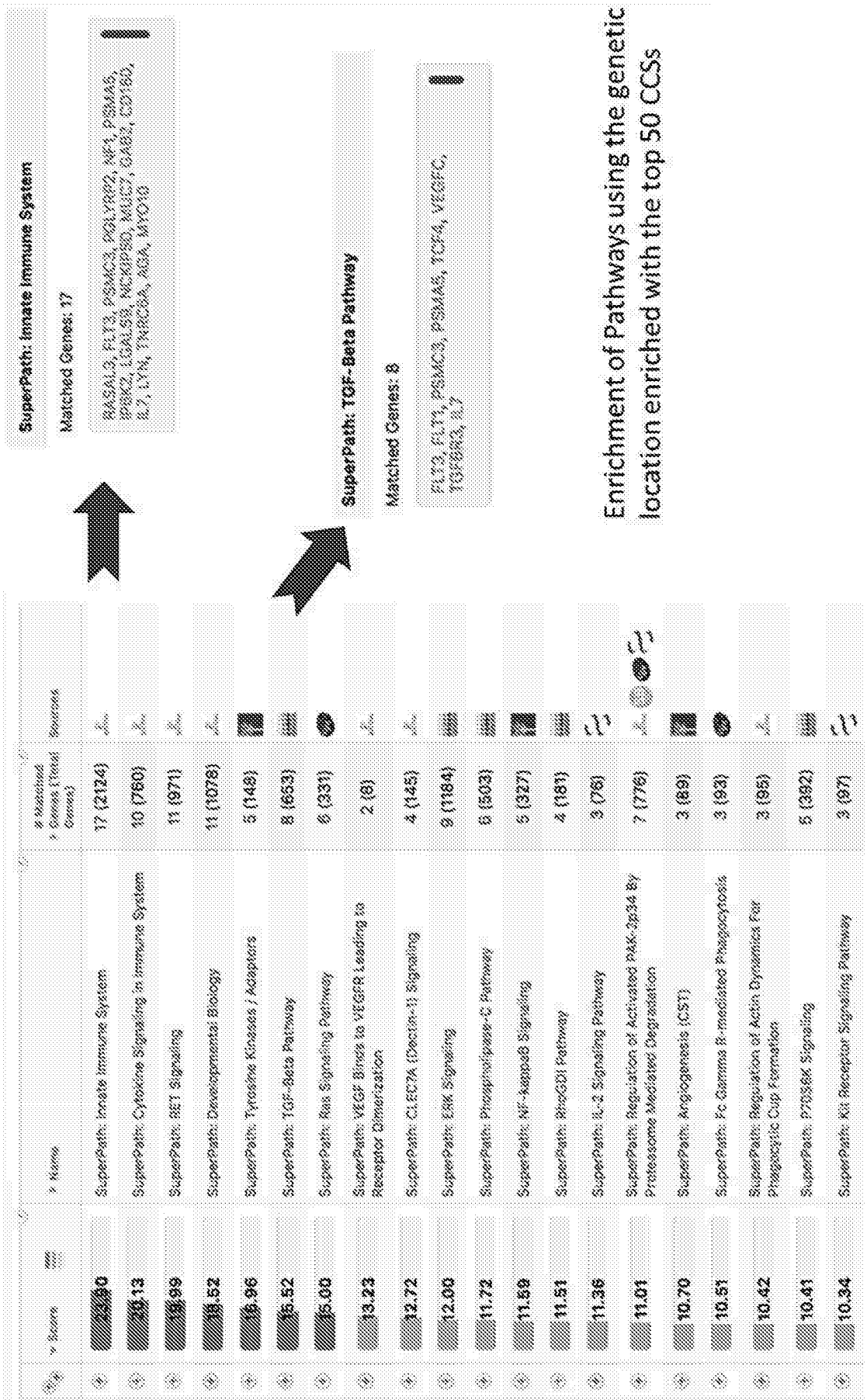

SuperPath: Innate Immune System
Matched Genes: 17
RASAL3, FLT3, PSMC3, PDLYRF2, NR1, PSMA6, IRAK2, LGALS9, NCKIPSD, MUC7, GAB2, CD160, IL2, LYN, TNRC6A, AOA, MYO1G
SuperPath: TGF-Beta Pathway
Matched Genes: 8
FLT3, FLT1, PSMC3, PSMA6, TCF4, VEGFC, TGFBR3, IL7
Enrichment of Pathways using the genetic location enriched with the top 50 CCSs
Score
Name
Matched Genes (Total Genes)
Sources
11.80 SuperPath: Innate Immune System 17 (2124)
10.13 SuperPath: Cytokine Signaling in Immune System 10 (760)
9.99 SuperPath: BET Signaling 11 (971)
9.52 SuperPath: Developmental Biology 11 (1078)
8.96 SuperPath: Tyrosine Kinases / Adaptors 5 (148)
8.52 SuperPath: TGF-Beta Pathway 8 (653)
8.00 SuperPath: Ras Signaling Pathway 6 (331)
13.23 SuperPath: VEGF Binds to VEGFR Leading to Receptor Dimerization 2 (8)
12.72 SuperPath: CLEC7A (Dectin-1) Signaling 4 (145)
12.00 SuperPath: ERK Signaling 9 (1184)
11.72 SuperPath: Phosphatidylinositol-3 Pathway 6 (503)
11.59 SuperPath: NF-kappaB Signaling 5 (327)
11.51 SuperPath: RhoGDI Pathway 4 (181)
11.36 SuperPath: IL-2 Signaling Pathway 3 (76)
11.01 SuperPath: Regulation of Activated PAK-2p34 By Proteasome Mediated Degradation 7 (776)
10.70 SuperPath: Angiogenesis (CST) 3 (89)
10.51 SuperPath: Fc Gamma R-mediated Phagocytosis 3 (93)
10.42 SuperPath: Regulation of Actin Dynamics For Phagocytic Cup Formation 3 (95)
10.41 SuperPath: PI3K/Akt Signaling 5 (392)
10.34 SuperPath: Kit Receptor Signaling Pathway 3 (97)

FIGURE 16

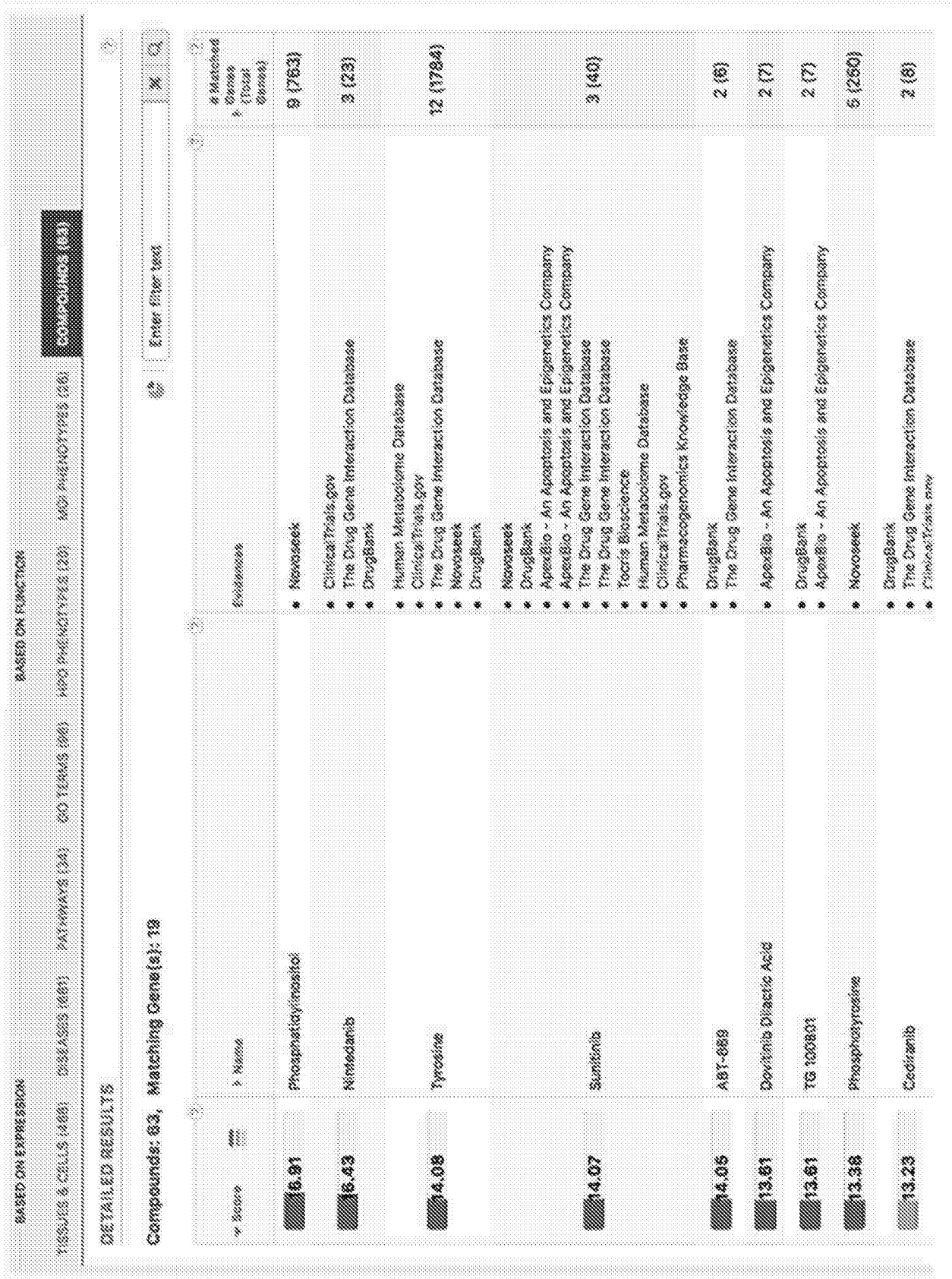

BASED ON EXPRESSION
BASED ON FUNCTION
TISSUES & CELLS (466)
DISEASES (661)
PATHWAYS (24)
GO TERMS (66)
HPO PHENOTYPES (20)
MO PHENOTYPES (16)
Compounds (63)
DETAILED RESULTS
Compounds: 63, Matching Gene(s): 19
Enter filter text
Score
Name
Sources
Matched Genes (Total Genes)
6.91
Phosphatidylinositol
Novoseek
9 (763)
6.43
Nintedanib
ClinicalTrials.gov
The Drug Gene Interaction Database
DrugBank
3 (23)
4.08
Tyrosine
Human Metabolome Database
ClinicalTrials.gov
The Drug Gene Interaction Database
Novoseek
DrugBank
12 (1784)
4.07
Sunitinib
Novoseek
DrugBank
Apexbio - An Apoptosis and Epigenetics Company
Apexbio - An Apoptosis and Epigenetics Company
The Drug Gene Interaction Database
The Drug Gene Interaction Database
Tocris Bioscience
Human Metabolome Database
ClinicalTrials.gov
Pharmacogenomics Knowledge Base
3 (40)
4.05
A61-689
DrugBank
The Drug Gene Interaction Database
2 (6)
13.61
Dovitinib Dilactic Acid
Apexbio - An Apoptosis and Epigenetics Company
2 (7)
13.61
TG 100801
DrugBank
Apexbio - An Apoptosis and Epigenetics Company
2 (7)
13.38
Phosphotyrosine
Novoseek
6 (250)
13.23
Cediranib
DrugBank
The Drug Gene Interaction Database
ClinicalTrials.gov
2 (8)

FIGURE 17

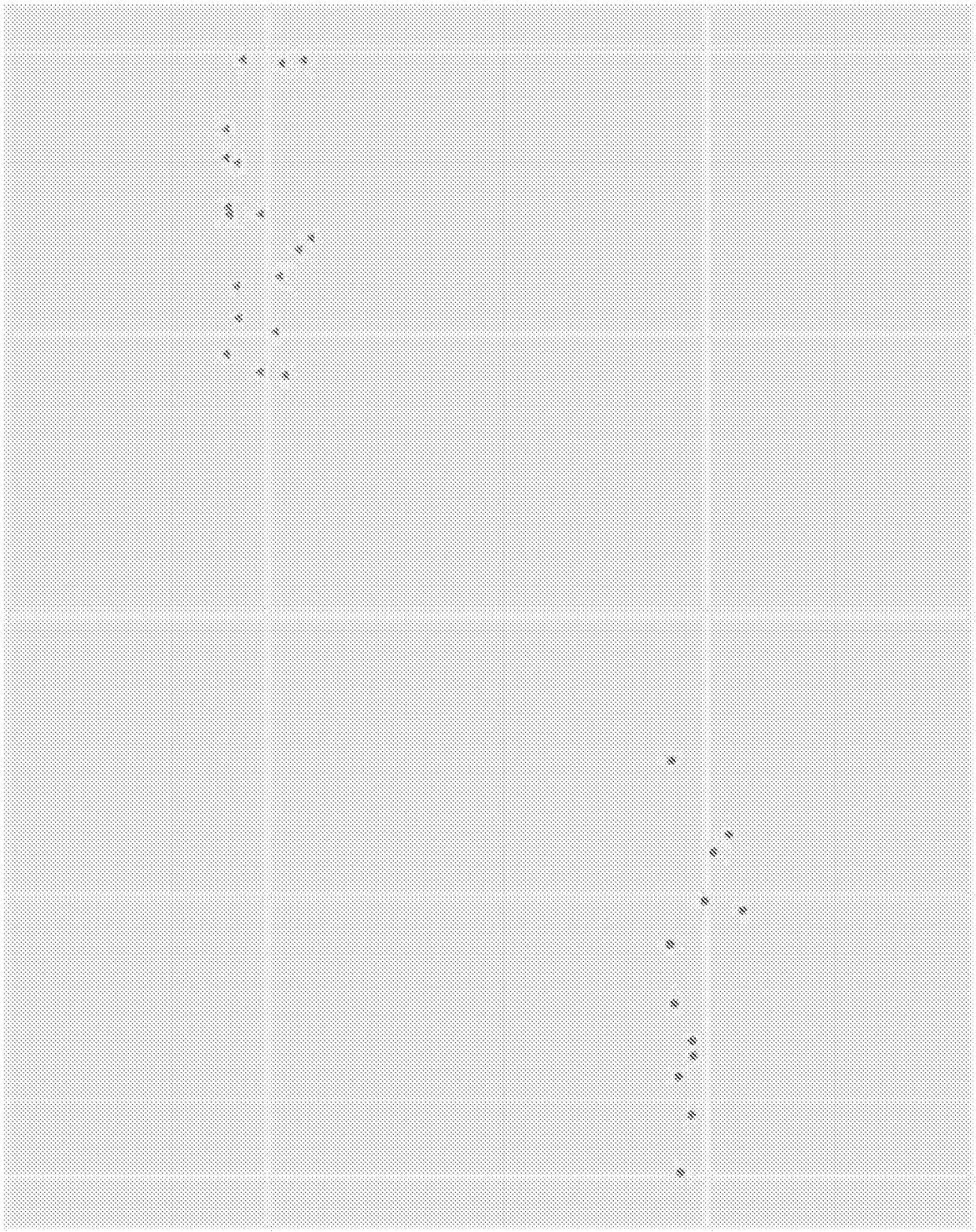


FIGURE 18

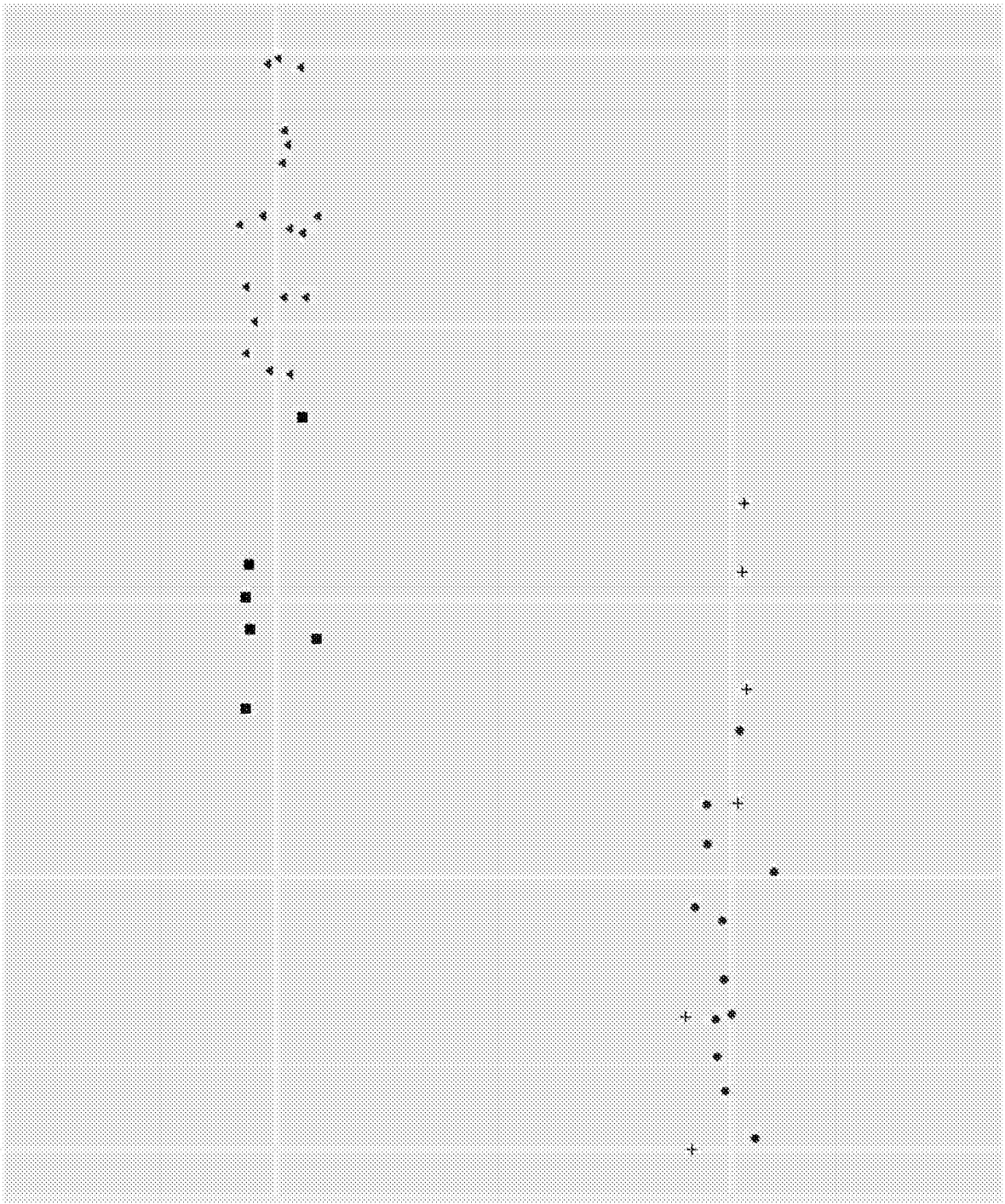


FIGURE 19

	Predicted Mild	Predicted Severe
Actual Mild (18)	16	2
Actual Severe (24)	1	23

Statistic	Value	95% CI
Sensitivity	94.12%	71.31% to 99.85%
Specificity	92.00%	73.97% to 99.02%
Positive Likelihood Ratio	11.76	3.10 to 44.69
Negative Likelihood Ratio	0.06	0.01 to 0.43
Disease prevalence (*)	40.48%	25.63% to 56.72%
Positive Predictive Value (*)	88.89%	67.80% to 96.81%
Negative Predictive Value (*)	95.83%	77.39% to 99.36%
Accuracy (*)	92.86%	80.52% to 98.50%

FIGURE 20

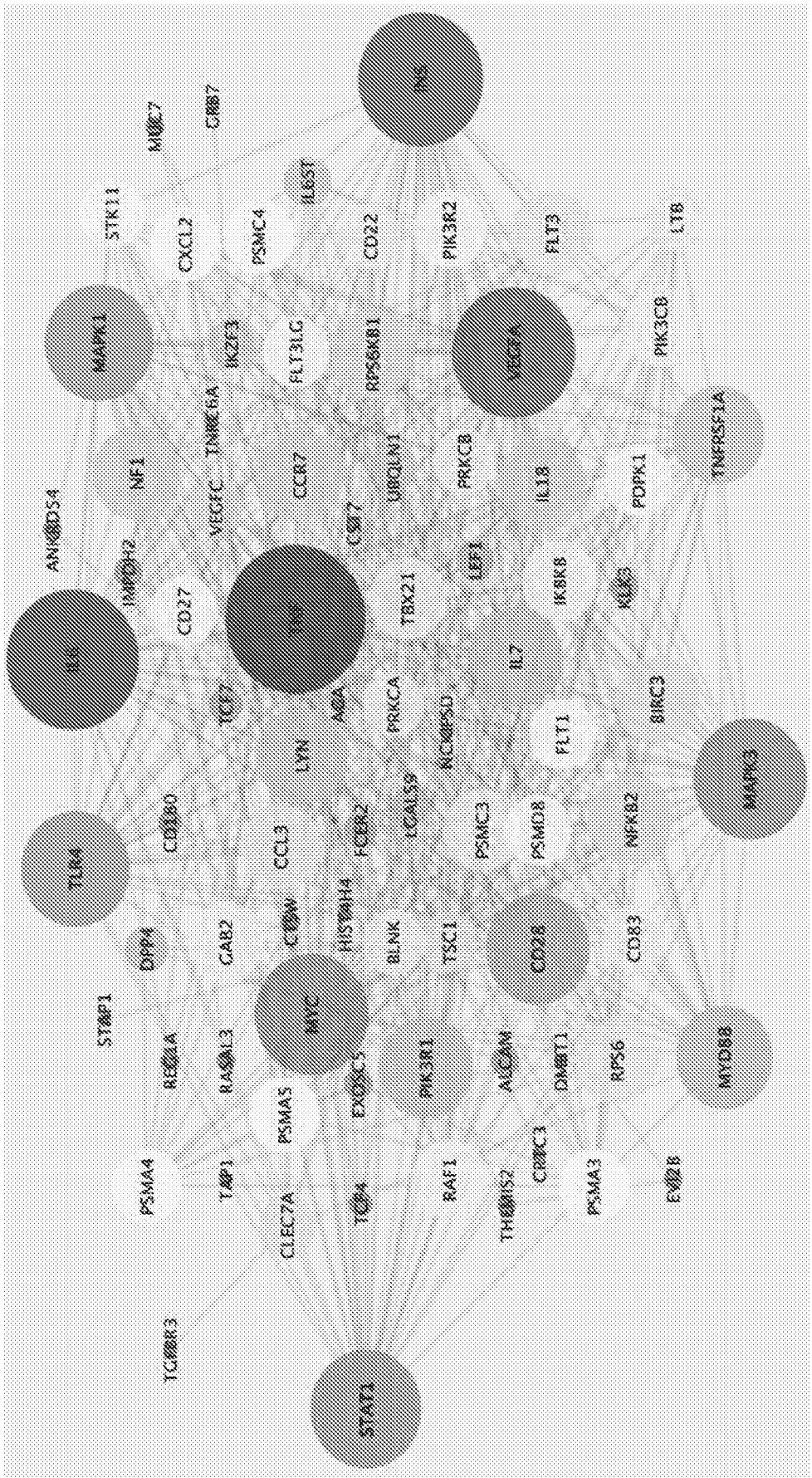

STAT1
TLR4
MAPK3
MAPK1
PIK3CA
PIK3R2
PIK3CB
CXCL2
PSMC4
IL6ST
CD22
FLT3
FLT3LG
RPS6KB1
TNFRSF1A
LTB
CCR7
IRF3
NF1
VEGFC
TNFRSF1A
PRKCB
PDPK1
IL18
IKBKB
IL7
FLT1
BIRC3
NFKB2
CD83
RPS6
MYD88
TBX21
LEF1
CD27
TCF7
LYN
PRKCA
FCER2
PSMC3
PSMD8
CD38
DUSP1
CLEC7A
PSMA4
PSMA5
PSMA3
RAF1
PIK3R1
TSC1
BLNK
HISTIH4H
CCL3
CD80
CD86
CD274
CD200
CD200R3
STAP1
RASGRP3
RASGRF1
EXOSC5
ADA
ICOSLG
CD27
CD28
CD247
CD3E
CD3D
CD3G
CD8A
CD8B
CD4
ZAP70
LCK
ITK
SH2D1A
CD40LG
CD40
TRAF6
TRAF2
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TRAF99
TRAF100

FIGURE 21

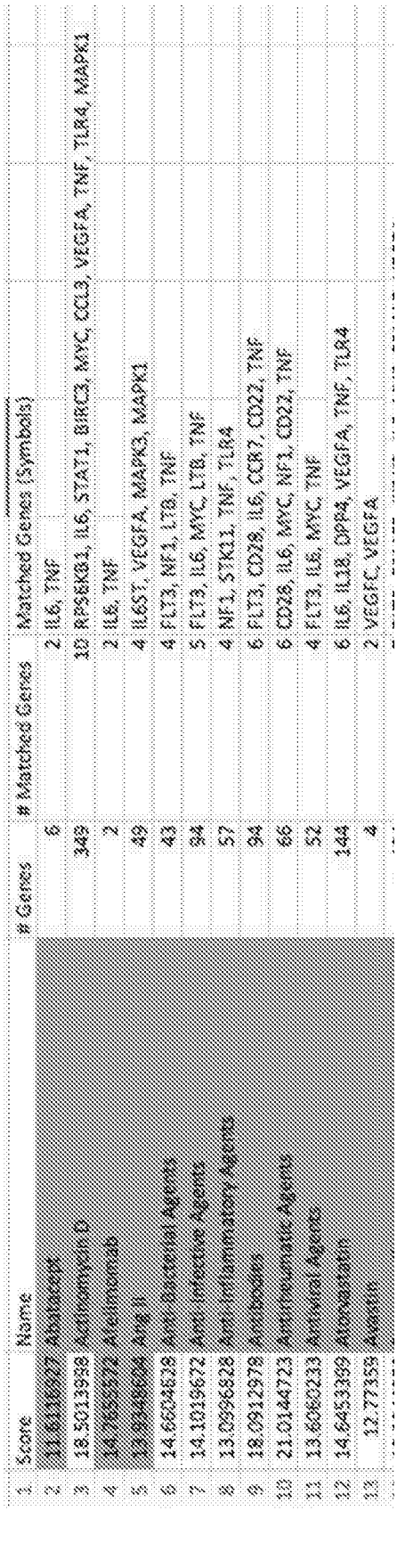
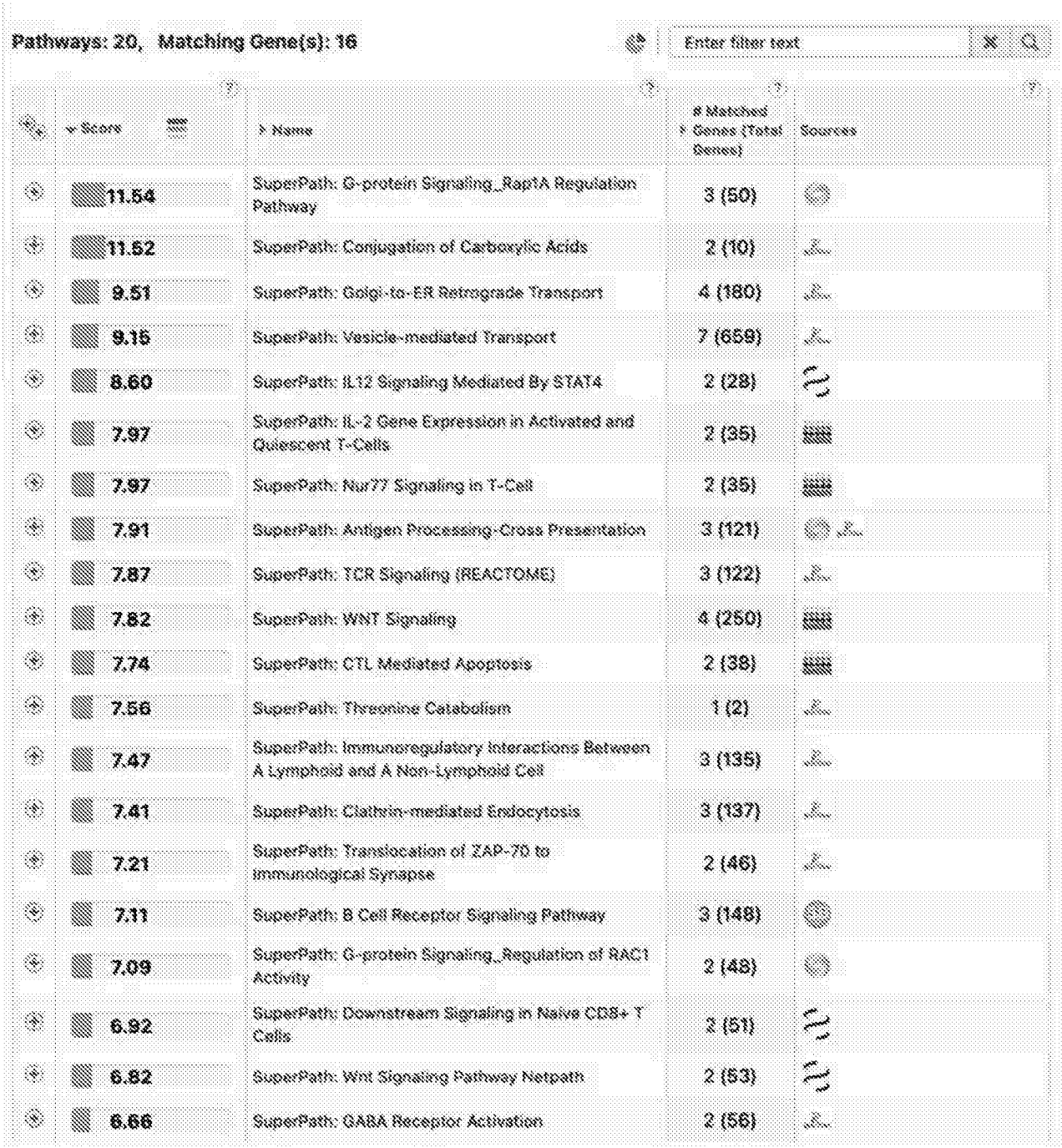

Score
Name
Genes
Matched Genes
Matched Genes (Symbols)
11.6119627 Adalimumab 6 2 IL6, TNF
18.5013938 Adefovir dipivoxil 349 10 RPSEKB1, IL6, STAT1, BIRC3, MYC, CCL3, VEGFA, TNF, TLR4, MAPK1
14.7653572 Alemtuzumab 2 2 IL6, TNF
19.3348664 Ang II 49 4 IL6ST, VEGFA, MAPK3, MAPK1
14.6624838 Anti-Bacterial Agents 43 4 FLT3, NF1, LTB, TNF
14.1019672 Anti-Infective Agents 94 5 FLT3, IL6, MYC, LTB, TNF
13.0596828 Anti-Inflammatory Agents 57 4 NF1, STK11, TNF, TLR4
18.0912978 Antibodies 94 6 FLT3, CD28, IL6, CCR7, CD22, TNF
21.0144723 Antineoplastic Agents 66 6 CD28, IL6, MYC, NF1, CD22, TNF
13.6082233 Antiviral Agents 52 4 FLT3, IL6, MYC, TNF
14.6453389 Atezolizumab 144 6 IL6, IL18, DPP4, VEGFA, TNF, TLR4
12.77359 Avastin 4 2 VEGFC, VEGFA
The binomial distribution is used to test the null hypothesis that the user's input genes are not over-represented within any Compound
Number of genes in compound set
Number of genes in the input list

FIGURE 22



Pathways: 20, Matching Gene(s): 16

Enter filter text

Score	Name	# Matched Genes (Total Genes)	Sources
11.54	SuperPath: G-protein Signaling_Rap1A Regulation Pathway	3 (50)	
11.52	SuperPath: Conjugation of Carboxylic Acids	2 (10)	
9.51	SuperPath: Golgi-to-ER Retrograde Transport	4 (180)	
9.15	SuperPath: Vesicle-mediated Transport	7 (659)	
8.60	SuperPath: IL12 Signaling Mediated By STAT4	2 (28)	
7.97	SuperPath: IL-2 Gene Expression in Activated and Quiescent T-Cells	2 (35)	
7.97	SuperPath: Nur77 Signaling in T-Cell	2 (35)	
7.91	SuperPath: Antigen Processing-Cross Presentation	3 (121)	
7.87	SuperPath: TCR Signaling (REACTOME)	3 (122)	
7.82	SuperPath: WNT Signaling	4 (250)	
7.74	SuperPath: CTL Mediated Apoptosis	2 (38)	
7.56	SuperPath: Threonine Catabolism	1 (2)	
7.47	SuperPath: Immunoregulatory Interactions Between A Lymphoid and A Non-Lymphoid Cell	3 (135)	
7.41	SuperPath: Clathrin-mediated Endocytosis	3 (137)	
7.21	SuperPath: Translocation of ZAP-70 to Immunological Synapse	2 (46)	
7.11	SuperPath: B Cell Receptor Signaling Pathway	3 (148)	
7.09	SuperPath: G-protein Signaling_Regulation of RAC1 Activity	2 (48)	
6.92	SuperPath: Downstream Signaling in Naive CD8+ T Cells	2 (51)	
6.82	SuperPath: Wnt Signaling Pathway Netpath	2 (53)	
6.66	SuperPath: GABA Receptor Activation	2 (56)	

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2022/050010

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12Q1/6827
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data, BIOSIS, CHEM ABS Data, EMBASE, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	Hunter Ewan ET AL: "3D genomic capture of regulatory immuno-genetic profiles in COVID-19 patients for prognosis of severe COVID disease outcome", bioRxiv, 16 March 2021 (2021-03-16), pages 1-58, XP055915458, DOI: 10.1101/2021.03.14.435295 Retrieved from the Internet: URL:https://www.biorxiv.org/content/10.1101/2021.03.14.435295v1.full.pdf [retrieved on 2022-04-26] the whole document	1-37

-/--

[x] Further documents are listed in the continuation of Box C.

[x] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 April 2022	12/05/2022

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Leber, Thomas

1

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2022/050010

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	Hunter Ewan ET AL: "Development and validation of blood-based prognostic biomarkers for severity of COVID disease outcome using EpiSwitch 3D genomic regulatory immuno-genetic profiling", medRxiv, 28 June 2021 (2021-06-28), pages 1-36, XP055915429, DOI: 10.1101/2021.06.21.21259145 Retrieved from the Internet: URL:www [retrieved on 2022-04-26] title; Fig. 1 the whole document	1-37
X	SALTER MATTHEW ET AL: F1000RESEARCH, [Online] vol. 7, 1 January 2018 (2018-01-01), page 1757, XP055835977, DOI: 10.12688/f1000research.15828.1 Retrieved from the Internet: URL:https://f1000research.com/articles/7-1757/v1/xml> [retrieved on 2022-04-26] abstract; Fig. 3-6 and 8	1-37
X	WO 2016/207647 A1 (OXFORD BIODYNAMICS LTD [GB]) 29 December 2016 (2016-12-29) title; Fig. 1-5; claims 1, 16	1-37
X	WO 2019/069067 A1 (OXFORD BIODYNAMICS LTD [GB]) 11 April 2019 (2019-04-11) claims 1, 2, 12, 13, 15, 16, 24 and 25	1-37

1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB2022/050010

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed:

      ☐ in the form of an Annex C/ST.25 text file.

      ☐ on paper or in the form of an image file.

   b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.

   c. ☒ furnished subsequent to the international filing date for the purposes of international search only:

      ☒ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).

      ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).

2. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2022/050010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2016207647 A1	29-12-2016	AU 2016281766 A1	01-02-2018
		AU 2016281772 A1	01-02-2018
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		AU 2019219864 A1	12-09-2019
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		CA 2988674 A1	29-12-2016
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		CN 108138223 A	08-06-2018
		CN 108377651 A	07-08-2018
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		EP 3314018 A1	02-05-2018
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		HK 1253313 A1	14-06-2019
		HK 1253314 A1	14-06-2019
		JP 2018518203 A	12-07-2018
		JP 2018518992 A	19-07-2018
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		JP 2021072774 A	13-05-2021
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		KR 20180039629 A	18-04-2018
		KR 20180039631 A	18-04-2018
		KR 20180040575 A	20-04-2018
		SG 10201913628R A	30-03-2020
		US 2018274015 A1	27-09-2018
		US 2019071715 A1	07-03-2019
		WO 2016207647 A1	29-12-2016
		WO 2016207653 A1	29-12-2016
		WO 2016207661 A1	29-12-2016
		ZA 201708230 B	31-07-2019
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