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(54) Title: METHODS AND COMPOSITIONS FOR DETECTING TRANSFUSION-TRANSMITTED PATHOGENS

(57) Abstract: Probe sets capable of detecting pathogen nucleic acids in a sample are described. The probe set can be provided on a solid support, such as a microarray. Methods of detecting pathogen nucleic acids in a sample using the probe set are also provided. In some examples, the probes and methods are capable of detecting one or more RNA viruses, one or more DNA viruses, one or more bacterial nucleic acids, and/or one or more protozoan nucleic acids in a sample.

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METHODS AND COMPOSITIONS FOR DETECTING TRANSFUSION-TRANSMITTED PATHOGENS

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 62/799,482, filed January 31, 2019, which is incorporated herein by reference in its entirety.

FIELD

This disclosure relates to compositions and methods for detecting pathogens in a sample, particularly probes and microarrays and methods of their use.

ACKNOWLEDGMENT OF GOVERNMENT SUPPORT

This invention was made with Government support under project number Z01 CL002068-28 by the National Institutes of Health, Clinical Center. The Government has certain rights in the invention.

BACKGROUND

Each year millions of blood donations are collected globally and millions of blood components are transfused to patients. Though screening of these blood units using serologic and nucleic acid testing (NAT) has greatly reduced the risk of some transfusion-transmitted infections (TTIs), the vast majority of bloodborne agents are not screened (Alter *et al., Semin. Hematol.* 44:32-41, 2007; Glynn *et al., Transfusion* 53:438-454, 2013; Leveton *et al., Transfusion* 36:919-927, 1996). The U.S. Food and Drug Administration-licensed methods for infectious disease screening of donor blood include: 1) nucleic acid testing (NAT) for Hepatitis B virus (HBV), Hepatitis C virus (HCV), HIV-1 and -2, Babesia, West Nile virus (WNV) and Zika virus (ZIKV); and 2) immunoassays for HBV, HCV, HIV-1 and -2, cytomegalovirus (CMV), human T-cell lymphotropic virus I and II (HTLV), Treponema pallidum (syphilis), and Trypanosoma cruzi (Chagas). HTLV, syphilis, and Chagas antibody testing fail to detect these pathogens during a window period and Chagas is screened only once on samples from first-time blood donors (Duncan *et al., Exp. Rev. Mol. Diagn.* 16:83-95, 2016).

The American Association of Blood Banks Transfusion-Transmitted Diseases Committee produced a list of over 30 pathogens of concern for transmission via blood that included bacteria, parasites, prions and viruses (Stramer *et al., Transfusion* 49:1S-29S, 2009). Only prions cannot be detected by currently available technology. Nearly all the other agents currently require individual qPCR or serologic testing and it is logistically impractical and cost prohibitive to test all known and potential agents individually (Stramer *ISBT Science Series* 9:30-37, 2014; Atrey *et al., Transfusion* 51:1855-1871, 2011).

Multiplex PCR-based devices for testing blood-borne pathogens are limited. FDA-approved blood donor screening assays that use transcription-mediated amplification for multiplex detection of HBV, HCV,

and HIV 1 and 2 include the cobas TaqScreen MPX Test (Roche Molecular Systems, Inc.) and the Procleix Ultrio Plus (Gen-Probe, Inc.) (Duncan *et al., Exp. Rev. Mol. Diagn.* 16:83-95, 2016).

SUMMARY

A multiplex assay capable of detecting many, most, or all known pathogens of concern in a single small blood sample with high sensitivity and specificity could significantly increase the safety of the blood supply. Further, to counter emerging pathogens, the platform should be adaptable for rapid addition and validation of probes to detect new agents. Microarray-based technology offers the advantage of multiplex detection in a miniaturized format with high adaptability.

Disclosed herein are probe sets that include probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, or at least 99% identity) with the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769, or subsets thereof. In some examples, the probe set includes probes with the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769, or a subset thereof. In some embodiments, the probe set includes one or more probes (such as 30 or more probes) for one or more RNA viruses, such as one or more of Chikungunya virus, Dengue virus type 1, Dengue virus type 2, Dengue virus type 3, Dengue virus type 4, Hepatitis A virus, Hepatitis C virus type 1, Hepatitis C virus type 2, Hepatitis C virus type 3, Hepatitis E virus, Human immunodeficiency virus type 1, Human immunodeficiency virus type 2, Human T-lymphotropic virus type I, Human T-lymphotropic virus type II, West Nile virus, and Zika virus.

In other embodiments, the probe set includes one or more probes for one or more DNA viruses, such as one or more of cytomegalovirus (CMV, also known as HHV-5), Epstein Barr virus (EBV, also known as HHV-4, for example subtype B95-8 and/or AG876)), human herpes virus 8 (HHV-8), Hepatitis B virus (such as one or more of Hepatitis B virus subtype adw, subtype ayw, subtype adr, and subtype ayr), human parvovirus B19, and human papillomavirus (HPV, such as one or more of type 6, 11, 16, and 18). In some embodiments, the probe set includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, or at least 99% identity) with the nucleic acid sequences of SEQ ID NOs: 1770-2647, or a subset thereof. In some examples, the probe set includes probes with the nucleic acid sequences of SEQ ID NOs: 1770-2647, or a subset thereof.

Further disclosed are probe sets that include one or more probes for one or more bacterial or protozoan pathogens, such as one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax.* In some embodiments, the probe set includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, or at least 99% identity) with the nucleic acid sequences of SEQ ID NOs: 2648-3207, or a subset thereof. In some examples, the probe set includes probes with the nucleic acid sequences of SEQ ID NOs: 2648-3207, or a subset thereof.

In some embodiments, the disclosed probe sets include at least one negative control probe and/or at least one positive control probe. In some examples the negative control probe is a probe with at least 90% identity (such as at least 90%, at least 95%, at least 98%, or at least 99% identity) with the nucleic acid sequences of any one of SEQ ID NOs: 1571-1690. In other examples the control probe is a probe with at least 90% identity (such as at least 90%, at least 95%, at least 98%, or at least 99% identity) with the nucleic acid sequences of any one of SEQ ID NOs: 3208-3628.

In one non-limiting embodiment, the probe set is a set of probes including each of SEQ ID NOs: 1-1769. In another non-limiting embodiment, the probe set is a set of probes including each of SEQ ID NOs: 1770-2647 and 3208-3628, each of SEQ ID NOs: 2648-3628, or each of SEQ ID NOs: 1770-3628. In a further non-limiting embodiment, the microarray includes probes including each of SEQ ID NOs: 1-3628.

Also disclosed are microarrays that include a probe set described herein, for example, wherein the probes are covalently linked to a solid support. In one non-limiting example, the microarray includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, at least 99%, or at least 100% identity) with the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769, or subsets thereof. In another non-limiting example, the microarray includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, at least 99%, or at least 100% identity) with the nucleic acid sequences of SEQ ID NOs: 1770-2647, or subsets thereof. In a further non-limiting example, the microarray includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, at least 99%, or at least 100% identity) with the nucleic acid sequences of SEQ ID NOs: 2648-3207, or subsets thereof. In yet another non-limiting embodiment, the microarray includes probes with at least 90% identity (such as at least 90%, at least 95%, at least 98%, at least 99%, or at least 100% identity) with the nucleic acid sequences of SEQ ID NOs: 1770-3207, or subsets thereof. The microarray may further include negative and/or positive control probes. In one non-limiting embodiment, the microarray includes probes including each of SEQ ID NOs: 1-1769. In other non-limiting embodiments, the microarray includes probes including each of SEQ ID NOs: 1770-2647 and 3208-3628, each of SEQ ID NOs: 2648-3628, each of SEQ ID NOs: 1770-3628. In a further non-limiting embodiment, the microarray includes probes including each of SEQ ID NOs: 1-3628.

Disclosed herein are methods of detecting one or more pathogen nucleic acids in a sample. In some examples, the methods include detecting nucleic acids from one or more RNA viruses, such as one or more of Chikungunya virus, Dengue virus type 1, Dengue virus type 2, Dengue virus type 3, Dengue virus type 4, Hepatitis A virus, Hepatitis C virus type 1, Hepatitis C virus type 2, Hepatitis C virus type 3, Hepatitis E virus, Human immunodeficiency virus type 1, Human immunodeficiency virus type 2, Human T-lymphotropic virus type I, Human T-lymphotropic virus type II, West Nile virus, and Zika virus in a sample. In other examples, the methods include detecting nucleic acids from one or more DNA viruses, such as one or more of cytomegalovirus, Epstein Barr virus, human herpes virus 8, Hepatitis B virus, human parvovirus B19, and human papillomavirus.

Also disclosed are methods of detecting one or more bacterial and/or protozoan nucleic acids in a sample. In some examples, the methods include detecting nucleic acids from one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti, Plasmodium falciparum,* and *Plasmodium vivax*.

In some examples, the methods include contacting a sample with a disclosed probe set or microarray under conditions sufficient to allow hybridization of pathogen nucleic acids present in the sample to the probes of the probe set or microarray and measuring hybridization of the sample to one or more of the probes, thereby detecting one or more nucleic acids in the sample. The sample may be a blood, serum, or plasma sample, or nucleic acids (such as RNA or cDNA) isolated from the sample. In particular examples, the sample is a blood donation sample or nucleic acids isolated from a blood donation sample. In particular examples, nucleic acids (such as RNA or cDNA) from the sample are labeled prior to contacting the probe set or microarray with the nucleic acids. In one example, the method includes preparing cDNA from the sample and labeling the cDNA. In some examples, the method does not include amplifying RNA from the sample prior to preparing the cDNA.

The foregoing and other features of the disclosure will become more apparent from the following detailed description, which proceeds with reference to the accompanying figures.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1A-1C are a series of panels showing pathogen chip design (FIG. 1A), sample preparation work flow (FIG. 1B), and analysis strategy (FIG. 1C) for pathogen detection microarrays.

FIGS. 2A-2C are a series of graphs showing amplification method and Pathogen Chip assay performance assessed using positive control viral RNAs. FIG. 2A shows SPIA amplification vs. standard (STD) method. cDNA concentration after amplification for four representative viral RNAs is shown. Starting RNA concentration was <10 ng/μl each. FIG. 2B shows Pathogen chip assay performance 1. Bars are the mean of Cy3 signal for the Chikungunya and West Nile probes hybridized to test samples positive for CHIKV and WNV and a negative plasma sample. Only probes specific to target showed a specific hybridization signal. No signal was detected for negative plasma. FIG. 2C shows Pathogen chip assay performance 2. Detection responses of four representative samples (Dengue-4) were measured over a dilution series from 10,000 to 10 genomic copies per sample. Bars are the mean of Cy3 signals for all probes to the indicated viruses hybridized to test samples.

SEQUENCE LISTING

Any nucleic acid and amino acid sequences listed herein or in the accompanying sequence listing are shown using standard letter abbreviations for nucleotide bases and amino acids, as defined in 37 C.F.R. § 1.822. In at least some cases, only one strand of each nucleic acid sequence is shown, but the complementary strand is understood as included by any reference to the displayed strand.

In the accompanying sequence listing:

SEQ ID NOs: 1-110 are Hepatitis C virus genotype 1 probes

SEQ ID NOs: 111-210 are Hepatitis C virus genotype 2 probes

SEQ ID NOs: 211-310 are Hepatitis C virus genotype 3 probes

SEQ ID NOs: 311-400 are Human Immunodeficiency virus 1 probes

SEQ ID NOs: 401-510 are Human Immunodeficiency virus 2 probes

SEQ ID NOs: 511-570 are Human T-lymphotropic virus I probes

SEQ ID NOs: 571-660 are Human T-lymphotropic virus II probes

SEQ ID NOs: 661-760 are West Nile virus NY99 probes

SEQ ID NOs: 761-870 are West Nile virus 956 probes

SEQ ID NOs: 871-900 are Chikungunya virus probes

SEQ ID NOs: 901-1000 are Dengue virus 1 probes

SEQ ID NOs: 1001-1100 are Dengue virus 2 probes

SEQ ID NOs: 1101-1199 are Dengue virus 3 probes

SEQ ID NOs: 1200-1300 are Dengue virus 4 probes

SEQ ID NOs: 1301-1390 are GB virus C/Hepatitis G virus probes

SEQ ID NOs: 1391-1500 are Hepatitis A virus probes

SEQ ID NOs: 1501-1570 are Hepatitis E virus probes

SEQ ID NOs: 1571-1580 are White clover cryptic virus 1 probes

SEQ ID NOs: 1581-1620 are Broad bean wilt virus 1 probes

SEQ ID NOs: 1621-1690 are Lettuce necrotic yellows virus probes

SEQ ID NOs: 1691-1700 are Zika virus isolate Brazil-ZKV2015 probes

SEQ ID NOs: 1701-1710 are Zika virus strain PRVABC59 probes

SEQ ID NOs: 1711-1720 are Zika virus isolate Z1106033 probes

SEQ ID NOs: 1721-1730 are Zika virus isolate SSABR1 probes

SEQ ID NOs: 1731-1769 are Zika virus strain ZikaSPH2015 probes

SEQ ID NOs: 1770-1852 are Cytomegalovirus probes

SEQ ID NOs: 1853-1917 are Epstein Barr virus B95-8 probes

SEQ ID NOs: 1918-2023 are Epstein Barr virus AG876 probes

SEQ ID NOs: 2024-2108 are Human herpesvirus 8 probes

SEQ ID NOs: 2109-2192 are Human papillomavirus subtype 6b probes

SEQ ID NOs: 2193-2271 are Human papillomavirus subtype 11 probes

SEQ ID NOs: 2272-2342 are Human papillomavirus subtype 16 probes

SEQ ID NOs: 2343-2419 are Human papillomavirus subtype 18 probes

SEQ ID NOs: 2420-2470 are Hepatitis B virus subtype adw probes

SEQ ID NOs: 2471-2520 are Hepatitis B virus subtype ayw probes

SEQ ID NOs: 2521-2556 are Hepatitis B virus subtype adr probes

SEQ ID NOs: 2557-2602 are Hepatitis B virus subtype ayr probes
SEQ ID NOs: 2603-2647 are Human parvovirus B19 probes
SEQ ID NOs: 2648-2751 are *Treponema pallidum* probes
SEQ ID NOs: 2752-2852 are *Ehrlichia chaffeensis* probes
SEQ ID NOs: 2853-2861 are *Ehrlichia ewingii* probes
SEQ ID NOs: 2862-2922 are *Ehrlichia muris* probes
SEQ ID NOs: 2923-3001 are *Borrelia burgdorferi* probes
SEQ ID NOs: 3002-3085 are *Coxiella burnetii* probes
SEQ ID NOs: 3086-3097 are *Trypanosoma brucei* probes
SEQ ID NO: 3098 is a *Trypanosoma cruzi* probe
SEQ ID NOs: 3099-3113 are *Leishmania major* probes
SEQ ID NOs: 3114-3154 are *Babesia microti* probes
SEQ ID NOs: 3155-3185 are *Plasmodium falciparum* probes
SEQ ID NOs: 3186-3207 are *Plasmodium vivax* probes
SEQ ID NOs: 3208-3301 are human ACTB probes
SEQ ID NOs: 3302-3385 are human ARL1 probes
SEQ ID NOs: 3386-3519 are human CCDN1 probes
SEQ ID NOs: 3520-3557 are Aedes albopictus densovirus 2 probes
SEQ ID NOs: 3558-3598 are Maize streak virus probes
SEQ ID NOs: 3599-3628 are Tomato pseudo-curly top virus probes

DETAILED DESCRIPTION

Disclosed herein are customized sets of probes, including microarray-based pathogen chips, for simultaneous detection of nucleic acids from RNA viruses, DNA viruses, and/or bacteria or protozoan pathogens in blood samples (such as human plasma) that are designed to have the flexibility to expand to detect emerging agents in a relatively short time frame. The presence of multiple probes per target represents an advantage in comparison to traditional NAT or EIA assays since the pathogen(s) can be detected even in the case of failure of one of the probes due to mutation (Petrik *Vox Sanguinis* 80:1-11, 2001). The flexibility and high-throughput capability of microarrays hold great potential for pathogen detection and identification, but historically have had limitations in detecting the presence of the low viral levels (Chen *et al., J. Vis. Exp.* 50:e2536, 2011; Wang *et al., Proc. Natl. Acad. Sci. USA* 99:15687-15692, 2002; Eckburg *et al., Clin. Infect. Dis.* 43:e71-e76, 2006). Disclosed herein are probe sets and microarray assays that include: 1) a platform design that simultaneously detects and distinguishes multiple pathogens and closely related strains or subtypes; and 2) a combination of amplification and labeling protocols to detect multiple targets present at low levels in a sample.

I. Terms

Unless otherwise noted, technical terms are used according to conventional usage. Definitions of common terms in molecular biology may be found in *Lewin's Genes X*, ed. Krebs *et al.*, Jones and Bartlett Publishers, 2009 (ISBN 0763766321); Kendrew *et al.* (eds.), *The Encyclopedia of Molecular Biology*, published by Blackwell Publishers, 1994 (ISBN 0632021829); Robert A. Meyers (ed.), *Molecular Biology and Biotechnology: a Comprehensive Desk Reference*, published by Wiley, John & Sons, Inc., 1995 (ISBN 0471186341); and George P. Rédei, E*ncyclopedic Dictionary of Genetics, Genomics, Proteomics and Informatics,* 3rd Edition, Springer, 2008 (ISBN: 1402067534), and other similar references.

Unless otherwise explained, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure belongs. The singular terms "a," "an," and "the" include plural referents unless the context clearly indicates otherwise. Similarly, the word "or" is intended to include "and" unless the context clearly indicates otherwise. Hence "comprising A or B" means including A, or B, or A and B. It is further to be understood that all base sizes or amino acid sizes, and all molecular weight or molecular mass values, given for nucleic acids or polypeptides are approximate, and are provided for description.

Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present disclosure, suitable methods and materials are described below. All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the present specification, including explanations of terms, will control. In addition, the materials, methods, and examples are illustrative only and not intended to be limiting.

In order to facilitate review of the various embodiments of the disclosure, the following explanations of specific terms are provided:

Array or Microarray: An arrangement of nucleic acids (such as DNA or RNA) or proteins (such as antibodies) in assigned locations on a matrix or substrate. In some examples, the nucleic acid molecules or proteins are attached covalently to the matrix or substrate.

Babesia: A tick-borne protozoan parasite that infects vertebrate red blood cells. In humans, *Babesia* species may cause asymptomatic infection or babesiosis, characterized by flu-like symptoms. Most cases of transmission between humans are attributed to a tick vector; however, it may also be transmitted through blood transfusion or organ donation. The most common pathogenic species in humans are *Babesia divergens* and *Babesia microti*. *Babesia* sequences are publicly available, and include GenBank Accession Nos. ASM107745v2 (*Babesia divergens*) and ASM69194v2 and ASM165006v1 (*Babesia microti*), which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Borrelia: A genus of tick-borne spirochete bacteria that cause Lyme disease. The major species of *Borrelia* that cause Lyme disease include *Borrelia burgdorferi, Borrelia afzelii, Borrelia garinii,* and *Borrelia mayonii*. *Borrelia* has been identified in blood stored for donation, though there is currently no evidence of Lyme disease linked to blood transfusion. *Borrelia* sequences are publicly available, and

include GenBank Accession Nos. ASM868v2 (*Borrelia burgdorferi*), ASM30473v1 (*Borrelia afzelii),* ASM192254v1 (*Borrelia garinii),* and ASM194566v1 (*Borrelia mayonii*), which are incorporated by reference in their entirety as present in GenBank on January 30, 2020).

Chikungunya virus (CHIKV): A positive-sense single-stranded RNA virus of the alphavirus genus in the family *Togaviridae*. This virus is primarily transmitted by *Aedes* mosquitoes, particularly *A. albopictus* and *A. aegypti.* The symptoms of CHIKV infection include rash, high fever and joint pain. CHIKV was first isolated in Tanzania in 1952 and re-emerged in Kenya in 2004. The evolution and spread of this virus into new geographic areas, and the disease severity resulting from CHIKV infection, present a serious public health concern. CHIKV sequences are publicly available, and include GenBank Accession No. NC_004162 (gi|27754751)), which is incorporated by reference in its entirety as present in GenBank on January 30, 2019.

Coxiella burnetii: A Gram-negative bacteria that causes Q fever. Symptoms are typically flu-like and may be mild or severe, and a small percentage of infected individuals develop chronic Q fever. The bacteria infects livestock (such as cows, sheep, and goats) and is transmitted to humans by contact with feces, urine, milk, or other products from an infected animal, typically by breathing dust contaminated with the bacteria. *Coxiella burnetii* sequences are publicly available, and includes GenBank Accession No. ASM776v2, which is incorporated by reference in its entirety as present in GenBank on January 30, 2020.

Cytomegalovirus (CMV): Also known as human herpesvirus 5. A common virus that infects up to 50% of adults by the age of 40. Most people show no symptoms of infection or only mild symptoms; however, babies born with congenital CMV infection may have long-term health problems. CMV is transmitted by body fluids, including blood transfusions. CMV sequences are publicly available, and include GenBank Accession No. NC_006273, which is incorporated by reference in its entirety as present in GenBank on January 30, 2020.

Dengue virus (DEN): An RNA virus of the family *Flaviviridae*, genus *Flavivirus*. There are four serotypes of dengue virus, referred to as DEN1, DEN2, DEN3 and DEN4. All four serotypes can cause the full spectrum of dengue disease. Infection with one serotype can produce lifelong immunity to that serotype. However, severe complications can occur upon subsequent infection by a different serotype. Dengue virus is primarily transmitted by *Aedes* mosquitoes, particularly *A. aegypti*. Symptoms of dengue virus infection include fever, headache, muscle and joint pain and a skin rash similar to measles. In a small percentage of cases, the infection develops into a life-threatening dengue hemorrhagic fever, typically resulting in bleeding, low platelet levels and blood plasma leakage, or into dengue shock syndrome, characterized by dangerously low blood pressure. DEN sequences are publicly available, and include GenBank Accession Nos. NC_001477 (gi|9626685) (DEN1), NC_001474 (gi|158976983) (DEN2), NC_001475 (gi|163644368) (DEN3), and NC_002640 (gi|12084822) (DEN4), which are incorporated by reference in their entirety as present in GenBank on January 30, 2019.

Epstein-Barr virus (EBV): Also known as human herpesvirus 4. EBV is a common virus that is spread primarily through saliva, though it can also be spread by sexual contact, blood transfusion, and organ

transplantation. EBV causes infectious mononucleosis, characterized by fatigue, fever, swollen lymph nodes, and sore throat; however, EBV infection may also be asymptomatic. EBV sequences are publicly available, and include GenBank Accession Nos. AJ278309 (EBV strain B95-8), DQ279927 (EBV strain AG876), and NC_009334, all of which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Ehrlichia: A genus of tick-borne bacteria that causes ehrlichiosis. In some cases, *Ehrlichia* has been transmitted through blood transfusion or organ transplantation. Symptoms can include rash, fever, headache, muscle aches, nausea, vomiting, and diarrhea. Severe, late stage illness can include neural damage, respiratory failure, and organ failure. Disease causing species include *Ehrlichia chaffeensis, Ehrlichia ewingii,* and *Ehrlichia muris*. *Ehrlichia* sequences are publicly available, and include GenBank Accession Nos. NC_007799 (*E. chaffeensis)* and NC_023063 (*E. muris)*, which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Hepatitis A virus (HAV): A single-stranded RNA virus in the order *Picornavirales*, family *Picornaviridae*. The virus is transmitted through fecal-oral and blood routes. HAV causes symptoms such as nausea, vomiting, diarrhea, jaundice, fever, and abdominal pain and typically lasts about 8 weeks. Acute liver failure may occur in some cases. HAV sequences are publicly available, and include GenBank Accession No. NC_001489 (gi|9626732), which is incorporated by reference in its entirety as present in GenBank on January 30, 2019.

Hepatitis B virus (HBV): A DNA virus of the *Hepadnaviridae* family. HBV is transmitted through blood or bodily fluids and new infections are frequently asymptomatic in healthy adults. Immunosuppressed adults and children less than 5 years of age more commonly exhibit symptoms, including flu-like symptoms and jaundice. HBV sequences are publicly available and include GenBank Accession Nos. AY518556 (subtype adw), NC_003977 (subtype ayw), AY123041 (subtype adr), and X04615 (subtype ayr), all of which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Hepatitis C virus (HCV): A single-stranded positive sense RNA virus of the family *Flaviviridae*. HCV is transmitted primarily through blood and acute infection typically causes mild or no symptoms. However, chronic infection frequently leads to liver disease, including cirrhosis, liver failure, and/or hepatocellular carcinoma. HCV type 1 sequences are publicly available, and include GenBank Accession No. NC_004102 (gi|22129792). HCV type 2 sequences are also publicly available, and include GenBank Accession No. NC_009823 (gi|157781212). HCV type 3 sequences are also publicly available, and include GenBank Accession No. NC_009824 (gi|157781216). Each of these sequences are incorporated by reference in their entirety as present in GenBank on January 30, 2019.

Hepatitis E virus (HEV): A single-stranded positive sense RNA virus that is currently classified in the *Hepeviridae* family, genus *Orthohepevirus*. HEV causes liver inflammation, and is typically an acute and self-limiting infection. However, it can cause chronic hepatitis in individuals with weakened immune systems, particularly organ transplant recipients. HEV sequences are publicly available, and include

GenBank Accession No. NC_001434 (gi|9626440), which is incorporated by reference in its entirety as present in GenBank on January 30, 2019.

Human Immunodeficiency virus (HIV): A single-stranded positive-sense RNA virus (retrovirus) that causes HIV infection and acquired immunodeficiency syndrome (AIDS). HIV is transmitted by blood or sexual contact. HIV type 1 sequences are publicly available, and include GenBank Accession No. NC_001802 (gi|9629357). HIV type 2 sequences are also publicly available and include GenBank Accession No. NC_001722 (gi|9628880). Each sequence is incorporated by reference in their entirety as present in GenBank on January 30, 2019

Human Herpesvirus 8 (HHV-8): Also known as Kaposi sarcoma-associated herpesvirus. HHV-8 is associated with Kaposi sarcoma and other cancers, including some lymphomas. It is transmitted through bodily fluids, including blood, saliva, and sexual contact. HHV-8 sequences are publicly available and include GenBank Accession No. NC_009333, which is incorporated by reference in its entirety as present in GenBank on January 30, 2020.

Human parvovirus: A single-stranded DNA virus of the *Parvoviridae* family. Parvovirus B19 is the only parvovirus known to infect humans. B19 primarily causes disease in children, and causes what is sometimes called "fifth disease," a mild rash. Parvovirus B19 can be transmitted via respiratory secretions or through blood or blood products. Human parvovirus B19 sequences are publicly available and include GenBank Accession No. NC_000883, which is incorporated by reference in its entirety as present in GenBank on January 30, 2020.

Human papillomavirus (HPV): A DNA virus of the family *Papillomaviridae*. HPV is a common sexually transmitted virus that can cause warts and cancers, including cervical cancer and head and neck cancer, in some individuals. HPV DNA can be detected in the blood in some cases; however, it is not clear whether it can be transmitted by blood transfusion. There are over 100 known types of HPV to date. HPV sequences are publicly available, and include GenBank Accession Nos. HG793809 (type 6), HE574701 (type 11), NC_001526 (type 16), and NC_001357 (type 18), each of which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Human T-lymphotropic virus (HTLV): A group of positive-sense RNA retroviruses that are implicated in cancer (for example, T-cell lymphomas) and myelopathy. HTLV type I sequences are publicly available, and include GenBank Accession Nos. AF033817 and NC_001436 (gi|9626453). HTLV type II sequences are also publicly available and include GenBank Accession No. NC_001488 (gi|9626726). Each sequence is incorporated by reference in their entirety as present in GenBank on January 30, 2019

Leishmania major: A trypanosomatid parasite transmitted by sand flies. *L. major* causes cutaneous leishmaniosis. *L. major* sequences are publicly available, and include GenBank Accession No. ASM272v2, incorporated by reference in its entirety as present in GenBank on January 30, 2020.

Plasmodium: A genus of mosquito-transmitted protozoan parasites that causes malaria in humans. The two major malaria causing *Plasmodium* species in humans are *P. falciparum* and *P. vivax*. *P. falciparum* is also associated with Burkitt's lymphoma. *Plasmodium* can be transmitted by blood

transfusion, causing transfusion-transmitted malaria. *Plasmodium* sequences are publicly available and include GenBank Accession No. ASM276v2 (*P. falciparum*) and ASM241v2 (*P. vivax*), which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Probe: A probe typically comprises an isolated nucleic acid (for example, at least 10 or more nucleotides in length, such as 10-60, 15-50, 20-40, 20-50, 25-50, or 30-60 nucleotides in length). In some examples, a probe includes a detectable label, while in other examples a probe does not include a detectable label.

Sample (or biological sample): A biological specimen containing nucleic acids (for example, DNA, RNA, and/or mRNA), proteins, or combinations thereof, obtained from a subject. Examples include, but are not limited to, peripheral blood, serum, plasma, urine, saliva, tissue biopsy, fine needle aspirate, surgical specimen, and autopsy material. In some examples, a sample includes blood, serum, or plasma.

Subject: A living multi-cellular vertebrate organism, a category that includes human and non-human mammals. In one example, a subject is a blood donor.

Treponema: A genus of spirochete bacteria. The major pathogenic species in humans is *Treponema pallidum*, of which subspecies *T. pallidum pallidum* causes syphilis. The bacteria is transmitted primarily by sexual contact. Nucleic acid sequences for *T. pallidum pallidum* are publicly available and include GenBank Accession Nos. NC_016844 and NC_00919, which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

Trypanosoma: A genus of protozoan parasites transmitted by blood-feeding insects. *T. brucei* is transmitted by infected tsetse flies and causes sleeping sickness (trypanosomiasis) in humans. There are two types of trypanosomiasis: East African trypanosomiasis, caused by *Trypanosoma brucei rhodesiense* and West African trypanosomiasis, caused by *Trypanosoma brucei gambiense*. *Trypanosoma brucei brucei* infects primarily cattle, and does not normally infect humans. *T. cruzi* causes Chagas disease and is transmitted by triatomine bugs. *Trypanosoma* sequences are publicly available and include GenBank Accession Nos. ASM21029v1 (*T. brucei gambiense)*, and ASM20906v1 (*T. cruzi*), each of which are incorporated by reference in their entirety as present in GenBank on January 30, 2020.

West Nile virus (WNV): A member of the virus family *Flaviviridae* and the genus *Flavivirus*. WNV was first isolated from a woman in the West Nile district of Uganda in 1937. The virus was later identified in birds in the Nile delta region in 1953. Human infections attributable to WNV have been reported in many countries for over 50 years. In 1999, a WNV circulating in Israel and Tunisia was imported into New York, producing a large and dramatic outbreak that spread throughout the continental United States in the following years. Human infection is most often the result of bites from infected mosquitoes, but may also be transmitted through contact with other infected animals, their blood or other tissues. Infection with WNV is asymptomatic in about 80% of infected people, but about 20% develop West Nile fever. Symptoms include fever, headache, fatigue, body aches, nausea, vomiting, swollen lymph glands and in some cases, a skin rash. Approximately 1 in 150 of infected individuals develop severe, neuroinvasive disease, such as encephalitis, meningitis, or poliomyelitis. WNV sequences are publicly

available, and include GenBank Accession Nos. NC_009942 (gi|158516887) (NY99, lineage 1) and NC_001563 (gi|11528013) (956, lineage 2), which are incorporated by reference in their entirety as present in GenBank on January 30, 2019.

Zika virus (ZKV or ZIKV): A member of the virus family *Flaviviridae* and the genus *Flavivirus*. ZIKV is spread by the daytime-active mosquitoes *Aedes aegypti* and *A. albopictus*. This virus was first isolated from a *Rhesus* macaque from the Zika Forest of Uganda in 1947. Since the 1950s, ZIKV has been known to occur within a narrow equatorial belt from Africa to Asia. The virus spread eastward across the Pacific Ocean in 2013-2014, resulting in ZIKV outbreaks in Oceania to French Polynesia, New Caledonia, the Cook Islands, and Easter Island. In 2015, ZKV spread to Mexico, Central America, the Caribbean and South America, where ZKV has reached pandemic levels. Infection by ZIKV generally causes either no symptoms or mild symptoms, including mild headache, maculopapular rash, fever, malaise, conjunctivitis and joint pain. However, ZKV infection has been linked to the birth of microcephalic infants following maternal infection. Reports have also indicated that ZIKV has the potential for human blood-borne and sexual transmission. ZIKV sequences are publicly available, and include GenBank Accession Nos. KU497555 (gi|985578255) (isolate Brazil-ZK2015), KU501215 (gi|984874581) (strain PRVABC59), KU312312 (gi|973447404) (isolate Z1106033), KU707826 (gi|992324757) (isolate SSABR1), and KU321639 (strain ZikaSPH2015), which are incorporated by reference in their entirety as present in GenBank on January 30, 2019.

II. Probes and Microarrays

Disclosed herein is a nucleic acid probe set capable of detecting nucleic acid molecules from one or more RNA viruses, including Chikungunya virus (CHIKV), Dengue virus types 1, 2, 3, or 4, (DEN1, DEN2, DEN3, DEN4), Hepatitis A virus (HAV), Hepatitis C virus (HCV) types 1, 2, or 3, Hepatitis E virus (HEV), Human Immunodeficiency virus (HIV) types 1 or 2, Human T-lymphotropic virus (HTLV) types I or II, West Nile virus (WNV), and Zika virus (ZKV). In some embodiments, the probe set includes 30 or more probes for one or more of the viruses (such as 30 or more, 50 or more, 60 or more, 70 or more, 80 or more, 90 or more, 100 or more, 110 or more, or 120 or more), for example 30-120 probes, 50-100 probes, or 70-110 probes for one or more of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1, HIV type 2, HTLV type 1, HTLV type 2, WNV, and ZIKV.

In some embodiments, the probe set includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In other embodiments, the probe set includes a subset of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In some examples, the subset includes at least one probe for each of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1,

HIV type 2, HTLV type 1, HTLV type 2, WNV, and ZKV, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each virus. In some examples, the subset includes at least 40 probes (such as at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1, HIV type 2, HTLV type 1, HTLV type 2, WNV, and ZKV.

In one non-limiting example, the probe set includes or consists of each of the probes of SEQ ID NOs: 1-1769. In another non-limiting example, the probe set includes or consists of each of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In another example, the probe set includes or consists of each of the probes of SEQ ID NOs: 1-1300 and 1391-1769. In other embodiments, the probe set includes a subset of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769 or a subset of the probes of SEQ ID NOs: 1-1300 and 1391-1769.

Also disclosed herein is a nucleic acid probe set capable of detecting nucleic acid molecules from one or more DNA viruses, including one or more of cytomegalovirus, Epstein Barr virus (*e.g.*, one or more of EBV subtype B95-8 and EBV subtype AG876), human herpes virus 8, Hepatitis B virus (*e.g.*, one or more of HBV subtypes adw, ayw, adr, and ayr), human parvovirus B19, and human papillomavirus (*e.g.*, one or more of HPV types 6, 11, 16, and 18). In some embodiments, the probe set includes 10 or more probes for one or more of the viruses (such as 15 or more, 20 or more, 30 or more, 50 or more, 60 or more, 70 or more, 80 or more, 90 or more, 100 or more, 110 or more, or 120 or more), for example 10-50 probes, 30-120 probes, 50-100 probes, or 70-110 probes for one or more of cytomegalovirus, Epstein Barr virus, human herpes virus 8, Hepatitis B virus, human parvovirus B19, and human papillomavirus.

In some embodiments, the probe set includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1770-2647. In other embodiments, the probe set includes a subset of the probes of SEQ ID NOs: 1770-2647, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 1770-2647. In some examples, the subset includes at least one probe for each of CMV, EBV subtype B95-8, EBV subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, HPV type 6, HPV type 11, HPV type 16, and HPV type 18, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each virus. In some examples, the subset includes at least 10 probes (such as at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of CMV, EBV subtype B95-8, EBV subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, HPV type 6, HPV type 11, HPV type 16, and HPV type 18. In one non-limiting example, the probe set includes or consists of each of the probes of SEQ ID NOs: 1770-2647.

Further disclosed herein is a nucleic acid probe set capable of detecting nucleic acid molecules from one or more bacterial and/or protozoan pathogens, including one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*. In some embodiments, the probe set includes 10 or more probes for one or more of the viruses (such as 10 or more, 20 or more, 30 or more, 50 or more, 60 or more, 70 or more, 80 or more, 90 or more, 100 or more, 110 or more, or 120 or more), for example 30-120 probes, 50-100 probes, or 70-110 probes for one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*

In some embodiments, the probe set includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 2648-3207. In other embodiments, the probe set includes a subset of the probes of SEQ ID NOs: 2648-3207, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 2648-3207. In some examples, the subset includes at least one probe for each of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti*, *Plasmodium falciparum,* and *Plasmodium vivax*, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each pathogen. In some examples, the subset includes at least 10 probes (such as at least 20, at least 30, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Leishmania major, Babesia microti*, *Plasmodium falciparum,* and *Plasmodium vivax*. In one non-limiting example, the probe set includes or consists of each of the probes of SEQ ID NOs: 2648-3207.

In further embodiments, one or more of the disclosed probe sets are combined. Thus, some embodiments, the probe set includes probes for detecting at least one RNA virus, at least one DNA virus, at least one bacterial pathogen, at least one protozoan pathogen, or combinations of two or more thereof. In one example, a probe set includes probes capable of detecting nucleic acid molecules from one or more DNA viruses and one or more bacterial and/or protozoan pathogens. In one non-limiting example, a probe set includes probes including or consisting of each of the probes of SEQ ID NOs: 1770-3207. In another example, a probe set includes probes capable of detecting nucleic acid molecules from one or more RNA viruses, one or more DNA viruses, and one or more bacterial and/or protozoan pathogens. In a non-limiting example, the probe set includes probes including or consisting of each of the probes of SEQ ID NOs: 1-1300, SEQ ID NOs: 1391-1570, SEQ ID NOs: 1691-1769, and SEQ ID NOs: 1770-3207.

In additional embodiments, a disclosed probe set further includes one or more control probes, such as one or more positive and/or negative control probes. For testing for validity of the run, intra-array

reproducibility control and normalization. positive control probes may include one or more of: 1) one or more reference probes for intensity normalization, 2) one or more internal standards of known concentrations, and 3) one or more probes that are homologous to an internal control included in the hybridization mix. In some embodiments, positive control probes include one or more (such as 1, 10, 25, 50, 96, or more) ERCC probes (External RNA Controls Consortium) and one or more (such as 1, 10, 25, 50, 96, 250, 500, 900, or more) biological replicates targeting human genome sequences (for example, to define possible host contaminant).

Negative control probes may include one or more probes for a virus that is known not to be present in human or mammalian subjects. In some non-limiting examples, negative control probes are specific for a plant virus. In other examples, negative control probes can be a structural negative probe, such as a sequence that forms a hairpin and does not hybridize with nucleic acids from any species.

In some examples, the probe set includes at least 10, at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, at least 110, or at least 120 control probes. In some examples, the control probes are for one or more one or more different negative control viruses (such as 1, 2, 3, 4, 5, or more negative control viruses). In some examples, the probe set includes at least 10, at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, at least 110, at least 120, or more negative control probes. In some examples, the negative control probes are probes for one or more of White clover cryptic virus 1 (*e.g.* SEQ ID NOs: 1571-1580), Broad bean wilt virus 1 (*e.g.*, SEQ ID NOs: 1582-1620), Lettuce necrotic yellows virus (*e.g.*, SEQ ID NOs: 1621-1690), Aedes albopictus densovirus 2 (*e.g.*, SEQ ID NOs: 3520-3557), Maize streak virus (*e.g.*, SEQ ID NOs: 3558-3598), and/or Tomato pseudo-curly top virus (*e.g.*, SEQ ID NOs: 3599-3628). In additional examples, the probe set includes at least 10, at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, at least 110, at least 120, or more positive control probes. In some examples, the positive control probes are probes for one or more housekeeping genes, such as one of more of ACTB (*e.g.*, SEQ ID NOs: 3208-3301), ARL1 (*e.g.*, SEQ ID NOs: 3302-3385), and/or CCDN1 (*e.g.*, SEQ ID NOs: 3386-3519).

In some embodiments, the disclosed probes are between 30 and 80 nucleotides in length (for example 30-50, 40-60, 50-70, or 60-80 nucleotides in length). In some examples, the probes are 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, or 80 nucleotides in length and are capable of hybridizing to the disclosed pathogen (*e.g.*, viral, bacterial, or protozoan) nucleic acid molecules. In some examples, the probes are 60 nucleotides in length. In some examples, each of the probes in the probe set has a Tm between about 72-89°C, such as about 74-88°C, about 75-85°C, or about 76-82°C. In one specific example, each of the probes in the probe set has a Tm between 74.4 and 87.8°C. Tm ranges for exemplary RNA virus probes are shown in Table 1.

In other embodiments the disclosed probe sets, or a subset thereof, are linked to a solid support. In some examples, the disclosed probe sets, or a subset thereof, are included on a microarray. In other examples, the solid support is a bead or plurality of beads, a microplate, column, or microfluidic device.

In some embodiments, the microarray is a solid support or substrate including the probe set (or subset thereof) covalently linked to the support or substrate. Within an array, each arrayed probe is addressable, in that its location can be reliably and consistently determined within at least two dimensions of the array. Addressable arrays usually are computer readable, in that a computer can be programmed to correlate a particular address on the array with information about the sample at that position (such as hybridization or binding data, including for instance signal intensity).

The microarray can include any of the probe sets described above, individually, or in combination. In some embodiments, the microarray includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In another embodiment, the microarray includes or consists of nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1-1300 and 1391-1769. In one non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1-1769. In another non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In a further non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1-1300 and 1391-1769.

In another embodiment, the microarray includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1770-2647. In one non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1770-2647. In another non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1170-2647 and 3250-3628.

In another embodiment, the microarray includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 2648-3207. In one non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 2648-3207. In another non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 2648-3519.

In a further embodiment, the microarray includes nucleic acid probes that are at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% identical to the nucleic acid sequences of SEQ ID NOs: 1770-3207. In one non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1770-3207. In a further non-limiting example, the microarray includes or consists of each of the probes of SEQ ID NOs: 1770-3628.

In other embodiments, the microarray includes a subset of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769. In some examples, the microarray includes at least one probe for each of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1, HIV type 2, HTLV type 1, HTLV type 2,

WNV, and ZKV, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each virus. In some examples, the microarray includes at least 40 probes (such as at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1, HIV type 2, HTLV type 1, HTLV type 2, WNV, and ZKV.

In other embodiments, the microarray includes a subset of the probes of SEQ ID NOs: 1770-2647, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 1770-2647. In some examples, the microarray includes at least one probe for each of CMV, EBV subtype B95-8, EBV subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, HPV type 6, HPV type 11, HPV type 16, and HPV type 18, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each virus. In some examples, the microarray includes at least 20 probes (such as at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of CMV, EBV subtype B95-8, EBV subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, HPV type 6, HPV type 11, HPV type 16, and HPV type 18.

In other embodiments, the microarray includes a subset of the probes of SEQ ID NOs: 2648-3207, such as at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or at least 99.9% of the probes of SEQ ID NOs: 2648-3207. In some examples, the microarray includes at least one probe for each of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*, such as at least 1, at least 2, at least 5, at least 10, at least 20, at least 30, or more probes for each virus. In some examples, the microarray includes at least 10 probes (such as at least 30, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, or at least 110 probes) for one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax.*

In additional embodiments, the microarray includes one or more control probes, such as one or more positive and/or negative control probes. In some examples, the microarray includes at least 10, at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, at least 110, or at least 120 negative control probes. In some examples, the microarray includes one or more negative control probes selected from SEQ ID NOs: 1571-1580, SEQ ID NOs: 1582-1620, SEQ ID NOs: 1621-1690, and SEQ ID NOs: 3520-3628. In additional examples, the microarray includes at least 10, at least 20, at least 30, at least 40, at least 50, at least 60, at least 70, at least 80, at least 90, at least 100, at least 110, or at least 120

positive control probes. In some examples, the microarray includes one or more positive control probes selected from SEQ ID NOs: 3208-3519.

The solid support or substrate of the array can be formed from an organic polymer. Suitable materials for the solid support include, but are not limited to: polypropylene, polyethylene, polybutylene, polyisobutylene, polybutadiene, polyisoprene, polyvinylpyrrolidine, polytetrafluroethylene, polyvinylidene difluroide, polyfluoroethylene-propylene, polyethylenevinyl alcohol, polymethylpentene, polycholorotrifluoroethylene, polysulfornes, hydroxylated biaxially oriented polypropylene, aminated biaxially oriented polypropylene, thiolated biaxially oriented polypropylene, ethyleneacrylic acid, thylene methacrylic acid, and blends of copolymers thereof).

A wide variety of array formats can be employed in accordance with the present disclosure. One example includes a two-dimensional pattern of discrete cells (such as 4096 squares in a 64 by 64 array). Other array formats including, but not limited to slot (rectangular) and circular arrays are equally suitable for use. In some examples, the array is a multi-well plate. In one example, the array is formed on a polymer medium, which is a thread, membrane or film. An example of an organic polymer medium is a polypropylene sheet having a thickness on the order of about 1 mil. (0.001 inch) to about 20 mil., although the thickness of the film is not critical and can be varied over a fairly broad range. The array can include biaxially oriented polypropylene (BOPP) films, which in addition to their durability, exhibit low background fluorescence.

The array formats of the present disclosure can be included in a variety of different types of formats. A "format" includes any format to which the solid support can be affixed, such as microtiter plates (*e.g.*, multi-well plates), test tubes, inorganic sheets, dipsticks, and the like. For example, membranes can be affixed to glass slides. The particular format is, in and of itself, unimportant. All that is necessary is that the solid support can be affixed thereto without affecting the functional behavior of the solid support or any biopolymer absorbed thereon, and that the format (such as the slide) is stable to any materials into which the device is introduced (such as clinical samples and hybridization solutions).

The arrays of the present disclosure can be prepared by a variety of approaches. In one example, oligonucleotides (*e.g.*, probes) are synthesized separately and then attached to a solid support (see U.S. Patent No. 6,013,789). In another example, probes are synthesized directly onto the support to provide the desired array (see U.S. Patent No. 5,554,501). Suitable methods for covalently coupling oligonucleotides to a solid support and for directly synthesizing oligonucleotides on the support are known; a summary of suitable methods can be found in Matson *et al.*, *Anal. Biochem.* 217:306-10, 1994. In one example, the oligonucleotides are synthesized onto the support using conventional chemical techniques for preparing oligonucleotides on solid supports (such as PCT applications WO 85/01051 and WO 89/10977, or U.S. Patent No. 5,554,501).

The oligonucleotides can be bound to the support or substrate by either the 3' end of the oligonucleotide or by the 5' end of the oligonucleotide. In one example, the oligonucleotides are bound to

the solid support by the 3' end. In general, the internal complementarity of an oligonucleotide probe in the region of the 3' end and the 5' end determines binding to the support.

III. Methods of Detecting Viral Nucleic Acids

Disclosed herein are methods of detecting one or more pathogen nucleic acids (such as one or more viral, bacterial, and/or protozoan nucleic acids) in a sample from a subject. In some embodiments, the methods include preparing or isolating nucleic acids (such as DNA, RNA, or cDNA) from a sample, labeling the nucleic acids, and contacting the probe set, or a microarray including the probe set, with the labeled nucleic acids under conditions sufficient to allow pathogen nucleic acids present in the sample to hybridize with one or more of the probes. The presence and/or identity of pathogen nucleic acids in the sample is determined by detecting hybridization. In one example, hybridization is detected by measuring presence of labeled nucleic acid at an addressable location in an array.

In particular embodiments, the methods include detecting one or more nucleic acids from RNA viruses in a sample, including one or more of CHIKV, DEN1, DEN2, DEN3, DEN4, HAV, HCV type 1, HCV type 2, HCV type 3, HEV, HIV type 1, HIV type 2, HTLV type I, HTLV type II, WNV, and ZKV. In other embodiments, the methods include detecting one or more nucleic acids from DNA viruses, including one or more of CMV, EBV subtype B95-8, EBV subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, HPV type 6, HPV type 11, HPV type 16, and HPV type 18. In still other embodiments, the methods include detecting one or more nucleic acids from bacteria and/or protozoans, including one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*. In further embodiments, the methods include detecting nucleic acids from at least one RNA virus, DNA virus, bacteria, and protozoan, such as at least one of the RNA viruses, DNA viruses, bacteria, and protozoans disclosed herein, or any combination thereof.

Exemplary samples include peripheral blood, serum, plasma, cerebrospinal fluid, urine, saliva, feces, mucus, nasal wash, tissue biopsy, fine needle aspirate, surgical specimen, placenta, autopsy material, semen, vaginal fluid or tissue, and environmental samples. In particular examples, the sample is a blood sample, such as plasma. In non-limiting examples, the sample is blood or plasma from a blood donor. Thus, in some examples, the methods disclosed herein are used to screen donated blood for one or more pathogens potentially present and/or transmitted through blood transfusions.

In some embodiments, the methods include isolating nucleic acids (such as RNA, cDNA, or a combination thereof) from the sample and contacting the probe set or microarray with the isolated nucleic acids. Methods of isolating RNA (*e.g.*, viral RNA) from a sample are known and include commercially available kits, such as QIAGEN® RNeasy® mini-columns, MASTERPURE® Complete DNA and RNA Purification Kit (EPICENTRE® Madison, Wis.), Paraffin Block RNA Isolation Kit (Ambion, Inc.), and

RNA Stat-60 (Tel-Test). cDNA is then prepared from the isolated RNA, and optionally labeled. In some examples, the methods include amplifying RNA prior to cDNA preparation and labeling, for example, using Quick Amp WT labeling kit (Agilent). Other methods of amplifying RNA include commercially available kits such as Ovation® RNA Amplification kit (Nugen), Arcturus™ RiboAmp™ HS kit (ThermoFisher), and Complete Whole Transcriptome Amplification Kit (WTA2, Sigma-Aldrich).

In some embodiments, the methods do not include isolating and/or amplifying RNA from a sample prior to labeling. In some examples, the methods include generating amplified cDNA from a sample, followed by labeling the cDNA (for example with a fluorescent label, such as Cy3). In one non-limiting example, amplified cDNA is prepared from the sample using single-primer isothermal amplification (for example, Ribo-SPIA, NuGen) prior to labeling. Methods of labeling cDNA are known and include commercially available kits, such as Genomic DNA Enzymatic Labeling Kit (Agilent). In some examples, the methods generate amplified and labeled cDNA from about 250 pg of target viral RNA (such as about 500 pg, about 750 pg, about 1 ng, about 2 ng, or more of target viral RNA).

In other examples, the methods include isolating DNA from the sample and contacting the probe set or microarray with the isolated DNA. Methods of isolating DNA (such as viral DNA, bacterial DNA, or protozoan DNA) from a sample are known and include commercially available kits. In some examples, the methods include isolating viral DNA from a sample using a viral nucleic acid isolation kit. In one non-limiting example, the viral DNA is isolated using Dynabeads SILANE viral NA kit (Invitrogen). In other examples, bacterial or protozoan DNA is isolated from a sample using a DNA isolation kit. In one non-limiting example, bacterial or protozoan DNA is isolated using QIAamp DNA Blood Mini kit (Qiagen). One of ordinary skill in the art can select appropriate methods or kits to isolate pathogen DNA from samples, for example, blood or plasma samples.

The sample (such as nucleic acids isolated and/or amplified from a sample) can be labeled with any suitable label. Generally, the label will be selected based on the intended use of the sample or the desired readout. In some examples, the sample or nucleic acids from the sample is labelled with a fluorescent or chemiluminescent compound. In other examples, the label is an enzyme, a fluorophore, or a radioactive isotope. In one specific non-limiting example, the label is Cy™3 or Cy™ 5.

Fluorophores suitable for use with the methods disclosed herein, include, but are not limited to, 6-carboxyfluorescein (FAM), tetrachlorofluorescein (TET), tetramethylrhodamine (TMR), hexachlorofluorescein (HEX), JOE, ROX, CAL Fluor™, Pulsar™, Quasar™, Texas Red™, Cy™3 and Cy™5. Other examples of fluorophores that can be used with the methods provided herein include 4-acetamido-4'-isothiocyanatostilbene-2,2'disulfonic acid, acridine and derivatives such as acridine and acridine isothiocyanate, 5-(2'-aminoethyl)amino-naphthalene-1-sulfonic acid (EDANS), 4-amino-N-[3-vinylsulfonyl)phenyl]-naphthalimide-3,5 disulfonate (Lucifer Yellow VS), N-(4-anilino-1-naphthyl)-maleimide, anthranilamide, Brilliant Yellow, coumarin and derivatives such as coumarin, 7-amino-4-methylcoumarin (AMC, Coumarin 120), 7-amino-4-trifluoromethylcouluarin (Coumaran 151); cyanosine; 4',6-diaminidino-2-phenylindole (DAPI); 5', 5"-dibromopyrogallol-sulfonephthalein (Bromopyrogallol Red);

7-diethylamino-3-(4'-isothiocyanatophenyl)-4-methylcoumarin; diethylenetriamine pentaacetate; 4,4'-diisothiocyanatodihydro-stilbene-2,2'-disulfonic acid; 4,4'-diisothiocyanatostilbene-2,2'-disulfonic acid; 5-[dimethyl-amino]naphthalene-1-sulfonyl chloride (DNS, dansyl chloride); 4-(4'-dimethyl-aminophenylazo)benzoic acid (DABCYL); 4-dimethylaminophenylazophenyl-4'-isothiocyanate (DABITC); eosin and derivatives such as eosin and eosin isothiocyanate; erythrosin and derivatives such as erythrosin B and erythrosin isothiocyanate; ethidium; fluorescein and derivatives such as 5-carboxyfluorescein (FAM), 5-(4,6-dichlorotriazin-2-yl)aminofluorescein (DTAF), 2'7'-dimethoxy-4'5'-dichloro-6-carboxyfluorescein (JOE), fluorescein, fluorescein isothiocyanate (FITC), and QFITC (XRITC); fluorescamine; IR144; IR1446; Malachite Green isothiocyanate; 4-methylumbelliferone; ortho cresolphthalein; nitrotyrosine; pararosaniline; Phenol Red; B-phycoerythrin; o-phthaldialdehyde; pyrene and derivatives such as pyrene, pyrene butyrate and succinimidyl 1-pyrene butyrate; Reactive Red 4 (Cibacron .RTM. Brilliant Red 3B-A); rhodamine and derivatives such as 6-carboxy-X-rhodamine (ROX), 6-carboxyrhodamine (R6G), lissamine rhodamine B sulfonyl chloride, rhodamine (Rhod), rhodamine B, rhodamine 123, rhodamine X isothiocyanate, sulforhodamine B, sulforhodamine 101 and sulfonyl chloride derivative of sulforhodamine 101 (Texas Red); N,N,N',N'-tetramethyl-6-carboxyrhodamine (TAMRA); tetramethyl rhodamine; tetramethyl rhodamine isothiocyanate (TRITC); riboflavin; rosolic acid and terbium chelate derivatives.

Other fluorophores that can be used include thiol-reactive europium chelates that emit at approximately 617 nm (Heyduk and Heyduk, *Analyt. Biochem.* 248:216-27, 1997; *J. Biol. Chem.* 274:3315-22, 1999). Other fluorophores that can be used include cyanine, merocyanine, styryl, and oxonyl compounds, such as those disclosed in U.S. Patent Nos. 5,627,027; 5,486,616; 5,569,587; and 5,569,766, and in published PCT application no. US98/00475, each of which is incorporated herein by reference. Specific examples of fluorophores disclosed in one or more of these patent documents include Cy™3 and Cy™5, for instance, and substituted versions of these fluorophores. Additional fluorophores that can be used include GFP, Lissamine™, diethylaminocoumarin, fluorescein chlorotriazinyl, naphthofluorescein, 4,7-dichlororhodamine and xanthene (as described in U.S. Patent No. 5,800,996 to Lee *et al.*, herein incorporated by reference) and derivatives thereof. Other fluorophores are commercially available from known sources.

The methods include contacting the sample (such as labeled nucleic acids from a sample) with a probe set disclosed herein (or subset thereof), or a microarray including the probe set (or subset thereof), under conditions sufficient to allow hybridization of pathogen nucleic acids present in the sample to one or more probes and detecting presence of pathogen nucleic acids hybridized to the probe set or microarray.

Presence of one or more pathogen nucleic acids in the sample can be detected using any suitable means. For example, detection of hybridization can be accomplished by detecting nucleic acid molecules (such as RNA) using nucleic acid amplification methods (such as real-time RT-PCR) or array analysis. In a specific embodiment of the microarray technique, labeled cDNA prepared from a sample is applied to an array including a probe set disclosed herein. Labeled cDNA from the sample can hybridize specifically to one or more probes on the array. After washing to remove non-specifically bound probes, the chip is

scanned by confocal laser microscopy or by another detection method, such as a CCD camera. Quantitation of hybridization of sample to each arrayed element allows for assessment of corresponding RNA abundance (*e.g.*, if cDNA is analyzed). Microarray analysis can be performed by commercially available equipment, following manufacturer's protocols, such as are supplied with Affymetrix GeneChip® technology (Affymetrix, Santa Clara, CA), or Agilent's microarray technology (Agilent Technologies, Santa Clara, CA).

In some examples, a sample is determined to contain nucleic acids from a particular pathogen by detecting hybridization between the sample (nucleic acid) and one or more probes of the pathogen-specific probe set. In some examples, a sample is determined to be positive for a pathogen when the log ratio between the signal intensity mean for the pathogen-specific probe set and the mean of a control group probe set is ≥ 1.5. In other examples, a sample is determined to be negative for a pathogen when the log ratio between the signal intensity mean for the pathogen-specific probe set and the mean of a control group probe set is <1. In further examples, the sample is determined to be borderline for the pathogen when the log ratio between the signal intensity mean for the pathogen-specific probe set and the mean of a control group probe set is ≥ 1.0 to ≤ 1.5. In some examples, a sample that is determined to be borderline for one or more pathogens is retested (for example, retested with the assay disclosed herein and/or tested using a virus-specific nucleic acid based test). In other examples, a sample that is determined to be borderline is discarded (*e.g.*, not administered to a subject). In additional examples, a sample is determined to be positive for a particular pathogen when $\geq 50\%$ of the individual probes for the particular pathogen have a log ratio of >1.5. In some examples, a sample is determined to be positive for a particular pathogen when $\geq 50\%$ of the individual probes for the particular pathogen have a log ratio of >1.5 and the log ratio between the signal intensity mean for the pathogen-specific probe set and the mean of a control group probe set is ≥ 1.5.

EXAMPLES

The following examples are provided to illustrate certain particular features and/or embodiments. These examples should not be construed to limit the disclosure to the particular features or embodiments described.

Example 1

Materials and Methods

Microarray-based platform design

Selection of transfusion-transmitted RNA viruses: Sequences of 16 RNA viruses of concern for transmission to blood recipients (released by AABB Transfusion-Transmitted Diseases Committee (Stramer *et al., Transfusion* 49:1S-29S, 2009)) were downloaded from GenBank at NCBI (available on the World Wide Web at ncbi.nlm.nih.gov/genbank).

The complete genome for each RNA virus was uploaded in FASTA format using Agilent eArray software (available on the World Wide Web at earray.chem.agilent.com/earray/, Agilent Technologies Inc.,

Santa Clara, CA). Design settings were chosen to select 60-mer sense probes with 3' bias from each viral gene, according to the base composition methodology, which considers fusion temperature, GC% and cross-hybridization potential for probes. To get the best quality level probes for viral genome detection the "best probe" (BP) was selected. The probes were checked for vector and low complexity masking. Entire viral genome sequences were covered to the extent possible with all available Agilent-designed probes. The microarray was supplemented with additional predesigned GE (gene expression) array probes for 906 genes from the human genome (replicated 10 times), ERCC probes (replicated 45 times) and probes covering plant virus sequences (negative control). The selected probes and their characteristics are provided in Table 1.

Oligonucleotide probe selection and methodology: Oligonucleotide probes were synthesized in situ from 3'-end base by base with Agilent SurePrint inkjet technology according to the manufacturer's protocol (Wolber *et al., Meth. Enzymol.* 410:28-57, 2006). The microarrays were manufactured with 60-mer oligonucleotides synthesized in 15,000 features on eight replicate arrays per slide.

Sample collection and processing: Specimens positive for CHIKV, DENV1-4, HIV1-2, WNV strain NY99, and ZIKV were prepared, validated, and supplied by the FDA Center for Biologics Evaluation and Research (CBER) (Dong *et al., J. Appl. Microbiol.* 120:1119-1129, 2016).

HCV genotypes 1a, 2a, and 3, and HEV RNA-positive plasma were purchased from Sera Care (Sera Care, Milford, MA). All positive specimens were diluted in negative plasma (Basematrix diluent, Sera Care) to create a range of concentrations. HAV RNA was obtained from Dr. Patrizia Farci, (National Institutes of Health, Bethesda, MD). HTLV types I and II NATtrol (Nucleic Acid Testing Control) were purchased from ZeptoMetrix (ZeptoMetrix, Buffalo, NY) (Table 2).

Table 1. Selected viral probes

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	243	1	60	99	85.97	0	36.67	18.33	20	25	55	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	194	2	60	148	86.4	0	26.67	28.33	20	25	55	5
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	193	3	60	149	86.4	0	25	30	20	25	55	5
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	173	4	60	169	86.33	0	28.33	26.67	20	25	55	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	172	5	60	170	85.49	0	28.33	25	21.67	25	53.33	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	171	6	60	171	84.8	0	28.33	25	21.67	25	53.33	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	170	7	60	172	84.8	0	28.33	25	21.67	25	53.33	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	169	8	60	173	85.38	0	26.67	26.67	21.67	25	53.33	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	168	9	60	174	86.09	0	26.67	28.33	21.67	23.33	55	3
5 UTR	Hepatitis C genotype 1	gi|22129792:1-341	167	10	60	175	86.62	0	26.67	28.33	23.33	21.67	55	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	488	11	60	86	83.62	0	16.67	33.33	13.33	36.67	50	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	487	12	60	87	83.16	0	16.67	33.33	15	35	50	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	486	13	60	88	83.16	0	18.33	31.67	15	35	50	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	485	14	60	89	83.23	0	18.33	31.67	15	35	50	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
core protein	Hepatitis C genotype 1	gi|22129792:342-914	484	15	60	90	82.5	0	20	30	15	35	50	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	483	16	60	91	83.08	0	18.33	31.67	15	35	50	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	482	17	60	92	83.48	0	20	31.67	15	33.33	51.67	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	481	18	60	93	83.48	0	21.67	30	15	33.33	51.67	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	480	19	60	94	83.47	0	21.67	30	15	33.33	51.67	3
core protein	Hepatitis C genotype 1	gi|22129792:342-914	479	20	60	95	83.15	0	21.67	28.33	16.67	33.33	50	3
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	342	21	60	239	81.42	0	25	20	25	30	45	3
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	341	22	60	240	81.39	0	25	20	25	30	45	3
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	340	23	60	241	80.98	0	25	20	25	30	45	3
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	339	24	60	242	80.98	0	23.33	21.67	25	30	45	3
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	504	25	60	77	86.03	0	35	20	15	30	55	4
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	503	26	60	78	84.91	0	35	18.33	15	31.67	53.33	4
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	502	27	60	79	84.78	0	33.33	18.33	16.67	31.67	51.67	4
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	501	28	60	80	84.88	0	33.33	20	16.67	30	53.33	4
E1 protein	Hepatitis C	gi|22129792:915	500	29	60	81	85.	0	35	20	16.6	28.3	55	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 1	-1494					73				7	3		
E1 protein	Hepatitis C genotype 1	gi|22129792:915-1494	379	30	60	202	85.79	0	35	20	20	25	55	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	703	31	60	387	80.23	0	25	20	28.33	26.67	45	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	702	32	60	388	80.23	0	23.33	21.67	28.33	26.67	45	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	701	33	60	389	80.33	0	23.33	21.67	28.33	26.67	45	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	700	34	60	390	79.75	0	21.67	23.33	28.33	26.67	45	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	699	35	60	391	80.57	0	23.33	21.67	28.33	26.67	45	4
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	697	36	60	393	80.57	0	23.33	21.67	28.33	26.67	45	3
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	696	37	60	394	79.86	0	21.67	21.67	28.33	28.33	43.33	3
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	695	38	60	395	79.16	0	20	21.67	28.33	30	41.67	3
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	694	39	60	396	79.16	0	18.33	23.33	28.33	30	41.67	3
E2 protein	Hepatitis C genotype 1	gi|22129792:1491-2579	693	40	60	397	79.61	0	20	23.33	26.67	30	43.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	56	41	60	134	85.66	0	33.33	21.67	6.67	38.33	55	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	55	42	60	135	85.02	0	31.67	23.33	6.67	38.33	55	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	54	43	60	136	84.74	0	31.67	21.67	6.67	40	53.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	53	44	60	137	84.15	0	33.33	20	6.67	40	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	52	45	60	138	84.01	0	35	18.33	6.67	40	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	51	46	60	139	84.59	0	33.33	20	6.67	40	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	50	47	60	140	84.59	0	33.33	20	8.33	38.33	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	49	48	60	141	84	0	31.67	21.67	8.33	38.33	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	48	49	60	142	84.14	0	31.67	21.67	8.33	38.33	53.33	3
p7 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	47	50	60	143	84.72	0	30	23.33	8.33	38.33	53.33	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2580-2768	366	51	60	286	81.87	0	23.33	21.67	26.67	28.33	45	4
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	194	52	60	458	80.3	0	16.67	28.33	21.67	33.33	45	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	193	53	60	459	79.57	0	15	28.33	23.33	33.33	43.33	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	192	54	60	460	79.57	0	13.33	30	23.33	33.33	43.33	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	191	55	60	461	79.55	0	13.33	30	23.33	33.33	43.33	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	190	56	60	462	78.99	0	15	28.33	23.33	33.33	43.33	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	189	57	60	463	79.66	0	15	28.33	23.33	33.33	43.33	3
NS2 protein	Hepatitis C	gi|22129792:276	188	58	60	464	79.	0	15	30	23.3	31.6	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 1	9-3419					92				3	7		
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	187	59	60	465	80.63	0	16.67	28.33	23.33	31.67	45	3
NS2 protein	Hepatitis C genotype 1	gi|22129792:2769-3419	186	60	60	466	81.42	0	16.67	28.33	21.67	33.33	45	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1812	61	60	82	81.47	0	15	30	33.33	21.67	45	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1620	62	60	274	80.84	0	18.33	26.67	28.33	26.67	45	4
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	849	63	60	1045	81.99	0	20	25	26.67	28.33	45	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1744	64	60	150	85.74	0	18.33	35	25	21.67	53.33	4
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1497	65	60	397	85.21	0	26.67	28.33	25	20	55	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1294	66	60	600	82.34	0	15	35	25	25	50	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1234	67	60	660	83.78	0	25	26.67	20	28.33	51.67	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:5313-5474	1092	68	60	802	86.5	0	25	30	23.33	21.67	55	3
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	1020	69	60	874	85.78	0	21.67	33.33	21.67	23.33	55	5
NS3 protease/ helicase	Hepatitis C genotype 1	gi|22129792:3420-5312	765	70	60	1129	85.24	0	20	35	25	20	55	4
NS4A protein	Hepatitis C genotype 1	gi|22129792:3420-5312	103	71	60	60	82.67	0	31.67	20	26.67	21.67	51.67	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	102	72	60	61	82.67	0	33.33	18.33	26.67	21.67	51.67	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	101	73	60	62	83	0	31.67	18.33	28.33	21.67	50	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	100	74	60	63	82.48	0	31.67	18.33	30	20	50	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	99	75	60	64	82.45	0	31.67	18.33	30	20	50	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	98	76	60	65	82.74	0	33.33	18.33	28.33	20	51.67	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	97	77	60	66	83.4	0	33.33	18.33	28.33	20	51.67	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	96	78	60	67	84.1	0	33.33	20	26.67	20	53.33	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	95	79	60	68	84.37	0	33.33	21.67	25	20	55	3
NS4A protein	Hepatitis C genotype 1	gi|22129792:5313-5474	94	80	60	69	84.1	0	31.67	21.67	25	21.67	53.33	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	133	81	60	651	81.1	0	26.67	18.33	28.33	26.67	45	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	723	82	60	61	85.12	0	26.67	28.33	23.33	21.67	55	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	702	83	60	82	85.36	0	23.33	31.67	25	20	55	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	456	84	60	328	85.9	0	28.33	26.67	21.67	23.33	55	4
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	416	85	60	368	86.89	0	35	20	20	25	55	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	226	86	60	558	85.23	0	16.67	35	23.33	25	51.67	4
NS4B protein	Hepatitis C	gi|22129792:547	204	87	60	580	86.	0	21.6	33.3	18.3	26.6	55	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 1	5-6257					8		7	3	3	7		
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	182	88	60	602	86.58	0	25	30	18.33	26.67	55	4
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	162	89	60	622	84.77	0	28.33	25	21.67	25	53.33	3
NS4B protein	Hepatitis C genotype 1	gi|22129792:5475-6257	113	90	60	671	84.31	0	26.67	25	26.67	21.67	51.67	3
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	402	91	60	943	82.2	0	16.67	28.33	28.33	26.67	45	5
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	1138	92	60	207	85.98	0	20	35	23.33	21.67	55	3
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	1078	93	60	267	86.55	0	20	35	23.33	21.67	55	4
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	974	94	60	371	85.27	0	26.67	28.33	26.67	18.33	55	5
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	826	95	60	519	85.49	0	36.67	18.33	23.33	21.67	55	3
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	578	96	60	767	85.27	0	23.33	31.67	25	20	55	3
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	515	97	60	830	85.03	0	30	25	23.33	21.67	55	4
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	342	98	60	1003	84.8	0	38.33	16.67	25	20	55	5
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	214	99	60	1131	85.18	0	31.67	23.33	23.33	21.67	55	4
NS5A protein	Hepatitis C genotype 1	gi|22129792:6258-7601	154	100	60	1191	84.43	0	26.67	25	28.33	20	51.67	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1560	101	60	214	81.13	0	18.33	26.67	35	20	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1559	102	60	215	80	0	18.33	25	35	21.67	43.33	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1558	103	60	216	79.91	0	16.67	25	36.67	21.67	41.67	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1557	104	60	217	80.32	0	16.67	26.67	35	21.67	43.33	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1556	105	60	218	81.05	0	16.67	28.33	35	20	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1391	106	60	383	81.64	0	15	30	30	25	45	4
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1284	107	60	490	80.87	0	21.67	23.33	23.33	31.67	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1283	108	60	491	81.12	0	21.67	23.33	23.33	31.67	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1232	109	60	542	81.8	0	20	25	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 1	gi|22129792:7602-9374	1231	110	60	543	82.09	0	20	25	25	30	45	5
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	242	111	60	80	86.27	0	36.67	18.33	20	25	55	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	172	112	60	150	86.34	0	26.67	28.33	18.33	26.67	55	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	171	113	60	151	85.5	0	26.67	26.67	20	26.67	53.33	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	170	114	60	152	84.8	0	26.67	26.67	20	26.67	53.33	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	169	115	60	153	84.8	0	26.67	26.67	20	26.67	53.33	3
5 UTR	Hepatitis C	gi|157781212:1-321	168	116	60	154	85.38	0	25	28.33	20	26.67	53.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 2													
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	167	117	60	155	86.1	0	25	30	20	25	55	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	166	118	60	156	86.64	0	25	30	21.67	23.33	55	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	163	119	60	159	85.77	0	25	30	21.67	23.33	55	3
5 UTR	Hepatitis C genotype 2	gi|157781212:1-321	162	120	60	160	85.03	0	26.67	28.33	21.67	23.33	55	3
core protein	Hepatitis C genotype 2	gi|157781212:322-906	36	121	60	550	82	0	15	30	43.33	11.67	45	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	35	122	60	551	81.31	0	13.33	30	45	11.67	43.33	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	34	123	60	552	80.33	0	11.67	30	45	13.33	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	33	124	60	553	79.71	0	11.67	30	45	13.33	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	32	125	60	554	80.36	0	11.67	30	45	13.33	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	31	126	60	555	80.76	0	11.67	30	45	13.33	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	30	127	60	556	80.73	0	11.67	30	46.67	11.67	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	29	128	60	557	80.23	0	11.67	30	48.33	10	41.67	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	28	129	60	558	80.17	0	10	30	50	10	40	5
core protein	Hepatitis C genotype 2	gi|157781212:322-906	13	130	60	573	80.76	0	13.33	30	46.67	10	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	495	131	60	84	85.82	0	30	25	13.33	31.67	55	3
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	459	132	60	120	86.52	0	31.67	23.33	15	30	55	4
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	439	133	60	140	85.78	0	31.67	23.33	16.67	28.33	55	4
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	419	134	60	160	85.1	0	30	25	18.33	26.67	55	4
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	362	135	60	217	86.77	0	28.33	26.67	23.33	21.67	55	3
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	342	136	60	237	84.8	0	26.67	26.67	25	21.67	53.33	3
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	322	137	60	257	85.97	0	21.67	33.33	23.33	21.67	55	3
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	296	138	60	283	85.94	0	20	35	18.33	26.67	55	3
E1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	276	139	60	303	86.01	0	20	33.33	21.67	25	53.33	3
E1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	24	140	60	555	85.87	0	23.33	31.67	23.33	21.67	55	2
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:921-1498	944	141	60	106	81.03	0	15	30	30	25	45	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	943	142	60	107	81	0	15	28.33	31.67	25	43.33	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	941	143	60	109	79.92	0	13.33	30	33.33	23.33	43.33	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	940	144	60	110	80.58	0	13.33	30	33.33	23.33	43.33	4
E2 /NS1	Hepatitis C	gi|157781212:14	939	145	60	111	81.	0	13.3	30	35	21.6	43.3	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
protein	genotype 2	92-2540					11		3			7	3	
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	726	146	60	324	80.66	0	28.33	16.67	30	25	45	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	725	147	60	325	80.1	0	28.33	16.67	30	25	45	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	724	148	60	326	79.81	0	26.67	16.67	31.67	25	43.33	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	723	149	60	327	79.81	0	26.67	16.67	31.67	25	43.33	4
E2 /NS1 protein	Hepatitis C genotype 2	gi|157781212:1492-2540	722	150	60	328	79.81	0	26.67	16.67	31.67	25	43.33	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	524	151	60	69	86.42	0	33.33	21.67	16.67	28.33	55	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	484	152	60	109	83.87	0	33.33	20	23.33	23.33	53.33	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	409	153	60	184	85.33	0	23.33	31.67	18.33	26.67	55	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	369	154	60	224	85.13	0	28.33	26.67	21.67	23.33	55	3
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	281	155	60	312	86.25	0	30	25	18.33	26.67	55	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	239	156	60	354	86.42	0	28.33	26.67	16.67	28.33	55	4
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	199	157	60	394	86.1	0	30	25	16.67	28.33	55	3
NS2 protein	Hepatitis C genotype 2	gi|157781212:3512-4759	101	158	60	492	85.79	0	36.67	18.33	13.33	31.67	55	5
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	61	159	60	532	83.84	0	23.33	26.67	13.33	36.67	50	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS2 protein	Hepatitis C genotype 2	gi|157781212:2777-3368	21	160	60	572	85.42	0	25	30	18.33	26.67	55	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:2777-3368	992	161	60	257	80.97	0	25	20	35	20	45	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	991	162	60	258	79.98	0	23.33	20	35	21.67	43.33	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	990	163	60	259	79.94	0	23.33	18.33	35	23.33	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	989	164	60	260	79.58	0	23.33	20	35	21.67	43.33	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	988	165	60	261	79.13	0	23.33	18.33	35	23.33	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	987	166	60	262	79.21	0	23.33	18.33	35	23.33	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	986	167	60	263	79.3	0	23.33	18.33	33.33	25	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	985	168	60	264	78.66	0	21.67	20	33.33	25	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	984	169	60	265	79.21	0	21.67	20	33.33	25	41.67	5
NS3 protease/ helicase	Hepatitis C genotype 2	gi|157781212:3512-4759	983	170	60	266	79.51	0	21.67	21.67	31.67	25	43.33	5
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	119	171	60	60	84.4	0	35	18.33	21.67	25	53.33	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	118	172	60	61	84.4	0	36.67	16.67	21.67	25	53.33	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	117	173	60	62	84.65	0	38.33	16.67	21.67	23.33	55	4
NS4A protein	Hepatitis C	gi|157781212:53	116	174	60	63	84.	0	38.3	16.6	21.6	23.3	55	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 2	24-5501					5		3	7	7	3		
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	115	175	60	64	84.5	0	36.67	18.33	21.67	23.33	55	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	114	176	60	65	84.65	0	36.67	18.33	21.67	23.33	55	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	113	177	60	66	84.5	0	36.67	18.33	21.67	23.33	55	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	112	178	60	67	84.64	0	36.67	18.33	21.67	23.33	55	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	111	179	60	68	84.45	0	35	18.33	21.67	25	53.33	4
NS4A protein	Hepatitis C genotype 2	gi|157781212:5324-5501	110	180	60	69	84.41	0	33.33	18.33	21.67	26.67	51.67	4
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	88	181	60	498	81.45	0	20	25	33.33	21.67	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	87	182	60	499	81.54	0	20	25	33.33	21.67	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	13	183	60	573	81.76	0	16.67	28.33	36.67	18.33	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	12	184	60	574	81.76	0	15	30	36.67	18.33	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	8	185	60	578	82.24	0	15	30	38.33	16.67	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	7	186	60	579	81.73	0	15	30	38.33	16.67	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	6	187	60	580	81.06	0	16.67	28.33	38.33	16.67	45	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	5	188	60	581	80.87	0	16.67	26.67	38.33	18.33	43.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	4	189	60	582	80.8	0	16.67	26.67	38.33	18.33	43.33	3
NS4B protein	Hepatitis C genotype 2	gi|157781212:5531-6115	3	190	60	583	81.64	0	18.33	26.67	36.67	18.33	45	3
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	54	191	60	1352	82.47	0	15	30	26.67	28.33	45	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	46	192	60	1360	80.77	0	13.33	30	31.67	25	43.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	45	193	60	1361	80.86	0	13.33	30	31.67	25	43.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	43	194	60	1363	80.94	0	13.33	30	33.33	23.33	43.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	42	195	60	1364	80.21	0	13.33	30	33.33	23.33	43.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	41	196	60	1365	80.37	0	13.33	30	33.33	23.33	43.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	40	197	60	1366	80.16	0	11.67	30	33.33	25	41.67	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	39	198	60	1367	79.46	0	11.67	28.33	33.33	26.67	40	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	38	199	60	1368	78.76	0	11.67	26.67	33.33	28.33	38.33	5
NS5A protein	Hepatitis C genotype 2	gi|157781212:6266-7670	37	200	60	1369	78.05	0	13.33	25	33.33	28.33	38.33	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1389	201	60	161	82.16	0	16.67	28.33	26.67	28.33	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1388	202	60	162	81.45	0	16.67	28.33	26.67	28.33	45	5
NS5B RNA-	Hepatitis C	gi|157781212:76	1387	203	60	163	81.	0	16.6	26.6	28.3	28.3	43.3	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
dependent RNA polymerase	genotype 2	64-9212					29		7	7	3	3	3	
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1386	204	60	164	81.01	0	16.67	26.67	26.67	30	43.33	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1385	205	60	165	80.66	0	16.67	28.33	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1384	206	60	166	80.8	0	16.67	28.33	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1383	207	60	167	81.11	0	16.67	26.67	26.67	30	43.33	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1382	208	60	168	80.73	0	16.67	28.33	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1381	209	60	169	80.73	0	16.67	28.33	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 2	gi|157781212:7664-9212	1380	210	60	170	80.73	0	16.67	28.33	25	30	45	5
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	245	211	60	95	86.03	0	35	20	16.67	28.33	55	3
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	244	212	60	96	86.01	0	35	20	18.33	26.67	55	3
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	242	213	60	98	85.18	0	36.67	18.33	20	25	55	3
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	241	214	60	99	85.09	0	36.67	18.33	20	25	55	3
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	192	215	60	148	86.22	0	23.33	31.67	23.33	21.67	55	5
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	191	216	60	149	86.22	0	21.67	33.33	23.33	21.67	55	5
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	170	217	60	170	86.32	0	28.33	26.67	21.67	23.33	55	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	169	218	60	171	85.62	0	28.33	26.67	21.67	23.33	55	4
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	168	219	60	172	85.62	0	28.33	26.67	21.67	23.33	55	4
5 UTR	Hepatitis C genotype 3	gi|157781216:1-339	167	220	60	173	86.2	0	26.67	28.33	21.67	23.33	55	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	486	221	60	88	82.34	0	16.67	28.33	15	40	45	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	485	222	60	89	82.06	0	16.67	28.33	15	40	45	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	484	223	60	90	81.52	0	16.67	28.33	16.67	38.33	45	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	483	224	60	91	81.43	0	16.67	28.33	16.67	38.33	45	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	514	225	60	60	80.8	0	11.67	31.67	11.67	45	43.33	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	513	226	60	61	80.29	0	11.67	31.67	11.67	45	43.33	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	512	227	60	62	80.37	0	11.67	31.67	11.67	45	43.33	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	502	228	60	72	80.32	0	11.67	30	10	48.33	41.67	4
Core protein	Hepatitis C genotype 3	gi|157781216:340-912	501	229	60	73	80.39	0	13.33	30	10	46.67	43.33	4
Core protein	Hepatitis C genotype 3	gi|157781216:913-1488	499	230	60	75	81.25	0	16.67	28.33	8.33	46.67	45	4
E1 protein	Hepatitis C genotype 3	gi|157781216:340-912	37	231	60	540	81.72	0	21.67	23.33	28.33	26.67	45	2
E1 protein	Hepatitis C	gi|157781216:91	36	232	60	541	80.	0	21.6	23.3	26.6	28.3	45	2

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 3	3-1488					93		7	3	7	3		
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	35	233	60	542	80.8	0	21.67	21.67	26.67	30	43.33	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	34	234	60	543	80.36	0	21.67	23.33	25	30	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	33	235	60	544	80.92	0	21.67	23.33	25	30	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	32	236	60	545	80.83	0	21.67	23.33	23.33	31.67	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	31	237	60	546	80.12	0	23.33	21.67	23.33	31.67	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	30	238	60	547	80.69	0	21.67	23.33	23.33	31.67	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	29	239	60	548	80.76	0	21.67	23.33	25	30	45	2
E1 protein	Hepatitis C genotype 3	gi|157781216:913-1488	28	240	60	549	80.44	0	21.67	21.67	25	31.67	43.33	2
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	925	241	60	132	81.65	0	16.67	28.33	28.33	26.67	45	4
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	737	242	60	320	81.74	0	31.67	13.33	20	35	45	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	736	243	60	321	81.07	0	31.67	13.33	20	35	45	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	735	244	60	322	81.08	0	31.67	13.33	20	35	45	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	734	245	60	323	80.65	0	31.67	11.67	20	36.67	43.33	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	733	246	60	324	80.08	0	31.67	11.67	20	36.67	43.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	732	247	60	325	79.81	0	31.67	10	21.67	36.67	41.67	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:2545-3375	731	248	60	326	79.81	0	31.67	10	21.67	36.67	41.67	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	730	249	60	327	80.59	0	31.67	10	21.67	36.67	41.67	3
E2/NS1 protein	Hepatitis C genotype 3	gi|157781216:1489-2544	729	250	60	328	80.31	0	31.67	10	21.67	36.67	41.67	3
NS2	Hepatitis C genotype 3	gi|157781216:1489-2544	724	251	60	108	81.33	0	23.33	21.67	30	25	45	4
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	710	252	60	122	81.32	0	18.33	26.67	30	25	45	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	708	253	60	124	80.65	0	20	25	31.67	23.33	45	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	707	254	60	125	80.51	0	20	23.33	33.33	23.33	43.33	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	706	255	60	126	80	0	20	23.33	33.33	23.33	43.33	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	705	256	60	127	80.1	0	20	23.33	33.33	23.33	43.33	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	704	257	60	128	80.54	0	20	23.33	33.33	23.33	43.33	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	703	258	60	129	80.09	0	20	25	31.67	23.33	45	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	702	259	60	130	80.47	0	20	23.33	31.67	25	43.33	3
NS2	Hepatitis C genotype 3	gi|157781216:2545-3375	701	260	60	131	80.09	0	21.67	23.33	31.67	23.33	45	3
NS3 protease/	Hepatitis C	gi|157781216:33	1684	261	60	270	80.	0	16.6	28.3	28.3	26.6	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
helicase	genotype 3	76-5328					7		7	3	3	7		
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1682	262	60	272	80.77	0	16.67	28.33	30	25	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1677	263	60	277	80.89	0	16.67	28.33	30	25	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1676	264	60	278	80.89	0	16.67	28.33	28.33	26.67	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1674	265	60	280	80.24	0	15	30	30	25	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1673	266	60	281	80.24	0	16.67	28.33	30	25	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1671	267	60	283	80.98	0	18.33	26.67	30	25	45	3
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1645	268	60	309	80.9	0	20	25	23.33	31.67	45	4
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1644	269	60	310	80.39	0	20	25	21.67	33.33	45	4
NS3 protease/ helicase	Hepatitis C genotype 3	gi|157781216:3376-5328	1643	270	60	311	80.33	0	20	23.33	23.33	33.33	43.33	4
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	103	271	60	60	81.66	0	28.33	20	31.67	20	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	102	272	60	61	81.66	0	30	18.33	31.67	20	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	101	273	60	62	81.97	0	28.33	18.33	33.33	20	46.67	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	100	274	60	63	81.46	0	28.33	18.33	35	18.33	46.67	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	99	275	60	64	81.53	0	26.67	20	35	18.33	46.67	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	98	276	60	65	81.96	0	28.33	20	33.33	18.33	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	97	277	60	66	81.96	0	28.33	20	33.33	18.33	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	96	278	60	67	82.6	0	28.33	20	33.33	18.33	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	95	279	60	68	82.63	0	28.33	20	33.33	18.33	48.33	3
NS4A protein	Hepatitis C genotype 3	gi|157781216:5329-5490	94	280	60	69	81.96	0	28.33	20	33.33	18.33	48.33	3
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	237	281	60	547	81.84	0	15	30	25	30	45	6
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	236	282	60	548	81.84	0	15	30	23.33	31.67	45	6
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	133	283	60	651	81.96	0	26.67	18.33	26.67	28.33	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	132	284	60	652	82.25	0	26.67	18.33	26.67	28.33	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	130	285	60	654	81.23	0	26.67	18.33	28.33	26.67	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	129	286	60	655	81.95	0	28.33	16.67	28.33	26.67	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	118	287	60	666	82.5	0	25	20	28.33	26.67	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	117	288	60	667	81.99	0	25	20	30	25	45	4
NS4B protein	Hepatitis C genotype 3	gi|157781216:5491-6273	116	289	60	668	81.65	0	23.33	20	30	26.67	43.33	4
NS4B protein	Hepatitis C	gi|157781216:54	115	290	60	669	81.	0	25	20	28.3	26.6	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	genotype 3	91-6273					37				3	7		
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	513	291	60	844	80.76	0	20	25	23.33	31.67	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	512	292	60	845	80.32	0	20	25	23.33	31.67	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	511	293	60	846	80.22	0	20	25	23.33	31.67	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	510	294	60	847	80.15	0	20	25	25	30	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	509	295	60	848	80.05	0	20	25	25	30	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	508	296	60	849	80.05	0	20	25	26.67	28.33	45	4
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	507	297	60	850	79.39	0	21.67	23.33	26.67	28.33	45	3
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	506	298	60	851	79.19	0	21.67	21.67	26.67	30	43.33	3
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	505	299	60	852	78.49	0	21.67	20	26.67	31.67	41.67	3
NS5A protein	Hepatitis C genotype 3	gi|157781216:6274-7629	504	300	60	853	78.59	0	23.33	18.33	26.67	31.67	41.67	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1548	301	60	226	82.27	0	20	25	30	25	45	4
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1373	302	60	401	81.84	0	16.67	28.33	28.33	26.67	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1350	303	60	424	79.41	0	16.67	26.67	26.67	30	43.33	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1330	304	60	444	81.36	0	20	25	23.33	31.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1283	305	60	491	80.71	0	13.33	30	23.33	33.33	43.33	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	1262	306	60	512	80.85	0	18.33	26.67	25	30	45	5
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	672	307	60	1102	80.76	0	26.67	18.33	35	20	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	526	308	60	1248	79.68	0	25	18.33	28.33	28.33	43.33	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	147	309	60	1627	80.61	0	23.33	21.67	33.33	21.67	45	3
NS5B RNA-dependent RNA polymerase	Hepatitis C genotype 3	gi|157781216:7630-9402	99	310	60	1675	79.91	0	20	25	28.33	26.67	45	2
Gag-Pol	HIV 1	gi|9629357:336-4642	4241	311	60	67	80.21	0	35	8.33	33.33	23.33	43.33	4
Gag-Pol	HIV 1	gi|9629357:336-4642	4164	312	60	144	77.82	0	28.33	11.67	40	20	40	4
Gag-Pol	HIV 1	gi|9629357:336-4642	4104	313	60	204	80.91	0	23.33	20	33.33	23.33	43.33	4
Gag-Pol	HIV 1	gi|9629357:336-4642	4013	314	60	295	79.33	0	28.33	13.33	43.33	15	41.67	6
Gag-Pol	HIV 1	gi|9629357:336-4642	3953	315	60	355	78.04	0	21.67	15	40	23.33	36.67	6
Gag-Pol	HIV 1	gi|9629357:336-4642	3858	316	60	450	74.91	0	18.33	16.67	43.33	21.67	35	4
Gag-Pol	HIV 1	gi|9629357:336-4642	3762	317	60	546	81.58	0	23.33	21.67	33.33	21.67	45	5
Gag-Pol	HIV 1	gi|9629357:336-4642	3702	318	60	606	77.74	0	21.67	15	38.33	25	36.67	4
Gag-Pol	HIV 1	gi|9629357:336-4642	3642	319	60	666	77.52	0	26.67	11.67	36.67	25	38.33	4
Gag-Pol	HIV 1	gi|9629357:336-1838	3582	320	60	726	79.82	0	25	18.33	35	21.67	43.33	2
gag	HIV 1	gi|9629357:336-4642	1295	321	60	209	81.78	0	26.67	18.33	26.67	28.33	45	6
gag	HIV 1	gi|9629357:336-1838	1235	322	60	269	80.24	0	31.67	11.67	38.33	18.33	43.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
gag	HIV 1	gi|9629357:336-1838	1162	323	60	342	82.47	0	28.33	16.67	33.33	21.67	45	3
gag	HIV 1	gi|9629357:336-1838	1102	324	60	402	78.85	0	20	18.33	43.33	18.33	38.33	4
gag	HIV 1	gi|9629357:336-1838	959	325	60	545	79.58	0	21.67	20	31.67	26.67	41.67	4
gag	HIV 1	gi|9629357:336-1838	899	326	60	605	78.28	0	21.67	16.67	43.33	18.33	38.33	6
gag	HIV 1	gi|9629357:336-1838	837	327	60	667	80.04	0	21.67	23.33	36.67	18.33	45	3
gag	HIV 1	gi|9629357:336-1838	750	328	60	754	75.62	0	18.33	16.67	40	25	35	4
gag	HIV 1	gi|9629357:336-1838	690	329	60	814	80.67	0	26.67	18.33	38.33	16.67	45	4
gag	HIV 1	gi|9629357:336-1838	601	330	60	903	81.87	0	28.33	16.67	36.67	18.33	45	4
Vif	HIV 1	gi|9629357:4587-5165	466	331	60	114	78.8	0	21.67	20	40	18.33	41.67	6
Vif	HIV 1	gi|9629357:4587-5165	426	332	60	154	77.98	0	13.33	25	43.33	18.33	38.33	6
Vif	HIV 1	gi|9629357:4587-5165	386	333	60	194	78.39	0	23.33	18.33	33.33	25	41.67	3
Vif	HIV 1	gi|9629357:4587-5165	346	334	60	234	77.97	0	21.67	18.33	31.67	28.33	40	3
Vif	HIV 1	gi|9629357:4587-5165	304	335	60	276	75.46	0	13.33	21.67	28.33	36.67	35	5
Vif	HIV 1	gi|9629357:4587-5165	264	336	60	316	78.46	0	20	20	45	15	40	5
Vif	HIV 1	gi|9629357:4587-5165	224	337	60	356	79.26	0	33.33	10	38.33	18.33	43.33	5
Vif	HIV 1	gi|9629357:5105-5396	184	338	60	396	78.73	0	28.33	13.33	33.33	25	41.67	4
Vif	HIV 1	gi|9629357:4587-5165	144	339	60	436	77.87	0	20	20	38.33	21.67	40	4
Vif	HIV 1	gi|9629357:4587-5165	104	340	60	476	77.27	0	21.67	18.33	35	25	40	4
vpr	HIV 1	gi|9629357:4587-5165	215	341	60	78	81.1	0	30	15	35	20	45	3
vpr	HIV 1	gi|9629357:5105-5396	195	342	60	98	79.56	0	21.67	20	26.67	31.67	41.67	4
vpr	HIV 1	gi|9629357:5105-5396	175	343	60	118	78.61	0	18.33	20	30	31.67	38.33	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
vpr	HIV 1	gi|9629357:5105-5396	155	344	60	138	79.69	0	21.67	18.33	31.67	28.33	40	3
vpr	HIV 1	gi|9629357:5105-5396	135	345	60	158	78.79	0	26.67	13.33	33.33	26.67	40	4
vpr	HIV 1	gi|9629357:5105-5396	109	346	60	184	81.7	0	28.33	16.67	26.67	28.33	45	4
vpr	HIV 1	gi|9629357:5105-5396	89	347	60	204	78.58	0	20	20	25	35	40	4
vpr	HIV 1	gi|9629357:5105-5396	69	348	60	224	79.94	0	28.33	15	26.67	30	43.33	4
vpr	HIV 1	gi|9629357:5105-5396	49	349	60	244	77.34	0	26.67	13.33	31.67	28.33	40	4
vpr	HIV 1	gi|9629357:5105-5396	29	350	60	264	79.95	0	28.33	16.67	38.33	16.67	45	4
tat	HIV 1	gi|9629357:5377-7970	2504	351	60	91	80.29	0	18.33	26.67	30	25	45	3
tat	HIV 1	gi|9629357:5377-7970	2377	352	60	218	77.17	0	28.33	6.67	33.33	31.67	35	3
tat	HIV 1	gi|9629357:5377-7970	2310	353	60	285	76.51	0	15	20	48.33	16.67	35	4
tat	HIV 1	gi|9629357:5377-7970	2250	354	60	345	79.94	0	26.67	15	38.33	20	41.67	3
tat	HIV 1	gi|9629357:5377-7970	2190	355	60	405	80.08	0	21.67	21.67	26.67	30	43.33	4
tat	HIV 1	gi|9629357:5377-7970	2023	356	60	572	82.24	0	28.33	16.67	28.33	26.67	45	3
tat	HIV 1	gi|9629357:5377-7970	1903	357	60	692	81.72	0	35	10	30	25	45	6
tat	HIV 1	gi|9629357:5377-7970	1771	358	60	824	79.96	0	30	15	35	20	45	3
tat	HIV 1	gi|9629357:5377-7970	1711	359	60	884	77.23	0	25	13.33	35	26.67	38.33	3
tat	HIV 1	gi|9629357:5377-7970	1651	360	60	944	77.7	0	16.67	18.33	45	20	35	4
rev	HIV 1	gi|9629357:5516-8199	2625	361	60	60	78.01	0	25	16.67	35	23.33	41.67	3
rev	HIV 1	gi|9629357:5516-8199	2551	362	60	134	80.4	0	23.33	21.67	23.33	31.67	45	2
rev	HIV 1	gi|9629357:5516-8199	2454	363	60	231	80.23	0	31.67	13.33	38.33	16.67	45	2
rev	HIV 1	gi|9629357:5516-8199	2365	364	60	320	80.29	0	18.33	26.67	30	25	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
rev	HIV 1	gi|9629357:5516-8199	2238	365	60	447	77.17	0	28.33	6.67	33.33	31.67	35	3
rev	HIV 1	gi|9629357:5516-8199	2171	366	60	514	76.51	0	15	20	48.33	16.67	35	4
rev	HIV 1	gi|9629357:5516-8199	2111	367	60	574	79.94	0	26.67	15	38.33	20	41.67	3
rev	HIV 1	gi|9629357:5516-8199	2051	368	60	634	80.08	0	21.67	21.67	26.67	30	43.33	4
rev	HIV 1	gi|9629357:5516-8199	1884	369	60	801	82.24	0	28.33	16.67	28.33	26.67	45	3
rev	HIV 1	gi|9629357:5516-8199	1764	370	60	921	81.72	0	35	10	30	25	45	6
vpu	HIV 1	gi|9629357:5608-5856	136	371	60	114	78.38	0	30	11.67	41.67	16.67	41.67	3
vpu	HIV 1	gi|9629357:5608-5856	189	372	60	61	85.51	0	40	13.33	18.33	28.33	53.33	5
vpu	HIV 1	gi|9629357:5608-5856	188	373	60	62	85.89	0	40	15	16.67	28.33	55	5
vpu	HIV 1	gi|9629357:5608-5856	186	374	60	64	86.58	0	40	15	18.33	26.67	55	5
vpu	HIV 1	gi|9629357:5608-5856	184	375	60	66	86.64	0	40	15	18.33	26.67	55	5
vpu	HIV 1	gi|9629357:5608-5856	183	376	60	67	86.64	0	40	15	20	25	55	5
vpu	HIV 1	gi|9629357:5608-5856	182	377	60	68	85.92	0	40	15	18.33	26.67	55	5
vpu	HIV 1	gi|9629357:5608-5856	181	378	60	69	85.79	0	38.33	15	20	26.67	53.33	5
vpu	HIV 1	gi|9629357:5608-5856	180	379	60	70	85.81	0	38.33	15	21.67	25	53.33	5
vpu	HIV 1	gi|9629357:5608-5856	179	380	60	71	85.37	0	38.33	15	21.67	25	53.33	5
asp	HIV 1	gi|9629357:6919-7488	478	381	60	93	82.24	0	28.33	16.67	28.33	26.67	45	3
asp	HIV 1	gi|9629357:6919-7488	361	382	60	210	81.72	0	35	10	30	25	45	6
asp	HIV 1	gi|9629357:6919-7488	315	383	60	256	80.7	0	26.67	16.67	41.67	15	43.33	5
asp	HIV 1	gi|9629357:6919-7488	212	384	60	359	80.63	0	30	15	35	20	45	2
asp	HIV 1	gi|9629357:6919-7488	182	385	60	389	76.87	0	21.67	13.33	38.33	26.67	35	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
asp	HIV 1	gi|9629357:6919-7488	152	386	60	419	79.95	0	18.33	23.33	30	28.33	41.67	4
asp	HIV 1	gi|9629357:6919-7488	122	387	60	449	80.68	0	21.67	20	38.33	20	41.67	4
asp	HIV 1	gi|9629357:6919-7488	92	388	60	479	78.34	0	16.67	20	46.67	16.67	36.67	4
asp	HIV 1	gi|9629357:6919-7488	62	389	60	509	79.23	0	16.67	23.33	43.33	16.67	40	4
asp	HIV 1	gi|9629357:6919-7488	32	390	60	539	77.8	0	25	13.33	36.67	25	38.33	3
nef	HIV 1	gi|9629357:8343-8963	443	391	60	179	80.47	0	25	20	38.33	16.67	45	3
nef	HIV 1	gi|9629357:8343-8963	423	392	60	199	79.2	0	28.33	15	41.67	15	43.33	3
nef	HIV 1	gi|9629357:8343-8963	402	393	60	220	79.81	0	23.33	20	31.67	25	43.33	3
nef	HIV 1	gi|9629357:8343-8963	322	394	60	300	79.39	0	16.67	28.33	28.33	26.67	45	3
nef	HIV 1	gi|9629357:8343-8963	302	395	60	320	80.05	0	15	28.33	33.33	23.33	43.33	3
nef	HIV 1	gi|9629357:8343-8963	274	396	60	348	80.65	0	26.67	16.67	40	16.67	43.33	6
nef	HIV 1	gi|9629357:8343-8963	254	397	60	368	79.99	0	23.33	18.33	35	23.33	41.67	6
nef	HIV 1	gi|9629357:8343-8963	234	398	60	388	80.05	0	26.67	15	35	23.33	41.67	6
nef	HIV 1	gi|9629357:8343-8963	214	399	60	408	78.88	0	16.67	25	28.33	30	41.67	5
nef	HIV 1	gi|9629357:8343-8963	105	400	60	517	81.69	0	21.67	23.33	38.33	16.67	45	5
5' LTR	HIV 2	gi|9628880:1-855	701	401	60	155	79.1	0	18.33	25	25	31.67	43.33	3
5' LTR	HIV 2	gi|9628880:1-855	513	402	60	343	79.71	0	20	23.33	21.67	35	43.33	3
5' LTR	HIV 2	gi|9628880:1-855	384	403	60	472	79.15	0	25	18.33	41.67	15	43.33	3
5' LTR	HIV 2	gi|9628880:1-855	354	404	60	502	77.55	0	21.67	16.67	45	16.67	38.33	3
5' LTR	HIV 2	gi|9628880:1-855	324	405	60	532	79.96	0	28.33	13.33	43.33	15	41.67	4
5' LTR	HIV 2	gi|9628880:1-855	209	406	60	647	81.97	0	28.33	16.67	33.33	21.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
5' LTR	HIV 2	gi|9628880:1-855	141	407	60	715	80.36	0	26.67	18.33	36.67	18.33	45	2
5' LTR	HIV 2	gi|9628880:1-855	68	408	60	788	78.77	0	23.33	18.33	33.33	25	41.67	3
5' LTR	HIV 2	gi|9628880:1-855	38	409	60	818	75.67	0	20	16.67	43.33	20	36.67	5
5' LTR	HIV 2	gi|9628880:1-855	8	410	60	848	75.56	0	26.67	11.67	41.67	20	38.33	5
gag polyprotein	HIV 2	gi|9628880:1103-2668	1137	411	60	430	82.46	0	30	15	38.33	16.67	45	3
gag polyprotein	HIV 2	gi|9628880:1103-2668	990	412	60	577	80.03	0	25	20	36.67	18.33	45	4
gag polyprotein	HIV 2	gi|9628880:1103-2668	930	413	60	637	81.88	0	16.67	28.33	41.67	13.33	45	6
gag polyprotein	HIV 2	gi|9628880:1103-2668	870	414	60	697	81.02	0	21.67	21.67	40	16.67	43.33	4
gag polyprotein	HIV 2	gi|9628880:1103-2668	810	415	60	757	79.55	0	21.67	20	41.67	16.67	41.67	4
gag polyprotein	HIV 2	gi|9628880:1103-2668	750	416	60	817	80.48	0	23.33	21.67	36.67	18.33	45	4
gag polyprotein	HIV 2	gi|9628880:1103-2668	606	417	60	961	80.93	0	25	20	38.33	16.67	45	3
gag polyprotein	HIV 2	gi|9628880:1103-2668	546	418	60	1021	79.57	0	20	20	31.67	28.33	40	3
gag polyprotein	HIV 2	gi|9628880:1103-2668	473	419	60	1094	81.5	0	31.67	13.33	33.33	21.67	45	4
gag polyprotein	HIV 2	gi|9628880:1103-2668	348	420	60	1219	80.48	0	20	25	45	10	45	4
gag-pol	HIV 2	gi|9628880:1103-5754	4593	421	60	60	77.83	0	20	21.67	35	23.33	41.67	4
gag-pol	HIV 2	gi|9628880:1103-5754	4533	422	60	120	79.05	0	18.33	23.33	35	23.33	41.67	5
gag-pol	HIV 2	gi|9628880:1103-5754	4473	423	60	180	79.42	0	23.33	20	36.67	20	43.33	5
gag-pol	HIV 2	gi|9628880:1103-5754	4388	424	60	265	80.72	0	23.33	21.67	33.33	21.67	45	4
gag-pol	HIV 2	gi|9628880:1103-5754	4273	425	60	380	78.61	0	28.33	15	43.33	13.33	43.33	4
gag-pol	HIV 2	gi|9628880:1103-5754	4173	426	60	480	80.85	0	28.33	16.67	33.33	21.67	45	3
gag-pol	HIV 2	gi|9628880:1103-5754	4096	427	60	557	76.38	0	11.67	23.33	50	15	35	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gag-pol	HIV 2	gi|9628880:1103-5754	4036	428	60	617	79.46	0	30	11.67	33.33	25	41.67	4
gag-pol	HIV 2	gi|9628880:1103-5754	3950	429	60	703	76.51	0	23.33	15	45	16.67	38.33	3
gag-pol	HIV 2	gi|9628880:1103-5754	3889	430	60	764	81.32	0	26.67	18.33	31.67	23.33	45	3
gp2-vif protein	HIV 2	gi|9628880:5423-6070	440	431	60	209	79	0	18.33	25	40	16.67	43.33	4
gp2-vif protein	HIV 2	gi|9628880:5423-6070	388	432	60	261	80.96	0	13.33	30	31.67	25	43.33	4
gp2-vif protein	HIV 2	gi|9628880:5423-6070	338	433	60	311	80.06	0	28.33	13.33	30	28.33	41.67	4
gp2-vif protein	HIV 2	gi|9628880:5423-6070	308	434	60	341	78.94	0	18.33	21.67	28.33	31.67	40	3
gp2-vif protein	HIV 2	gi|9628880:5423-6070	277	435	60	372	80.21	0	18.33	25	35	21.67	43.33	4
gp2-vif protein	HIV 2	gi|9628880:5423-6070	247	436	60	402	79.16	0	18.33	23.33	31.67	26.67	41.67	4
gp2-vif protein	HIV 2	gi|9628880:5423-6070	217	437	60	432	80.3	0	20	23.33	33.33	23.33	43.33	5
gp2-vif protein	HIV 2	gi|9628880:5423-6070	185	438	60	464	78.01	0	21.67	16.67	46.67	15	38.33	5
gp2-vif protein	HIV 2	gi|9628880:5423-6070	155	439	60	494	79.25	0	21.67	20	38.33	20	41.67	5
gp2-vif protein	HIV 2	gi|9628880:5423-6070	58	440	60	591	80.18	0	26.67	18.33	38.33	16.67	45	4
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	223	441	60	120	81.55	0	30	15	31.67	23.33	45	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	222	442	60	121	81.42	0	28.33	15	33.33	23.33	43.33	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	221	443	60	122	81.16	0	28.33	15	33.33	23.33	43.33	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	220	444	60	123	80.71	0	28.33	16.67	31.67	23.33	45	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	219	445	60	124	81.28	0	28.33	16.67	31.67	23.33	45	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	217	446	60	126	81.53	0	28.33	16.67	30	25	45	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	216	447	60	127	81.6	0	28.33	16.67	30	25	45	6
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	215	448	60	128	81.7	0	28.33	16.67	28.33	26.67	45	6

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	214	449	60	129	80.99	0	26.67	16.67	28.33	28.33	43.33	5
gp3-vpx Protein	HIV 2	gi|9628880:5898-6239	213	450	60	130	80.29	0	25	16.67	28.33	30	41.67	5
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	151	451	60	114	81.27	0	18.33	26.67	38.33	16.67	45	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	150	452	60	115	80.99	0	18.33	26.67	36.67	18.33	45	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	149	453	60	116	80.45	0	18.33	26.67	36.67	18.33	45	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	148	454	60	117	80.03	0	18.33	25	36.67	20	43.33	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	147	455	60	118	80.37	0	18.33	26.67	35	20	45	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	146	456	60	119	80.45	0	18.33	26.67	36.67	18.33	45	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	145	457	60	120	79.46	0	18.33	25	36.67	20	43.33	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	144	458	60	121	78.83	0	18.33	25	36.67	20	43.33	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	143	459	60	122	79.54	0	20	23.33	36.67	20	43.33	4
gp4-vpr protein	HIV 2	gi|9628880:6239-6502	142	460	60	123	80.24	0	21.67	23.33	35	20	45	3
gp5-tat protein	HIV 2	gi|9628880:6402-8957	2383	461	60	174	79.14	0	21.67	20	23.33	35	41.67	6
gp5-tat protein	HIV 2	gi|9628880:6402-8957	2314	462	60	243	75.32	0	25	10	35	30	35	3
gp5-tat protein	HIV 2	gi|9628880:6402-8957	2192	463	60	365	76.3	0	16.67	18.33	48.33	16.67	35	4
gp5-tat protein	HIV 2	gi|9628880:6402-8957	2131	464	60	426	80.93	0	26.67	18.33	33.33	21.67	45	5
gp5-tat protein	HIV 2	gi|9628880:6402-8957	2047	465	60	510	81.51	0	26.67	18.33	31.67	23.33	45	4
gp5-tat protein	HIV 2	gi|9628880:6402-8957	1938	466	60	619	82.14	0	26.67	18.33	38.33	16.67	45	3
gp5-tat protein	HIV 2	gi|9628880:6402-8957	1762	467	60	795	81.1	0	16.67	28.33	35	20	45	3
gp5-tat protein	HIV 2	gi|9628880:6402-8957	1702	468	60	855	78.13	0	25	16.67	35	23.33	41.67	3
gp5-tat protein	HIV 2	gi|9628880:6402-8957	1579	469	60	978	81.02	0	33.33	11.67	30	25	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp5-tat protein	HIV 2	gi|9628880:6402-8957	1519	470	60	1038	77.77	0	15	21.67	45	18.33	36.67	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	2355	471	60	121	80.43	0	16.67	28.33	28.33	26.67	45	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	2157	472	60	319	79.14	0	21.67	20	23.33	35	41.67	6
gp6-rev protein	HIV 2	gi|9628880:6628-9102	2088	473	60	388	75.32	0	25	10	35	30	35	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1966	474	60	510	76.3	0	16.67	18.33	48.33	16.67	35	4
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1905	475	60	571	80.93	0	26.67	18.33	33.33	21.67	45	5
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1821	476	60	655	81.51	0	26.67	18.33	31.67	23.33	45	4
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1712	477	60	764	82.14	0	26.67	18.33	38.33	16.67	45	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1536	478	60	940	81.1	0	16.67	28.33	35	20	45	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1476	479	60	1000	78.13	0	25	16.67	35	23.33	41.67	3
gp6-rev protein	HIV 2	gi|9628880:6628-9102	1353	480	60	1123	81.02	0	33.33	11.67	30	25	45	5
gp7-env protein	HIV 2	gi|9628880:6704-9286	2279	481	60	305	80.43	0	16.67	28.33	28.33	26.67	45	3
gp7-env protein	HIV 2	gi|9628880:6704-9286	2081	482	60	503	79.14	0	21.67	20	23.33	35	41.67	6
gp7-env protein	HIV 2	gi|9628880:6704-9286	2012	483	60	572	75.32	0	25	10	35	30	35	3
gp7-env protein	HIV 2	gi|9628880:6704-9286	1890	484	60	694	76.3	0	16.67	18.33	48.33	16.67	35	4
gp7-env protein	HIV 2	gi|9628880:6704-9286	1829	485	60	755	80.93	0	26.67	18.33	33.33	21.67	45	5
gp7-env protein	HIV 2	gi|9628880:6704-9286	1745	486	60	839	81.51	0	26.67	18.33	31.67	23.33	45	4
gp7-env protein	HIV 2	gi|9628880:6704-9286	1636	487	60	948	82.14	0	26.67	18.33	38.33	16.67	45	3
gp7-env protein	HIV 2	gi|9628880:6704-9286	1460	488	60	1124	81.1	0	16.67	28.33	35	20	45	3
gp7-env protein	HIV 2	gi|9628880:6704-9286	1400	489	60	1184	78.13	0	25	16.67	35	23.33	41.67	3
gp7-env protein	HIV 2	gi|9628880:6704-9286	1277	490	60	1307	81.02	0	33.33	11.67	30	25	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp8-nef protein	HIV 2	gi|9628880:9120-9893	709	491	60	66	79.96	0	28.33	13.33	43.33	15	41.67	4
gp8-nef protein	HIV 2	gi|9628880:9120-9893	594	492	60	181	81.97	0	28.33	16.67	33.33	21.67	45	4
gp8-nef protein	HIV 2	gi|9628880:9120-9893	526	493	60	249	80.36	0	26.67	18.33	36.67	18.33	45	2
gp8-nef protein	HIV 2	gi|9628880:9120-9893	453	494	60	322	78.77	0	23.33	18.33	33.33	25	41.67	3
gp8-nef protein	HIV 2	gi|9628880:9120-9893	423	495	60	352	75.67	0	20	16.67	43.33	20	36.67	5
gp8-nef protein	HIV 2	gi|9628880:9120-9893	393	496	60	382	75.56	0	26.67	11.67	41.67	20	38.33	5
gp8-nef protein	HIV 2	gi|9628880:9120-9893	359	497	60	416	77.69	0	28.33	10	40	21.67	38.33	5
gp8-nef protein	HIV 2	gi|9628880:9120-9893	308	498	60	467	76.63	0	18.33	18.33	40	23.33	36.67	4
gp8-nef protein	HIV 2	gi|9628880:9120-9893	278	499	60	497	79.73	0	23.33	20	35	21.67	43.33	3
gp8-nef protein	HIV 2	gi|9628880:9120-9893	248	500	60	527	77.26	0	26.67	11.67	31.67	30	38.33	4
3 LTR	HIV 2		701	501	60	155	79.1	0	18.33	25	25	31.67	43.33	3
3 LTR	HIV 2		513	502	60	343	79.71	0	20	23.33	21.67	35	43.33	3
3 LTR	HIV 2		384	503	60	472	79.15	0	25	18.33	41.67	15	43.33	3
3 LTR	HIV 2		354	504	60	502	77.55	0	21.67	16.67	45	16.67	38.33	3
3 LTR	HIV 2		324	505	60	532	79.96	0	28.33	13.33	43.33	15	41.67	4
3 LTR	HIV 2		209	506	60	647	81.97	0	28.33	16.67	33.33	21.67	45	4
3 LTR	HIV 2		141	507	60	715	80.36	0	26.67	18.33	36.67	18.33	45	2
3 LTR	HIV 2		68	508	60	788	78.77	0	23.33	18.33	33.33	25	41.67	3
3 LTR	HIV 2		38	509	60	818	75.67	0	20	16.67	43.33	20	36.67	5
3 LTR	HIV 2		8	510	60	848	75.56	0	26.67	11.67	41.67	20	38.33	5
gag	HTLV 1	gb|AF033817.1|:450-1739	927	511	60	364	81.2	0	21.67	23.33	35	20	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
gag	HTLV 1	gb|AF033817.1|:450-1739	926	512	60	365	81.2	0	21.67	23.33	36.67	18.33	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	925	513	60	366	80.69	0	21.67	23.33	38.33	16.67	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	924	514	60	367	80.69	0	20	25	38.33	16.67	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	923	515	60	368	81.23	0	20	25	40	15	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	922	516	60	369	81.51	0	20	25	40	15	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	921	517	60	370	81.54	0	20	25	41.67	13.33	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	917	518	60	374	81.41	0	18.33	26.67	40	15	45	5
gag	HTLV 1	gb|AF033817.1|:450-1739	916	519	60	375	81.36	0	16.67	26.67	41.67	15	43.33	5
gag	HTLV 1	gb|AF033817.1|:450-1739	915	520	60	376	81.36	0	16.67	26.67	40	16.67	43.33	5
pro	HTLV 1	gb|AF033817.1|:1718-2404	609	521	60	79	81.5	0	16.67	28.33	35	20	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	608	522	60	80	81.38	0	15	28.33	36.67	20	43.33	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	607	523	60	81	80.97	0	16.67	28.33	36.67	18.33	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	606	524	60	82	80.97	0	18.33	26.67	36.67	18.33	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	605	525	60	83	81.28	0	18.33	25	38.33	18.33	43.33	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	604	526	60	84	80.99	0	18.33	26.67	36.67	18.33	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	603	527	60	85	80.99	0	16.67	28.33	36.67	18.33	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	602	528	60	86	81.71	0	18.33	26.67	36.67	18.33	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	583	529	60	105	81.26	0	16.67	28.33	38.33	16.67	45	6
pro	HTLV 1	gb|AF033817.1|:1718-2404	582	530	60	106	81.26	0	15	30	38.33	16.67	45	6
Pol	HTLV 1	gi|962645 3:2245-4836	2376	531	60	217	81.86	0	20	25	28.33	26.67	45	3
Pol	HTLV 1	gi|962645 3:2245-4836	2262	532	60	331	81.66	0	13.33	30	38.33	18.33	43.33	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
Pol	HTLV 1	gi|9626453:2245-4836	2202	533	60	391	77.91	0	11.67	28.33	31.67	28.33	40	3
Pol	HTLV 1	gi|9626453:2245-4836	2051	534	60	542	79.82	0	11.67	30	31.67	26.67	41.67	3
Pol	HTLV 1	gi|9626453:2245-4836	1984	535	60	609	81.28	0	18.33	26.67	30	25	45	3
Pol	HTLV 1	gi|9626453:2245-4836	1914	536	60	679	80.45	0	18.33	26.67	26.67	28.33	45	4
Pol	HTLV 1	gi|9626453:2245-4836	1475	537	60	1118	79.19	0	11.67	30	25	33.33	41.67	3
Pol	HTLV 1	gi|9626453:2245-4836	1333	538	60	1260	81.34	0	15	30	26.67	28.33	45	5
Pol	HTLV 1	gi|9626453:2245-4836	1242	539	60	1351	81.27	0	16.67	28.33	21.67	33.33	45	4
Pol	HTLV 1	gi|9626453:2245-4836	1182	540	60	1411	79.74	0	16.67	25	33.33	25	41.67	5
rex	HTLV 1	gi|9626453:4773-8008	3128	541	60	109	81.24	0	18.33	26.67	35	20	45	5
rex	HTLV 1	gi|9626453:4773-8008	3068	542	60	169	76.49	0	6.67	30	26.67	36.67	36.67	4
rex	HTLV 1	gi|9626453:4773-8008	2975	543	60	262	77.12	0	6.67	30	30	33.33	36.67	3
rex	HTLV 1	gi|9626453:4773-8008	2758	544	60	479	81.27	0	15	30	26.67	28.33	45	4
rex	HTLV 1	gi|9626453:4773-8008	2160	545	60	1077	80.71	0	18.33	26.67	21.67	33.33	45	4
rex	HTLV 1	gi|9626453:4773-8008	1489	546	60	1748	78.44	0	8.33	30	35	26.67	38.33	3
rex	HTLV 1	gi|9626453:4773-8008	1251	547	60	1986	77.3	0	11.67	28.33	30	30	40	6
rex	HTLV 1	gi|9626453:4773-8008	1146	548	60	2091	82.63	0	18.33	26.67	36.67	18.33	45	5
rex	HTLV 1	gi|9626453:4773-8008	1086	549	60	2151	78.28	0	16.67	21.67	40	21.67	38.33	3
rex	HTLV 1	gi|9626453:4773-8008	721	550	60	2516	81.15	0	16.67	28.33	20	35	45	2
tax	HTLV 1	gi|9626453:4829-8008	3072	551	60	109	81.24	0	18.33	26.67	35	20	45	5
tax	HTLV 1	gi|9626453:4829-8008	3012	552	60	169	76.49	0	6.67	30	26.67	36.67	36.67	4
tax	HTLV 1	gi|9626453:4829-8008	2919	553	60	262	77.12	0	6.67	30	30	33.33	36.67	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
tax	HTLV 1	gi|9626453:4829-8008	2702	554	60	479	81.27	0	15	30	26.67	28.33	45	4
tax	HTLV 1	gi|9626453:4829-8008	2104	555	60	1077	80.71	0	18.33	26.67	21.67	33.33	45	4
tax	HTLV 1	gi|9626453:4829-8008	1433	556	60	1748	78.44	0	8.33	30	35	26.67	38.33	3
tax	HTLV 1	gi|9626453:4829-8008	1195	557	60	1986	77.3	0	11.67	28.33	30	30	40	6
tax	HTLV 1	gi|9626453:4829-8008	1090	558	60	2091	82.63	0	18.33	26.67	36.67	18.33	45	5
tax	HTLV 1	gi|9626453:4829-8008	1030	559	60	2151	78.28	0	16.67	21.67	40	21.67	38.33	3
tax	HTLV 1	gi|9626453:4829-8008	665	560	60	2516	81.15	0	16.67	28.33	20	35	45	2
env	HTLV 1	gi|9626453:4829-6295	1192	561	60	276	75.75	0	13.33	23.33	33.33	30	36.67	4
env	HTLV 1	gi|9626453:4829-6295	1152	562	60	316	79.9	0	25	16.67	31.67	26.67	41.67	4
env	HTLV 1	gi|9626453:4829-6295	1085	563	60	383	82.22	0	16.67	28.33	40	15	45	5
env	HTLV 1	gi|9626453:4829-6295	1045	564	60	423	76.35	0	15	20	45	20	35	5
env	HTLV 1	gi|9626453:4829-6295	662	565	60	806	80.64	0	16.67	28.33	20	35	45	2
env	HTLV 1	gi|9626453:4829-6295	621	566	60	847	77.56	0	10	26.67	31.67	31.67	36.67	4
env	HTLV 1	gi|9626453:4829-6295	454	567	60	1014	80.5	0	15	30	18.33	36.67	45	5
env	HTLV 1	gi|9626453:4829-6295	388	568	60	1080	78.82	0	13.33	25	33.33	28.33	38.33	4
env	HTLV 1	gi|9626453:4829-6295	297	569	60	1171	80.15	0	13.33	30	23.33	33.33	43.33	4
env	HTLV 1	gi|9626453:4829-6295	257	570	60	1211	80.16	0	20	23.33	31.67	25	43.33	5
5' LTR	HTLV 2	gi|9626726:1-763	262	571	60	502	80.91	0	28.33	16.67	36.67	18.33	45	4
5' LTR	HTLV 2	gi|9626726:1-763	261	572	60	503	80.27	0	26.67	18.33	36.67	18.33	45	4
5' LTR	HTLV 2	gi|9626726:1-763	260	573	60	504	80.93	0	26.67	18.33	36.67	18.33	45	4
5' LTR	HTLV 2	gi|9626726:1-763	258	574	60	506	81	0	28.33	16.67	36.67	18.33	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
5' LTR	HTLV 2	gi|9626726:1-763	257	575	60	507	80.3	0	26.67	16.67	36.67	20	43.33	4
5' LTR	HTLV 2	gi|9626726:1-763	256	576	60	508	80.17	0	25	16.67	36.67	21.67	41.67	4
5' LTR	HTLV 2	gi|9626726:1-763	255	577	60	509	79.64	0	25	16.67	38.33	20	41.67	4
5' LTR	HTLV 2	gi|9626726:1-763	254	578	60	510	78.94	0	23.33	16.67	40	20	40	4
5' LTR	HTLV 2	gi|9626726:1-763	253	579	60	511	78.88	0	21.67	16.67	41.67	20	38.33	4
5' LTR	HTLV 2	gi|9626726:1-763	251	580	60	513	77.51	0	20	16.67	41.67	21.67	36.67	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	52	581	60	63	83.12	0	15	33.33	26.67	25	48.33	6
gp1-tax protein	HTLV 2	gi|9626726:6-119	51	582	60	64	83.12	0	15	33.33	28.33	23.33	48.33	5
gp1-tax protein	HTLV 2	gi|9626726:6-119	50	583	60	65	83.12	0	15	33.33	30	21.67	48.33	5
gp1-tax protein	HTLV 2	gi|9626726:6-119	48	584	60	67	83.24	0	15	35	31.67	18.33	50	5
gp1-tax protein	HTLV 2	gi|9626726:6-119	44	585	60	71	83.33	0	16.67	35	33.33	15	51.67	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	43	586	60	72	83.33	0	16.67	35	33.33	15	51.67	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	42	587	60	73	83.05	0	16.67	33.33	33.33	16.67	50	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	41	588	60	74	83	0	16.67	31.67	35	16.67	48.33	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	40	589	60	75	82.67	0	16.67	33.33	35	15	50	4
gp1-tax protein	HTLV 2	gi|9626726:6-119	39	590	60	76	83.07	0	16.67	31.67	35	16.67	48.33	4
gs1	HTLV 2	gi|9626726:316-8751	8136	591	60	301	80.91	0	28.33	16.67	36.67	18.33	45	4
gs1	HTLV 2	gi|9626726:316-8751	7844	592	60	593	80.6	0	23.33	21.67	30	25	45	4
gs1	HTLV 2	gi|9626726:316-8751	7700	593	60	737	78.82	0	10	30	30	30	40	5
gs1	HTLV 2	gi|9626726:316-8751	7607	594	60	830	80.73	0	13.33	30	30	26.67	43.33	4
gs1	HTLV 2	gi|9626726:316-8751	7467	595	60	970	80.42	0	20	25	35	20	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gs1	HTLV 2	gi|9626726:316-8751	6864	596	60	1573	80.03	0	13.33	30	30	26.67	43.33	3
gs1	HTLV 2	gi|9626726:316-8751	6510	597	60	1927	80.81	0	13.33	30	43.33	13.33	43.33	4
gs1	HTLV 2	gi|9626726:316-8751	6302	598	60	2135	81.49	0	15	30	31.67	23.33	45	4
gs1	HTLV 2	gi|9626726:316-8751	6038	599	60	2399	81.19	0	16.67	28.33	30	25	45	2
gs1	HTLV 2	gi|9626726:316-8751	5942	600	60	2495	81.23	0	20	25	36.67	18.33	45	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	4170	601	60	212	82.08	0	20	25	28.33	26.67	45	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	4051	602	60	331	81.97	0	18.33	26.67	33.33	21.67	45	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	3988	603	60	394	77.04	0	8.33	30	36.67	25	38.33	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	3878	604	60	504	78.39	0	11.67	30	30	28.33	41.67	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	3759	605	60	623	81.77	0	20	25	30	25	45	5
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	3580	606	60	802	81.24	0	15	30	31.67	23.33	45	3
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	3276	607	60	1106	80.47	0	13.33	30	26.67	30	43.33	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	2797	608	60	1585	79.64	0	15	30	30	25	45	3
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	2698	609	60	1684	81.71	0	16.67	28.33	28.33	26.67	45	4
Gag-Pro-Pol	HTLV 2	gi|9626726:807-5187	2471	610	60	1911	80.7	0	20	25	31.67	23.33	45	3
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	927	611	60	376	81.37	0	15	30	43.33	11.67	45	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	924	612	60	379	82.65	0	15	30	43.33	11.67	45	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	923	613	60	380	82.37	0	15	30	41.67	13.33	45	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	910	614	60	393	80.15	0	11.67	30	38.33	20	41.67	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	909	615	60	394	79.59	0	11.67	30	38.33	20	41.67	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	908	616	60	395	79.44	0	11.67	30	38.33	20	41.67	6

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	904	617	60	399	80.74	0	13.33	30	36.67	20	43.33	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	903	618	60	400	81.46	0	13.33	30	36.67	20	43.33	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	902	619	60	401	81.46	0	13.33	30	38.33	18.33	43.33	6
gp2-gag polyprotein	HTLV 2	gi|9626726:807-2108	901	620	60	402	81.02	0	13.33	30	40	16.67	43.33	6
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	2053	621	60	491	78.63	0	10	30	30	30	40	6
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	2003	622	60	541	80.11	0	13.33	30	30	26.67	43.33	6
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	1705	623	60	839	80.81	0	13.33	30	43.33	13.33	43.33	4
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	1488	624	60	1056	79.23	0	11.67	30	31.67	26.67	41.67	3
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	1219	625	60	1325	80.73	0	20	23.33	28.33	28.33	43.33	3
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	1132	626	60	1412	81.46	0	18.33	25	38.33	18.33	43.33	5
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	1092	627	60	1452	79.8	0	13.33	30	38.33	18.33	43.33	5
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	680	628	60	1864	80.7	0	20	25	26.67	28.33	45	3
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	455	629	60	2089	80.18	0	15	28.33	28.33	28.33	43.33	3
gp4-rex 26 kD protein	HTLV 2	gi|9626726:5121-7663	293	630	60	2251	80.81	0	18.33	26.67	35	20	45	6
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	2967	631	60	60	78.34	0	20	20	33.33	26.67	40	4
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	2836	632	60	191	78.82	0	10	30	30	30	40	5
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	2743	633	60	284	80.73	0	13.33	30	30	26.67	43.33	4
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	2603	634	60	424	80.42	0	20	25	35	20	45	4
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	2000	635	60	1027	80.03	0	13.33	30	30	26.67	43.33	3
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	1646	636	60	1381	80.81	0	13.33	30	43.33	13.33	43.33	4
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	1438	637	60	1589	81.49	0	15	30	31.67	23.33	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	1174	638	60	1853	81.19	0	16.67	28.33	30	25	45	2
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	1078	639	60	1949	81.23	0	20	25	36.67	18.33	45	4
gp5-tax protein	HTLV 2	gi|9626726:5180-8205	624	640	60	2403	80.99	0	20	25	25	30	45	3
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	1402	641	60	60	79.45	0	11.67	30	38.33	20	41.67	4
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	1160	642	60	302	80.73	0	20	23.33	28.33	28.33	43.33	3
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	1073	643	60	389	81.46	0	18.33	25	38.33	18.33	43.33	5
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	1033	644	60	429	79.8	0	13.33	30	38.33	18.33	43.33	5
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	621	645	60	841	80.7	0	20	25	26.67	28.33	45	3
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	599	646	60	863	80.06	0	13.33	30	33.33	23.33	43.33	4
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	396	647	60	1066	80.18	0	15	28.33	28.33	28.33	43.33	3
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	375	648	60	1087	80.45	0	20	25	28.33	26.67	45	3
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	234	649	60	1228	80.81	0	18.33	26.67	35	20	45	6
gp6-env peptide	HTLV 2	gi|9626726:5180-6640	6	650	60	1456	79.38	0	11.67	30	21.67	36.67	41.67	4
3 LTR	HTLV 2	gi|9626726:8190-8952	262	651	60	502	80.91	0	28.33	16.67	36.67	18.33	45	4
3 LTR	HTLV 2	gi|9626726:8190-8952	261	652	60	503	80.27	0	26.67	18.33	36.67	18.33	45	4
3 LTR	HTLV 2	gi|9626726:8190-8952	260	653	60	504	80.93	0	26.67	18.33	36.67	18.33	45	4
3 LTR	HTLV 2	gi|9626726:8190-8952	258	654	60	506	81	0	28.33	16.67	36.67	18.33	45	4
3 LTR	HTLV 2	gi|9626726:8190-8952	257	655	60	507	80.3	0	26.67	16.67	36.67	20	43.33	4
3 LTR	HTLV 2	gi|9626726:8190-8952	256	656	60	508	80.17	0	25	16.67	36.67	21.67	41.67	4
3 LTR	HTLV 2	gi|9626726:8190-8952	255	657	60	509	79.64	0	25	16.67	38.33	20	41.67	4
3 LTR	HTLV 2	gi|9626726:8190-8952	254	658	60	510	78.94	0	23.33	16.67	40	20	40	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
3 LTR	HTLV 2	gi|9626726:8190-8952	253	659	60	511	78.88	0	21.67	16.67	41.67	20	38.33	4
3 LTR	HTLV 2	gi|9626726:8190-8952	251	660	60	513	77.51	0	20	16.67	41.67	21.67	36.67	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	299	661	60	71	81.86	0	26.67	18.33	41.67	13.33	45	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	298	662	60	72	81.77	0	26.67	18.33	40	15	45	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	297	663	60	73	81.13	0	26.67	18.33	40	15	45	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	296	664	60	74	81.13	0	28.33	16.67	40	15	45	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	295	665	60	75	80.86	0	26.67	16.67	41.67	15	43.33	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	294	666	60	76	80.86	0	28.33	15	41.67	15	43.33	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	286	667	60	84	81.58	0	28.33	15	43.33	13.33	43.33	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	282	668	60	88	81.3	0	26.67	16.67	43.33	13.33	43.33	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	281	669	60	89	81.38	0	26.67	18.33	43.33	11.67	45	4
anchored capsid protein C	WNV NY99	gi|158516887:97-465	279	670	60	91	82.19	0	28.33	16.67	41.67	13.33	45	4
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	355	671	60	147	81.75	0	28.33	16.67	30	25	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	354	672	60	148	81.23	0	28.33	16.67	30	25	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	353	673	60	149	80.51	0	28.33	16.67	30	25	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	352	674	60	150	80.31	0	26.67	16.67	31.67	25	43.33	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	351	675	60	151	80.31	0	25	18.33	31.67	25	43.33	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	350	676	60	152	80.51	0	25	20	31.67	23.33	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	349	677	60	153	80.66	0	25	20	31.67	23.33	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	348	678	60	154	81.23	0	25	20	31.67	23.33	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	347	679	60	155	81.23	0	25	20	33.33	21.67	45	5
membrane glycoprotein precursor prM	WNV NY99	gi|158516887:466-966	346	680	60	156	80.53	0	25	18.33	35	21.67	43.33	5
envelope protein E	WNV NY99	gi|158516887:967-2469	1168	681	60	336	82.12	0	20	25	36.67	18.33	45	3
envelope protein E	WNV NY99	gi|158516887:967-2469	880	682	60	624	81.25	0	26.67	16.67	26.67	30	43.33	3
envelope protein E	WNV NY99	gi|158516887:967-2469	850	683	60	654	79.31	0	31.67	10	35	23.33	41.67	5
envelope protein E	WNV NY99	gi|158516887:967-2469	820	684	60	684	80.21	0	28.33	13.33	30	28.33	41.67	4
envelope protein E	WNV NY99	gi|158516887:967-2469	788	685	60	716	82.63	0	23.33	21.67	25	30	45	4
envelope protein E	WNV NY99	gi|158516887:967-2469	595	686	60	909	81.01	0	26.67	18.33	25	30	45	3
envelope protein E	WNV NY99	gi|158516887:967-2469	393	687	60	1111	79.43	0	25	18.33	31.67	25	43.33	5
envelope protein E	WNV NY99	gi|158516887:967-2469	363	688	60	1141	78.97	0	21.67	20	40	18.33	41.67	3
envelope protein E	WNV NY99	gi|158516887:967-2469	319	689	60	1185	82.37	0	20	25	31.67	23.33	45	3
envelope protein E	WNV NY99	gi|158516887:967-2469	90	690	60	1414	79.7	0	26.67	18.33	31.67	23.33	45	2
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	971	691	60	86	81.31	0	30	15	36.67	18.33	45	4
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	598	692	60	459	82.08	0	33.33	11.67	30	25	45	3
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	566	693	60	491	81.68	0	23.33	21.67	31.67	23.33	45	3
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	517	694	60	540	80.7	0	25	20	36.67	18.33	45	2
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	426	695	60	631	81.55	0	30	15	23.33	31.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	357	696	60	700	81.52	0	21.67	21.67	28.33	28.33	43.33	4
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	325	697	60	732	79.8	0	28.33	13.33	33.33	25	41.67	5
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	130	698	60	927	80.43	0	26.67	18.33	31.67	23.33	45	3
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	97	699	60	960	80.83	0	18.33	25	40	16.67	43.33	3
nonstructural protein NS1	WNV NY99	gi|158516887:2470-3525	54	700	60	1003	80.82	0	26.67	18.33	30	25	45	3
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	584	701	60	110	80.91	0	20	25	33.33	21.67	45	6
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	501	702	60	193	81.59	0	31.67	13.33	23.33	31.67	45	2
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	413	703	60	281	81.21	0	21.67	23.33	30	25	45	3
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	393	704	60	301	81.07	0	25	20	28.33	26.67	45	2
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	313	705	60	381	81.95	0	21.67	20	18.33	40	41.67	4
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	293	706	60	401	81.59	0	26.67	16.67	21.67	35	43.33	4
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	265	707	60	429	80.89	0	26.67	16.67	26.67	30	43.33	4
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	243	708	60	451	81.2	0	23.33	21.67	30	25	45	3
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	147	709	60	547	81.37	0	25	20	21.67	33.33	45	5
nonstructural protein NS2A	WNV NY99	gi|158516887:3526-4218	106	710	60	588	80.63	0	26.67	18.33	16.67	38.33	45	5
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	334	711	60	60	80.85	0	20	25	28.33	26.67	45	4
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	249	712	60	145	81.64	0	25	20	31.67	23.33	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	246	713	60	148	81.54	0	25	20	31.67	23.33	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	245	714	60	149	81.54	0	25	20	33.33	21.67	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	242	715	60	152	81.58	0	25	20	31.67	23.33	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	240	716	60	154	81.58	0	26.67	18.33	30	25	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	239	717	60	155	81.11	0	26.67	18.33	31.67	23.33	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	238	718	60	156	80.29	0	28.33	16.67	31.67	23.33	45	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	237	719	60	157	80.67	0	26.67	16.67	31.67	25	43.33	3
nonstructural protein NS2B	WNV NY99	gi|158516887:4219-4611	236	720	60	158	80.7	0	26.67	16.67	31.67	25	43.33	3
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1721	721	60	137	80.84	0	30	15	38.33	16.67	45	3
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1591	722	60	267	81.55	0	26.67	18.33	28.33	26.67	45	6
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1512	723	60	346	80.83	0	25	20	33.33	21.67	45	4
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1217	724	60	641	81.63	0	26.67	18.33	33.33	21.67	45	5
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1157	725	60	701	79.88	0	28.33	15	36.67	20	43.33	4
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	1097	726	60	761	81.94	0	26.67	18.33	31.67	23.33	45	4
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	960	727	60	898	81.24	0	15	30	30	25	45	3
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	757	728	60	1101	81.77	0	23.33	21.67	25	30	45	3
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	600	729	60	1258	80.94	0	23.33	21.67	43.33	11.67	45	3
nonstructural protein NS3	WNV NY99	gi|158516887:4612-6468	428	730	60	1430	82.18	0	26.67	18.33	28.33	26.67	45	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	160	731	60	207	81.11	0	23.33	21.67	18.33	36.67	45	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	159	732	60	208	81.05	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	158	733	60	209	80.67	0	21.67	23.33	18.33	36.67	45	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	157	734	60	210	80.32	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	156	735	60	211	80.23	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	155	736	60	212	80.69	0	21.67	21.67	21.67	35	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	154	737	60	213	80.32	0	21.67	23.33	20	35	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	153	738	60	214	80.69	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	152	739	60	215	80.26	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4A	WNV NY99	gi|158516887:6469-6834	151	740	60	216	79.62	0	21.67	21.67	20	36.67	43.33	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	703	741	60	63	76.76	0	15	20	43.33	21.67	35	5
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	683	742	60	83	80.89	0	23.33	20	30	26.67	43.33	5
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	506	743	60	260	80.89	0	30	15	26.67	28.33	45	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	480	744	60	286	81.85	0	21.67	23.33	35	20	45	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	185	745	60	581	79.07	0	11.67	30	35	23.33	41.67	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	165	746	60	601	78.17	0	11.67	26.67	35	26.67	38.33	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	140	747	60	626	81.65	0	15	30	31.67	23.33	45	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	48	748	60	718	80.6	0	31.67	11.67	26.67	30	43.33	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	28	749	60	738	79.4	0	30	10	35	25	40	3
nonstructural protein NS4B	WNV NY99	gi|158516887:6916-7680	8	750	60	758	80.52	0	33.33	10	31.67	25	43.33	3
nonstructural protein NS5	WNV NY99	gi|158516887:7681-10395	2656	751	60	60	77.17	0	23.33	16.67	36.67	23.33	40	3
nonstructural protein NS6	WNV NY99	gi|158516887:7681-10395	2596	752	60	120	80.17	0	26.67	18.33	36.67	18.33	45	4
nonstructural protein NS7	WNV NY99	gi|158516887:7681-10395	2480	753	60	236	81.19	0	26.67	18.33	40	15	45	4
nonstructural protein NS8	WNV NY99	gi|158516887:7681-10395	2161	754	60	555	81.66	0	31.67	13.33	31.67	23.33	45	3
nonstructural protein NS9	WNV NY99	gi|158516887:7681-10395	2101	755	60	615	81.92	0	21.67	23.33	25	30	45	4
nonstructural protein NS10	WNV NY99	gi|158516887:7681-10395	1353	756	60	1363	81.34	0	28.33	15	41.67	15	43.33	6
nonstructural protein NS11	WNV NY99	gi|158516887:7681-10395	1255	757	60	1461	82.15	0	33.33	11.67	35	20	45	4
nonstructural protein NS12	WNV NY99	gi|158516887:7681-10395	1195	758	60	1521	81.38	0	30	15	33.33	21.67	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
nonstructural protein NS13	WNV NY99	gi|158516887:7681-10395	720	759	60	1996	80.61	0	28.33	16.67	41.67	13.33	45	6
nonstructural protein NS14	WNV NY99	gi|158516887:7681-10395	365	760	60	2351	81.09	0	28.33	16.67	25	30	45	2
anchored capsid protein C	WNV 956	gi|11528013:97-465	256	761	60	114	82.17	0	20	25	46.67	8.33	45	4
anchored capsid protein C	WNV 956	gi|11528013:97-465	254	762	60	116	82.17	0	20	25	46.67	8.33	45	4
anchored capsid protein C	WNV 956	gi|11528013:97-465	253	763	60	117	82.17	0	20	25	46.67	8.33	45	4
anchored capsid protein C	WNV 956	gi|11528013:97-465	249	764	60	121	82.23	0	18.33	26.67	41.67	13.33	45	4
anchored capsid protein C	WNV 956	gi|11528013:97-465	232	765	60	138	80.98	0	20	25	33.33	21.67	45	3
anchored capsid protein C	WNV 956	gi|11528013:97-465	231	766	60	139	80.13	0	20	23.33	35	21.67	43.33	3
anchored capsid protein C	WNV 956	gi|11528013:97-465	230	767	60	140	79.56	0	18.33	25	35	21.67	43.33	3
anchored capsid protein C	WNV 956	gi|11528013:97-465	229	768	60	141	79.71	0	20	23.33	35	21.67	43.33	3
anchored capsid protein C	WNV 956	gi|11528013:97-465	228	769	60	142	80	0	20	21.67	36.67	21.67	41.67	3
anchored capsid protein C	WNV 956	gi|11528013:97-465	227	770	60	143	80.14	0	20	23.33	35	21.67	43.33	3
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	417	771	60	85	82.64	0	25	20	25	30	45	3
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	335	772	60	167	80.7	0	25	20	40	15	45	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	334	773	60	168	80.01	0	25	18.33	40	16.67	43.33	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	333	774	60	169	80.01	0	26.67	16.67	40	16.67	43.33	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	332	775	60	170	80.7	0	28.33	16.67	38.33	16.67	45	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	331	776	60	171	81.21	0	28.33	16.67	36.67	18.33	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	330	777	60	172	80.8	0	28.33	16.67	35	20	45	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	329	778	60	173	80.8	0	26.67	18.33	35	20	45	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	327	779	60	175	81.55	0	26.67	18.33	35	20	45	4
membrane glycoprotein precursor prM	WNV 956	gi|11528013:466-966	320	780	60	182	81.69	0	28.33	16.67	38.33	16.67	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	141	781	60	85	82.64	0	25	20	25	30	45	3
membrane glycoprotein M	WNV 956	gi|11528013:742-966	59	782	60	167	80.7	0	25	20	40	15	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	58	783	60	168	80.01	0	25	18.33	40	16.67	43.33	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	57	784	60	169	80.01	0	26.67	16.67	40	16.67	43.33	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	56	785	60	170	80.7	0	28.33	16.67	38.33	16.67	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	55	786	60	171	81.21	0	28.33	16.67	36.67	18.33	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	54	787	60	172	80.8	0	28.33	16.67	35	20	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	53	788	60	173	80.8	0	26.67	18.33	35	20	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	51	789	60	175	81.55	0	26.67	18.33	35	20	45	4
membrane glycoprotein M	WNV 956	gi|11528013:742-966	44	790	60	182	81.69	0	28.33	16.67	38.33	16.67	45	4
envelope protein E	WNV 956	gi|11528013:967-2457	1312	791	60	180	81.01	0	25	20	25	30	45	4
envelope protein E	WNV 956	gi|11528013:967-2457	885	792	60	607	81.26	0	21.67	23.33	31.67	23.33	45	4
envelope protein E	WNV 956	gi|11528013:967-2457	813	793	60	679	81.49	0	31.67	13.33	33.33	21.67	45	3
envelope protein E	WNV 956	gi|11528013:967-2457	698	794	60	794	82	0	23.33	21.67	30	25	45	3
envelope protein E	WNV 956	gi|11528013:967-2457	597	795	60	895	81.01	0	26.67	18.33	21.67	33.33	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
envelope protein E	WNV 956	gi|11528013:967-2457	483	796	60	1009	81.24	0	25	20	28.33	26.67	45	3
envelope protein E	WNV 956	gi|11528013:967-2457	397	797	60	1095	81.7	0	23.33	21.67	28.33	26.67	45	4
envelope protein E	WNV 956	gi|11528013:967-2457	337	798	60	1155	81.72	0	23.33	21.67	33.33	21.67	45	3
envelope protein E	WNV 956	gi|11528013:967-2457	123	799	60	1369	82.3	0	25	20	31.67	23.33	45	4
envelope protein E	WNV 956	gi|11528013:967-2457	63	800	60	1429	80.88	0	25	18.33	33.33	23.33	43.33	4
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	829	801	60	228	81.52	0	21.67	23.33	31.67	23.33	45	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	827	802	60	230	80.95	0	21.67	23.33	33.33	21.67	45	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	826	803	60	231	80.85	0	23.33	21.67	33.33	21.67	45	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	825	804	60	232	80.95	0	23.33	21.67	31.67	23.33	45	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	824	805	60	233	80.26	0	21.67	21.67	31.67	25	43.33	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	823	806	60	234	80.1	0	20	21.67	33.33	25	41.67	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	822	807	60	235	79.64	0	21.67	21.67	33.33	23.33	43.33	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	821	808	60	236	79.35	0	20	21.67	35	23.33	41.67	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	820	809	60	237	78.71	0	21.67	20	35	23.33	41.67	3
nonstructural protein NS1	WNV 956	gi|11528013:2458-3513	819	810	60	238	79.27	0	21.67	20	35	23.33	41.67	3
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	556	811	60	138	80.91	0	20	23.33	40	16.67	43.33	6
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	536	812	60	158	80.41	0	26.67	15	41.67	16.67	41.67	6
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	516	813	60	178	79	0	26.67	13.33	33.33	26.67	40	6
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	496	814	60	198	78.54	0	25	13.33	26.67	35	38.33	4
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	476	815	60	218	79.47	0	20	20	25	35	40	4
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	401	816	60	293	80.68	0	16.67	28.33	25	30	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	345	817	60	349	81.37	0	25	20	25	30	45	4
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	325	818	60	369	81.68	0	21.67	23.33	23.33	31.67	45	3
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	305	819	60	389	81.52	0	20	23.33	23.33	33.33	43.33	4
nonstructural protein NS2A	WNV 956	gi|11528013:3514-4206	279	820	60	415	82.2	0	25	20	23.33	31.67	45	5
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	249	821	60	145	82.27	0	26.67	18.33	30	25	45	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	248	822	60	146	81.44	0	28.33	16.67	30	25	45	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	247	823	60	147	81.44	0	28.33	16.67	30	25	45	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	246	824	60	148	81.83	0	26.67	16.67	30	26.67	43.33	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	245	825	60	149	81.83	0	26.67	16.67	31.67	25	43.33	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	244	826	60	150	81.44	0	28.33	16.67	30	25	45	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	243	827	60	151	81.25	0	26.67	16.67	30	26.67	43.33	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	242	828	60	152	81.16	0	25	16.67	31.67	26.67	41.67	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	241	829	60	153	81.48	0	26.67	16.67	30	26.67	43.33	4
nonstructural protein NS2B	WNV 956	gi|11528013:4207-4599	240	830	60	154	81.99	0	26.67	16.67	30	26.67	43.33	4
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1798	831	60	60	80.56	0	21.67	21.67	33.33	23.33	43.33	4
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1729	832	60	129	80.67	0	30	15	36.67	18.33	45	3
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1668	833	60	190	81.8	0	21.67	23.33	31.67	23.33	45	3
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1597	834	60	261	81.8	0	20	25	26.67	28.33	45	3
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1437	835	60	421	81.85	0	21.67	23.33	31.67	23.33	45	3
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1212	836	60	646	81.8	0	23.33	21.67	33.33	21.67	45	4
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1150	837	60	708	80.26	0	25	20	36.67	18.33	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1073	838	60	785	81.88	0	26.67	18.33	25	30	45	4
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	1013	839	60	845	80.16	0	28.33	16.67	35	20	45	3
nonstructural protein NS3	WNV 956	gi|11528013:4600-6456	809	840	60	1049	81.46	0	15	30	30	25	45	4
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	206	841	60	173	80.63	0	33.33	11.67	28.33	26.67	45	3
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	205	842	60	174	80.57	0	31.67	11.67	28.33	28.33	43.33	3
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	204	843	60	175	80.16	0	31.67	11.67	26.67	30	43.33	4
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	203	844	60	176	79.45	0	30	11.67	26.67	31.67	41.67	5
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	202	845	60	177	79.39	0	28.33	11.67	26.67	33.33	40	6
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	201	846	60	178	79.81	0	30	11.67	25	33.33	41.67	6
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	200	847	60	179	80.32	0	30	11.67	25	33.33	41.67	6
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	199	848	60	180	80.02	0	31.67	11.67	25	31.67	43.33	6
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	198	849	60	181	80.49	0	31.67	10	25	33.33	41.67	6
nonstructural protein NS4A	WNV 956	gi|11528013:6457-6834	197	850	60	182	80.65	0	33.33	10	25	31.67	43.33	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	517	851	60	252	81.84	0	25	20	26.67	28.33	45	3
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	513	852	60	256	80.86	0	26.67	18.33	28.33	26.67	45	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	512	853	60	257	80.6	0	26.67	16.67	30	26.67	43.33	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	511	854	60	258	80.69	0	26.67	16.67	30	26.67	43.33	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	510	855	60	259	81.56	0	28.33	16.67	30	25	45	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	509	856	60	260	82.07	0	28.33	16.67	28.33	26.67	45	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	508	857	60	261	81.53	0	28.33	16.67	28.33	26.67	45	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	507	858	60	262	81.63	0	28.33	16.67	28.33	26.67	45	6

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	506	859	60	263	81.53	0	28.33	16.67	28.33	26.67	45	6
nonstructural protein NS4B	WNV 956	gi|11528013:6904-7671	505	860	60	264	80.96	0	28.33	16.67	28.33	26.67	45	6
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	2656	861	60	60	79.85	0	30	15	26.67	28.33	45	4
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	2596	862	60	120	78.8	0	28.33	13.33	33.33	25	41.67	4
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	2495	863	60	221	81.04	0	31.67	13.33	31.67	23.33	45	3
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	2116	864	60	600	81.29	0	21.67	23.33	28.33	26.67	45	3
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	2048	865	60	668	81.48	0	18.33	26.67	35	20	45	3
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	1908	866	60	808	81.66	0	31.67	13.33	35	20	45	5
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	1555	867	60	1161	81.68	0	28.33	16.67	33.33	21.67	45	3
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	1354	868	60	1362	81.41	0	30	15	40	15	45	3
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	1241	869	60	1475	82.03	0	28.33	16.67	35	20	45	4
nonstructural protein NS5	WNV 956	gi|11528013:7672-10386	1170	870	60	1546	81.44	0	26.67	18.33	33.33	21.67	45	4
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	7323	871	60	103	81.63	0	20	25	26.67	28.33	45	3
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	7262	872	60	164	80.48	0	33.33	11.67	33.33	21.67	45	3
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	7166	873	60	260	81.9	0	28.33	16.67	38.33	16.67	45	5
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	7088	874	60	338	81.53	0	25	20	26.67	28.33	45	4
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	7016	875	60	410	81.53	0	30	15	33.33	21.67	45	2
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	6874	876	60	552	80.19	0	13.33	30	28.33	28.33	43.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	6745	877	60	681	80.36	0	30	15	21.67	33.33	45	4
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	6685	878	60	741	80.26	0	20	21.67	28.33	30	41.67	4
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	6617	879	60	809	81.32	0	18.33	26.67	26.67	28.33	45	3
gp1-nonstructural polyprotein	Chikungunya	gi|27754751:77-7501	6468	880	60	958	80.67	0	26.67	18.33	36.67	18.33	45	3
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	3441	881	60	307	80.44	0	25	20	28.33	26.67	45	3
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	3376	882	60	372	82.09	0	25	20	33.33	21.67	45	3
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	3109	883	60	639	81.49	0	21.67	23.33	30	25	45	4
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2945	884	60	803	81.59	0	21.67	23.33	30	25	45	4
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2815	885	60	933	81.13	0	15	30	31.67	23.33	45	3
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2750	886	60	998	82.28	0	21.67	23.33	35	20	45	4
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2552	887	60	1196	81.58	0	16.67	28.33	28.33	26.67	45	4
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2359	888	60	1389	82.61	0	21.67	23.33	21.67	33.33	45	6
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	2052	889	60	1696	80.13	0	21.67	23.33	18.33	36.67	45	3
gp2-structural polyprotein	Chikungunya	gi|27754751:7567-11313	1733	890	60	2015	82.38	0	21.67	23.33	33.33	21.67	45	5
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	2359	891	60	116	82.61	0	21.67	23.33	21.67	33.33	45	6
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	2052	892	60	423	80.13	0	21.67	23.33	18.33	36.67	45	3
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1733	893	60	742	82.38	0	21.67	23.33	33.33	21.67	45	5
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1631	894	60	844	82.49	0	21.67	23.33	33.33	21.67	45	5
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1568	895	60	907	75.74	0	25	10	38.33	26.67	35	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1294	896	60	1181	79.99	0	28.33	16.67	33.33	21.67	45	3
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1224	897	60	1251	81.55	0	20	25	31.67	23.33	45	3
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	1134	898	60	1341	81.89	0	28.33	16.67	33.33	21.67	45	3
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	988	899	60	1487	80.92	0	16.67	28.33	33.33	21.67	45	3
gp3-truncated polyprotein	Chikungunya	gi|27754751:7567-10040	899	900	60	1576	80.51	0	20	25	30	25	45	3
anchored capsid protein C	DEN 1	gi|9626685:95-436	266	901	60	77	80.16	0	21.67	21.67	35	21.67	43.33	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	236	902	60	107	77.96	0	25	11.67	41.67	21.67	36.67	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	216	903	60	127	78.45	0	25	13.33	40	21.67	38.33	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	193	904	60	150	81.44	0	31.67	13.33	26.67	28.33	45	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	165	905	60	178	80.98	0	21.67	21.67	31.67	25	43.33	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	145	906	60	198	78.55	0	16.67	23.33	28.33	31.67	40	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	125	907	60	218	78.65	0	16.67	23.33	28.33	31.67	40	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	105	908	60	238	80.84	0	25	18.33	26.67	30	43.33	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	81	909	60	262	82.4	0	26.67	18.33	31.67	23.33	45	4
anchored capsid protein C	DEN 1	gi|9626685:95-436	57	910	60	286	81.07	0	25	20	28.33	26.67	45	4
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	439	911	60	60	81.61	0	18.33	26.67	23.33	31.67	45	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	438	912	60	61	80.88	0	18.33	25	25	31.67	43.33	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	437	913	60	62	80.15	0	18.33	25	25	31.67	43.33	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	436	914	60	63	79.96	0	16.67	25	26.67	31.67	41.67	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	435	915	60	64	79.82	0	15	25	28.33	31.67	40	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	434	916	60	65	79.89	0	16.67	25	28.33	30	41.67	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	433	917	60	66	80.09	0	18.33	25	26.67	30	43.33	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	432	918	60	67	79.82	0	18.33	23.33	28.33	30	41.67	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	431	919	60	68	79.49	0	18.33	21.67	28.33	31.67	40	5
membrane glycoprotein precursor M	DEN 1	gi|9626685:437-934	430	920	60	69	79.49	0	18.33	21.67	30	30	40	5
envelope protein E	DEN 1	gi|9626685:935-2419	1381	921	60	105	80.9	0	21.67	23.33	26.67	28.33	45	3
envelope protein E	DEN 1	gi|9626685:935-2419	1319	922	60	167	81.01	0	33.33	11.67	21.67	33.33	45	4
envelope protein E	DEN 1	gi|9626685:935-2419	1163	923	60	323	81.49	0	30	15	35	20	45	4
envelope protein E	DEN 1	gi|9626685:935-2419	1082	924	60	404	81.47	0	26.67	18.33	33.33	21.67	45	5
envelope protein E	DEN 1	gi|9626685:935-2419	954	925	60	532	80.95	0	20	25	31.67	23.33	45	4
envelope protein E	DEN 1	gi|9626685:935-2419	892	926	60	594	81.36	0	28.33	16.67	31.67	23.33	45	3
envelope protein E	DEN 1	gi|9626685:935-2419	820	927	60	666	77.48	0	20	15	41.67	23.33	35	5
envelope protein E	DEN 1	gi|9626685:935-2419	734	928	60	752	81.12	0	26.67	18.33	40	15	45	6
envelope protein E	DEN 1	gi|9626685:935-2419	674	929	60	812	79.51	0	20	23.33	35	21.67	43.33	3
envelope protein E	DEN 1	gi|9626685:935-2419	550	930	60	936	77.28	0	25	11.67	35	28.33	36.67	6
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	997	931	60	60	80.02	0	26.67	16.67	38.33	18.33	43.33	3
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	897	932	60	160	81.26	0	20	25	35	20	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	837	933	60	220	80.04	0	28.33	15	26.67	30	43.33	3
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	777	934	60	280	80.92	0	23.33	18.33	30	28.33	41.67	4
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	717	935	60	340	78.4	0	20	21.67	40	18.33	41.67	3
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	656	936	60	401	81.84	0	21.67	23.33	35	20	45	4
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	596	937	60	461	79.88	0	30	15	35	20	45	4
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	496	938	60	561	81.72	0	21.67	23.33	28.33	26.67	45	3
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	436	939	60	621	79.19	0	25	13.33	36.67	25	38.33	4
nonstructural protein NS1	DEN 1	gi|9626685:2420-3475	359	940	60	698	81.74	0	16.67	28.33	40	15	45	4
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	592	941	60	63	78.19	0	18.33	20	36.67	25	38.33	4
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	517	942	60	138	79.52	0	10	30	25	35	40	6
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	477	943	60	178	78.48	0	16.67	23.33	25	35	40	3
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	437	944	60	218	79.02	0	16.67	21.67	25	36.67	38.33	5
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	397	945	60	258	78.42	0	18.33	20	23.33	38.33	38.33	4
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	357	946	60	298	80.78	0	31.67	13.33	28.33	26.67	45	4
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	309	947	60	346	79.96	0	25	18.33	25	31.67	43.33	3
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	269	948	60	386	77.34	0	21.67	18.33	23.33	36.67	40	3
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	131	949	60	524	80.68	0	28.33	16.67	30	25	45	3
nonstructural protein NS2A	DEN 1	gi|9626685:3476-4129	86	950	60	569	80.86	0	23.33	20	28.33	28.33	43.33	5
nonstructural protein NS2B	DEN 1	gi|9626685:4130-4519	331	951	60	60	80.85	0	23.33	20	31.67	25	43.33	5
nonstructural protein NS2B	DEN 1	gi|9626685:4130-4519	330	952	60	61	81.14	0	23.33	21.67	30	25	45	5
nonstructural protein NS2B	DEN 1	gi|9626685:4130-4519	329	953	60	62	81.59	0	21.67	21.67	31.67	25	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	328	954	60	63	80.89	0	21.67	21.67	30	26.67	43.33	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	327	955	60	64	80.81	0	20	21.67	31.67	26.67	41.67	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	326	956	60	65	80.02	0	20	21.67	30	28.33	41.67	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	325	957	60	66	80.02	0	21.67	20	30	28.33	41.67	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	324	958	60	67	80.72	0	23.33	20	28.33	28.33	43.33	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	323	959	60	68	81.42	0	25	20	26.67	28.33	45	5
nonstructural protein NS2B	DEN 1	gi|962685:4130-4519	321	960	60	70	82.09	0	25	20	26.67	28.33	45	5
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1475	961	60	383	80.94	0	15	30	35	20	45	5
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1415	962	60	443	80.76	0	23.33	21.67	35	20	45	3
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1213	963	60	645	81.42	0	23.33	21.67	35	20	45	3
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1153	964	60	705	77.27	0	18.33	18.33	46.67	16.67	36.67	6
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1093	965	60	765	80.34	0	26.67	15	38.33	20	41.67	3
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	1033	966	60	825	81.37	0	23.33	21.67	25	30	45	4
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	973	967	60	885	80.25	0	21.67	21.67	36.67	20	43.33	3
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	845	968	60	1013	81.43	0	21.67	23.33	30	25	45	4
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	785	969	60	1073	80.31	0	16.67	28.33	21.67	33.33	45	3
nonstructural protein NS3	DEN 1	gi|962685:4520-6376	725	970	60	1133	80.39	0	30	15	36.67	18.33	45	3
nonstructural protein NS4A	DEN 1	gi|962685:6377-6757	302	971	60	80	80.8	0	21.67	23.33	18.33	36.67	45	4
nonstructural protein NS4A	DEN 1	gi|962685:6377-6757	231	972	60	151	81.8	0	21.67	23.33	25	30	45	5
nonstructural protein NS4A	DEN 1	gi|962685:6377-6757	208	973	60	174	81.34	0	23.33	21.67	23.33	31.67	45	5
nonstructural protein NS4A	DEN 1	gi|962685:6377-6757	154	974	60	228	80.81	0	28.33	16.67	21.67	33.33	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	134	975	60	248	80.32	0	21.67	21.67	31.67	25	43.33	3
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	113	976	60	269	80.12	0	18.33	26.67	40	15	45	4
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	86	977	60	296	80.09	0	21.67	21.67	38.33	18.33	43.33	4
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	66	978	60	316	80.57	0	25	20	33.33	21.67	45	4
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	23	979	60	359	81.64	0	20	25	38.33	16.67	45	3
nonstructural protein NS4A	DEN 1	gi|9626685:6377-6757	3	980	60	379	78.87	0	20	21.67	36.67	21.67	41.67	3
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	685	981	60	63	79.97	0	30	15	26.67	28.33	45	4
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	634	982	60	114	80.33	0	23.33	18.33	31.67	26.67	41.67	5
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	506	983	60	242	81.11	0	18.33	25	28.33	28.33	43.33	3
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	466	984	60	282	79.24	0	23.33	15	31.67	30	38.33	5
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	424	985	60	324	80.65	0	23.33	20	30	26.67	43.33	5
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	383	986	60	365	79.43	0	20	21.67	48.33	10	41.67	6
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	336	987	60	412	81.34	0	23.33	21.67	30	25	45	4
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	224	988	60	524	79.92	0	26.67	16.67	31.67	25	43.33	3
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	184	989	60	564	80.18	0	21.67	21.67	31.67	25	43.33	3
nonstructural protein NS4B	DEN 1	gi|9626685:6827-7573	144	990	60	604	79.98	0	13.33	28.33	38.33	20	41.67	4
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2637	991	60	61	80.76	0	25	20	36.67	18.33	45	5
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2577	992	60	121	79.62	0	21.67	20	38.33	20	41.67	3
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2508	993	60	190	80.76	0	26.67	18.33	35	20	45	5
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2425	994	60	273	81.21	0	33.33	11.67	31.67	23.33	45	4
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2276	995	60	422	81.23	0	26.67	18.33	28.33	26.67	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2102	996	60	596	82.36	0	21.67	23.33	26.67	28.33	45	3
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	2042	997	60	656	79.94	0	28.33	13.33	43.33	15	41.67	4
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	1982	998	60	716	80.73	0	25	18.33	31.67	25	43.33	3
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	1919	999	60	779	82.27	0	26.67	18.33	40	15	45	6
nonstructural protein NS5	DEN 1	gi|9626685:7574-10270	1857	1000	60	841	81.36	0	21.67	23.33	35	20	45	4
anchored capsid protein C	DEN 2	gi|158976983:97-438	281	1001	60	62	80.98	0	26.67	18.33	28.33	26.67	45	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	280	1002	60	63	80.25	0	25	18.33	30	26.67	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	279	1003	60	64	80.25	0	23.33	20	30	26.67	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	278	1004	60	65	80.78	0	23.33	20	31.67	25	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	277	1005	60	66	80.38	0	23.33	20	31.67	25	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	276	1006	60	67	80.28	0	23.33	20	31.67	25	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	275	1007	60	68	80.28	0	23.33	20	31.67	25	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	274	1008	60	69	80.28	0	21.67	21.67	31.67	25	43.33	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	273	1009	60	70	80.62	0	23.33	21.67	30	25	45	2
anchored capsid protein C	DEN 2	gi|158976983:97-438	272	1010	60	71	80.99	0	23.33	20	30	26.67	43.33	2
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	439	1011	60	60	80.14	0	11.67	30	28.33	30	41.67	4
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	419	1012	60	80	80.21	0	16.67	26.67	31.67	25	43.33	4
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	366	1013	60	133	82.19	0	21.67	23.33	30	25	45	3
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	334	1014	60	165	81.49	0	25	20	33.33	21.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	314	1015	60	185	81.32	0	26.67	18.33	38.33	16.67	45	4
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	254	1016	60	245	81.44	0	30	15	38.33	16.67	45	6
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	229	1017	60	270	81.21	0	28.33	16.67	36.67	18.33	45	6
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	60	1018	60	439	81.29	0	26.67	18.33	30	25	45	4
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	40	1019	60	459	79.83	0	30	13.33	38.33	18.33	43.33	4
membrane glycoprotein precursor M	DEN 2	gi|158976983:439-936	20	1020	60	479	80.03	0	23.33	18.33	41.67	16.67	41.67	4
envelope protein E	DEN 2	gi|158976983:937-2421	1422	1021	60	64	81.37	0	31.67	13.33	21.67	33.33	45	3
envelope protein E	DEN 2	gi|158976983:937-2421	1362	1022	60	124	78.25	0	18.33	21.67	35	25	40	4
envelope protein E	DEN 2	gi|158976983:937-2421	1286	1023	60	200	81.06	0	20	25	26.67	28.33	45	3
envelope protein E	DEN 2	gi|158976983:937-2421	1186	1024	60	300	82.18	0	30	15	31.67	23.33	45	6
envelope protein E	DEN 2	gi|158976983:937-2421	1126	1025	60	360	80.89	0	26.67	18.33	36.67	18.33	45	3
envelope protein E	DEN 2	gi|158976983:937-2421	1066	1026	60	420	80.32	0	20	25	40	15	45	5
envelope protein E	DEN 2	gi|158976983:937-2421	1006	1027	60	480	77.43	0	21.67	16.67	31.67	30	38.33	6
envelope protein E	DEN 2	gi|158976983:937-2421	946	1028	60	540	80.4	0	25	20	35	20	45	4
envelope protein E	DEN 2	gi|158976983:937-2421	886	1029	60	600	77.18	0	25	11.67	40	23.33	36.67	3
envelope protein E	DEN 2	gi|158976983:937-2421	826	1030	60	660	81.36	0	20	25	35	20	45	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	997	1031	60	60	80.06	0	25	16.67	36.67	21.67	41.67	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	916	1032	60	141	81.62	0	20	25	33.33	21.67	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	827	1033	60	230	80.58	0	31.67	13.33	30	25	45	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	767	1034	60	290	80.38	0	23.33	21.67	36.67	18.33	45	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	707	1035	60	350	79.7	0	20	21.67	35	23.33	41.67	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	647	1036	60	410	81.28	0	18.33	26.67	33.33	21.67	45	5
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	587	1037	60	470	79.06	0	26.67	15	36.67	21.67	41.67	3
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	520	1038	60	537	81.45	0	20	25	38.33	16.67	45	4
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	460	1039	60	597	76.37	0	21.67	13.33	38.33	26.67	35	4
nonstructural protein NS1	DEN 2	gi|158976983:2422-3477	362	1040	60	695	80.24	0	15	30	31.67	23.33	45	5
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	550	1041	60	105	79.5	0	15	25	38.33	21.67	40	6
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	508	1042	60	147	82.33	0	15	30	30	25	45	6
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	468	1043	60	187	80.48	0	26.67	15	35	23.33	41.67	4
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	428	1044	60	227	80.44	0	20	21.67	30	28.33	41.67	3
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	388	1045	60	267	78.32	0	26.67	13.33	35	25	40	4
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	346	1046	60	309	81.33	0	23.33	21.67	26.67	28.33	45	3
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	306	1047	60	349	79.47	0	16.67	28.33	30	25	45	3
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	266	1048	60	389	77.78	0	23.33	18.33	31.67	26.67	41.67	3
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	219	1049	60	436	81.39	0	15	30	23.33	31.67	45	4
nonstructural protein NS2A	DEN 2	gi|158976983:3478-4131	119	1050	60	536	80.56	0	31.67	13.33	26.67	28.33	45	3
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	328	1051	60	63	81.92	0	23.33	21.67	33.33	21.67	45	3
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	327	1052	60	64	81.92	0	23.33	21.67	31.67	23.33	45	4
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	326	1053	60	65	81.41	0	23.33	21.67	30	25	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	325	1054	60	66	81.34	0	23.33	21.67	30	25	45	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	324	1055	60	67	81.85	0	23.33	21.67	30	25	45	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	306	1056	60	85	81.85	0	21.67	23.33	25	30	45	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	298	1057	60	93	81.68	0	21.67	23.33	28.33	26.67	45	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	297	1058	60	94	80.89	0	21.67	23.33	26.67	28.33	45	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	296	1059	60	95	80.04	0	21.67	21.67	26.67	30	43.33	5
nonstructural protein NS2B	DEN 2	gi|158976983:4132-4521	295	1060	60	96	79.95	0	20	21.67	28.33	30	41.67	5
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1795	1061	60	60	80.58	0	25	18.33	35	21.67	43.33	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1735	1062	60	120	80.15	0	31.67	10	40	18.33	41.67	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1675	1063	60	180	79.61	0	28.33	13.33	40	18.33	41.67	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1590	1064	60	265	79.93	0	26.67	18.33	31.67	23.33	45	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1509	1065	60	346	82.18	0	26.67	18.33	31.67	23.33	45	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1449	1066	60	406	81.01	0	21.67	23.33	40	15	45	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1389	1067	60	466	77.78	0	21.67	15	45	18.33	36.67	6
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1246	1068	60	609	81.33	0	21.67	23.33	35	20	45	4
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1186	1069	60	669	80.44	0	25	18.33	31.67	25	43.33	3
nonstructural protein NS3	DEN 2	gi|158976983:4522-6375	1126	1070	60	729	76.54	0	25	11.67	40	23.33	36.67	5
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	312	1071	60	70	76.19	0	16.67	18.33	26.67	38.33	35	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	311	1072	60	71	76.49	0	18.33	18.33	25	38.33	36.67	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	310	1073	60	72	76.83	0	16.67	18.33	25	40	35	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	309	1074	60	73	76.49	0	16.67	20	25	38.33	36.67	6

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	308	1075	60	74	76.29	0	16.67	18.33	26.67	38.33	35	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	307	1076	60	75	76.29	0	16.67	18.33	26.67	38.33	35	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	306	1077	60	76	76.77	0	16.67	18.33	26.67	38.33	35	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	305	1078	60	77	76.54	0	16.67	20	25	38.33	36.67	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	304	1079	60	78	77.15	0	15	21.67	25	38.33	36.67	6
nonstructural protein NS4A	DEN 2	gi|158976983:6376-6756	303	1080	60	79	77.52	0	16.67	21.67	23.33	38.33	38.33	6
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	682	1081	60	63	79.89	0	18.33	23.33	31.67	26.67	41.67	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	632	1082	60	113	80.07	0	28.33	15	23.33	33.33	43.33	5
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	532	1083	60	213	80.39	0	28.33	16.67	23.33	31.67	45	3
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	491	1084	60	254	80.55	0	25	18.33	28.33	28.33	43.33	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	451	1085	60	294	78.5	0	20	18.33	36.67	25	38.33	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	332	1086	60	413	81.51	0	18.33	25	31.67	25	43.33	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	287	1087	60	458	79.87	0	15	28.33	25	31.67	43.33	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	168	1088	60	577	80.18	0	16.67	25	33.33	25	41.67	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	128	1089	60	617	78.77	0	18.33	20	33.33	28.33	38.33	4
nonstructural protein NS4B	DEN 2	gi|158976983:6826-7569	6	1090	60	739	81.65	0	26.67	18.33	36.67	18.33	45	6
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2641	1091	60	60	79.36	0	30	13.33	38.33	18.33	43.33	4
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2581	1092	60	120	76.91	0	15	20	46.67	18.33	35	3
RNA-dependent RNA	DEN 2	gi|158976983:7570-10269	2505	1093	60	196	81.55	0	28.33	16.67	33.33	21.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
pol. NS5														
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2440	1094	60	261	81.5	0	28.33	16.67	38.33	16.67	45	4
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2379	1095	60	322	81.11	0	23.33	21.67	35	20	45	3
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2152	1096	60	549	81.62	0	26.67	18.33	31.67	23.33	45	3
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2092	1097	60	609	80.4	0	21.67	21.67	28.33	28.33	43.33	3
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	2032	1098	60	669	77.57	0	20	16.67	43.33	20	36.67	3
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	1969	1099	60	732	81.46	0	30	15	28.33	26.67	45	3
RNA-dependent RNA pol. NS5	DEN 2	gi|158976983:7570-10269	1894	1100	60	807	81.59	0	25	20	36.67	18.33	45	4
anchored capsid protein C	DEN 3	gi|163644368:95-436	283	1101	60	60	82.23	0	18.33	26.67	31.67	23.33	45	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	282	1102	60	61	81.79	0	18.33	26.67	33.33	21.67	45	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	281	1103	60	62	80.67	0	18.33	25	33.33	23.33	43.33	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	280	1104	60	63	80.51	0	16.67	25	35	23.33	41.67	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	279	1105	60	64	80.64	0	16.67	26.67	35	21.67	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
anchored capsid protein C	DEN 3	gi|163644368:95-436	278	1106	60	65	81.05	0	18.33	26.67	35	20	45	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	277	1107	60	66	81.36	0	18.33	25	36.67	20	43.33	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	276	1108	60	67	80.89	0	20	25	35	20	45	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	275	1109	60	68	80.55	0	20	23.33	35	21.67	43.33	5
anchored capsid protein C	DEN 3	gi|163644368:95-436	274	1110	60	69	80.55	0	18.33	25	35	21.67	43.33	5
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	439	1111	60	60	80.72	0	16.67	26.67	25	31.67	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	438	1112	60	61	80.2	0	16.67	26.67	23.33	33.33	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	437	1113	60	62	80.13	0	16.67	26.67	23.33	33.33	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	436	1114	60	63	80.23	0	16.67	26.67	23.33	33.33	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	435	1115	60	64	80.23	0	15	28.33	23.33	33.33	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	434	1116	60	65	81.12	0	16.67	28.33	23.33	31.67	45	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	432	1117	60	67	81.05	0	18.33	26.67	23.33	31.67	45	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	431	1118	60	68	80.73	0	18.33	25	23.33	33.33	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	430	1119	60	69	80.73	0	18.33	25	25	31.67	43.33	4
membrane glycoprotein precursor M	DEN 3	gi|163644368:437-934	429	1120	60	70	80.35	0	18.33	26.67	23.33	31.67	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	1420	1121	60	60	79.96	0	21.67	20	25	33.33	41.67	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
envelope protein E	DEN 3	gi|163644368:935-2413	1359	1122	60	121	77.5	0	21.67	15	35	28.33	36.67	6
envelope protein E	DEN 3	gi|163644368:935-2413	1296	1123	60	184	81.88	0	26.67	18.33	23.33	31.67	45	3
envelope protein E	DEN 3	gi|163644368:935-2413	1137	1124	60	343	81.88	0	30	15	36.67	18.33	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	1077	1125	60	403	80.4	0	30	15	28.33	26.67	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	994	1126	60	486	81.55	0	23.33	21.67	35	20	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	926	1127	60	554	80.83	0	28.33	16.67	38.33	16.67	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	866	1128	60	614	80.1	0	28.33	13.33	33.33	25	41.67	4
envelope protein E	DEN 3	gi|163644368:935-2413	805	1129	60	675	81.01	0	25	20	35	20	45	4
envelope protein E	DEN 3	gi|163644368:935-2413	719	1130	60	761	82.39	0	26.67	18.33	38.33	16.67	45	6
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	997	1131	60	60	78.87	0	25	16.67	38.33	20	41.67	3
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	879	1132	60	178	81.3	0	28.33	16.67	35	20	45	3
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	816	1133	60	241	81.09	0	26.67	18.33	31.67	23.33	45	3
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	711	1134	60	346	79.82	0	18.33	26.67	35	20	45	3
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	651	1135	60	406	81.24	0	20	25	33.33	21.67	45	5
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	591	1136	60	466	80.52	0	26.67	16.67	40	16.67	43.33	5
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	492	1137	60	565	81.04	0	18.33	26.67	35	20	45	3
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	380	1138	60	677	82.15	0	16.67	28.33	35	20	45	4
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	320	1139	60	737	80.86	0	26.67	16.67	41.67	15	43.33	5
nonstructural protein NS1	DEN 3	gi|163644368:2414-3469	256	1140	60	801	81.32	0	30	15	33.33	21.67	45	4
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	592	1141	60	63	79.26	0	16.67	25	26.67	31.67	41.67	5
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	511	1142	60	144	82.49	0	25	20	25	30	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	463	1143	60	192	82.44	0	21.67	23.33	25	30	45	5
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	423	1144	60	232	78.41	0	15	21.67	30	33.33	36.67	5
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	383	1145	60	272	80.03	0	21.67	21.67	30	26.67	43.33	4
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	301	1146	60	354	81.71	0	26.67	16.67	28.33	28.33	43.33	3
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	260	1147	60	395	76.4	0	25	10	28.33	36.67	35	5
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	220	1148	60	435	78.21	0	13.33	23.33	25	38.33	36.67	5
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	117	1149	60	538	81.23	0	21.67	23.33	30	25	45	3
nonstructural protein NS2A	DEN 3	gi|163644368:3470-4123	76	1150	60	579	80.06	0	21.67	18.33	23.33	36.67	40	4
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	325	1151	60	66	81.62	0	13.33	30	30	26.67	43.33	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	324	1152	60	67	81.05	0	13.33	30	30	26.67	43.33	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	323	1153	60	68	81.76	0	15	28.33	30	26.67	43.33	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	322	1154	60	69	82.46	0	16.67	28.33	28.33	26.67	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	321	1155	60	70	82.91	0	16.67	28.33	28.33	26.67	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	319	1156	60	72	82.81	0	16.67	28.33	26.67	28.33	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	318	1157	60	73	82.78	0	16.67	28.33	26.67	28.33	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	317	1158	60	74	82.5	0	16.67	28.33	25	30	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	313	1159	60	78	81.4	0	18.33	26.67	23.33	31.67	45	5
nonstructural protein NS2B	DEN 3	gi|163644368:4124-4513	312	1160	60	79	80.7	0	16.67	26.67	25	31.67	43.33	5
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1767	1161	60	91	81.61	0	21.67	23.33	30	25	45	6
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1698	1162	60	160	79.32	0	28.33	10	40	21.67	38.33	4
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1638	1163	60	220	77.1	0	21.67	15	41.67	21.67	36.67	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1493	1164	60	365	80.49	0	21.67	23.33	38.33	16.67	45	3
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1402	1165	60	456	81.65	0	20	25	36.67	18.33	45	3
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1260	1166	60	598	80.54	0	25	20	36.67	18.33	45	3
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1200	1167	60	658	80.82	0	28.33	15	30	26.67	43.33	5
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1137	1168	60	721	75.78	0	20	15	43.33	21.67	35	6
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1077	1169	60	781	81.42	0	25	18.33	33.33	23.33	43.33	6
nonstructural protein NS3	DEN 3	gi|163644368:4514-6370	1016	1170	60	842	82.06	0	23.33	21.67	35	20	45	4
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	322	1171	60	60	79.18	0	25	16.67	30	28.33	41.67	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	321	1172	60	61	79.47	0	26.67	16.67	28.33	28.33	43.33	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	320	1173	60	62	80.12	0	25	18.33	28.33	28.33	43.33	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	319	1174	60	63	80.12	0	25	18.33	26.67	30	43.33	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	318	1175	60	64	80.19	0	25	18.33	26.67	30	43.33	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	317	1176	60	65	80.4	0	25	20	25	30	45	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	316	1177	60	66	80.4	0	26.67	18.33	25	30	45	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	315	1178	60	67	81.04	0	25	20	25	30	45	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	314	1179	60	68	81.45	0	25	20	23.33	31.67	45	6
nonstructural protein NS4A	DEN 3	gi|163644368:6371-6751	313	1180	60	69	81.42	0	25	20	23.33	31.67	45	6
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	685	1181	60	60	78.06	0	25	11.67	31.67	31.67	36.67	5
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	621	1182	60	124	81.1	0	23.33	21.67	26.67	28.33	45	5
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	559	1183	60	186	81.35	0	21.67	23.33	30	25	45	3
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	492	1184	60	253	82.36	0	23.33	21.67	25	30	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	426	1185	60	319	75.02	0	21.67	13.33	36.67	28.33	35	3
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	350	1186	60	395	82.01	0	23.33	21.67	36.67	18.33	45	4
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	290	1187	60	455	80.53	0	16.67	28.33	26.67	28.33	45	4
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	208	1188	60	537	82.23	0	28.33	16.67	33.33	21.67	45	5
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	148	1189	60	597	79.33	0	18.33	25	33.33	23.33	43.33	3
nonstructural protein NS4B	DEN 3	gi|163644368:6821-7564	37	1190	60	708	80.91	0	28.33	16.67	21.67	33.33	45	3
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2626	1191	60	75	80.29	0	30	15	35	20	45	2
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2516	1192	60	185	80.9	0	25	20	31.67	23.33	45	3
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2456	1193	60	245	78.2	0	20	18.33	40	21.67	38.33	4
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2390	1194	60	311	81.46	0	25	20	26.67	28.33	45	3
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2300	1195	60	401	81.03	0	16.67	28.33	31.67	23.33	45	2
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2198	1196	60	503	81.02	0	28.33	16.67	38.33	16.67	45	3
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2137	1197	60	564	81.38	0	26.67	18.33	30	25	45	4
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	2048	1198	60	653	82.17	0	28.33	16.67	35	20	45	3
nonstructural protein NS5	DEN 3	gi|163644368:7565-10264	1963	1199	60	738	81.85	0	30	15	31.67	23.33	45	5
nonstructural protein NS5	DEN 4	gi|163644368:7565-10264	1903	1200	60	798	80.9	0	26.67	18.33	40	15	45	4
anchored capsid protein C	DEN 4	gi|12084822:102-440	278	1201	60	62	81.5	0	25	20	30	25	45	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	277	1202	60	63	80.77	0	23.33	20	31.67	25	43.33	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	276	1203	60	64	80.77	0	21.67	21.67	31.67	25	43.33	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	275	1204	60	65	81.31	0	21.67	21.67	33.33	23.33	43.33	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	274	1205	60	66	81.31	0	21.67	21.67	33.33	23.33	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
anchored capsid protein C	DEN 4	gi|12084822:102-440	273	1206	60	67	81.62	0	23.33	21.67	31.67	23.33	45	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	272	1207	60	68	81.61	0	23.33	21.67	31.67	23.33	45	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	271	1208	60	69	80.97	0	21.67	23.33	31.67	23.33	45	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	270	1209	60	70	81.12	0	23.33	21.67	31.67	23.33	45	5
anchored capsid protein C	DEN 4	gi|12084822:102-440	269	1210	60	71	81.5	0	23.33	20	31.67	25	43.33	5
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	422	1211	60	77	79.82	0	23.33	20	25	31.67	43.33	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	402	1212	60	97	81.54	0	26.67	18.33	25	30	45	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	380	1213	60	119	81.97	0	25	20	26.67	28.33	45	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	281	1214	60	218	80.6	0	26.67	18.33	33.33	21.67	45	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	259	1215	60	240	81.5	0	26.67	18.33	38.33	16.67	45	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	140	1216	60	359	81.47	0	16.67	28.33	30	25	45	5
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	96	1217	60	403	81.3	0	25	20	28.33	26.67	45	3
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	73	1218	60	426	80.83	0	25	18.33	33.33	23.33	43.33	4
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	50	1219	60	449	81.32	0	25	20	35	20	45	5
membrane glycoprotein precursor M	DEN 4	gi|12084822:441-938	26	1220	60	473	80.95	0	23.33	21.67	35	20	45	5
envelope protein E	DEN 4	gi|12084822:939-2423	1405	1221	60	81	81.58	0	25	20	26.67	28.33	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
envelope protein E	DEN 4	gi|12084822:939-2423	1345	1222	60	141	80.03	0	33.33	11.67	21.67	33.33	45	3
envelope protein E	DEN 4	gi|12084822:939-2423	1285	1223	60	201	80.98	0	25	16.67	25	33.33	41.67	5
envelope protein E	DEN 4	gi|12084822:939-2423	1216	1224	60	270	82.36	0	28.33	16.67	26.67	28.33	45	4
envelope protein E	DEN 4	gi|12084822:939-2423	1156	1225	60	330	81.57	0	25	20	28.33	26.67	45	3
envelope protein E	DEN 4	gi|12084822:939-2423	1096	1226	60	390	80.71	0	25	20	33.33	21.67	45	6
envelope protein E	DEN 4	gi|12084822:939-2423	1026	1227	60	460	82.09	0	21.67	23.33	33.33	21.67	45	5
envelope protein E	DEN 4	gi|12084822:939-2423	966	1228	60	520	80.11	0	30	15	33.33	21.67	45	4
envelope protein E	DEN 4	gi|12084822:939-2423	906	1229	60	580	80.85	0	26.67	15	38.33	20	41.67	4
envelope protein E	DEN 4	gi|12084822:939-2423	846	1230	60	640	78.53	0	26.67	13.33	35	25	40	3
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	993	1231	60	64	80.92	0	31.67	13.33	36.67	18.33	45	5
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	823	1232	60	234	81.36	0	25	20	35	20	45	4
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	710	1233	60	347	82.19	0	16.67	28.33	30	25	45	5
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	638	1234	60	419	81.84	0	21.67	23.33	33.33	21.67	45	4
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	570	1235	60	487	81.23	0	26.67	18.33	33.33	21.67	45	6
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	510	1236	60	547	80.05	0	26.67	15	35	23.33	41.67	3
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	450	1237	60	607	80.03	0	26.67	16.67	30	26.67	43.33	3
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	390	1238	60	667	81.13	0	20	25	35	20	45	5
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	330	1239	60	727	79.15	0	20	18.33	45	16.67	38.33	5
non-structural protein NS1	DEN 4	gi|12084822:2424-3479	209	1240	60	848	80.26	0	25	20	33.33	21.67	45	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	576	1241	60	79	80.84	0	16.67	28.33	31.67	23.33	45	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	536	1242	60	119	80.42	0	20	23.33	33.33	23.33	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	496	1243	60	159	82.34	0	23.33	21.67	16.67	38.33	45	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	456	1244	60	199	80.91	0	25	16.67	23.33	35	41.67	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	416	1245	60	239	79.77	0	15	26.67	30	28.33	41.67	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	376	1246	60	279	77.78	0	18.33	18.33	38.33	25	36.67	5
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	336	1247	60	319	77.31	0	16.67	20	28.33	35	36.67	4
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	296	1248	60	359	81.43	0	21.67	23.33	33.33	21.67	45	3
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	256	1249	60	399	78.89	0	25	15	31.67	28.33	40	5
non-structural protein NS2A	DEN 4	gi|12084822:3480-4133	90	1250	60	565	80.72	0	23.33	21.67	21.67	33.33	45	3
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	331	1251	60	60	80.94	0	20	23.33	35	21.67	43.33	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	330	1252	60	61	81.23	0	20	25	33.33	21.67	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	329	1253	60	62	81.69	0	18.33	25	35	21.67	43.33	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	328	1254	60	63	81.4	0	18.33	25	33.33	23.33	43.33	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	327	1255	60	64	81.46	0	18.33	26.67	31.67	23.33	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	326	1256	60	65	81.36	0	18.33	26.67	30	25	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	325	1257	60	66	81.29	0	18.33	26.67	30	25	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	324	1258	60	67	81.2	0	18.33	26.67	28.33	26.67	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	323	1259	60	68	81.2	0	20	25	28.33	26.67	45	4
non-structural protein NS2B	DEN 4	gi|12084822:4134-4523	311	1260	60	80	81.14	0	18.33	26.67	25	30	45	4
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1780	1261	60	75	81.8	0	28.33	16.67	25	30	45	4
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1679	1262	60	176	78.8	0	30	10	40	20	40	4
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1591	1263	60	264	80.87	0	33.33	11.67	28.33	26.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1513	1264	60	342	82.25	0	25	20	31.67	23.33	45	6
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1442	1265	60	413	81.19	0	20	25	35	20	45	3
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1210	1266	60	645	81.26	0	30	15	28.33	26.67	45	5
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1150	1267	60	705	79.28	0	23.33	20	38.33	18.33	43.33	5
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1088	1268	60	767	78.17	0	25	11.67	41.67	21.67	36.67	4
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	1027	1269	60	828	81.6	0	28.33	16.67	30	25	45	4
non-structural protein NS3	DEN 4	gi|12084822:4524-6377	840	1270	60	1015	80.76	0	25	20	26.67	28.33	45	3
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	322	1271	60	60	76.92	0	18.33	18.33	35	28.33	36.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	321	1272	60	61	76.3	0	16.67	20	35	28.33	36.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	320	1273	60	62	76.92	0	15	21.67	35	28.33	36.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	319	1274	60	63	77.77	0	16.67	21.67	33.33	28.33	38.33	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	318	1275	60	64	78.47	0	18.33	21.67	31.67	28.33	40	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	317	1276	60	65	78.69	0	18.33	23.33	30	28.33	41.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	316	1277	60	66	79.4	0	20	21.67	30	28.33	41.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	315	1278	60	67	79.82	0	20	21.67	30	28.33	41.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	314	1279	60	68	79.54	0	20	21.67	28.33	30	41.67	6
non-structural protein NS4A	DEN 4	gi|12084822:6378-6758	313	1280	60	69	79.51	0	20	21.67	28.33	30	41.67	6
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	657	1281	60	79	81.5	0	26.67	18.33	26.67	28.33	45	5
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	536	1282	60	200	81.85	0	23.33	21.67	25	30	45	3
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	506	1283	60	230	80.7	0	25	20	21.67	33.33	45	3
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	475	1284	60	261	79.88	0	23.33	18.33	31.67	26.67	41.67	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	445	1285	60	291	76.31	0	18.33	18.33	40	23.33	36.67	4
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	414	1286	60	322	76.94	0	18.33	20	41.67	20	38.33	5
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	326	1287	60	410	81.05	0	21.67	21.67	33.33	23.33	43.33	4
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	296	1288	60	440	78.06	0	13.33	25	31.67	30	38.33	4
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	37	1289	60	699	81.8	0	21.67	23.33	30	25	45	5
non-structural protein NS4B	DEN 4	gi|12084822:6828-7562	7	1290	60	729	78.65	0	23.33	13.33	41.67	21.67	36.67	6
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2641	1291	60	60	79.06	0	28.33	15	31.67	25	43.33	4
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2510	1292	60	191	80.9	0	26.67	18.33	23.33	31.67	45	4
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2450	1293	60	251	79.7	0	23.33	20	35	21.67	43.33	3
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2379	1294	60	322	81.8	0	18.33	26.67	35	20	45	3
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2153	1295	60	548	81.03	0	28.33	16.67	30	25	45	3
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	2093	1296	60	608	81.4	0	20	25	28.33	26.67	45	5
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	1925	1297	60	776	80.94	0	35	8.33	36.67	20	43.33	3
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	1865	1298	60	836	80.84	0	26.67	16.67	43.33	13.33	43.33	4
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	1805	1299	60	896	80.34	0	18.33	25	33.33	23.33	43.33	3
non-structural protein NS5	DEN 4	gi|12084822:7563-10262	1702	1300	60	999	81.94	0	18.33	26.67	36.67	18.33	45	4
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	8205	1301	60	418	81.82	0	20	25	28.33	26.67	45	3
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	7786	1302	60	837	81.13	0	26.67	18.33	28.33	26.67	45	5
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	7305	1303	60	1318	81.07	0	23.33	21.67	26.67	28.33	45	5
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	7004	1304	60	1619	80.79	0	25	20	23.33	31.67	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	6890	1305	60	1733	81.81	0	25	20	23.33	31.67	45	3
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	6638	1306	60	1985	81.93	0	20	25	26.67	28.33	45	4
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	5864	1307	60	2759	81.52	0	21.67	23.33	28.33	26.67	45	3
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	5551	1308	60	3072	81.18	0	21.67	23.33	25	30	45	3
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	5488	1309	60	3135	81.21	0	18.33	26.67	23.33	31.67	45	2
polyprotein precursor	GB virus C/Hepatitis G	gi|9628705:459-9080	3943	1310	60	4680	80.5	0	30	15	26.67	28.33	45	4
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	545	1311	60	536	80.9	0	26.67	18.33	25	30	45	3
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	1021	1312	60	60	85.53	0	33.33	21.67	18.33	26.67	55	3
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	964	1313	60	117	86.53	0	28.33	26.67	10	35	55	4
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	924	1314	60	157	85.28	0	23.33	31.67	20	25	55	5
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	879	1315	60	202	86.76	0	28.33	26.67	25	20	55	4
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	783	1316	60	298	86.37	0	38.33	16.67	16.67	28.33	55	5
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	737	1317	60	344	86.91	0	30	25	15	30	55	5
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	644	1318	60	437	86.26	0	35	20	16.67	28.33	55	3
putative E1	GB virus	gi|9628705:459-	601	1319	60	480	87.	0	28.3	26.6	15	30	55	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
protein	C/Hepatitis G	1538					8		3	7				
putative E1 protein	GB virus C/Hepatitis G	gi|9628705:459-1538	505	1320	60	576	80.9	0	28.33	18.33	28.33	25	46.67	4
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	877	1321	60	60	86.63	0	33.33	21.67	15	30	55	4
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	847	1322	60	90	84.02	0	30	20	20	30	50	4
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	817	1323	60	120	84.81	0	33.33	20	15	31.67	53.33	3
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	671	1324	60	266	86.43	0	31.67	23.33	15	30	55	3
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	641	1325	60	296	82.71	0	30	18.33	15	36.67	48.33	3
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	611	1326	60	326	87.29	0	23.33	31.67	11.67	33.33	55	5
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	573	1327	60	364	86.06	0	30	25	20	25	55	3
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	543	1328	60	394	85.42	0	30	23.33	15	31.67	53.33	3
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	502	1329	60	435	86.32	0	33.33	21.67	15	30	55	4
putative E2 protein	GB virus C/Hepatitis G	gi|9628705:1539-2474	310	1330	60	627	85.74	0	23.33	31.67	25	20	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	700	1331	60	60	85.27	0	26.67	28.33	13.33	31.67	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	594	1332	60	166	85.18	0	28.33	26.67	18.33	26.67	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	564	1333	60	196	84.7	0	26.67	26.67	20	26.67	53.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	532	1334	60	228	87.2	0	33.33	21.67	16.67	28.33	55	5
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	502	1335	60	258	82.78	0	31.67	16.67	16.67	35	48.33	5
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	472	1336	60	288	85.07	0	28.33	25	20	26.67	53.33	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	350	1337	60	410	86.51	0	35	20	8.33	36.67	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	320	1338	60	440	86.19	0	33.33	21.67	8.33	36.67	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	286	1339	60	474	86.96	0	33.33	21.67	11.67	33.33	55	3
putative protein p7-NS2	GB virus C/Hepatitis G	gi|9628705:2475-3233	194	1340	60	566	85.08	0	38.33	16.67	25	20	55	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1168	1341	60	711	80.5	0	30	15	26.67	28.33	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1162	1342	60	717	80.82	0	30	15	25	30	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1156	1343	60	723	80.66	0	28.33	16.67	28.33	26.67	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1155	1344	60	724	80.66	0	26.67	18.33	28.33	26.67	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1154	1345	60	725	80.56	0	26.67	18.33	28.33	26.67	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1153	1346	60	726	79.99	0	26.67	18.33	28.33	26.67	45	4
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1152	1347	60	727	80.56	0	26.67	18.33	28.33	26.67	45	4
NS3	GB virus	gi|9628705:3234	1146	1348	60	733	80.	0	30	15	28.3	26.6	45	6

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
proteinase/ATPase/helicase	C/Hepatitis G	-5111					43				3	7		
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1145	1349	60	734	79.79	0	28.33	16.67	28.33	26.67	45	6
NS3 proteinase/ATPase/helicase	GB virus C/Hepatitis G	gi|9628705:3234-5111	1144	1350	60	735	80.52	0	28.33	16.67	28.33	26.67	45	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	45	1351	60	154	85.13	0	36.67	18.33	23.33	21.67	55	3
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	44	1352	60	155	84.45	0	36.67	18.33	23.33	21.67	55	3
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	43	1353	60	156	84.45	0	36.67	18.33	23.33	21.67	55	3
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	42	1354	60	157	85.11	0	36.67	18.33	23.33	21.67	55	3
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	16	1355	60	183	85.51	0	31.67	23.33	20	25	55	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	13	1356	60	186	84.95	0	31.67	23.33	20	25	55	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	12	1357	60	187	84.28	0	31.67	23.33	20	25	55	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	11	1358	60	188	84.95	0	31.67	23.33	20	25	55	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	6	1359	60	193	85.09	0	31.67	23.33	20	25	55	6
putative NS4A protein	GB virus C/Hepatitis G	gi|9628705:5112-5309	5	1360	60	194	85.03	0	31.67	23.33	20	25	55	6
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	700	1361	60	144	81.18	0	21.67	23.33	25	30	45	3
putative NS4B protein	GB virus	gi|9628705:5310-6152	699	1362	60	145	80.68	0	21.67	23.33	25	30	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
	C/Hepatitis G													
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	698	1363	60	146	80.77	0	21.67	23.33	25	30	45	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	696	1364	60	148	81.51	0	21.67	23.33	26.67	28.33	45	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	695	1365	60	149	80.72	0	21.67	23.33	26.67	28.33	45	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	694	1366	60	150	80.02	0	20	23.33	26.67	30	43.33	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	693	1367	60	151	80.1	0	20	23.33	26.67	30	43.33	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	692	1368	60	152	80.8	0	20	25	25	30	45	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	691	1369	60	153	80.8	0	20	25	25	30	45	3
putative NS4B protein	GB virus C/Hepatitis G	gi|9628705:5310-6152	690	1370	60	154	80.39	0	20	23.33	25	31.67	43.33	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	1174	1371	60	63	81.64	0	30	15	28.33	26.67	45	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	1173	1372	60	64	81.57	0	28.33	16.67	28.33	26.67	45	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	1155	1373	60	82	82.61	0	33.33	11.67	23.33	31.67	45	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	1154	1374	60	83	82.19	0	33.33	11.67	21.67	33.33	45	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	1153	1375	60	84	82.12	0	31.67	13.33	21.67	33.33	45	3
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	944	1376	60	293	81.93	0	20	25	26.67	28.33	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	941	1377	60	296	81.15	0	21.67	23.33	26.67	28.33	45	4
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	940	1378	60	297	80.48	0	21.67	23.33	26.67	28.33	45	4
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	939	1379	60	298	81.04	0	23.33	21.67	26.67	28.33	45	4
putative NS5A protein	GB virus C/Hepatitis G	gi|9628705:6153-7388	936	1380	60	301	80.92	0	25	20	26.67	28.33	45	4
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	1275	1381	60	415	81.82	0	20	25	28.33	26.67	45	3
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	1274	1382	60	416	81.85	0	20	25	28.33	26.67	45	3
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	856	1383	60	834	81.13	0	26.67	18.33	28.33	26.67	45	5
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	375	1384	60	1315	81.07	0	23.33	21.67	26.67	28.33	45	5
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	374	1385	60	1316	80.37	0	23.33	21.67	25	30	45	5
putative NS5B RNA-	GB virus C/Hepatitis G	gi|9628705:7389-9077	373	1386	60	1317	80.28	0	21.67	21.67	26.67	30	43.33	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
dependent RNA pol.														
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	372	1387	60	1318	80.32	0	23.33	21.67	25	30	45	5
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	371	1388	60	1319	80.76	0	23.33	21.67	25	30	45	5
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	74	1389	60	1616	80.79	0	25	20	23.33	31.67	45	3
putative NS5B RNA-dependent RNA pol.	GB virus C/Hepatitis G	gi|9628705:7389-9077	73	1390	60	1617	80.23	0	25	20	23.33	31.67	45	3
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	738	1391	60	68	81.03	0	23.33	21.67	23.33	31.67	45	4
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	691	1392	60	115	75.84	0	18.33	16.67	30	35	35	5
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	568	1393	60	238	80.5	0	21.67	21.67	23.33	33.33	43.33	3
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	513	1394	60	293	81.47	0	26.67	18.33	20	35	45	3
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	466	1395	60	340	80.79	0	21.67	21.67	31.67	25	43.33	5
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	426	1396	60	380	80.48	0	33.33	11.67	26.67	28.33	45	3
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	378	1397	60	428	80.46	0	25	20	28.33	26.67	45	4
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	338	1398	60	468	80.54	0	21.67	23.33	20	35	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	286	1399	60	520	81.35	0	30	15	28.33	26.67	45	4
1A VP4b mature peptide	Hepatitis A virus	gi|9626732:1-805	159	1400	60	647	77.38	0	16.67	21.67	21.67	40	38.33	5
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	606	1401	60	61	76.15	0	16.67	18.33	26.67	38.33	35	4
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	546	1402	60	121	75.88	0	20	15	33.33	31.67	35	3
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	486	1403	60	181	77.16	0	15	20	33.33	31.67	35	3
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	397	1404	60	270	76.51	0	18.33	16.67	25	40	35	3
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	329	1405	60	338	80.84	0	21.67	23.33	25	30	45	6
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	269	1406	60	398	79.36	0	25	13.33	30	31.67	38.33	3
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	203	1407	60	464	77.13	0	20	15	28.33	36.67	35	4
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	143	1408	60	524	77.9	0	20	16.67	33.33	30	36.67	5
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	82	1409	60	585	81.32	0	21.67	23.33	23.33	31.67	45	3
1B VP2 mature peptide	Hepatitis A virus	gi|9626732:804-1469	22	1410	60	645	78.29	0	21.67	16.67	23.33	38.33	38.33	4
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	679	1411	60	60	77.07	0	15	20	26.67	38.33	35	4
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	619	1412	60	120	77.83	0	15	23.33	23.33	38.33	38.33	3
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	559	1413	60	180	80.34	0	25	16.67	31.67	26.67	41.67	3
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	499	1414	60	240	79.49	0	20	21.67	23.33	35	41.67	3
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	439	1415	60	300	79.56	0	21.67	20	33.33	25	41.67	3
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	379	1416	60	360	77.2	0	23.33	13.33	21.67	41.67	36.67	4
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	316	1417	60	423	77.17	0	20	15	21.67	43.33	35	5
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	246	1418	60	493	76.77	0	11.67	23.33	35	30	35	6
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	185	1419	60	554	76.13	0	15	20	28.33	36.67	35	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
1C VP3 mature peptide	Hepatitis A virus	gi|9626732:1470-2207	125	1420	60	614	78.67	0	21.67	18.33	25	35	40	4
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	841	1421	60	60	78.57	0	31.67	11.67	33.33	23.33	43.33	4
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	781	1422	60	120	79.89	0	18.33	21.67	35	25	40	3
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	654	1423	60	247	76.59	0	20	15	31.67	33.33	35	3
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	594	1424	60	307	77.15	0	23.33	13.33	21.67	41.67	36.67	3
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	534	1425	60	367	79.08	0	21.67	18.33	36.67	23.33	40	4
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	434	1426	60	467	80.54	0	26.67	18.33	23.33	31.67	45	2
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	374	1427	60	527	78.63	0	23.33	16.67	25	35	40	5
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	314	1428	60	587	78.77	0	10	30	25	35	40	3
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	249	1429	60	652	76.68	0	15	20	26.67	38.33	35	4
1D VP1 mature peptide	Hepatitis A virus	gi|9626732:2208-3107	189	1430	60	712	77.66	0	16.67	21.67	36.67	25	38.33	3
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	494	1431	60	74	75.99	0	25	10	35	30	35	4
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	452	1432	60	116	77.96	0	18.33	16.67	30	35	35	4
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	412	1433	60	156	77.7	0	20	16.67	30	33.33	36.67	4
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	372	1434	60	196	77.49	0	21.67	13.33	36.67	28.33	35	3
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	281	1435	60	287	77.59	0	33.33	6.67	35	25	40	3
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	179	1436	60	389	80.03	0	30	13.33	20	36.67	43.33	4
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	136	1437	60	432	76.63	0	21.67	13.33	30	35	35	6
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	96	1438	60	472	79.08	0	13.33	25	30	31.67	38.33	6
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	56	1439	60	512	78.94	0	18.33	21.67	40	20	40	5
2A mature peptide	Hepatitis A virus	gi|9626732:3108-3674	16	1440	60	552	77.38	0	25	13.33	43.33	18.33	38.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	262	1441	60	60	79.54	0	26.67	15	33.33	25	41.67	3
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	261	1442	60	61	79.47	0	25	15	35	25	40	3
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	260	1443	60	62	78.97	0	25	15	35	25	40	3
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	258	1444	60	64	78.64	0	25	15	36.67	23.33	40	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	257	1445	60	65	79.2	0	25	15	36.67	23.33	40	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	256	1446	60	66	79.2	0	25	15	35	25	40	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	255	1447	60	67	78.5	0	23.33	15	35	26.67	38.33	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	254	1448	60	68	78.43	0	21.67	15	35	28.33	36.67	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	253	1449	60	69	78.43	0	21.67	15	33.33	30	36.67	4
2B mature peptide	Hepatitis A virus	gi|9626732:3675-3995	252	1450	60	70	78.71	0	21.67	15	31.67	31.67	36.67	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	946	1451	60	60	76.89	0	23.33	13.33	36.67	26.67	36.67	4
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	882	1452	60	124	76.33	0	25	10	21.67	43.33	35	3
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	774	1453	60	232	77.11	0	11.67	23.33	33.33	31.67	35	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	714	1454	60	292	77.41	0	16.67	18.33	40	25	35	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	654	1455	60	352	77.62	0	20	18.33	25	36.67	38.33	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	594	1456	60	412	78.68	0	26.67	13.33	31.67	28.33	40	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	534	1457	60	472	77.56	0	25	11.67	28.33	35	36.67	3
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	449	1458	60	557	78.01	0	18.33	16.67	35	30	35	4
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	389	1459	60	617	80.04	0	35	6.67	31.67	26.67	41.67	5
2C mature peptide	Hepatitis A virus	gi|9626732:3996-5000	327	1460	60	679	75.26	0	20	15	40	25	35	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	92	1461	60	131	81.75	0	26.67	18.33	18.33	36.67	45	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	91	1462	60	132	81.63	0	25	18.33	18.33	38.33	43.33	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	90	1463	60	133	81.68	0	25	20	18.33	36.67	45	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	83	1464	60	140	81.4	0	26.67	18.33	18.33	36.67	45	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	82	1465	60	141	81.28	0	25	18.33	18.33	38.33	43.33	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	81	1466	60	142	81.25	0	25	18.33	20	36.67	43.33	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	80	1467	60	143	80.74	0	25	18.33	21.67	35	43.33	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	79	1468	60	144	80.68	0	23.33	18.33	23.33	35	41.67	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	78	1469	60	145	79.89	0	23.33	18.33	21.67	36.67	41.67	5
3A mature peptide	Hepatitis A virus	gi|9626732:5001-5222	77	1470	60	146	79.1	0	23.33	18.33	21.67	36.67	41.67	5
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	232	1471	60	60	77.74	0	21.67	18.33	36.67	23.33	40	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	231	1472	60	61	78.06	0	20	18.33	36.67	25	38.33	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	230	1473	60	62	77.53	0	20	18.33	36.67	25	38.33	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	229	1474	60	63	77.19	0	20	16.67	36.67	26.67	36.67	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	228	1475	60	64	76.75	0	20	16.67	38.33	25	36.67	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	227	1476	60	65	76.4	0	20	15	38.33	26.67	35	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	226	1477	60	66	76.59	0	21.67	15	38.33	25	36.67	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	225	1478	60	67	77.29	0	23.33	15	36.67	25	38.33	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	224	1479	60	68	77.59	0	25	15	35	25	40	3
3B (VPg) mature peptide	Hepatitis A virus	gi|9626732:5001-5291	223	1480	60	69	78.22	0	25	15	35	25	40	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	568	1481	60	90	77.51	0	20	15	30	35	35	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	528	1482	60	130	79.93	0	23.33	18.33	30	28.33	41.67	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	444	1483	60	214	81.56	0	33.33	11.67	31.67	23.33	45	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	396	1484	60	262	77.18	0	23.33	15	41.67	20	38.33	5
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	356	1485	60	302	79.04	0	23.33	18.33	33.33	25	41.67	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	313	1486	60	345	81.22	0	26.67	16.67	33.33	23.33	43.33	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	270	1487	60	388	75.69	0	18.33	16.67	31.67	33.33	35	4
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	230	1488	60	428	78.44	0	25	15	21.67	38.33	40	3
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	190	1489	60	468	76.48	0	20	15	23.33	41.67	35	3
3C mature peptide	Hepatitis A virus	gi|9626732:5292-5948	111	1490	60	547	78.48	0	23.33	13.33	26.67	36.67	36.67	3
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1403	1491	60	65	75.79	0	23.33	11.67	26.67	38.33	35	4
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1293	1492	60	175	77.16	0	23.33	11.67	28.33	36.67	35	4
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1233	1493	60	235	77.77	0	23.33	11.67	36.67	28.33	35	6
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1173	1494	60	295	76.15	0	20	15	30	35	35	4
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1113	1495	60	355	80.71	0	20	23.33	33.33	23.33	43.33	3
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	1009	1496	60	459	75.3	0	23.33	11.67	21.67	43.33	35	4
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	900	1497	60	568	76.5	0	15	20	25	40	35	3
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	837	1498	60	631	75.91	0	15	20	23.33	41.67	35	3
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	777	1499	60	691	80.51	0	20	23.33	28.33	28.33	43.33	4
3D mature peptide	Hepatitis A virus	gi|9626732:5949-7415	710	1500	60	758	75.88	0	21.67	13.33	18.33	46.67	35	4
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	4891	1501	60	192	81.49	0	25	20	16.67	38.33	45	3
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	4569	1502	60	514	81.26	0	20	25	23.33	31.67	45	3
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	4395	1503	60	688	81.52	0	28.33	16.67	20	35	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	4138	1504	60	945	81.1	0	23.33	21.67	31.67	23.33	45	5
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	3840	1505	60	1243	81.02	0	25	20	25	30	45	4
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	3594	1506	60	1489	82.77	0	20	25	21.67	33.33	45	5
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	2791	1507	60	2292	81.07	0	20	25	30	25	45	3
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	2548	1508	60	2535	81.77	0	21.67	23.33	28.33	26.67	45	3
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	2130	1509	60	2953	79.59	0	18.33	26.67	20	35	45	4
ORF 1-polyprotein	Hepatitis E virus	gi|9626440:4-5085	1211	1510	60	3872	80.53	0	21.67	23.33	25	30	45	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	15	1511	60	944	80.72	0	13.33	30	23.33	33.33	43.33	4
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	899	1512	60	60	84.17	0	18.33	31.67	21.67	28.33	50	4
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	826	1513	60	133	85.34	0	23.33	31.67	15	30	55	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	650	1514	60	309	85.66	0	25	30	13.33	31.67	55	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	590	1515	60	369	83.02	0	20	30	28.33	21.67	50	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	526	1516	60	433	86.2	0	35	20	18.33	26.67	55	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	409	1517	60	550	86.55	0	26.67	28.33	16.67	28.33	55	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	349	1518	60	610	85.53	0	23.33	31.67	11.67	33.33	55	4
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	190	1519	60	769	86.83	0	23.33	31.67	18.33	26.67	55	3
Viral methyl-transferase	Hepatitis E virus	gi|9626440:100-1057	115	1520	60	844	87.13	0	26.67	28.33	16.67	28.33	55	3
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	431	1521	60	60	85.09	0	28.33	25	18.33	28.33	53.33	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	411	1522	60	80	83.94	0	28.33	23.33	21.67	26.67	51.67	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	391	1523	60	100	84.32	0	26.67	25	20	28.33	51.67	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	371	1524	60	120	85.83	0	25	30	21.67	23.33	55	4

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	251	1525	60	240	85.25	0	20	35	18.33	26.67	55	3
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	227	1526	60	264	85.6	0	23.33	31.67	18.33	26.67	55	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	207	1527	60	284	84.24	0	30	25	20	25	55	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	126	1528	60	365	86.97	0	30	25	20	25	55	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	106	1529	60	385	84.04	0	30	20	16.67	33.33	50	4
Peptidase C41	Hepatitis E virus	gi|9626440:1294-1783	86	1530	60	405	83.26	0	33.33	16.67	18.33	31.67	50	4
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	590	1531	60	60	86.01	0	25	30	21.67	23.33	55	2
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	589	1532	60	61	86.57	0	25	30	21.67	23.33	55	2
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	586	1533	60	64	86.38	0	23.33	31.67	20	25	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	585	1534	60	65	86.38	0	25	30	20	25	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	583	1535	60	67	86.95	0	23.33	31.67	18.33	26.67	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	548	1536	60	102	86.17	0	25	30	16.67	28.33	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	547	1537	60	103	86.05	0	23.33	30	18.33	28.33	53.33	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	546	1538	60	104	86.14	0	23.33	31.67	18.33	26.67	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	544	1539	60	106	86.75	0	21.67	33.33	20	25	55	3
Viral helicase1	Hepatitis E virus	gi|9626440:2914-3562	543	1540	60	107	86.47	0	21.67	33.33	20	25	55	3
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	382	1541	60	113	81.26	0	20	25	23.33	31.67	45	3
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	381	1542	60	114	80.83	0	20	25	23.33	31.67	45	3
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	380	1543	60	115	80.85	0	20	25	23.33	31.67	45	3
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	208	1544	60	287	81.52	0	28.33	16.67	20	35	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	207	1545	60	288	81.52	0	28.33	16.67	21.67	33.33	45	5
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	205	1546	60	290	80.94	0	28.33	16.67	20	35	45	5
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	204	1547	60	291	80.23	0	26.67	16.67	20	36.67	43.33	5
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	203	1548	60	292	80.1	0	25	16.67	20	38.33	41.67	5
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	202	1549	60	293	79.73	0	26.67	16.67	20	36.67	43.33	5
RNA dependent RNA pol.	Hepatitis E virus	gi|9626440:4191-4684	201	1550	60	294	80.02	0	25	16.67	21.67	36.67	41.67	5
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	135	1551	60	211	85.04	0	18.33	35	20	26.67	53.33	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	134	1552	60	212	84.93	0	18.33	33.33	20	28.33	51.67	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	133	1553	60	213	85.04	0	20	33.33	18.33	28.33	53.33	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	132	1554	60	214	85.22	0	21.67	33.33	16.67	28.33	55	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	131	1555	60	215	85.04	0	21.67	31.67	16.67	30	53.33	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	130	1556	60	216	85.04	0	23.33	30	16.67	30	53.33	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	129	1557	60	217	85.75	0	25	30	15	30	55	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	142	1558	60	204	85.2	0	15	40	20	25	55	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	141	1559	60	205	85.22	0	15	40	20	25	55	4
ORF 3- hypothetical protein	Hepatitis E virus	gi|9626440:5109-5453	140	1560	60	206	85.92	0	16.67	38.33	20	25	55	4
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1661	1561	60	323	80.69	0	20	25	30	25	45	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1660	1562	60	324	80.56	0	18.33	25	31.67	25	43.33	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1659	1563	60	325	80.31	0	18.33	25	31.67	25	43.33	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1658	1564	60	326	80.37	0	18.33	26.67	30	25	45	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1657	1565	60	327	80.47	0	18.33	26.67	30	25	45	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1656	1566	60	328	80.12	0	16.67	26.67	30	26.67	43.33	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1655	1567	60	329	79.78	0	16.67	28.33	28.33	26.67	45	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1654	1568	60	330	80.15	0	15	28.33	30	26.67	43.33	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1653	1569	60	331	79.86	0	15	28.33	30	26.67	43.33	3
ORF 2-capsid protein	Hepatitis E virus	gi|9626440:5123-7105	1652	1570	60	332	79.5	0	16.67	28.33	30	25	45	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1783	1571	60	69	81.65	0	20	25	31.67	23.33	45	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1722	1572	60	130	80.78	0	11.67	30	31.67	26.67	41.67	4
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1638	1573	60	214	80.92	0	23.33	21.67	20	35	45	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1410	1574	60	442	80.83	0	20	25	28.33	26.67	45	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1350	1575	60	502	76.41	0	11.67	23.33	35	30	35	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1290	1576	60	562	77.91	0	16.67	21.67	28.33	33.33	38.33	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1230	1577	60	622	80.63	0	13.33	30	20	36.67	43.33	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1170	1578	60	682	79.55	0	15	26.67	23.33	35	41.67	3
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	1087	1579	60	765	81.34	0	20	25	23.33	31.67	45	5
RNA dependent RNA pol.	WCCV1 RNA1	gi|52220883:75-1925	999	1580	60	853	80.88	0	15	30	26.67	28.33	45	4
Putative protease cofactor	BBWV 1 RNA 1	gi|39163640:201-1154	875	1581	60	80	81.54	0	26.67	18.33	18.33	36.67	45	5
putative pro-tease cofactor	BBWV 1 RNA 1	gi|39163640:201-1154	815	1582	60	140	81.22	0	25	20	21.67	33.33	45	4
putative pro-tease cofactor	BBWV 1 RNA 1	gi|39163640:201-1154	731	1583	60	224	80.72	0	20	25	15	40	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%G C	PolyX
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	671	1584	60	284	81.98	0	26.67	16.67	20	36.67	43.33	3
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	609	1585	60	346	83.3	0	30	15	30	25	45	6
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	546	1586	60	409	82.71	0	23.33	21.67	18.33	36.67	45	5
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	479	1587	60	476	81.05	0	20	25	21.67	33.33	45	3
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	419	1588	60	536	79.88	0	20	21.67	28.33	30	41.67	3
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	330	1589	60	625	81.68	0	28.33	16.67	26.67	28.33	45	4
putative pro-tease cofactor	BBWV 1 RNA 1	gi|391636 40:201-1154	252	1590	60	703	81.33	0	20	25	23.33	31.67	45	2
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1694	1591	60	77	81.2	0	25	20	15	40	45	4
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1623	1592	60	148	82.13	0	25	20	15	40	45	4
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1553	1593	60	218	81.07	0	25	20	30	25	45	3
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1493	1594	60	278	80.23	0	28.33	15	25	31.67	43.33	5
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1431	1595	60	340	80.25	0	28.33	16.67	31.67	23.33	45	5
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1371	1596	60	400	79.53	0	28.33	11.67	30	30	40	4
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1310	1597	60	461	82.34	0	21.67	23.33	28.33	26.67	45	5
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1250	1598	60	521	79.93	0	20	21.67	33.33	25	41.67	3
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1113	1599	60	658	80.52	0	21.67	21.67	26.67	30	43.33	3
NTP-binding protein	BBWV 1 RNA 1	gi|391636 40:1155-2924	1053	1600	60	718	81.13	0	23.33	21.67	28.33	26.67	45	4
cysteine protease	BBWV 1 RNA 1	gi|391636 40:3003-3629	512	1601	60	116	80.72	0	35	8.33	28.33	28.33	43.33	3
cysteine protease	BBWV 1 RNA 1	gi|391636 40:3003-3629	466	1602	60	162	80.95	0	28.33	15	26.67	30	43.33	2
cysteine protease	BBWV 1 RNA 1	gi|391636 40:3003-3629	426	1603	60	202	79.43	0	23.33	18.33	28.33	30	41.67	4
cysteine protease	BBWV 1 RNA 1	gi|391636 40:3003-3629	335	1604	60	293	79.61	0	20	20	30	30	40	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	295	1605	60	333	78.88	0	15	23.33	26.67	35	38.33	4
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	251	1606	60	377	81.6	0	21.67	23.33	25	30	45	4
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	211	1607	60	417	80.36	0	15	26.67	28.33	30	41.67	4
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	171	1608	60	457	77.1	0	25	10	33.33	31.67	35	3
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	131	1609	60	497	79.67	0	30	13.33	31.67	25	43.33	3
cysteine protease	BBWV 1 RNA 1	gi|39163640:3003-3629	91	1610	60	537	78.55	0	25	15	28.33	31.67	40	6
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	2038	1611	60	60	79.2	0	21.67	16.67	26.67	35	38.33	5
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1978	1612	60	120	79.34	0	23.33	16.67	25	35	40	3
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1918	1613	60	180	77.5	0	16.67	18.33	28.33	36.67	35	4
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1858	1614	60	240	79.94	0	25	16.67	36.67	21.67	41.67	5
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1798	1615	60	300	80.36	0	25	18.33	26.67	30	43.33	5
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1738	1616	60	360	78.03	0	20	16.67	36.67	26.67	36.67	4
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1678	1617	60	420	80.67	0	25	16.67	35	23.33	41.67	4
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1588	1618	60	510	81.16	0	25	20	26.67	28.33	45	3
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1525	1619	60	573	81.41	0	25	20	33.33	21.67	45	4
RNA-dependent RNA pol.	BBWV 1 RNA 1	gi|39163640:3630-5726	1362	1620	60	736	81.66	0	31.67	11.67	31.67	25	43.33	4
nucleocapsid	LNYV	gi|83659771:1-	1525	1621	60	99	77.	0	20	15	36.6	28.3	35	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
protein		1623					34				7	3		
nucleocapsid protein	LNYV	gi|83659771:1-1623	1465	1622	60	159	79.32	0	31.67	10	30	28.33	41.67	3
nucleocapsid protein	LNYV	gi|83659771:1-1623	1398	1623	60	226	82.08	0	18.33	26.67	31.67	23.33	45	5
nucleocapsid protein	LNYV	gi|83659771:1-1623	1313	1624	60	311	80.47	0	23.33	21.67	26.67	28.33	45	2
nucleocapsid protein	LNYV	gi|83659771:1-1623	1253	1625	60	371	76.59	0	20	16.67	35	28.33	36.67	4
nucleocapsid protein	LNYV	gi|83659771:1-1623	1193	1626	60	431	79.43	0	31.67	13.33	33.33	21.67	45	3
nucleocapsid protein	LNYV	gi|83659771:1-1623	1125	1627	60	499	80.41	0	31.67	13.33	28.33	26.67	45	3
nucleocapsid protein	LNYV	gi|83659771:1-1623	1065	1628	60	559	81.55	0	15	30	23.33	31.67	45	3
nucleocapsid protein	LNYV	gi|83659771:1-1623	989	1629	60	635	81.41	0	26.67	18.33	28.33	26.67	45	4
nucleocapsid protein	LNYV	gi|83659771:1-1623	901	1630	60	723	81.28	0	23.33	21.67	25	30	45	3
phospoprotein	LNYV	gi|83659771:1631-2712	993	1631	60	90	74.7	0	23.33	11.67	31.67	33.33	35	3
phospoprotein	LNYV	gi|83659771:1631-2712	933	1632	60	150	78.41	0	25	15	31.67	28.33	40	2
phospoprotein	LNYV	gi|83659771:1631-2712	873	1633	60	210	79.22	0	25	15	31.67	28.33	40	4
phospoprotein	LNYV	gi|83659771:1631-2712	738	1634	60	345	81.57	0	20	25	41.67	13.33	45	4
phospoprotein	LNYV	gi|83659771:1631-2712	652	1635	60	431	81.09	0	23.33	21.67	31.67	23.33	45	3
phospoprotein	LNYV	gi|83659771:1631-2712	559	1636	60	524	80.06	0	25	20	28.33	26.67	45	3
phospoprotein	LNYV	gi|83659771:1631-2712	491	1637	60	592	78.34	0	30	10	40	20	40	5
phospoprotein	LNYV	gi|83659771:1631-2712	431	1638	60	652	80.68	0	26.67	16.67	36.67	20	43.33	3
phospoprotein	LNYV	gi|83659771:1631-2712	371	1639	60	712	77.31	0	20	16.67	23.33	40	36.67	3
phospoprotein	LNYV	gi|83659771:1631-2712	311	1640	60	772	80.9	0	25	20	26.67	28.33	45	2
gene"4b	LNYV	gi|83659771:2720-3765	987	1641	60	60	80.04	0	26.67	13.33	28.33	31.67	40	4
gene"4b	LNYV	gi|83659771:272	927	1642	60	120	80.	0	28.3	16.6	23.3	31.6	45	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
		0-3765					91		3	7	3	7		
gene"4b	LNYV	gi|83659771:2720-3765	867	1643	60	180	79.39	0	30	13.33	40	16.67	43.33	3
gene"4b	LNYV	gi|83659771:2720-3765	794	1644	60	253	81.24	0	25	20	43.33	11.67	45	3
gene"4b	LNYV	gi|83659771:2720-3765	734	1645	60	313	78.57	0	21.67	18.33	35	25	40	3
gene"4b	LNYV	gi|83659771:2720-3765	674	1646	60	373	74.79	0	16.67	18.33	31.67	33.33	35	3
gene"4b	LNYV	gi|83659771:2720-3765	613	1647	60	434	80.65	0	31.67	13.33	30	25	45	4
gene"4b	LNYV	gi|83659771:2720-3765	553	1648	60	494	79.78	0	23.33	20	23.33	33.33	43.33	3
gene"4b	LNYV	gi|83659771:2720-3765	491	1649	60	556	80.43	0	30	15	30	25	45	4
gene"4b	LNYV	gi|83659771:2720-3765	431	1650	60	616	81.19	0	21.67	23.33	30	25	45	3
matrix protein	LNYV	gi|83659771:3773-4403	554	1651	60	78	77.42	0	23.33	13.33	30	33.33	36.67	5
matrix protein	LNYV	gi|83659771:3773-4403	514	1652	60	118	80.98	0	25	18.33	31.67	25	43.33	5
matrix protein	LNYV	gi|83659771:3773-4403	438	1653	60	194	78.92	0	28.33	15	31.67	25	43.33	3
matrix protein	LNYV	gi|83659771:3773-4403	391	1654	60	241	76.19	0	23.33	11.67	38.33	26.67	35	3
matrix protein	LNYV	gi|83659771:3773-4403	351	1655	60	281	79.78	0	25	18.33	28.33	28.33	43.33	4
matrix protein	LNYV	gi|83659771:3773-4403	308	1656	60	324	80.81	0	23.33	21.67	20	35	45	4
matrix protein	LNYV	gi|83659771:3773-4403	244	1657	60	388	80.6	0	23.33	21.67	30	25	45	4
matrix protein	LNYV	gi|83659771:3773-4403	203	1658	60	429	75.23	0	20	15	33.33	31.67	35	4
matrix protein	LNYV	gi|83659771:3773-4403	163	1659	60	469	79.2	0	21.67	18.33	18.33	41.67	40	4
matrix protein	LNYV	gi|83659771:3773-4403	51	1660	60	581	81.35	0	21.67	23.33	31.67	23.33	45	3
gene G	LNYV	gi|83659771:4412-6247	1777	1661	60	60	78.09	0	26.67	11.67	38.33	23.33	38.33	4
gene G	LNYV	gi|83659771:4412-6247	1717	1662	60	120	78.28	0	25	15	26.67	33.33	40	2
gene G	LNYV	gi|83659771:441	1657	1663	60	180	79.	0	18.3	25	36.6	20	43.3	2

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
		2-6247					75		3		7		3	
gene G	LNYV	gi|83659771:4412-6247	1597	1664	60	240	79.25	0	21.67	16.67	46.67	15	38.33	4
gene G	LNYV	gi|83659771:4412-6247	1531	1665	60	306	81.5	0	23.33	21.67	21.67	33.33	45	3
gene G	LNYV	gi|83659771:4412-6247	1448	1666	60	389	81.56	0	25	20	30	25	45	4
gene G	LNYV	gi|83659771:4412-6247	1365	1667	60	472	80.43	0	26.67	18.33	38.33	16.67	45	3
gene G	LNYV	gi|83659771:4412-6247	1236	1668	60	601	81.23	0	25	20	30	25	45	4
gene G	LNYV	gi|83659771:4412-6247	1160	1669	60	677	80.45	0	35	8.33	30	26.67	43.33	3
gene G	LNYV	gi|83659771:4412-6247	1100	1670	60	737	79.98	0	21.67	20	26.67	31.67	41.67	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	6101	1671	60	236	75.47	0	18.33	16.67	31.67	33.33	35	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	6041	1672	60	296	80.36	0	21.67	21.67	20	36.67	43.33	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5949	1673	60	388	81.57	0	31.67	13.33	20	35	45	5
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5887	1674	60	450	80.33	0	26.67	18.33	33.33	21.67	45	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5827	1675	60	510	78.62	0	26.67	16.67	30	26.67	43.33	4
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5767	1676	60	570	77.84	0	16.67	21.67	31.67	30	38.33	4
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5707	1677	60	630	78.97	0	21.67	18.33	36.67	23.33	40	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5573	1678	60	764	81.66	0	28.33	16.67	36.67	18.33	45	3
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5513	1679	60	824	77.97	0	30	10	28.33	31.67	40	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
RNA-dependent RNA pol.	LNYV	gi|83659771:6278-12613	5423	1680	60	914	79.84	0	28.33	15	35	21.67	43.33	3
5' trailer RNA	LNYV	gi|83659771:12621-12807	128	1681	60	60	77.75	0	25	11.67	18.33	45	36.67	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	127	1682	60	61	77.33	0	25	13.33	18.33	43.33	38.33	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	126	1683	60	62	77	0	23.33	13.33	18.33	45	36.67	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	125	1684	60	63	76.39	0	23.33	13.33	18.33	45	36.67	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	124	1685	60	64	76.82	0	23.33	11.67	20	45	35	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	123	1686	60	65	76.05	0	23.33	11.67	20	45	35	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	115	1687	60	73	75.88	0	23.33	11.67	21.67	43.33	35	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	114	1688	60	74	76.29	0	23.33	11.67	23.33	41.67	35	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	113	1689	60	75	76.29	0	23.33	11.67	25	40	35	5
5' trailer RNA	LNYV	gi|83659771:12621-12807	112	1690	60	76	76.39	0	25	11.67	25	38.33	36.67	5
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	10296	1691	60	498	80.74	0	23.33	21.67	33.33	21.67	45	4
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	10235	1692	60	559	81.87	0	25	20	35	20	45	5
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	10162	1693	60	632	80.62	0	30	15	28.33	26.67	45	5
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9922	1694	60	872	82.48	0	20	25	28.33	26.67	45	4
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9714	1695	60	1080	81.39	0	28.33	16.67	40	15	45	4
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9654	1696	60	1140	81.31	0	26.67	16.67	23.33	33.33	43.33	3
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9510	1697	60	1284	81.05	0	31.67	13.33	28.33	26.67	45	2
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9444	1698	60	1350	81.53	0	23.33	21.67	31.67	23.33	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9383	1699	60	1411	78.37	0	23.33	15	43.33	18.33	38.33	5
NS5 protein	Zika Brazil-ZKV2015	gi|985578255|gb|KU497555.1|	9288	1700	60	1506	81.82	0	25	20	36.67	18.33	45	3
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	10340	1701	60	336	81.2	0	26.67	18.33	26.67	28.33	45	3
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	10277	1702	60	399	81.27	0	25	20	33.33	21.67	45	4
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	10168	1703	60	508	80.62	0	30	15	28.33	26.67	45	5
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9928	1704	60	748	82.48	0	20	25	28.33	26.67	45	4
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9720	1705	60	956	81.39	0	28.33	16.67	40	15	45	4
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9660	1706	60	1016	81.31	0	26.67	16.67	23.33	33.33	43.33	3
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9516	1707	60	1160	81.05	0	31.67	13.33	28.33	26.67	45	2
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9450	1708	60	1226	81.53	0	23.33	21.67	31.67	23.33	45	5
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9389	1709	60	1287	78.37	0	23.33	15	43.33	18.33	38.33	5
NS5 protein	Zika PRVABC59	gi|984874581|gb|KU501215.1|	9295	1710	60	1381	81.05	0	26.67	18.33	36.67	18.33	45	3
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	10274	1711	60	101	81.2	0	26.67	18.33	26.67	28.33	45	3
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	10211	1712	60	164	81.27	0	25	20	33.33	21.67	45	4
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	10102	1713	60	273	80.62	0	30	15	28.33	26.67	45	5
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9862	1714	60	513	82.48	0	20	25	28.33	26.67	45	4
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9654	1715	60	721	81.39	0	28.33	16.67	40	15	45	4
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9594	1716	60	781	81.31	0	26.67	16.67	23.33	33.33	43.33	3
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9450	1717	60	925	81.05	0	31.67	13.33	28.33	26.67	45	2
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9384	1718	60	991	81.53	0	23.33	21.67	31.67	23.33	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9323	1719	60	1052	78.37	0	23.33	15	43.33	18.33	38.33	5
NS5 protein	Zika Z1106033	gi|973447404|gb|KU312312.1|	9229	1720	60	1146	81.05	0	26.67	18.33	36.67	18.33	45	3
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	10274	1721	60	375	80.74	0	23.33	21.67	33.33	21.67	45	4
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	10139	1722	60	510	80.62	0	28.33	16.67	30	25	45	5
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9900	1723	60	749	82.48	0	20	25	28.33	26.67	45	4
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9692	1724	60	957	81.39	0	28.33	16.67	40	15	45	4
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9632	1725	60	1017	81.31	0	26.67	16.67	23.33	33.33	43.33	3
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9488	1726	60	1161	81.05	0	31.67	13.33	28.33	26.67	45	2
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9422	1727	60	1227	81.53	0	23.33	21.67	31.67	23.33	45	5
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9361	1728	60	1288	78.37	0	23.33	15	43.33	18.33	38.33	5
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9296	1729	60	1353	82.74	0	21.67	23.33	38.33	16.67	45	5
NS5 protein	Zika SSABR1	gi|992324757|gb|KU707826.1|	9190	1730	60	1459	80.12	0	30	15	31.67	23.33	45	2
5UTR	ZikaSPH2015	gb|KU321639.1|:1-105	46	1731	60	60	78.39	0	25	15	30	30	40	4
5UTR	ZikaSPH2015	gb|KU321639.1|:1-105	37	1732	60	69	78.43	0	26.67	11.67	35	26.67	38.33	4
capsid	ZikaSPH2015	gb|KU321639.1|:106-480	232	1733	60	144	77.34	0	21.67	13.33	41.67	23.33	35	3
capsid	ZikaSPH2015	gb|KU321639.1|:106-480	216	1734	60	160	79.12	0	28.33	11.67	41.67	18.33	40	6
propeptide	ZikaSPH2015	gb|KU321639.1|:478-750	100	1735	60	174	80.99	0	23.33	21.67	28.33	26.67	45	3
propeptide	ZikaSPH2015	gb|KU321639.1|:478-750	91	1736	60	183	78.98	0	23.33	16.67	31.67	28.33	40	2
membrane protein	ZikaSPH2015	gb|KU321639.1|:751-975	162	1737	60	64	81.94	0	20	25	31.67	23.33	45	5
membrane protein	ZikaSPH2015	gb|KU321639.1|:751-975	148	1738	60	78	80.99	0	25	20	26.67	28.33	45	5
envelope protein	ZikaSPH2015	gb|KU321639.1|:976-2490	1442	1739	60	74	80.57	0	25	20	16.67	38.33	45	5

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
envelope protein	ZikaSPH2015	gb|KU321639.1|:976-2490	1322	1740	60	194	81.61	0	26.67	15	26.67	31.67	41.67	5
envelope protein	ZikaSPH2015	gb|KU321639.1|:976-2490	1069	1741	60	447	80.6	0	21.67	23.33	33.33	21.67	45	4
envelope protein	ZikaSPH2015	gb|KU321639.1|:976-2490	556	1742	60	960	79.05	0	23.33	18.33	23.33	35	41.67	4
envelope protein	ZikaSPH2015	gb|KU321639.1|:976-2490	318	1743	60	1198	82.15	0	26.67	18.33	28.33	26.67	45	5
NS1 protein	ZikaSPH2015	gb|KU321639.1|:2491-3576	1023	1744	60	64	79.96	0	21.67	21.67	31.67	25	43.33	2
NS1 protein	ZikaSPH2015	gb|KU321639.1|:2491-3576	648	1745	60	439	80.43	0	26.67	16.67	38.33	18.33	43.33	4
NS1 protein	ZikaSPH2015	gb|KU321639.1|:2491-3576	479	1746	60	608	77.05	0	26.67	13.33	26.67	33.33	40	3
NS1 protein	ZikaSPH2015	gb|KU321639.1|:2491-3576	221	1747	60	866	81.68	0	28.33	16.67	31.67	23.33	45	5
NS2A protein	ZikaSPH2015	gb|KU321639.1|:3577-4230	507	1748	60	148	80.85	0	25	20	28.33	26.67	45	4
NS2A protein	ZikaSPH2015	gb|KU321639.1|:3577-4230	503	1749	60	152	80.03	0	25	18.33	28.33	28.33	43.33	4
NS2A protein	ZikaSPH2015	gb|KU321639.1|:3577-4230	204	1750	60	451	80.55	0	23.33	21.67	25	30	45	3
NS2B protein	ZikaSPH2015	gb|KU321639.1|:4231-4662	146	1751	60	287	81.46	0	28.33	16.67	40	15	45	5
NS2B protein	ZikaSPH2015	gb|KU321639.1|:4231-4662	141	1752	60	292	80.68	0	28.33	15	40	16.67	43.33	5
NS2B protein	ZikaSPH2015	gb|KU321639.1|:4231-4662	136	1753	60	297	81.32	0	30	15	36.67	18.33	45	5
NS3 protein	ZikaSPH2015	gb|KU321639.1|:4663-6471	1618	1754	60	192	81.23	0	26.67	18.33	36.67	18.33	45	3
NS3 protein	ZikaSPH2015	gb|KU321639.1|:4663-6471	1415	1755	60	395	80.79	0	15	30	28.33	26.67	45	3
NS3 protein	ZikaSPH2015	gb|KU321639.1|:4663-6471	1013	1756	60	797	82.73	0	28.33	16.67	28.33	26.67	45	5
NS3 protein	ZikaSPH2015	gb|KU321639.1|:4663-6471	679	1757	60	1131	81.83	0	18.33	26.67	33.33	21.67	45	3
NS4A protein	ZikaSPH2015	gb|KU321639.1|:6472-6912	196	1758	60	246	81.88	0	33.33	11.67	23.33	31.67	45	5
NS4A protein	ZikaSPH2015	gb|KU321639.1|:6472-6912	238	1759	60	204	87.21	0	33.33	21.67	18.33	26.67	55	4
NS4A protein	ZikaSPH2015	gb|KU321639.1|:6472-6912	59	1760	60	383	86.35	0	28.33	26.67	28.33	16.67	55	3

Product	Virus	Target ID	BP Start	SEQ ID NO:	Probe Length	End Distance	Tm	X-Hyb Pot	%G	%C	%A	%T	%GC	PolyX
NS4B protein	ZikaSPH2015	gb|KU321639.1|:6913-8418	1395	1761	60	112	80.14	0	23.33	21.67	33.33	21.67	45	5
NS4B protein	ZikaSPH2015	gb|KU321639.1|:6913-8418	688	1762	60	819	80.74	0	23.33	21.67	28.33	26.67	45	3
NS4B protein	ZikaSPH2015	gb|KU321639.1|:6913-8418	425	1763	60	1082	80.52	0	26.67	16.67	33.33	23.33	43.33	3
NS4B protein	ZikaSPH2015	gb|KU321639.1|:6913-8418	1	1764	60	1506	80.98	0	31.67	13.33	38.33	16.67	45	3
NS5 protein	ZikaSPH2015	gb|KU321639.1|:8419-10374	1883	1765	60	74	80.74	0	23.33	21.67	33.33	21.67	45	4
NS5 protein	ZikaSPH2015	gb|KU321639.1|:8419-10374	1241	1766	60	716	81.31	0	26.67	16.67	23.33	33.33	43.33	3
NS5 protein	ZikaSPH2015	gb|KU321639.1|:8419-10374	785	1767	60	1172	79.51	0	30	15	35	20	45	3
3UTR	ZikaSPH2015	gb|KU321639.1|:10378-10676	239	1768	60	61	84.45	0	40	15	25	20	55	4
3UTR	ZikaSPH2015	gb|KU321639.1|:10378-10676	230	1769	60	70	84.24	0	33.33	21.67	23.33	21.67	55	4

WCCV - White clover cryptic virus; BBWV - Broad bean wilt virus; LNYV - Lettuce necrotic yellows virus

Table 2. Viral pathogens used in testing the Pathogen Chip

Virus	Type/Strain	Source	References
CHIKV	R91064	FDA/CBER Lot Release Panels*	
HAV	SD11	Dr. Farci Lab	
HCV	Genotype 1b	Sera Care (Sera Care, Milford, MA)	
HCV	Genotype 2a	Sera Care (Sera Care, Milford, MA)	
HCV	Genotype 3	Sera Care (Sera Care, Milford, MA)	
HEV	Genotype 3a	WHO Standard	
HIV-1	Group M, Subtype B	FDA/CBER Lot Release Panels	1,2
HIV-2	Subtype B	FDA/CBER Lot Release Panels	3
DENGUE	Serotype 1, 2, 3 and 4	Aedes albopictus C6/36 cell culture	4
HTLV-I		ZeptoMetrix	
HTLV-II		ZeptoMetrix	
WEST NILE	NY99	Cell culture	5
ZIKA	PRVABC62	FDA/CBER Lot Release Panels	
ZIKA	FSS13025	FDA/CBER Lot Release Panels	
* The FDA Center for Biologics Evaluation and Research (CBER), Division of Emerging and Transfusion Transmitted Diseases produces and makes available to blood donor screening test manufacturers panels which are sets of vialed human plasma containing virus particles that are carefully quantified for evaluating virus detection devices. Each set has several vials each one a different virus concentration and some with virus-free plasma. These panels are also used to test each new lot of a licensed blood donor screening device for release to the public, hence they are called Lot Release Panels. There are separate panels prepared for each type of virus.			
1) Davis *et al.*, *J Virol Methods*, 107:37-44 (2003)			
2) Lee *et al.*, *J Virol Methods*, 137:287-291 (2006)			
3) Lee *et al.*, *J Virol Methods*, 137:287-291 (2005).			
4) Dong *et al.*, *J Appl Microbiol,* 120:1119-1129 (2016).			
5) Grinev *et al.*, *J Virol Methods,* 154:27-40 (2008).			

Nucleic acids from positive plasma and from NATtrol were extracted using the Dynabeads™ SILANE Viral NA Kit (ThermoFisher Scientific, Waltham, MA) according to the manufacturer's protocol.

cDNA from random-primed, reverse-transcribed total RNA was performed with the Ovation Pico WTA System (NuGEN, San Carlos, CA) using the manufacturer's recommended protocols and input amounts. For this study, the Agilent SureTag Labeling Kit was used for generating Cy3 labeled cDNA targets. Labeled cDNA was purified with SureTag Kit spin columns and specific activities (degree of labeling) were calculated for use in hybridization reactions. A master mix containing 10X blocking agent and 2X GE hybridization buffer HI-RPM, was added to 3-5 μg of labeled cDNA, denatured, and hybridized to arrays under 8-chamber gasket slides at 65°C with 20-rpm rotation for 24 hours in an Agilent

hybridization oven. Arrays were processed using wash procedure A and scanned on an Agilent SureScan G4900DA microarray scanner using 5-μm resolution.

Microarray-based platform data analysis: After scanning, microarray images were analyzed using Agilent Feature Extraction software (Agilent Technologies, Inc., Santa Clara, CA) with default protocols and settings. Average pixel intensity and subtraction of local background for each feature was calculated. Images were manually examined to note any arrays affected by high background, scratches, or other technical artifacts. Probe sets associated with low signal intensity or bad quality features were considered unreliable and excluded from the analysis. Feature intensities for Cy3 channels were imported into the Partek Genomics Suite (Partek Inc., St. Louis, MO, USA).

First, microarray analysis was performed by ranking the highest signal intensity probes by the mean of the set of probes defining each pathogen on the platform. Next, an experimental threshold was defined as a log ratio of signal intensity mean for the set of probes defining each pathogen and the mean of the Agilent control probes set. The threshold was applied to all the arrays tested to define the final parameters for test validation.

RT-qPCR Validation

Altona RT-qPCR: CHIKV, DENV 1-4 and ZIKV positive specimens were quantified using the Altona RealStar RT-qPCR kit (Altona Diagnostic GmbH., Hamburg, Germany) according to the manufacturer's instructions. The positive control and the internal control were provided by the manufacturer. Serial dilutions of CHIKV (ATCC VR-3246SD), DENV (ATCC VR-3231SD), and ZIKV (ATCC VR-1843DQ) quantitative genomic RNA (specification range: $1x10^5$ - $1x10^6$ copies/μL) obtained from ATCC (American Type Culture Collection Manassas, VA) were prepared to generate a standard curve for copy number quantification.

Primer Design (Genesig) RT-qPCR: HAV (target/5' NCR), HCV (5'UTR), HEV (ORF2), HIV-1 (target/POL), HIV-2 (target/POL), HTLVI (target/POL), HTLVII (target/POL), and WNV (5'UTR) positive specimens were quantified using the Primer Design Genesig kit (Primerdesign Ltd, United Kingdom) according to the manufacturer's protocol (OneStep RT-qPCR protocol). Each kit contained a positive control template for the PCR set up and for copy number determination (generated serial dilutions for the standard curve).

The RT-qPCR assays were performed on a ViiA7 Applied Biosystems real-time PCR system (Thermo Fisher Scientific Inc., Waltham, MA, USA). Each sample was tested in duplicate and the mean C_q value was calculated.

Example 2

Microarray Design, Specificity, and Validation

Microarray design: The pathogen chip design strategy was to cover all high priority blood-borne RNA viruses (retroviruses and both positive- and negative-strand RNA viruses) using multiple probes to independent targets sites in the genome of each species. In total, 1,769 unique viral oligonucleotides derived

from 16 distinct viral genomes (Table 1) were included that allowed discrimination of pathogens at the level of species, subtypes and genotypes. The microarray was supplemented with an additional number of predesigned GE array probes for 906 genes from the human genome, 84 ERCC probes and 120 probes specific for plant viruses representing negative controls (Table 3).

Table 3. Probe distribution on pathogen chip

Probe group type	Number of targets	Number of probes	Purpose
All spot	1010	14,716	RNA pathogens coverage and internal controls
Pathogen Specific (not replicated)	17	1,769	Probes intensity analysis of pathogen specific genes
Internal Control (replicated 10 times)	902	902	Agilent requirement for probes normalization
ERCC probes (replicated 45 times)	84	84	Determination of intra-probe variance
Negative Control (not replicated)	3	120	Determination of probes cross reactivity

The design included multiple gene targets for each pathogen genome in order to select the best probes for the final platform design. The design strategy was to balance the number of probes for each pathogen with a final count of 90-110 probes each. Probes selected in the final design generated a more intense signal and produced higher percentage coverage of the specific genome across the different experiments (FIG. 1A).

Microarray specificity: One of the challenges impacting the sensitivity of microarray based multi-pathogen nucleic acid detection in blood specimens is the relatively small concentration of target nucleic acids compared to a high background concentration of human DNA. A novel workflow was designed, combining two different applications (Agilent and Nugen), that had not been previously combined, to address this challenge. Typically, the Agilent amplification WT kit (Oligo dT) is used to amplify total RNA, with a minimum nucleic acid requirement of 25 nanograms, and produces a cRNA final product that is labelled with Cy3 fluorophore. The workflow was modified using a method that generates amplified cDNA from as little as 500 picograms of target viral RNA. One single-primer isothermal amplification using Nugen Ribo-SPIA technology was combined with the Agilent Genomic DNA Enzymatic Labeling Kit for generating Cy3 labeled cDNA. This kit was not previously developed for single color RNA probes and produces 300% the amplified product compared to the standard methodology (FIG. 1B, FIG. 2A). Nearly all samples were detected on the platform and all probes generated a strong signal specific for each positive plasma specimen analyzed. No specific signal was produced by negative control plasma (FIG. 2B). Random non-specific intensity signal was produced in only a few arrays. This indicated that the generation of cDNA instead of amplified RNA followed by Cy3 labelling and hybridization based on a DNA application was successful (FIG. 2C).

Analysis strategies: Quality of signals generated by probes for each species was assessed according to two experimental criteria: 1) defining a threshold able to distinguish a true signal from its background; and 2) defining true positives only when 50% of probes generated a signal above the set threshold. These two levels of data analysis were needed to detect positive probes in the presence of multi-pathogen testing at the same time and at different concentrations.

The threshold was defined as the log ratio between the signal intensity mean for each pathogen specific probe set and the mean of the Agilent control group probe set. After comparing the results of the same set of probes across different arrays and selecting the probes showing an inter-array reproducibility, an experimental threshold value was defined as follows: Log Ratio < 1 negative; Log Ratio ≥1.0 to ≤1.5 borderline; Log Ratio ≥1.5 positive.

Data analysis at the individual probe level was also performed to assess if the tested samples were false positives. Only when at least 50% of specific probes had Log Ratio >1.5 was the test considered valid (FIG. 1C).

For nearly all borderline results, only 20-25% of the specific probes showed mean intensity in the correct range, so the test was defined negative. For positive results (Log Ratio >1.5) more than 50% of the specific probes set were in the correct range. One example was an HCV 1a positive plasma samples test that was detected by 110 out of 110 probes at a concentration of 10^5 copies/mL, 90 out of 110 probes at a concentration of 10^4 copies/mL, and 70 out of 110 probes at a concentration of 10^3 copies/mL. On average, at 10^2 copies/mL more than 50% of the probes were generating a fluorescence signal above the set threshold.

Data from more than 168 tested samples (one or multiple targets per array) showed consistent results. The mean of the probes specific for any positive plasma sample was always at least 10-fold higher than the mean of internal control probes (background), showing a wide probe population range of intensity. As shown in Table 4 and Table 5, the Log Ratio was above 1.5 for all the pathogens tested at a concentration of 10^2 copies/mL and there were no cross reactions with other probes across the platform.

Microarray sensitivity: HAV, CHIKV, DENV1-4, HCV Genotypes 1a, 2b, and 3, HIV-1,2 and WNV strain NY99 had 10^2 copies/mL limits of detection. The lowest detectable level for HEV was 10^4 copies/mL. The analytical sensitivity for each assay was determined using a concentration range based on the clinical requirement for pathogen detection. There were no false negatives or false positives when testing the positive plasma. In the presence of very low pathogen concentrations, the log ratio was at the borderline level so the results were qualified according to double level analysis (at least 50% of the probes generated a fluorescence signal above the set threshold). In the presence of negative plasma samples, the log ratio value was always negative (Table 4).

A mix of different positive plasma samples at different concentrations was simultaneously tested in a single experiment. Four different combinations were generated. The multi-pathogens-mixes were composed of 8 (CHIKV, DEN3, DEN1, HAV, HCV1a, HEV, WNV and ZIKV), 4 (CHIKV, DEN1, ZKV, WNV), 4 (DENV3, HAV HCV1a HEV) and 3 (CHIKV, DEN1, ZIKV) different pathogens, respectively at a concentration range from 10^5 to 10^3 copies/mL. (Table 6).

Table 4. Test results based on Log ratio

	CK	DEN1	DEN2	DEN3	DEN4	HAV	HCV1a	HCV2a	HCV3	HEV	HIV-1	HIV-2	HTLVI	HTLVII	WNV	ZKV	NC
CK	2.42	-1.15	-1.22	-0.04	-0.28	-0.50	-0.24	-0.35	-0.56	-0.02	-0.99	-0.68	-0.42	-0.96	-0.97	-0.20	-0.96
DEN1	-0.12	1.60	-0.33	0.09	0.14	-0.08	-0.20	-0.31	-0.52	0.46	-0.76	-0.55	-0.28	-0.76	-0.53	0.00	-0.86
DEN2	-0.24	-0.82	1.84	-0.30	-0.25	-0.24	-0.17	-0.28	-0.49	-0.11	-1.13	-0.89	-0.52	-0.84	-1.00	-0.28	-1.01
DEN3	0.03	-0.19	-0.02	1.62	-0.24	-0.28	-0.24	-0.34	-0.55	0.01	-0.95	-0.81	-0.56	-0.91	-0.22	0.05	-0.96
DEN4	0.07	-0.31	-0.64	0.18	1.80	-0.64	-0.17	-0.28	-0.49	-0.20	-1.02	-0.80	-0.66	-1.05	-0.30	-0.36	-1.07
HAV	-0.06	-0.97	-1.24	-0.25	-0.34	2.97	-0.21	-0.31	-0.52	0.35	-0.78	-0.47	-0.35	-0.71	-1.22	-0.04	-0.69
HCV1	0.46	-0.53	-0.55	0.63	0.56	0.26	2.91	2.80	2.59	0.79	-0.30	0.94	0.44	-0.05	-0.43	0.60	-0.37
HCV2	0.47	-0.60	-0.72	0.66	0.31	0.09	2.16	2.85	1.84	0.76	-0.53	0.65	-0.10	-0.37	-0.05	0.50	-0.32
HCV3	0.39	-0.73	-0.77	0.06	0.06	-0.07	2.63	2.53	2.32	0.34	-0.28	0.92	0.02	-0.51	-0.68	0.28	-0.46
HEV	0.41	-0.62	-0.63	0.23	0.35	1.06	-0.14	-0.24	-0.45	1.89	-0.31	-0.17	0.10	-0.04	-0.51	0.54	-0.39
HIV1	0.96	0.55	0.08	0.77	0.56	0.01	0.05	-0.06	-0.27	1.07	1.89	0.46	-0.22	0.06	0.13	0.92	0.23
HIV2	-0.13	-0.90	-0.94	0.02	-0.29	-0.07	-0.09	-0.20	-0.41	0.23	0.91	1.68	-0.07	-0.44	-0.75	0.09	-0.66
HTLVI	-0.57	-1.29	-1.43	-0.35	-0.55	-0.51	-0.06	-0.17	-0.38	-0.21	-1.08	-0.87	2.67	0.88	-1.47	-0.15	-0.99
HTLVII	-0.21	-1.11	-1.19	-0.45	-0.40	-0.21	0.19	0.08	-0.13	-0.09	-0.92	-0.59	0.38	3.30	-1.13	-0.10	-0.86
WNV	0.10	-0.50	-0.70	0.21	-0.34	-0.33	-0.19	-0.29	-0.51	0.25	-0.62	-0.52	-0.40	-0.64	2.24	0.00	-0.82
ZKV	-0.29	-0.64	-0.92	-0.49	-0.41	-0.45	0.12	0.26	0.32	0.68	-0.96	-0.68	-0.52	-0.78	0.16	2.07	-0.83

CK, Chikungunya virus; DEN, dengue; HAV, hepatitis A virus; HCV, hepatitis C virus; HEV, hepatitis E virus; HIV, human immunodeficiency virus; HTLV, Human T-cell lymphotropic virus; WNV, West Nile Virus; ZKV, Zika Virus; NC, negative control.

Table 5. Multi-pathogen mix test results based on Log ratio

	MPM1	**MPM2**	**MPM3**	**MPM4**
CHIKV	3.42	3.37	0.24	2.25
DEN1	3.14	3.10	1.80	2.45
DEN2	1.11	1.10	-0.23	0.35
DEN3	2.72	1.19	3.00	0.51
DEN4	1.31	1.19	0.83	0.59
HAV	1.33	0.12	2.18	-1.13
HCV-1a	2.53	0.61	2.72	-0.59
HCV-2a	2.16	0.66	2.44	-0.65
HCV-3	2.45	0.65	2.60	-0.72
HEV	1.64	0.67	1.21	-0.71
HIV-1	1.05	1.24	1.11	-0.36
HIV-2	0.13	0.24	0.17	-0.81
HTLV-I	-0.17	0.06	-0.07	-1.37
HTLV-II	-0.02	0.12	-0.09	-1.07
WNV	1.63	1.65	0.11	-0.03
ZKV	3.09	3.04	0.30	1.98
MPM1= CHIKV, HAV, HCV-1a, HEV, DEN3, DEN1, ZKV, WNV				
MPM2= CHIKV, DEN1, ZKV, WNV				
MPM3= HAV, HEV, DEN3, HCV-1a				
MPM4= CHIKV, ZKV, DEN1				

Table 6. Pathogen Chip performance based plasma panel test results

Pathogen	**Copies/mL**	**pos/total**	**qPCR Validation**
Chikungunya	10^3	1/1	Y
Chikungunya	10^2	4/4	Y
Dengue1	10^3	3/3	Y
Dengue1	10^2	2/2	Y
Dengue1	10^1	0/1	Y
Dengue2	10^3	3/3	Y
Dengue2	10^2	3/3	Y
Dengue2	10^1	0/1	Y
Dengue3	10^3	3/3	Y
Dengue3	10^2	3/3	Y
Dengue3	10^1	0/1	Y
Dengue4	10^3	3/3	Y
Dengue4	10^2	3/3	Y
Dengue4	10^1	0/1	Y
HAV	10^3	2/2	Y
HAV	10^2	2/2	Y
HCV-1a	10^3	3/3	Y
HCV-1a	10^2	3/3	Y

Pathogen	Copies/mL	pos/total	qPCR Validation
HCV-2a	10^2	2/2	Y
HCV-3	10^2	2/2	Y
HEV	10^4	3/3	Y
HEV	10^3	0/2	Y
HEV	10^2	0/2	NA
HIV-1	10^3	2/2	y
HIV-1	10^2	2/2	y
HIV-2	10^3	3/3	y
HIV-2	10^2	3/3	y
HTLV-I	10^3	2/2	y
HTLV-I	10^2	2/2	y
HTLV-II	10^3	2/2	y
HTLV-II	10^2	2/2	y
WNV (NY99)	10^5	1/1	y
WNV (NY99)	10^4	1/1	y
WNV (NY99)	10^3	3/3	y
WNV (NY99)	10^2	4/4	y
WNV (NY99)	10^1	0/2	NA
ZIKA PRVABC60	10^3	3/3	Y
ZIKA PRVABC61	10^2	3/3	Y
ZIKA PRVABC62	10^1	0/2	Y
ZIKV FSS13025	10^3	3/3	Y
ZIKV FSS13025	10^2	3/3	Y
ZIKV FSS13025	10^1	0/2	Y
MPM1	10^5 -10^3	3/3	y
MPM2	10^5 -10^3	3/3	y
MPM3	10^5 -10^3	3/3	y
MPM4	10^5 -10^3	3/3	y
NA= not applicable			

Among the 99 positive samples tested at a concentration ranking from 10^5 to 10^2 copies/mL, 92 out 92 samples were correctly detected. Only HEV testing resulted correct detection in 3 out of 7 positive samples (42%) at a final concentration of 10^4 copies/mL. No specific signal was detected below this value. There were 21 positive samples that were not detected because the concentration was below the limit of detection of the platform (<10^2 copies/mL). In all four mix combinations all pathogens were detected without interference among the targets.

All of the samples tested (single or multiple pathogens at the same time) were performed at least 3 times each, with at least a week interval between the experiments, in order to test the reproducibility of the results. The consistency of positive results across the different arrays confirmed that the array design together with the double level analysis model performed well.

Validation of the limit of microarray data by RT-qPCR: Microarray-based pathogen chip results were confirmed by RT-qPCR of the RNA aliquots used for testing. All positive results were confirmed and the copy numbers for each pathogen were calculated to define the limit of the detection for each species on the array (Table 7).

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Table 7. Validation of Pathogen Chip detection results

Virus	Pathogen Chip Results	qPCR Ct Value	Virus Copy No.
CHIKV	POS	26.9	$3.1x10^3$
CHIKV	POS	31.6	$1.4x10^2$
CHIKV	POS	31.5	$1.6x10^2$
CHIKV	POS	29.4	$6.3x10^2$
CHIKV	POS	29.7	$5.8x10^2$
DENGUE-1	POS	31.1	$2.3x10^3$
DENGUE-1	POS	34.4	$3.0x10^2$
DENGUE-1	NEG	38.7	41
DENGUE-2	POS	29.1	$8.4x10^3$
DENGUE-2	POS	35.9	$1.2x10^2$
DENGUE-2	NEG	38.9	18
DENGUE-3	POS	29.3	$7.1x10^3$
DENGUE-3	POS	32.7	$8.4x10^2$
DENGUE-3	NEG	37.3	31
DENGUE-4	POS	30.3	$3.3x10^3$
DENGUE-4	POS	34.2	$2.6x10^2$
DENGUE-4	NEG	37.0	79
HAV	POS	28.4	$3.2x10^3$
HAV	POS	39.1	$2.8x10^3$
HAV	POS	29.2	$8.2x10^2$
HAV	POS	32.2	$1.2x10^2$
HCV-1a	POS	26.2	$4.1x10^3$
HCV-1a	POS	31.4	$1.6x10^2$
HCV-2a	POS	27.4	$3.8x10^3$
HCV-2a	POS	32.1	$1.8x10^2$
HCV-3	POS	33.1	$1.4x10^2$
HEV	POS	25.4	$1.9x10^4$
HEV	NEG	28.4	$1.8x10^3$
HIV-1	POS	27.3	$4.6x10^3$
HIV-1	POS	32.8	$1.6x10^2$
HIV-2	POS	27.4	$4.3x10^3$
HIV-2	POS	30.7	$1.8x10^2$
HTLV-I	POS	28.7	$3.9x10^3$
HTLV-I	POS	28.3	$2.9x10^2$
HTLV-II	POS	25.574	$2.7x10^3$
HTLV-II	POS	29.289	$2.4x10^2$
WNV (NY99)	POS	21.5	$1.9x10^5$
WNV (NY99)	POS	24.5	$1.5x10^4$
WNV (NY99)	POS	27.6	$2.1x10^3$
WNV (NY99)	POS	31.4	$1.0x10^2$
ZIKA PRVABC60	POS	26.2	$1.5x10^3$
ZIKA PRVABC60	POS	30.1	$1.2x10^2$
ZIKA PRVABC60	NEG	31.8	41

Virus	Pathogen Chip Results	qPCR Ct Value	Virus Copy No.
ZIKA FSS13025	POS	25.3	$2.4x10^3$
ZIKA FSS13025	POS	29.1	$1.3x10^2$
ZIKA FSS13025	NEG	33.0	17

Example 3

Microarray for Detection of DNA Viruses, Bacteria, and Protozoan Pathogens.

A microarray for DNA viruses, bacteria, and protozoan pathogens was developed. The design included multiple gene targets for each pathogen genome in order to select the best probes for the final platform design. The design strategy was to choose the probes with the best "scores" (homology, thermodynamics, secondary structure and sequence complexity) balancing the cross-hybridization with the host genome and with other pathogens' genomes. The second design strategy was to balance the number of probes for each pathogen with a final count of 50-110 probes each. Probes selected in the final design generated a more intense signal and produced higher percentage coverage of the specific genome across the different experiments.

The final design was supplemented with predesigned DNA array probes (577 control probes, 225 replicates, and 11,620 backbone) specific for the reagents and the assay performance. These are used specifically for image orientation, to assess whether the samples are labeled, for the orientation of the platform during the scan process, and for measuring on element background. These probes form a hairpin and do not hybridize well with labeled sample of any species. In addition, 312 probes specific for three human housekeeping genes (ACTB, ARL1, CCDN1) and 109 probes specific for one Mosquito-specific virus and two plant viruses (Aedes albopictus densovirus 2, Maize streak virus, Tomato pseudo-curly top virus) were added to the design.

The microarray includes probes for cytomegalovirus (CMV; also known as HHV-5), Epstein Barr virus (EBV; also known as HHV-4), human herpesvirus 8 (HHV-8), human papilloma virus (HPV) type 6b HPV6, HPV11, HPV 16, HPV 17, hepatitis B virus (HBV) subtype adw, HBV subtype ayw, HBV subtype adr, HBV subtype ayr, and human parvovirus B19. Exemplary probes provided in Table 8 and include SEQ ID NOs: 1770-1852 (CMV), SEQ ID NOs: 1853-1917 (EBV B95-8), SEQ ID NOs: 1918-2023 (EBV AG876), SEQ ID NOs: 2024-2108 (HHV-8), SEQ ID NOs: 2109-2192 (HPV 6b), SEQ ID NOs: 2193-2271 (HPV 11), SEQ ID NOs: 2272-2342 (HPV 16), SEQ ID NOs: 2343-2419 (HPV 18), SEQ ID NOs: 2420-2470 (HBV subtype adw), SEQ ID NOs: 2471-2520 (HBV subtype ayw), SEQ ID NOs: 2521-2556 (HBV subtype adr), SEQ ID NOs: 2557-2602 (HBV subtype ayr), and SEQ ID NOs: 2603-2647 (human parvovirus B19).

The microarray also includes probes for *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi, Leishmania major, Babesia microti, Plasmodium falciparum,* and *Plasmodium vivax*. Exemplary probes provided in Table 9 and include SEQ ID NOs: 2648-2751 (*Treponema pallidum*), SEQ ID NOs: 2752-2852 (*Ehrlichia chaffeensis*), SEQ ID NOs: 2853-2861 (*Ehrlichia ewingii*), SEQ ID NOs: 2862-2922 (*Ehrlichia*

muris), SEQ ID NOs: 2923-3001 (*Borrelia burgdorferi*), SEQ ID NOs: 3002-3085 (*Coxiella burnetii*), SEQ ID NOs: 3086-3097 (*Trypanosoma brucei*), SEQ ID NO: 3098 (*Trypanosoma cruzi*), SEQ ID NOs: 3099-3113 (*Leishmania major*), SEQ ID NOs: 3114-3154 (*Babesia microti*), SEQ ID NOs: 3155-3185 (*Plasmodium falciparum*), and SEQ ID NOs: 3186-3207 (*Plasmodium vivax*).

Finally, the microarray includes housekeeping and negative control probes (Table 10). Exemplary probes include SEQ ID NOs: 3208-3301 (housekeeping gene ACTB), SEQ ID NOs: 3302-3385 (housekeeping gene ARL1), SEQ ID NOs: 3386-3519 (housekeeping gene CCDN1), SEQ ID NOs: 3520-3557 (Aedes albopictus densovirus 2), SEQ ID NO: 3558-3598 (Maize streak virus), and SEQ ID NOs: 3599-3628 (Tomato pseudo-curly top virus).

For sample analysis, viral DNA from plasma specimens was extracted with the Invitrogen Dynabeads SILANE viral NA kit. The kit is designed for highly predictable and consistent isolation of viral nucleic acids. Beads and buffers are optimized for sensitive isolation of viral DNA. DNA from bacteria and protozoans was extracted from whole blood with the QIAamp DNA Blood Mini kit (Qiagen) according to the manufacturer's protocol.

SureTag Labeling Kit (Agilent technology) was used to enzymatically label DNA from plasma and blood. A modified protocol was developed and optimized for efficient sample fragmentation, enzymatic labeling, and clean up. A master mix containing 10X aCGH blocking agent and 2X HI-RPM hybridization buffer, was added to 2.5-3 μg of labeled DNA, denatured, and hybridized to arrays under 8-chamber gasket slides at 67°C with 20-rpm rotation for 24 hours in an Agilent hybridization oven. Arrays were processed using wash procedure A and scanned on an Agilent SureScan G4900DA microarray scanner using 5-μm resolution.

CMV, Trypanosoma, Parvovirus B19, HBV, EBV (HHV-4), Treponema, Babesia, Leishmania, Coxiella, Borrelia, Papilloma Virus (HPV 6, 11, 16, 18), and P. falciparum had 10^4-10^3copies/mL limits of detection. There were no false negatives or false positives when testing the positive plasma. All the results were confirmed by RT-qPCR of the DNA aliquots used for testing. All positive results were confirmed and the copy numbers for each pathogen were calculated to define the limit of the detection for each species on the array.

Table 8. Exemplary DNA virus probes

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10000630	45812	45860	1770	CMV (HHV-5) Cytomegalovirus	UL34	protein
CUST_P10000631	45872	45916	1771	CMV (HHV-5) Cytomegalovirus	UL34	protein
CUST_P10000638	46336	46384	1772	CMV (HHV-5) Cytomegalovirus	UL34	protein
CUST_P10001082	78547	78591	1773	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001099	79469	79514	1774	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001109	80183	80227	1775	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001111	80253	80301	1776	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001120	80933	80979	1777	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10001123	81072	81116	1778	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001126	81245	81289	1779	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001131	81599	81643	1780	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001132	81738	81782	1781	CMV (HHV-5) Cytomegalovirus	UL54	DNA rep
CUST_P10001140	82327	82375	1782	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001146	82856	82901	1783	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001152	83347	83399	1784	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001154	83475	83525	1785	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001155	83645	83701	1786	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001156	83677	83724	1787	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001158	83744	83797	1788	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001160	83961	84012	1789	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001161	83993	84052	1790	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001162	84021	84073	1791	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001164	84223	84275	1792	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001165	84398	84442	1793	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001169	84665	84716	1794	CMV (HHV-5) Cytomegalovirus	UL55	envelop
CUST_P10001175	85014	85071	1795	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001177	85085	85132	1796	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001179	85221	85272	1797	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001183	85645	85693	1798	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001189	86404	86461	1799	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001198	87249	87308	1800	CMV (HHV-5) Cytomegalovirus	UL56	encapsi
CUST_P10001603	117602	117650	1801	CMV (HHV-5) Cytomegalovirus	UL80	capsid
CUST_P10001618	118112	118156	1802	CMV (HHV-5) Cytomegalovirus	UL80	capsid
CUST_P10001622	118567	118615	1803	CMV (HHV-5) Cytomegalovirus	UL80	capsid
CUST_P10001664	121437	121483	1804	CMV (HHV-5) Cytomegalovirus	UL83	tegumen
CUST_P10001665	121470	121522	1805	CMV (HHV-5) Cytomegalovirus	UL83	tegumen
CUST_P10001666	121493	121543	1806	CMV (HHV-5) Cytomegalovirus	UL83	tegumen
CUST_P10001675	122579	122623	1807	CMV (HHV-5) Cytomegalovirus	UL83	tegumen
CUST_P10001945	141984	142028	1808	CMV (HHV-5) Cytomegalovirus	UL97	core
CUST_P10001948	142100	142144	1809	CMV (HHV-5) Cytomegalovirus	UL97	core
CUST_P10001960	142742	142789	1810	CMV (HHV-5) Cytomegalovirus	UL97	core
CUST_P10001965	143122	143180	1811	CMV (HHV-5) Cytomegalovirus	UL97	core
CUST_P10001966	143159	143203	1812	CMV (HHV-5) Cytomegalovirus	UL97	core
CUST_P10002353	170852	170896	1813	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002359	171207	171256	1814	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002362	171393	171444	1815	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002371	171811	171858	1816	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002377	172241	172300	1817	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002378	172286	172345	1818	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002379	172307	172366	1819	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10002381	172506	172559	1820	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002382	172633	172678	1821	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002384	172987	173046	1822	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002385	173023	173082	1823	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002386	173044	173097	1824	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002389	173134	173193	1825	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002390	173156	173215	1826	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002391	173191	173239	1827	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002392	173374	173433	1828	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002393	173395	173454	1829	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002394	173432	173489	1830	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002395	173456	173514	1831	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002396	173503	173553	1832	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002397	173520	173579	1833	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002398	173555	173613	1834	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002399	173596	173649	1835	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002400	173621	173679	1836	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002401	173674	173731	1837	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002402	173693	173746	1838	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002403	173735	173780	1839	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002404	173766	173812	1840	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002406	174051	174095	1841	CMV (HHV-5) Cytomegalovirus	UL122	Beta Ge
CUST_P10002407	174065	174109	1842	CMV (HHV-5) Cytomegalovirus	UL123	Prot E
CUST_P10002408	174215	174259	1843	CMV (HHV-5) Cytomegalovirus	UL123	Prot E
CUST_P10002411	174671	174726	1844	CMV (HHV-5) Cytomegalovirus	UL124	Prot E
CUST_P10002466	178473	178527	1845	CMV (HHV-5) Cytomegalovirus	UL132	Glyco
CUST_P10002470	178801	178851	1846	CMV (HHV-5) Cytomegalovirus	UL132	Glyco
CUST_P10002471	178825	178870	1847	CMV (HHV-5) Cytomegalovirus	UL132	Glyco
CUST_P10002474	178926	178974	1848	CMV (HHV-5) Cytomegalovirus	UL132	Glyco
CUST_P10002475	178954	179000	1849	CMV (HHV-5) Cytomegalovirus	UL132	Glyco
CUST_P10002927	211545	211592	1850	CMV (HHV-5) Cytomegalovirus	US17	protein
CUST_P10002930	211944	211988	1851	CMV (HHV-5) Cytomegalovirus	US17	protein
CUST_P10002934	212083	212127	1852	CMV (HHV-5) Cytomegalovirus	US17	protein
CUST_P10003273	1	60	1853	Human herpesvirus 4 (EBV), B95-8	LMP-2A	transmembrane protein
CUST_P10003278	444	503	1854	Human herpesvirus 4 (EBV), B95-8	LMP-2A	transmembrane protein
CUST_P10003289	1435	1487	1855	Human herpesvirus 4 (EBV), B95-8	LMP-2A	transmembrane protein
CUST_P10003301	2062	2106	1856	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003303	2221	2265	1857	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003307	2620	2664	1858	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003313	3104	3148	1859	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10003322	3928	3972	1860	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003342	5201	5245	1861	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003349	5834	5893	1862	Human herpesvirus 4 (EBV), B95-8	BNFR1	tegument protein
CUST_P10003351	5931	5985	1863	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003352	6010	6069	1864	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003367	7289	7347	1865	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003369	7409	7468	1866	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003372	7520	7579	1867	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003375	7605	7664	1868	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003376	7635	7694	1869	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003377	7706	7765	1870	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003378	7731	7790	1871	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003379	7786	7845	1872	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003380	7821	7880	1873	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003381	7871	7930	1874	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003382	7901	7960	1875	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003383	7941	8000	1876	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003384	8000	8051	1877	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003390	8236	8291	1878	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003398	8631	8690	1879	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003399	8659	8716	1880	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003400	8690	8737	1881	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003404	9006	9063	1882	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003405	9052	9111	1883	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003406	9110	9166	1884	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003408	9301	9350	1885	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003409	9349	9399	1886	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003412	9759	9811	1887	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003413	9788	9841	1888	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003418	9961	10012	1889	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003427	10915	10966	1890	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003429	10994	11046	1891	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10003432	11304	11362	1892	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003721	35383	35442	1893	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10003725	35654	35708	1894	Human herpesvirus 4 (EBV), B95-8	EBNA-1	Nuclear antigen
CUST_P10005257	152676	152720	1895	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005266	153637	153681	1896	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005267	153658	153702	1897	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005275	154346	154393	1898	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005279	154462	154516	1899	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005291	155318	155362	1900	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005293	155583	155627	1901	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005300	155914	155958	1902	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005304	156254	156306	1903	Human herpesvirus 4 (EBV), B95-8	BALF5	Binding Protein
CUST_P10005325	157914	157963	1904	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005327	158072	158121	1905	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005329	158133	158183	1906	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005332	158230	158286	1907	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005334	158408	158453	1908	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005335	158572	158625	1909	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005336	158595	158644	1910	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005340	158865	158916	1911	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005355	160486	160545	1912	Human herpesvirus 4 (EBV), B95-8	BALF4	Binding Protein
CUST_P10005356	160515	160574	1913	Human herpesvirus 4 (EBV), B95-8	BALF3	Binding Protein
CUST_P10005367	161267	161318	1914	Human herpesvirus 4 (EBV), B95-8	BALF3	Binding Protein
CUST_P10005380	162040	162086	1915	Human herpesvirus 4 (EBV), B95-8	BALF3	Binding Protein
CUST_P10005381	162117	162161	1916	Human herpesvirus 4 (EBV), B95-8	BALF3	Binding Protein
CUST_P10005382	162322	162366	1917	Human herpesvirus 4 (EBV), B95-8	BALF3	Binding Protein
CUST_P10005496	1	60	1918	Human herpesvirus 4 (EBV),AG876	LMP-2B	latency and B cell survival
CUST_P10005503	903	961	1919	Human herpesvirus 4 (EBV),AG876	LMP-2B	latency and B cell survival
CUST_P10005506	1162	1221	1920	Human herpesvirus 4 (EBV),AG876	LMP-2B	latency and B cell survival
CUST_P10005507	1290	1345	1921	Human herpesvirus 4 (EBV),AG876	LMP-2B	latency and B cell survival
CUST_P10005515	1658	1717	1922	Human herpesvirus 4 (EBV),AG876	LMP-2B	latency and B cell survival
CUST_P10005567	5833	5892	1923	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10005568	5869	5928	1924	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005571	6014	6073	1925	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005581	6584	6635	1926	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005585	6912	6967	1927	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005589	7293	7348	1928	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005592	7417	7476	1929	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005593	7470	7529	1930	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005594	7520	7579	1931	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005595	7590	7649	1932	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005596	7615	7674	1933	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005597	7645	7704	1934	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005598	7701	7760	1935	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005599	7740	7799	1936	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005600	7770	7829	1937	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005601	7799	7858	1938	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005602	7835	7894	1939	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005604	7910	7969	1940	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005605	7940	7999	1941	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005606	7972	8031	1942	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005617	8432	8486	1943	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005619	8501	8560	1944	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005620	8536	8590	1945	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005622	8614	8673	1946	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005623	8647	8706	1947	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005626	8996	9052	1948	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005627	9041	9100	1949	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005628	9096	9149	1950	Human herpesvirus 4 (EBV),AG876	EBER-1	DNA replication
CUST_P10005635	9782	9837	1951	Human herpesvirus 4 (EBV),AG876	BCRF1	Early protein
CUST_P10005640	9942	9995	1952	Human herpesvirus 4 (EBV),AG876	BCRF1	Early protein
CUST_P10005641	10139	10194	1953	Human herpesvirus 4 (EBV),AG876	BCRF1	Early protein
CUST_P10005654	11289	11348	1954	Human herpesvirus 4 (EBV),AG876	BCRF1	Early protein
CUST_P10005661	11661	11720	1955	Human herpesvirus 4 (EBV),AG876	IR1	Repeat Sequence
CUST_P10005662	11765	11824	1956	Human herpesvirus 4 (EBV),AG876	IR1	Repeat Sequence

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10005663	11948	11999	1957	Human herpesvirus 4 (EBV),AG876	IR1	Repeat Sequence
CUST_P10005933	35619	35674	1958	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005934	35650	35709	1959	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005935	35773	35832	1960	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005941	36221	36277	1961	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005943	36301	36360	1962	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005961	37425	37477	1963	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005962	37566	37625	1964	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005965	37982	38041	1965	Human herpesvirus 4 (EBV),AG876	EBNA-2	Nuclear antigen
CUST_P10005981	41069	41128	1966	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10005994	42062	42114	1967	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10005995	42170	42229	1968	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10005996	42338	42397	1969	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10005997	42368	42427	1970	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10005998	42421	42480	1971	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006001	42542	42594	1972	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006009	43272	43331	1973	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006010	43296	43355	1974	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006011	43322	43381	1975	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006026	44210	44266	1976	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006062	46628	46687	1977	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006104	49867	49926	1978	Human herpesvirus 4 (EBV),AG876	BFLF2	Nuclear antigen
CUST_P10006292	64392	64446	1979	Human herpesvirus 4 (EBV),AG876	BaRF1	Protein
CUST_P10006337	67573	67632	1980	Human herpesvirus 4 (EBV),AG876	BaRF1	Protein
CUST_P10006338	67734	67780	1981	Human herpesvirus 4 (EBV),AG876	BaRF1	Protein
CUST_P10006346	68303	68351	1982	Human herpesvirus 4 (EBV),AG876	BaRF1	Protein
CUST_P10006354	68922	68968	1983	Human herpesvirus 4 (EBV),AG876	BaRF1	Protein
CUST_P10006495	79411	79470	1984	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006496	79445	79504	1985	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006497	79520	79575	1986	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006499	79742	79801	1987	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006506	80288	80346	1988	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006513	80822	80881	1989	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006515	80901	80955	1990	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006542	83005	83064	1991	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10006547	83394	83446	1992	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006549	83520	83575	1993	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006559	84220	84279	1994	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006560	84245	84304	1995	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006562	84360	84419	1996	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006563	84394	84453	1997	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006619	87106	87160	1998	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006629	87723	87782	1999	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006659	90250	90309	2000	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006735	95481	95540	2001	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006749	96426	96485	2002	Human herpesvirus 4 (EBV),AG876	EBNA-3C	Protein
CUST_P10006975	114037	114096	2003	Human herpesvirus 4 (EBV),AG876	BZLF1	Transcription factor
CUST_P10007058	119518	119568	2004	Human herpesvirus 4 (EBV),AG876	BZLF1	Transcription factor
CUST_P10007154	127252	127301	2005	Human herpesvirus 4 (EBV),AG876	BZLF1	Transcription factor
CUST_P10007332	140366	140418	2006	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007342	141133	141189	2007	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007350	141491	141550	2008	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007368	146390	146444	2009	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007370	146461	146520	2010	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007371	146485	146544	2011	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007385	147651	147710	2012	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007389	147919	147978	2013	Human herpesvirus 4 (EBV),AG876	BRRF1	Early Protein
CUST_P10007496	155451	155495	2014	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007497	155595	155639	2015	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007498	155833	155878	2016	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007499	155874	155918	2017	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007511	156741	156785	2018	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007512	156802	156846	2019	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007519	157248	157292	2020	Human herpesvirus 4 (EBV),AG876	BALF5	Pol
CUST_P10007686	169787	169844	2021	Human herpesvirus 4 (EBV),AG876	BALF4	Pol
CUST_P10007687	169910	169964	2022	Human herpesvirus 4 (EBV),AG876	BALF4	Pol
CUST_P10007688	169977	170032	2023	Human herpesvirus 4 (EBV),AG876	BALF4	Pol
CUST_P10007838	8641	8685	2024	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007845	9121	9173	2025	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007846	9136	9192	2026	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007847	9164	9219	2027	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007848	9291	9338	2028	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007849	9301	9352	2029	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007850	9325	9380	2030	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007859	10189	10234	2031	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007861	10387	10436	2032	Human herpesvirus 8 (HHV-8)	UL27	Core

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10007862	10525	10584	2033	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007865	10694	10743	2034	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007870	11141	11191	2035	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007871	11189	11243	2036	Human herpesvirus 8 (HHV-8)	UL27	Core
CUST_P10007875	11324	11370	2037	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007882	11596	11644	2038	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007889	12191	12244	2039	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007890	12231	12276	2040	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007892	12408	12453	2041	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007894	12597	12642	2042	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007895	12731	12786	2043	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007896	12803	12855	2044	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007900	13330	13383	2045	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007902	13405	13449	2046	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007903	13429	13473	2047	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007906	13774	13821	2048	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007907	13815	13859	2049	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007910	14391	14438	2050	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007912	14506	14551	2051	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007915	14605	14655	2052	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007916	14632	14686	2053	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007921	15015	15062	2054	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007922	15051	15095	2055	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007923	15187	15232	2056	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007925	15488	15536	2057	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007929	15833	15879	2058	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007933	16005	16057	2059	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007936	16274	16324	2060	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007937	16293	16350	2061	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007942	16565	16614	2062	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007943	16679	16733	2063	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007944	16760	16804	2064	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007946	16874	16922	2065	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10007947	17007	17064	2066	Human herpesvirus 8 (HHV-8)	UL30	DNA Pol
CUST_P10008350	47027	47078	2067	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008352	47180	47235	2068	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008353	47205	47256	2069	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008354	47279	47328	2070	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008355	47290	47343	2071	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008356	47379	47429	2072	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008357	47404	47448	2073	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008358	47526	47583	2074	Human herpesvirus 8 (HHV-8)	ORF26	Capsid

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10008362	47811	47857	2075	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008363	47833	47889	2076	Human herpesvirus 8 (HHV-8)	ORF26	Capsid
CUST_P10008367	48249	48296	2077	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008370	48367	48418	2078	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008371	48393	48441	2079	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008373	48456	48500	2080	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008374	48487	48538	2081	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008376	48548	48592	2082	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008377	48585	48643	2083	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008378	48655	48702	2084	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10008380	48859	48918	2085	Human herpesvirus 8 (HHV-8)	ORF27	PolyA
CUST_P10009322	112342	112396	2086	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009323	112362	112421	2087	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009324	112390	112439	2088	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009462	123077	123124	2089	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009466	123331	123382	2090	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009467	123379	123425	2091	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009468	123391	123441	2092	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009469	123537	123593	2093	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009470	123611	123664	2094	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009471	123635	123692	2095	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009472	123655	123714	2096	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009473	123682	123736	2097	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009474	123710	123769	2098	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009475	123738	123788	2099	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009482	124109	124164	2100	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009484	124384	124437	2101	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009486	124635	124686	2102	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009487	124654	124707	2103	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009488	124679	124723	2104	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009489	126493	126541	2105	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009493	126960	127005	2106	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009503	127324	127368	2107	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009504	127347	127395	2108	Human herpesvirus 8 (HHV-8)	ORF73	PolyA
CUST_P10009640	3	59	2109	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009641	34	85	2110	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009642	57	116	2111	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009644	148	207	2112	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009645	207	266	2113	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009646	347	406	2114	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009647	401	449	2115	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009648	527	582	2116	Human papillomavirus type 6b (HPV 6b)	E6	Regulatory Protein
CUST_P10009649	645	702	2117	Human papillomavirus type 6b (HPV 6b)	E7	Regulatory Protein
CUST_P10009651	952	1005	2118	Human papillomavirus type 6b (HPV 6b)	E7	Regulatory Protein
CUST_P10009652	975	1034	2119	Human papillomavirus type 6b (HPV 6b)	E7	Regulatory Protein
CUST_P10009654	1048	1099	2120	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009655	1079	1138	2121	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009656	1101	1160	2122	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009657	1140	1199	2123	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009658	1168	1221	2124	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009659	1204	1249	2125	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009660	1418	1477	2126	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009661	1492	1551	2127	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009662	1852	1908	2128	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009663	1899	1958	2129	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009664	2058	2117	2130	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009665	2086	2145	2131	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009666	2353	2412	2132	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009667	2463	2522	2133	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009668	2507	2566	2134	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009669	2554	2613	2135	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009670	2601	2660	2136	Human papillomavirus type 6b (HPV 6b)	E1	Regulatory Protein
CUST_P10009671	2686	2734	2137	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009672	2894	2946	2138	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009673	2916	2975	2139	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009674	2942	3001	2140	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009675	2963	3022	2141	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009676	3002	3061	2142	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009677	3030	3089	2143	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009678	3061	3120	2144	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009679	3091	3148	2145	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009680	3265	3324	2146	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009681	3305	3364	2147	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009686	3592	3651	2148	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009687	3614	3673	2149	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009689	3686	3740	2150	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009690	3724	3783	2151	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009691	3751	3810	2152	Human papillomavirus type 6b (HPV 6b)	E2	Regulatory Protein
CUST_P10009692	3937	3996	2153	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009693	4048	4107	2154	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009694	4077	4136	2155	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009695	4116	4175	2156	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009696	4140	4199	2157	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009697	4281	4340	2158	Human papillomavirus type 6b (HPV 6b)	E5	Regulatory Protein
CUST_P10009698	4505	4557	2159	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009702	4718	4773	2160	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009705	4804	4863	2161	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009706	4937	4991	2162	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009707	4970	5029	2163	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009709	5118	5175	2164	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009710	5237	5285	2165	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009711	5508	5567	2166	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009712	5568	5617	2167	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009713	5581	5640	2168	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009714	5611	5663	2169	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009715	5664	5716	2170	Human papillomavirus type 6b (HPV 6b)	L2	Capsid
CUST_P10009716	5699	5758	2171	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009717	5835	5893	2172	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009718	5882	5941	2173	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009719	5917	5971	2174	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009720	5980	6039	2175	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009721	6023	6077	2176	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009723	6106	6157	2177	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009724	6131	6190	2178	Human papillomavirus type 6b (HPV 6b)	L1	PolyA

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009726	6346	6399	2179	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009727	6387	6446	2180	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009728	6426	6485	2181	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009729	6587	6641	2182	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009731	6661	6710	2183	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009732	6674	6727	2184	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009733	6713	6771	2185	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009734	6799	6858	2186	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009735	6914	6973	2187	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009736	7025	7070	2188	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009737	7146	7201	2189	Human papillomavirus type 6b (HPV 6b)	L1	PolyA
CUST_P10009739	7409	7456	2190	Human papillomavirus type 6b (HPV 6b)		PolyA
CUST_P10009740	7560	7619	2191	Human papillomavirus type 6b (HPV 6b)	?	PolyA
CUST_P10009742	7703	7762	2192	Human papillomavirus type 6b (HPV 6b)	?	PolyA
CUST_P10009743	9	65	2193	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009744	45	104	2194	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009745	97	149	2195	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009746	146	201	2196	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009747	203	257	2197	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009748	226	284	2198	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009749	267	311	2199	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009750	444	503	2200	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009751	477	531	2201	Human papillomavirus type 6b (HPV 11)	E6	Regulatory Protein
CUST_P10009752	642	696	2202	Human papillomavirus type 6b (HPV 11)	E7	Regulatory Protein
CUST_P10009753	676	724	2203	Human papillomavirus type 6b (HPV 11)	E7	Regulatory Protein
CUST_P10009755	744	796	2204	Human papillomavirus type 6b (HPV 11)	E7	Regulatory Protein
CUST_P10009756	980	1039	2205	Human papillomavirus type 6b (HPV 11)	E7	Regulatory Protein
CUST_P10009758	1159	1212	2206	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009759	1195	1242	2207	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009760	1393	1452	2208	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009761	1419	1478	2209	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009762	1450	1509	2210	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009763	1476	1535	2211	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009765	1847	1899	2212	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009766	1864	1923	2213	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009767	1923	1982	2214	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009768	1962	2017	2215	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009769	2003	2062	2216	Human papillomavirus type 6b (HPV 11)	E1	Regulatory Protein
CUST_P10009770	2127	2186	2217	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009771	2265	2316	2218	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009772	2303	2362	2219	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009773	2327	2384	2220	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009774	2370	2420	2221	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009775	2422	2481	2222	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009776	2458	2517	2223	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009777	2590	2649	2224	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009778	2625	2684	2225	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009779	2655	2708	2226	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009780	2692	2740	2227	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009781	2920	2979	2228	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009782	2985	3035	2229	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009783	3047	3106	2230	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009784	3081	3140	2231	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009785	3120	3176	2232	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009786	3265	3324	2233	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009787	3380	3424	2234	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009788	3432	3476	2235	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009789	3505	3560	2236	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009790	3678	3735	2237	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009791	3709	3768	2238	Human papillomavirus type 6b (HPV 11)	E2	Regulatory Protein
CUST_P10009792	3901	3960	2239	Human papillomavirus type 6b (HPV 11)	E5	Regulatory Protein
CUST_P10009793	4136	4195	2240	Human papillomavirus type 6b (HPV 11)	E5	Regulatory Protein
CUST_P10009794	4283	4342	2241	Human papillomavirus type 6b (HPV 11)	E5	Regulatory Protein
CUST_P10009795	4408	4458	2242	Human papillomavirus type 6b (HPV 11)	E5	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009796	4497	4556	2243	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009798	4792	4851	2244	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009799	4818	4875	2245	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009800	4855	4912	2246	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009802	4936	4993	2247	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009804	5164	5223	2248	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009805	5341	5397	2249	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009806	5423	5480	2250	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009808	5491	5548	2251	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009809	5514	5566	2252	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009810	5539	5586	2253	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009811	5576	5622	2254	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009812	5603	5651	2255	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009813	5618	5670	2256	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009814	5745	5800	2257	Human papillomavirus type 6b (HPV 11)	L2	Capsid
CUST_P10009815	5819	5875	2258	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009816	5978	6034	2259	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009817	6008	6059	2260	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009818	6031	6075	2261	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009819	6069	6113	2262	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009820	6089	6139	2263	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009821	6118	6177	2264	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009822	6338	6390	2265	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009823	6356	6415	2266	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009824	6383	6442	2267	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009825	6408	6467	2268	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009826	6707	6757	2269	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009827	6796	6855	2270	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009828	7130	7187	2271	Human papillomavirus type 6b (HPV 11)	L1	PolyA
CUST_P10009831	13	69	2272	Human papillomavirus type 6b (HPV 16)	E6	Regulatory Protein
CUST_P10009832	54	113	2273	Human papillomavirus type 6b (HPV 16)	E6	Regulatory Protein
CUST_P10009833	221	280	2274	Human papillomavirus type 6b (HPV 16)	E6	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009834	355	414	2275	Human papillomavirus type 6b (HPV 16)	E6	Regulatory Protein
CUST_P10009836	564	623	2276	Human papillomavirus type 6b (HPV 16)	E6	Regulatory Protein
CUST_P10009837	704	758	2277	Human papillomavirus type 6b (HPV 16)	E7	Regulatory Protein
CUST_P10009838	816	867	2278	Human papillomavirus type 6b (HPV 16)	E7	Regulatory Protein
CUST_P10009839	969	1028	2279	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009840	994	1053	2280	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009841	1049	1098	2281	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009842	1131	1190	2282	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009843	1269	1316	2283	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009844	1296	1346	2284	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009845	1461	1520	2285	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009846	1734	1793	2286	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009847	1841	1900	2287	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009848	2010	2069	2288	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009849	2153	2212	2289	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009850	2326	2385	2290	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009851	2372	2431	2291	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009852	2583	2642	2292	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009853	2679	2732	2293	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009854	2745	2803	2294	Human papillomavirus type 6b (HPV 16)	E1	Regulatory Protein
CUST_P10009855	2862	2921	2295	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009856	2895	2951	2296	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009857	2932	2991	2297	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009858	2974	3033	2298	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009859	2995	3054	2299	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009860	3091	3150	2300	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009861	3190	3249	2301	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009862	3325	3384	2302	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009864	3437	3481	2303	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009867	3503	3547	2304	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009868	3777	3836	2305	Human papillomavirus type 6b (HPV 16)	E2	Regulatory Protein
CUST_P10009869	3949	4008	2306	Human papillomavirus type 6b (HPV 16)	E5	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009870	4245	4297	2307	Human papillomavirus type 6b (HPV 16)	E5	Regulatory Protein
CUST_P10009871	4323	4382	2308	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009872	4347	4406	2309	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009873	4510	4566	2310	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009874	4532	4591	2311	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009875	4644	4703	2312	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009876	4680	4739	2313	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009878	4821	4880	2314	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009879	4842	4890	2315	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009880	4898	4951	2316	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009881	4931	4990	2317	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009882	5068	5125	2318	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009883	5237	5296	2319	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009884	5292	5351	2320	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009885	5444	5503	2321	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009886	5527	5586	2322	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009887	5685	5744	2323	Human papillomavirus type 6b (HPV 16)	L2	Capsid
CUST_P10009888	5849	5908	2324	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009891	6051	6110	2325	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009892	6078	6137	2326	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009893	6192	6251	2327	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009894	6527	6586	2328	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009895	6551	6610	2329	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009896	6735	6794	2330	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009897	6786	6845	2331	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009898	6868	6923	2332	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009899	7030	7089	2333	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009900	7329	7388	2334	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009901	7571	7620	2335	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009902	7677	7736	2336	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009903	7700	7759	2337	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009904	7723	7782	2338	Human papillomavirus type 6b (HPV 16)	L1	PolyA

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009905	7756	7815	2339	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009906	7789	7848	2340	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009907	7824	7880	2341	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009908	7846	7905	2342	Human papillomavirus type 6b (HPV 16)	L1	PolyA
CUST_P10009909	6	65	2343	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009910	60	116	2344	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009911	182	241	2345	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009912	233	292	2346	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009913	254	313	2347	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009914	291	350	2348	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009915	339	398	2349	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009916	369	428	2350	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009917	422	468	2351	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009918	535	583	2352	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009919	560	619	2353	Human papillomavirus type 6b (HPV 18)	E6	Regulatory Protein
CUST_P10009920	594	651	2354	Human papillomavirus type 6b (HPV 18)	E7	Regulatory Protein
CUST_P10009921	643	694	2355	Human papillomavirus type 6b (HPV 18)	E7	Regulatory Protein
CUST_P10009922	681	740	2356	Human papillomavirus type 6b (HPV 18)	E7	Regulatory Protein
CUST_P10009925	1017	1071	2357	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009926	1134	1187	2358	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009927	1302	1357	2359	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009928	1663	1722	2360	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009929	1691	1750	2361	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009930	1719	1778	2362	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009931	1883	1942	2363	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009932	1937	1996	2364	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009933	2186	2245	2365	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009934	2210	2269	2366	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009935	2392	2451	2367	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009936	2430	2489	2368	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009937	2471	2520	2369	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009938	2512	2571	2370	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009939	2558	2617	2371	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009940	2606	2665	2372	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009941	2642	2701	2373	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009942	2808	2852	2374	Human papillomavirus type 6b (HPV 18)	E1	Regulatory Protein
CUST_P10009943	2837	2891	2375	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009944	2858	2917	2376	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009945	2885	2944	2377	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009946	2914	2973	2378	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009947	3085	3133	2379	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009948	3205	3264	2380	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009949	3260	3312	2381	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009952	3727	3781	2382	Human papillomavirus type 6b (HPV 18)	E2	Regulatory Protein
CUST_P10009953	3753	3807	2383	Human papillomavirus type 6b (HPV 18)	E4	Regulatory Protein
CUST_P10009954	4025	4080	2384	Human papillomavirus type 6b (HPV 18)	E5	Regulatory Protein
CUST_P10009955	4262	4316	2385	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009956	4357	4414	2386	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009959	4544	4599	2387	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009960	4678	4735	2388	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009961	4704	4762	2389	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009962	4796	4852	2390	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009964	4933	4979	2391	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009965	4947	5002	2392	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009967	5016	5075	2393	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009968	5037	5096	2394	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009969	5067	5119	2395	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009970	5218	5269	2396	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009971	5412	5462	2397	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009972	5437	5495	2398	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009973	5635	5693	2399	Human papillomavirus type 6b (HPV 18)	L2	Capsid
CUST_P10009975	5781	5840	2400	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009976	5823	5882	2401	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009977	5844	5903	2402	Human papillomavirus type 6b (HPV 18)	L1	PolyA

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10009978	5873	5927	2403	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009979	6014	6068	2404	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009980	6030	6089	2405	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009981	6111	6158	2406	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009982	6122	6167	2407	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009983	6149	6200	2408	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009984	6175	6234	2409	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009985	6284	6343	2410	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009986	6409	6462	2411	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009987	6516	6575	2412	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009988	6547	6606	2413	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009989	6669	6728	2414	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009990	6765	6824	2415	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009991	6890	6947	2416	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009992	6911	6970	2417	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009993	6954	7013	2418	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10009994	6997	7042	2419	Human papillomavirus type 6b (HPV 18)	L1	PolyA
CUST_P10010004	44	88	2420	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010005	78	126	2421	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010006	158	202	2422	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010008	230	281	2423	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010009	267	311	2424	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010010	328	372	2425	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010011	394	453	2426	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010012	419	475	2427	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010013	441	494	2428	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010015	600	647	2429	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010016	624	668	2430	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010017	840	899	2431	Hepatitis B virus subtype adw	S	surface protein
CUST_P10010018	981	1036	2432	Hepatitis B virus subtype adw	C	Core
CUST_P10010019	1040	1099	2433	Hepatitis B virus subtype adw	C	Core
CUST_P10010020	1085	1144	2434	Hepatitis B virus subtype adw	C	Core
CUST_P10010021	1130	1174	2435	Hepatitis B virus subtype adw	C	Core
CUST_P10010022	1170	1214	2436	Hepatitis B virus subtype adw	C	Core
CUST_P10010023	1216	1260	2437	Hepatitis B virus subtype adw	C	Core
CUST_P10010024	1241	1285	2438	Hepatitis B virus subtype adw	C	Core

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010025	1282	1326	2439	Hepatitis B virus subtype adw	C	Core
CUST_P10010026	1453	1497	2440	Hepatitis B virus subtype adw	C	Core
CUST_P10010027	1560	1605	2441	Hepatitis B virus subtype adw	C	Core
CUST_P10010028	1581	1625	2442	Hepatitis B virus subtype adw	C	Core
CUST_P10010029	1623	1667	2443	Hepatitis B virus subtype adw	C	Core
CUST_P10010030	1643	1691	2444	Hepatitis B virus subtype adw	C	Core
CUST_P10010031	1679	1728	2445	Hepatitis B virus subtype adw	C	Core
CUST_P10010032	1696	1743	2446	Hepatitis B virus subtype adw	C	Core
CUST_P10010033	1743	1796	2447	Hepatitis B virus subtype adw	C	Core
CUST_P10010034	1948	1998	2448	Hepatitis B virus subtype adw	C	Core
CUST_P10010035	2054	2099	2449	Hepatitis B virus subtype adw	C	Core
CUST_P10010036	2131	2190	2450	Hepatitis B virus subtype adw	C	Core
CUST_P10010037	2164	2223	2451	Hepatitis B virus subtype adw	C	Core
CUST_P10010038	2208	2267	2452	Hepatitis B virus subtype adw	C	Core
CUST_P10010039	2238	2285	2453	Hepatitis B virus subtype adw	C	Core
CUST_P10010040	2275	2321	2454	Hepatitis B virus subtype adw	C	Core
CUST_P10010041	2293	2349	2455	Hepatitis B virus subtype adw	C	Core
CUST_P10010042	2334	2378	2456	Hepatitis B virus subtype adw	C	Core
CUST_P10010044	2416	2463	2457	Hepatitis B virus subtype adw	C	Core
CUST_P10010045	2431	2490	2458	Hepatitis B virus subtype adw	C	Core
CUST_P10010046	2469	2528	2459	Hepatitis B virus subtype adw	C	Core
CUST_P10010047	2510	2569	2460	Hepatitis B virus subtype adw	C	Core
CUST_P10010048	2539	2598	2461	Hepatitis B virus subtype adw	C	Core
CUST_P10010049	2666	2725	2462	Hepatitis B virus subtype adw	C	Core
CUST_P10010050	2690	2749	2463	Hepatitis B virus subtype adw	C	Core
CUST_P10010051	2723	2782	2464	Hepatitis B virus subtype adw	C	Core
CUST_P10010052	2868	2912	2465	Hepatitis B virus subtype adw	C	Core
CUST_P10010053	2933	2980	2466	Hepatitis B virus subtype adw	P	Pol
CUST_P10010054	2961	3007	2467	Hepatitis B virus subtype adw	P	Pol
CUST_P10010055	2976	3020	2468	Hepatitis B virus subtype adw	P	Pol
CUST_P10010056	3014	3058	2469	Hepatitis B virus subtype adw	P	Pol
CUST_P10010058	3163	3207	2470	Hepatitis B virus subtype adw	P	Pol
CUST_P10010059	1	46	2471	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010060	74	118	2472	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010061	93	138	2473	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010062	114	158	2474	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010063	155	201	2475	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010064	190	240	2476	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010065	234	283	2477	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010066	264	313	2478	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010067	295	339	2479	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010068	330	374	2480	Hepatitis B virus subtype ayw	S	surface protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010069	369	416	2481	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010070	392	447	2482	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010071	443	493	2483	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010072	473	517	2484	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010073	600	645	2485	Hepatitis B virus subtype ayw	S	surface protein
CUST_P10010076	851	907	2486	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010077	983	1033	2487	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010078	1028	1087	2488	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010079	1091	1147	2489	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010080	1161	1205	2490	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010081	1218	1262	2491	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010082	1265	1309	2492	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010083	1319	1374	2493	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010084	1384	1429	2494	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010085	1446	1490	2495	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010086	1476	1520	2496	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010087	1528	1572	2497	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010088	1552	1596	2498	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010089	1610	1654	2499	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010090	1636	1685	2500	Hepatitis B virus subtype ayw	X	x-protein
CUST_P10010092	1815	1870	2501	Hepatitis B virus subtype ayw	C	Core
CUST_P10010093	2042	2088	2502	Hepatitis B virus subtype ayw	C	Core
CUST_P10010094	2133	2192	2503	Hepatitis B virus subtype ayw	C	Core
CUST_P10010095	2162	2221	2504	Hepatitis B virus subtype ayw	C	Core
CUST_P10010096	2210	2269	2505	Hepatitis B virus subtype ayw	C	Core
CUST_P10010097	2343	2387	2506	Hepatitis B virus subtype ayw	C	Core
CUST_P10010098	2390	2434	2507	Hepatitis B virus subtype ayw	C	Core
CUST_P10010099	2427	2477	2508	Hepatitis B virus subtype ayw	C	Core
CUST_P10010100	2535	2594	2509	Hepatitis B virus subtype ayw	C	Core
CUST_P10010101	2577	2636	2510	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010102	2641	2700	2511	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010103	2698	2757	2512	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010104	2756	2815	2513	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010105	2794	2845	2514	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010106	2824	2872	2515	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010107	2856	2900	2516	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010108	2885	2929	2517	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010109	2915	2963	2518	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010110	3046	3090	2519	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010111	3121	3165	2520	Hepatitis B virus subtype ayw	P	Pol
CUST_P10010112	8	55	2521	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010113	79	125	2522	Hepatitis B virus, subtype adr	P	Pol

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010114	112	156	2523	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010119	325	370	2524	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010122	451	497	2525	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010123	477	521	2526	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010124	638	682	2527	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010125	667	714	2528	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010126	705	754	2529	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010127	839	894	2530	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010128	971	1022	2531	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010129	1088	1145	2532	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010131	1160	1204	2533	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010132	1203	1247	2534	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010133	1315	1361	2535	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010134	1458	1502	2536	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010136	1556	1600	2537	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010137	1635	1683	2538	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010138	1679	1729	2539	Hepatitis B virus, subtype adr	C	Core
CUST_P10010139	1810	1864	2540	Hepatitis B virus, subtype adr	C	Core
CUST_P10010140	1999	2043	2541	Hepatitis B virus, subtype adr	C	Core
CUST_P10010141	2109	2153	2542	Hepatitis B virus, subtype adr	C	Core
CUST_P10010142	2220	2279	2543	Hepatitis B virus, subtype adr	C	Core
CUST_P10010143	2247	2294	2544	Hepatitis B virus, subtype adr	C	Core
CUST_P10010144	2295	2346	2545	Hepatitis B virus, subtype adr	C	Core
CUST_P10010145	2365	2409	2546	Hepatitis B virus, subtype adr	C	Core
CUST_P10010148	2545	2604	2547	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010149	2575	2634	2548	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010150	2618	2677	2549	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010151	2646	2705	2550	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010152	2672	2731	2551	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010153	2699	2758	2552	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010154	2735	2794	2553	Hepatitis B virus, subtype adr	P	Pol
CUST_P10010156	2928	2972	2554	Hepatitis B virus, subtype adr	S1	surface protein
CUST_P10010157	2976	3020	2555	Hepatitis B virus, subtype adr	S1	surface protein
CUST_P10010158	3063	3107	2556	Hepatitis B virus, subtype adr	S1	surface protein
CUST_P10010159	42	86	2557	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010160	79	126	2558	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010161	133	177	2559	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010162	158	202	2560	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010163	190	238	2561	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010164	227	280	2562	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010165	272	316	2563	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010166	328	372	2564	Hepatitis B virus, subtype ayr	S	surface protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010167	366	414	2565	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010168	390	447	2566	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010169	452	500	2567	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010170	477	521	2568	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010171	598	642	2569	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010172	659	707	2570	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010173	839	898	2571	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010174	971	1023	2572	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010175	1087	1146	2573	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010176	1116	1163	2574	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010177	1151	1195	2575	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010179	1318	1366	2576	Hepatitis B virus, subtype ayr	P	Pol
CUST_P10010180	1356	1400	2577	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010181	1388	1432	2578	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010182	1419	1463	2579	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010183	1472	1516	2580	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010185	1565	1609	2581	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010187	1643	1690	2582	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010188	1675	1725	2583	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010189	1808	1856	2584	Hepatitis B virus, subtype ayr	X	x-protein
CUST_P10010190	1941	1996	2585	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010191	2001	2045	2586	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010192	2111	2155	2587	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010193	2210	2266	2588	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010194	2290	2335	2589	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010195	2365	2409	2590	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010196	2410	2456	2591	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010197	2430	2484	2592	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010198	2516	2571	2593	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010199	2577	2636	2594	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010200	2629	2688	2595	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010201	2675	2734	2596	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010202	2702	2761	2597	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010203	2742	2801	2598	Hepatitis B virus, subtype ayr	C	Core
CUST_P10010204	2890	2936	2599	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010205	2955	3001	2600	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010206	2978	3022	2601	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010207	3012	3056	2602	Hepatitis B virus, subtype ayr	S	surface protein
CUST_P10010208	57	104	2603	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010209	227	271	2604	Human parvovirus B19	NS	non-structural protein NS2
CUST_P10010211	637	693	2605	Human parvovirus B19	NS	non-structural protein NS1

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010212	685	744	2606	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010214	973	1032	2607	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010215	1065	1124	2608	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010216	1165	1210	2609	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010217	1220	1279	2610	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010218	1258	1317	2611	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010219	1357	1416	2612	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010220	1408	1467	2613	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010221	1542	1601	2614	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010222	1628	1687	2615	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010223	1767	1812	2616	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010224	1845	1902	2617	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010225	1911	1970	2618	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010226	2041	2096	2619	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010227	2257	2301	2620	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010228	2351	2399	2621	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010229	2395	2446	2622	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010230	2426	2478	2623	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010231	2552	2607	2624	Human parvovirus B19	NS	non-structural protein NS1
CUST_P10010232	2787	2846	2625	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010233	2836	2895	2626	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010234	2868	2915	2627	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010235	2914	2973	2628	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010236	3081	3140	2629	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010237	3252	3297	2630	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010238	3276	3330	2631	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010239	3422	3481	2632	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010240	3524	3583	2633	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010241	3652	3711	2634	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010242	3801	3856	2635	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010243	3826	3885	2636	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010244	3864	3923	2637	Human parvovirus B19	VP1	minor capsid protein

ProbeID	Start	End	SEQ ID NO:	Virus	Genomic Region	Product
CUST_P10010245	3996	4042	2638	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010246	4097	4156	2639	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010247	4334	4393	2640	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010248	4463	4522	2641	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010249	4587	4646	2642	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010250	4723	4782	2643	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010251	4820	4864	2644	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010252	4915	4960	2645	Human parvovirus B19	VP1	minor capsid protein
CUST_P10010254	5087	5146	2646	Human parvovirus B19	VP2	major capsid protein
CUST_P10010257	5492	5539	2647	Human parvovirus B19	VP2	major capsid protein

Table 9. Exemplary bacterial and protozoan probes

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2648	CUST_P10011833	115100	115153	Treponema pallidum	polA	Polymerase
2649	CUST_P10011835	115167	115219	Treponema pallidum	polA	Polymerase
2650	CUST_P10011836	115187	115237	Treponema pallidum	polA	Polymerase
2651	CUST_P10011838	115259	115314	Treponema pallidum	polA	Polymerase
2652	CUST_P10011840	115554	115613	Treponema pallidum	polA	Polymerase
2653	CUST_P10011841	115579	115638	Treponema pallidum	polA	Polymerase
2654	CUST_P10011842	115605	115664	Treponema pallidum	polA	Polymerase
2655	CUST_P10011843	115667	115716	Treponema pallidum	polA	Polymerase
2656	CUST_P10011844	115696	115740	Treponema pallidum	polA	Polymerase
2657	CUST_P10011845	115755	115807	Treponema pallidum	polA	Polymerase
2658	CUST_P10011847	116076	116126	Treponema pallidum	polA	Polymerase
2659	CUST_P10011848	116171	116223	Treponema pallidum	polA	Polymerase
2660	CUST_P10011849	116242	116294	Treponema pallidum	polA	Polymerase
2661	CUST_P10011850	116332	116384	Treponema pallidum	polA	Polymerase
2662	CUST_P10011851	116352	116396	Treponema pallidum	polA	Polymerase
2663	CUST_P10011852	116408	116459	Treponema pallidum	polA	Polymerase
2664	CUST_P10011853	116430	116488	Treponema pallidum	polA	Polymerase
2665	CUST_P10011854	116601	116649	Treponema pallidum	polA	Polymerase
2666	CUST_P10011855	116623	116674	Treponema pallidum	polA	Polymerase
2667	CUST_P10011856	116654	116713	Treponema pallidum	polA	Polymerase
2668	CUST_P10011857	116677	116736	Treponema pallidum	polA	Polymerase
2669	CUST_P10011858	116707	116760	Treponema pallidum	polA	Polymerase
2670	CUST_P10011860	116852	116906	Treponema pallidum	polA	Polymerase
2671	CUST_P10011862	116903	116962	Treponema pallidum	polA	Polymerase
2672	CUST_P10011863	116925	116978	Treponema pallidum	polA	Polymerase
2673	CUST_P10011864	116987	117032	Treponema pallidum	polA	Polymerase

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2674	CUST_P10011865	117028	117077	Treponema pallidum	polA	Polymerase
2675	CUST_P10011866	117128	117176	Treponema pallidum	polA	Polymerase
2676	CUST_P10011867	117270	117329	Treponema pallidum	polA	Polymerase
2677	CUST_P10011868	117441	117488	Treponema pallidum	polA	Polymerase
2678	CUST_P10011870	117516	117575	Treponema pallidum	polA	Polymerase
2679	CUST_P10011871	117570	117620	Treponema pallidum	polA	Polymerase
2680	CUST_P10011872	117777	117836	Treponema pallidum	polA	Polymerase
2681	CUST_P10011873	117806	117865	Treponema pallidum	polA	Polymerase
2682	CUST_P10011874	117873	117932	Treponema pallidum	polA	Polymerase
2683	CUST_P10011875	118152	118211	Treponema pallidum	polA	Polymerase
2684	CUST_P10011876	118181	118240	Treponema pallidum	polA	Polymerase
2685	CUST_P10011877	118281	118340	Treponema pallidum	polA	Polymerase
2686	CUST_P10011878	118302	118361	Treponema pallidum	polA	Polymerase
2687	CUST_P10011880	118541	118600	Treponema pallidum	polA	Polymerase
2688	CUST_P10011882	118756	118810	Treponema pallidum	polA	Polymerase
2689	CUST_P10018873	622214	622258	Treponema pallidum	TP0576	protein
2690	CUST_P10018877	622589	622637	Treponema pallidum	TP0576	protein
2691	CUST_P10018878	622725	622775	Treponema pallidum	TP0576	protein
2692	CUST_P10018881	622908	622961	Treponema pallidum	TP0576	protein
2693	CUST_P10018882	622953	622997	Treponema pallidum	TP0576	protein
2694	CUST_P10018883	622978	623030	Treponema pallidum	TP0576	protein
2695	CUST_P10018884	623033	623087	Treponema pallidum	TP0576	protein
2696	CUST_P10018887	623258	623302	Treponema pallidum	TP0576	protein
2697	CUST_P10024966	1067780	1067830	Treponema pallidum	aspS	aspartate--tRNA ligase
2698	CUST_P10024967	1067910	1067970	Treponema pallidum	aspS	aspartate--tRNA ligase
2699	CUST_P10024968	1067940	1067990	Treponema pallidum	aspS	aspartate--tRNA ligase
2700	CUST_P10024969	1068070	1068120	Treponema pallidum	aspS	aspartate--tRNA ligase
2701	CUST_P10024970	1068180	1068230	Treponema pallidum	aspS	aspartate--tRNA ligase
2702	CUST_P10024971	1068330	1068380	Treponema pallidum	aspS	aspartate--tRNA ligase
2703	CUST_P10024972	1068410	1068470	Treponema pallidum	aspS	aspartate--tRNA ligase
2704	CUST_P10024976	1068840	1068900	Treponema pallidum	aspS	aspartate--tRNA ligase
2705	CUST_P10024981	1069090	1069140	Treponema pallidum	aspS	aspartate--tRNA ligase
2706	CUST_P10024984	1069200	1069260	Treponema pallidum	aspS	aspartate--tRNA ligase
2707	CUST_P10024986	1069380	1069420	Treponema pallidum	aspS	aspartate--tRNA ligase
2708	CUST_P10024991	1069740	1069790	Treponema pallidum	aspS	aspartate--tRNA ligase
2709	CUST_P10024994	1069890	1069940	Treponema pallidum	aspS	aspartate--tRNA ligase
2710	CUST_P10024996	1070010	1070060	Treponema pallidum	aspS	aspartate--tRNA ligase
2711	CUST_P10024997	1070040	1070080	Treponema pallidum	aspS	aspartate--tRNA ligase
2712	CUST_P10024998	1070090	1070130	Treponema pallidum	aspS	aspartate--tRNA ligase
2713	CUST_P10024999	1070140	1070190	Treponema pallidum	aspS	aspartate--tRNA ligase
2714	CUST_P10025000	1070250	1070300	Treponema pallidum	aspS	aspartate--tRNA ligase
2715	CUST_P10025003	1070380	1070430	Treponema pallidum	aspS	aspartate--tRNA ligase
2716	CUST_P10025005	1070670	1070710	Treponema pallidum	aspS	aspartate--tRNA ligase
2717	CUST_P10025006	1070800	1070850	Treponema pallidum	TP0986	protein
2718	CUST_P10025009	1071210	1071260	Treponema pallidum	TP0986	protein

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2719	CUST_P10025010	1071230	1071290	Treponema pallidum	TP0986	protein
2720	CUST_P10025018	1071990	1072040	Treponema pallidum	TP0986	protein
2721	CUST_P10025019	1072210	1072260	Treponema pallidum	TP0989	protein
2722	CUST_P10025024	1072490	1072540	Treponema pallidum	TP0989	protein
2723	CUST_P10025027	1072660	1072710	Treponema pallidum	TP0989	protein
2724	CUST_P10025028	1072870	1072910	Treponema pallidum	TP0989	protein
2725	CUST_P10025029	1072990	1073040	Treponema pallidum	TP0989	protein
2726	CUST_P10025030	1073010	1073060	Treponema pallidum	TP0989	protein
2727	CUST_P10025044	1074070	1074120	Treponema pallidum	TP0990	protein
2728	CUST_P10025045	1074230	1074270	Treponema pallidum	TP0991	protein
2729	CUST_P10025047	1074310	1074360	Treponema pallidum	TP0992	protein
2730	CUST_P10025050	1074480	1074520	Treponema pallidum	TP0993	protein
2731	CUST_P10025051	1074520	1074560	Treponema pallidum	TP0994	protein
2732	CUST_P10025052	1074560	1074610	Treponema pallidum	TP0995	protein
2733	CUST_P10025054	1074620	1074670	Treponema pallidum	TP0996	protein
2734	CUST_P10025055	1074740	1074780	Treponema pallidum	TP0997	protein
2735	CUST_P10025056	1074790	1074830	Treponema pallidum	TP0998	protein
2736	CUST_P10025058	1075040	1075090	Treponema pallidum	TP0999	protein
2737	CUST_P10025059	1075150	1075210	Treponema pallidum	TP1000	protein
2738	CUST_P10025061	1075310	1075360	Treponema pallidum	TP1001	protein
2739	CUST_P10025062	1075380	1075430	Treponema pallidum	TP1002	protein
2740	CUST_P10025063	1075540	1075600	Treponema pallidum	TP1003	protein
2741	CUST_P10025064	1075600	1075640	Treponema pallidum	TP1004	protein
2742	CUST_P10025065	1075670	1075720	Treponema pallidum	TP1005	protein
2743	CUST_P10025067	1075970	1076030	Treponema pallidum	TP1006	protein
2744	CUST_P10025068	1076040	1076100	Treponema pallidum	TP1007	protein
2745	CUST_P10025069	1076170	1076220	Treponema pallidum	TP0990	protein
2746	CUST_P10025073	1076400	1076450	Treponema pallidum	TP0991	protein
2747	CUST_P10025084	1077230	1077280	Treponema pallidum	TP0992	protein
2748	CUST_P10025095	1077820	1077870	Treponema pallidum	TP0992	protein
2749	CUST_P10025097	1077980	1078030	Treponema pallidum	TP0993	protein
2750	CUST_P10025098	1078120	1078170	Treponema pallidum	TP0993	protein
2751	CUST_P10025104	1078320	1078370	Treponema pallidum	TP0993	protein
2752	CUST_P10025934	479	538	Ehrlichia chaffeensis	ECH_RS00020	protein
2753	CUST_P10026529	69254	69313	Ehrlichia chaffeensis	argF	protein
2754	CUST_P10026957	118031	118090	Ehrlichia chaffeensis	ECH_RS00525	protein
2755	CUST_P10027106	133725	133784	Ehrlichia chaffeensis	ECH_RS00595	protein
2756	CUST_P10027296	155652	155711	Ehrlichia chaffeensis	ECH_RS00695	protein
2757	CUST_P10027314	158001	158060	Ehrlichia chaffeensis	ECH_RS00710	protein
2758	CUST_P10027972	235733	235792	Ehrlichia chaffeensis	ECH_RS01035	protein
2759	CUST_P10027973	235768	235827	Ehrlichia chaffeensis	ECH_RS01035	protein
2760	CUST_P10028360	279872	279931	Ehrlichia chaffeensis	ECH_RS01185	protein
2761	CUST_P10028636	313330	313389	Ehrlichia chaffeensis	ECH_RS01325	protein
2762	CUST_P10028976	353675	353734	Ehrlichia chaffeensis	groL	chaperonin GroEL
2763	CUST_P10028977	353852	353911	Ehrlichia chaffeensis	groL	chaperonin GroEL

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2764	CUST_P10028978	354008	354067	Ehrlichia chaffeensis	groL	chaperonin GroEL
2765	CUST_P10028979	354044	354103	Ehrlichia chaffeensis	groL	chaperonin GroEL
2766	CUST_P10028980	354207	354266	Ehrlichia chaffeensis	groL	chaperonin GroEL
2767	CUST_P10028981	354405	354464	Ehrlichia chaffeensis	groL	chaperonin GroEL
2768	CUST_P10028982	354433	354492	Ehrlichia chaffeensis	groL	chaperonin GroEL
2769	CUST_P10028983	354474	354533	Ehrlichia chaffeensis	groL	chaperonin GroEL
2770	CUST_P10028984	354504	354563	Ehrlichia chaffeensis	groL	chaperonin GroEL
2771	CUST_P10028985	354573	354632	Ehrlichia chaffeensis	groL	chaperonin GroEL
2772	CUST_P10028986	354646	354694	Ehrlichia chaffeensis	groL	chaperonin GroEL
2773	CUST_P10028987	354808	354867	Ehrlichia chaffeensis	groL	chaperonin GroEL
2774	CUST_P10028988	354995	355054	Ehrlichia chaffeensis	groL	chaperonin GroEL
2775	CUST_P10028989	355085	355144	Ehrlichia chaffeensis	groL	chaperonin GroEL
2776	CUST_P10028990	355336	355395	Ehrlichia chaffeensis	groL	chaperonin GroEL
2777	CUST_P10028991	355454	355508	Ehrlichia chaffeensis	groL	chaperonin GroEL
2778	CUST_P10029114	369147	369206	Ehrlichia chaffeensis	groL	chaperonin GroEL
2779	CUST_P10029290	392046	392105	Ehrlichia chaffeensis	sppA	signal peptide
2780	CUST_P10029649	429284	429343	Ehrlichia chaffeensis	ECH_RS01865	Protein
2781	CUST_P10029666	431631	431690	Ehrlichia chaffeensis	ECH_RS01866	Protein
2782	CUST_P10029696	434789	434848	Ehrlichia chaffeensis	ECH_RS01867	Protein
2783	CUST_P10029724	437453	437512	Ehrlichia chaffeensis	ECH_RS01868	Protein
2784	CUST_P10030575	531280	531339	Ehrlichia chaffeensis	ECH_RS01869	Protein
2785	CUST_P10030591	532929	532988	Ehrlichia chaffeensis	ECH_RS01870	Protein
2786	CUST_P10030711	547792	547851	Ehrlichia chaffeensis	ECH_RS01871	Protein
2787	CUST_P10030738	551432	551491	Ehrlichia chaffeensis	ECH_RS01872	Protein
2788	CUST_P10030817	563329	563388	Ehrlichia chaffeensis	ECH_RS01873	Protein
2789	CUST_P10030998	588404	588463	Ehrlichia chaffeensis	ECH_RS02440	Protein
2790	CUST_P10031006	590051	590110	Ehrlichia chaffeensis	ECH_RS02441	Protein
2791	CUST_P10031019	591869	591928	Ehrlichia chaffeensis	ECH_RS02442	Protein
2792	CUST_P10031129	603725	603784	Ehrlichia chaffeensis	ECH_RS02443	Protein
2793	CUST_P10031152	607138	607197	Ehrlichia chaffeensis	ECH_RS02444	Protein
2794	CUST_P10031295	626729	626788	Ehrlichia chaffeensis	ECH_RS02445	Protein
2795	CUST_P10031314	628696	628755	Ehrlichia chaffeensis	ECH_RS02446	Protein
2796	CUST_P10031320	629770	629829	Ehrlichia chaffeensis	ECH_RS02447	Protein
2797	CUST_P10031396	640107	640166	Ehrlichia chaffeensis	ECH_RS02448	Protein
2798	CUST_P10031397	640131	640190	Ehrlichia chaffeensis	ECH_RS02449	Protein
2799	CUST_P10031498	651172	651231	Ehrlichia chaffeensis	ECH_RS02450	Protein
2800	CUST_P10031499	651236	651295	Ehrlichia chaffeensis	ECH_RS02451	Protein
2801	CUST_P10031500	651472	651531	Ehrlichia chaffeensis	ECH_RS02452	Protein
2802	CUST_P10031501	651648	651707	Ehrlichia chaffeensis	ECH_RS02453	Protein
2803	CUST_P10031502	651715	651774	Ehrlichia chaffeensis	ECH_RS02454	Protein
2804	CUST_P10031503	651749	651808	Ehrlichia chaffeensis	ECH_RS02455	Protein
2805	CUST_P10031504	651916	651975	Ehrlichia chaffeensis	ECH_RS02456	Protein
2806	CUST_P10031720	672910	672969	Ehrlichia chaffeensis	ECH_RS02457	Protein
2807	CUST_P10031846	688686	688745	Ehrlichia chaffeensis	ECH_RS02458	Protein
2808	CUST_P10031955	700839	700898	Ehrlichia chaffeensis	ECH_RS02459	Protein

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2809	CUST_P10032107	718318	718377	Ehrlichia chaffeensis	ECH_RS02460	Protein
2810	CUST_P10032134	720951	721010	Ehrlichia chaffeensis	ECH_RS02461	Protein
2811	CUST_P10032155	723928	723987	Ehrlichia chaffeensis	ECH_RS02462	Protein
2812	CUST_P10032156	724045	724104	Ehrlichia chaffeensis	ECH_RS02463	Protein
2813	CUST_P10032157	724081	724140	Ehrlichia chaffeensis	ECH_RS02464	Protein
2814	CUST_P10032207	729136	729195	Ehrlichia chaffeensis	ECH_RS02465	Protein
2815	CUST_P10032413	753701	753760	Ehrlichia chaffeensis	ECH_RS02466	Protein
2816	CUST_P10032541	768672	768731	Ehrlichia chaffeensis	ECH_RS02467	Protein
2817	CUST_P10032560	770310	770369	Ehrlichia chaffeensis	ECH_RS02468	Protein
2818	CUST_P10032563	770754	770813	Ehrlichia chaffeensis	ECH_RS02469	Protein
2819	CUST_P10032708	789240	789299	Ehrlichia chaffeensis	ECH_RS02470	Protein
2820	CUST_P10032835	805456	805515	Ehrlichia chaffeensis	ECH_RS02471	Protein
2821	CUST_P10032934	816181	816240	Ehrlichia chaffeensis	ECH_RS02472	Protein
2822	CUST_P10032949	818626	818685	Ehrlichia chaffeensis	ECH_RS02473	Protein
2823	CUST_P10033029	827167	827226	Ehrlichia chaffeensis	ECH_RS02474	Protein
2824	CUST_P10033095	834972	835031	Ehrlichia chaffeensis	ECH_RS02475	Protein
2825	CUST_P10033283	854588	854647	Ehrlichia chaffeensis	ECH_RS02476	Protein
2826	CUST_P10033296	856372	856431	Ehrlichia chaffeensis	ECH_RS02477	Protein
2827	CUST_P10033303	858073	858132	Ehrlichia chaffeensis	ECH_RS02478	Protein
2828	CUST_P10033406	871304	871363	Ehrlichia chaffeensis	ECH_RS02479	Protein
2829	CUST_P10033442	875535	875594	Ehrlichia chaffeensis	ECH_RS02480	Protein
2830	CUST_P10033524	883572	883631	Ehrlichia chaffeensis	ECH_RS02481	Protein
2831	CUST_P10033559	887845	887904	Ehrlichia chaffeensis	ECH_RS02482	Protein
2832	CUST_P10033633	897694	897753	Ehrlichia chaffeensis	ECH_RS02483	Protein
2833	CUST_P10033864	922188	922247	Ehrlichia chaffeensis	ECH_RS02484	Protein
2834	CUST_P10033889	925077	925136	Ehrlichia chaffeensis	ECH_RS02485	Protein
2835	CUST_P10034084	946234	946293	Ehrlichia chaffeensis	ECH_RS02486	Protein
2836	CUST_P10034141	950852	950911	Ehrlichia chaffeensis	ECH_RS02487	Protein
2837	CUST_P10034279	966861	966920	Ehrlichia chaffeensis	ECH_RS02488	Protein
2838	CUST_P10034323	971540	971599	Ehrlichia chaffeensis	ECH_RS02489	Protein
2839	CUST_P10034725	1012370	1012430	Ehrlichia chaffeensis	ECH_RS02490	Protein
2840	CUST_P10034780	1018290	1018350	Ehrlichia chaffeensis	ECH_RS02491	Protein
2841	CUST_P10034783	1018550	1018610	Ehrlichia chaffeensis	ECH_RS02492	Protein
2842	CUST_P10034934	1034960	1035020	Ehrlichia chaffeensis	ECH_RS02493	Protein
2843	CUST_P10035002	1039980	1040040	Ehrlichia chaffeensis	ECH_RS02494	Protein
2844	CUST_P10035116	1053370	1053430	Ehrlichia chaffeensis	ECH_RS02495	Protein
2845	CUST_P10035418	1084080	1084130	Ehrlichia chaffeensis	ECH_RS02496	Protein
2846	CUST_P10035470	1089260	1089310	Ehrlichia chaffeensis	ECH_RS02497	Protein
2847	CUST_P10035547	1098110	1098170	Ehrlichia chaffeensis	ECH_RS02498	Protein
2848	CUST_P10035833	1129330	1129390	Ehrlichia chaffeensis	ECH_RS02499	Protein
2849	CUST_P10035846	1131120	1131180	Ehrlichia chaffeensis	ECH_RS02500	Protein
2850	CUST_P10036040	1151290	1151350	Ehrlichia chaffeensis	ECH_RS02501	Protein
2851	CUST_P10036201	1166620	1166680	Ehrlichia chaffeensis	ECH_RS02502	Protein
2852	CUST_P10036255	1172870	1172930	Ehrlichia chaffeensis	ECH_RS02503	Protein
2853	CUST_P10036280	37	96	Ehrlichia ewingii	16S ribosomal	16S ribosomal RNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
					RNA	
2854	CUST_P10036282	142	201	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2855	CUST_P10036288	828	872	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2856	CUST_P10036289	859	903	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2857	CUST_P10036290	885	938	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2858	CUST_P10036291	915	969	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2859	CUST_P10036293	1099	1144	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2860	CUST_P10036294	1120	1164	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2861	CUST_P10036296	1282	1328	Ehrlichia ewingii	16S ribosomal RNA	16S ribosomal RNA
2862	CUST_P10041026	540829	540888	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2863	CUST_P10041027	540929	540988	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2864	CUST_P10041028	541043	541102	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2865	CUST_P10041029	541193	541252	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2866	CUST_P10041030	541329	541388	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2867	CUST_P10041031	541437	541496	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2868	CUST_P10041032	541659	541718	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2869	CUST_P10041033	541758	541817	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2870	CUST_P10038359	233191	233250	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2871	CUST_P10038360	233399	233458	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2872	CUST_P10038361	233444	233503	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2873	CUST_P10041027	540929	540988	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2874	CUST_P10041028	541043	541102	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2875	CUST_P10041029	541193	541252	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2876	CUST_P10041030	541329	541388	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2877	CUST_P10041031	541437	541496	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2878	CUST_P10041032	541659	541718	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2879	CUST_P10041771	642662	642721	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2880	CUST_P10041772	642918	642977	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2881	CUST_P10041773	642945	643004	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2882	CUST_P10041774	642970	643029	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2883	CUST_P10041775	642995	643054	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2884	CUST_P10041776	643229	643288	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2885	CUST_P10041777	643324	643383	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2886	CUST_P10041778	643453	643512	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2887	CUST_P10041779	643509	643562	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2888	CUST_P10041780	643629	643688	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2889	CUST_P10041784	644380	644439	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2890	CUST_P10041785	644514	644573	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2891	CUST_P10041786	644749	644808	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2892	CUST_P10041787	644886	644945	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2893	CUST_P10041788	645057	645116	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2894	CUST_P10041789	645158	645217	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2895	CUST_P10041790	645281	645340	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2896	CUST_P10041791	645374	645433	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2897	CUST_P10041792	645397	645456	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2898	CUST_P10044860	996657	996716	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2899	CUST_P10044861	996761	996820	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2900	CUST_P10044862	996859	996918	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2901	CUST_P10044863	996901	996960	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2902	CUST_P10044864	996958	997017	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2903	CUST_P10044865	996983	997042	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2904	CUST_P10044866	997035	997094	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2905	CUST_P10044867	997148	997207	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2906	CUST_P10044868	997264	997323	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2907	CUST_P10046461	1170365	1170424	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2908	CUST_P10046462	1170579	1170638	Ehrlichia muris	16S ribosomal RNA	16S ribosomal RNA
2909	CUST_P10043391	833268	833320	Ehrlichia muris	groL	chaperonin GroEL
2910	CUST_P10043392	833417	833476	Ehrlichia muris	groL	chaperonin GroEL
2911	CUST_P10043393	833446	833505	Ehrlichia muris	groL	chaperonin GroEL
2912	CUST_P10043394	833575	833634	Ehrlichia muris	groL	chaperonin GroEL
2913	CUST_P10043395	833777	833833	Ehrlichia muris	groL	chaperonin GroEL
2914	CUST_P10043396	833923	833982	Ehrlichia muris	groL	chaperonin GroEL
2915	CUST_P10043397	834065	834124	Ehrlichia muris	groL	chaperonin GroEL
2916	CUST_P10043398	834287	834346	Ehrlichia muris	groL	chaperonin GroEL
2917	CUST_P10043399	834382	834441	Ehrlichia muris	groL	chaperonin GroEL
2918	CUST_P10043400	834405	834464	Ehrlichia muris	groL	chaperonin GroEL
2919	CUST_P10043401	834509	834568	Ehrlichia muris	groL	chaperonin GroEL

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2920	CUST_P10043402	834678	834737	Ehrlichia muris	groL	chaperonin GroEL
2921	CUST_P10043403	834745	834804	Ehrlichia muris	groL	chaperonin GroEL
2922	CUST_P10043404	834891	834950	Ehrlichia muris	groL	chaperonin GroEL
2923	CUST_P10049214	444536	444595	Borrelia burgdorferi	16s	16S ribosomal RNA
2924	CUST_P10049215	444623	444673	Borrelia burgdorferi	16s	16S ribosomal RNA
2925	CUST_P10049216	444762	444821	Borrelia burgdorferi	16s	16S ribosomal RNA
2926	CUST_P10049217	444920	444964	Borrelia burgdorferi	16s	16S ribosomal RNA
2927	CUST_P10049218	444963	445012	Borrelia burgdorferi	16s	16S ribosomal RNA
2928	CUST_P10049219	445091	445150	Borrelia burgdorferi	16s	16S ribosomal RNA
2929	CUST_P10049220	445133	445179	Borrelia burgdorferi	16s	16S ribosomal RNA
2930	CUST_P10049221	445305	445355	Borrelia burgdorferi	16s	16S ribosomal RNA
2931	CUST_P10049222	445327	445373	Borrelia burgdorferi	16s	16S ribosomal RNA
2932	CUST_P10049223	445379	445426	Borrelia burgdorferi	16s	16S ribosomal RNA
2933	CUST_P10049224	445405	445464	Borrelia burgdorferi	16s	16S ribosomal RNA
2934	CUST_P10049225	445428	445487	Borrelia burgdorferi	16s	16S ribosomal RNA
2935	CUST_P10049226	445547	445591	Borrelia burgdorferi	16s	16S ribosomal RNA
2936	CUST_P10049227	445605	445664	Borrelia burgdorferi	16s	16S ribosomal RNA
2937	CUST_P10049228	445696	445740	Borrelia burgdorferi	16s	16S ribosomal RNA
2938	CUST_P10049229	445821	445867	Borrelia burgdorferi	16s	16S ribosomal RNA
2939	CUST_P10049230	445995	446040	Borrelia burgdorferi	16s	16S ribosomal RNA
2940	CUST_P10049231	446027	446077	Borrelia burgdorferi	16s	16S ribosomal RNA
2941	CUST_P10049138	435304	435363	Borrelia burgdorferi	23S	23S ribosomal RNA
2942	CUST_P10049139	435400	435453	Borrelia burgdorferi	23S	23S ribosomal RNA
2943	CUST_P10049140	435509	435553	Borrelia burgdorferi	23S	23S ribosomal RNA
2944	CUST_P10049141	435580	435627	Borrelia burgdorferi	23S	23S ribosomal RNA
2945	CUST_P10049142	435666	435710	Borrelia burgdorferi	23S	23S ribosomal RNA
2946	CUST_P10049143	435821	435872	Borrelia burgdorferi	23S	23S ribosomal RNA
2947	CUST_P10049144	435909	435958	Borrelia burgdorferi	23S	23S ribosomal RNA
2948	CUST_P10049145	435971	436030	Borrelia burgdorferi	23S	23S ribosomal RNA
2949	CUST_P10049146	436150	436201	Borrelia burgdorferi	23S	23S ribosomal RNA
2950	CUST_P10049147	436235	436279	Borrelia burgdorferi	23S	23S ribosomal RNA
2951	CUST_P10049148	436286	436334	Borrelia burgdorferi	23S	23S ribosomal RNA
2952	CUST_P10049149	436313	436371	Borrelia burgdorferi	23S	23S ribosomal RNA
2953	CUST_P10049150	436369	436413	Borrelia burgdorferi	23S	23S ribosomal RNA
2954	CUST_P10049151	436388	436446	Borrelia burgdorferi	23S	23S ribosomal RNA
2955	CUST_P10049152	436410	436469	Borrelia burgdorferi	23S	23S ribosomal RNA
2956	CUST_P10049153	436512	436558	Borrelia burgdorferi	23S	23S ribosomal RNA
2957	CUST_P10049154	436617	436676	Borrelia burgdorferi	23S	23S ribosomal RNA
2958	CUST_P10049155	436713	436766	Borrelia burgdorferi	23S	23S ribosomal RNA
2959	CUST_P10049156	436847	436891	Borrelia burgdorferi	23S	23S ribosomal RNA
2960	CUST_P10049157	436877	436926	Borrelia burgdorferi	23S	23S ribosomal RNA
2961	CUST_P10049158	436896	436952	Borrelia burgdorferi	23S	23S ribosomal RNA
2962	CUST_P10049166	438226	438285	Borrelia burgdorferi	23S	23S ribosomal RNA
2963	CUST_P10049167	438549	438608	Borrelia burgdorferi	23S	23S ribosomal RNA
2964	CUST_P10049168	438645	438697	Borrelia burgdorferi	23S	23S ribosomal RNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
2965	CUST_P10049169	438825	438872	Borrelia burgdorferi	23S	23S ribosomal RNA
2966	CUST_P10049170	438911	438955	Borrelia burgdorferi	23S	23S ribosomal RNA
2967	CUST_P10049171	439032	439076	Borrelia burgdorferi	23S	23S ribosomal RNA
2968	CUST_P10049172	439154	439203	Borrelia burgdorferi	23S	23S ribosomal RNA
2969	CUST_P10049173	439168	439212	Borrelia burgdorferi	23S	23S ribosomal RNA
2970	CUST_P10049174	439245	439304	Borrelia burgdorferi	23S	23S ribosomal RNA
2971	CUST_P10049175	439395	439446	Borrelia burgdorferi	23S	23S ribosomal RNA
2972	CUST_P10049176	439480	439524	Borrelia burgdorferi	23S	23S ribosomal RNA
2973	CUST_P10049177	439531	439579	Borrelia burgdorferi	23S	23S ribosomal RNA
2974	CUST_P10049178	439558	439616	Borrelia burgdorferi	23S	23S ribosomal RNA
2975	CUST_P10049179	439619	439664	Borrelia burgdorferi	23S	23S ribosomal RNA
2976	CUST_P10049180	439633	439691	Borrelia burgdorferi	23S	23S ribosomal RNA
2977	CUST_P10049181	439655	439714	Borrelia burgdorferi	23S	23S ribosomal RNA
2978	CUST_P10049182	439757	439803	Borrelia burgdorferi	23S	23S ribosomal RNA
2979	CUST_P10049183	439856	439915	Borrelia burgdorferi	23S	23S ribosomal RNA
2980	CUST_P10049184	439958	440011	Borrelia burgdorferi	23S	23S ribosomal RNA
2981	CUST_P10049185	440092	440136	Borrelia burgdorferi	23S	23S ribosomal RNA
2982	CUST_P10049186	440122	440171	Borrelia burgdorferi	23S	23S ribosomal RNA
2983	CUST_P10049187	440141	440197	Borrelia burgdorferi	23S	23S ribosomal RNA
2984	CUST_P10049188	440177	440233	Borrelia burgdorferi	23S	23S ribosomal RNA
2985	CUST_P10049189	440469	440528	Borrelia burgdorferi	23S	23S ribosomal RNA
2986	CUST_P10049190	440564	440623	Borrelia burgdorferi	23S	23S ribosomal RNA
2987	CUST_P10049191	440760	440811	Borrelia burgdorferi	23S	23S ribosomal RNA
2988	CUST_P10049192	440807	440865	Borrelia burgdorferi	23S	23S ribosomal RNA
2989	CUST_P10049193	440843	440896	Borrelia burgdorferi	23S	23S ribosomal RNA
2990	CUST_P10049194	440888	440945	Borrelia burgdorferi	23S	23S ribosomal RNA
2991	CUST_P10049195	441471	441530	Borrelia burgdorferi	23S	23S ribosomal RNA
2992	CUST_P10047332	126269	126328	Borrelia burgdorferi	recA	recombinase A
2993	CUST_P10047333	126457	126516	Borrelia burgdorferi	recA	recombinase A
2994	CUST_P10047334	126609	126668	Borrelia burgdorferi	recA	recombinase A
2995	CUST_P10047335	126748	126807	Borrelia burgdorferi	recA	recombinase A
2996	CUST_P10047336	126867	126926	Borrelia burgdorferi	recA	recombinase A
2997	CUST_P10047337	126934	126993	Borrelia burgdorferi	recA	recombinase A
2998	CUST_P10047338	127133	127188	Borrelia burgdorferi	recA	recombinase A
2999	CUST_P10047339	127173	127220	Borrelia burgdorferi	recA	recombinase A
3000	CUST_P10047340	127196	127247	Borrelia burgdorferi	recA	recombinase A
3001	CUST_P10047341	127219	127278	Borrelia burgdorferi	recA	recombinase A
3002	CUST_P10051940	6651	6701	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3003	CUST_P10051941	6794	6851	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3004	CUST_P10051942	6831	6880	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3005	CUST_P10051943	6911	6955	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3006	CUST_P10051944	6942	6986	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3007	CUST_P10051945	6981	7034	Coxiella burnetii	IS1111A	IS1111A transposase

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
					transposase	
3008	CUST_P10051946	7090	7139	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3009	CUST_P10051947	7101	7154	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3010	CUST_P10051948	7164	7210	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3011	CUST_P10051949	7287	7337	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3012	CUST_P10051950	7318	7367	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3013	CUST_P10051951	7437	7483	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3014	CUST_P10051952	7459	7506	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3015	CUST_P10051953	7499	7544	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3016	CUST_P10051954	7516	7565	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3017	CUST_P10051955	7551	7603	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3018	CUST_P10051956	7660	7704	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3019	CUST_P10051957	7712	7763	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3020	CUST_P10051958	7817	7867	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3021	CUST_P10056626	345409	345458	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3022	CUST_P10056627	345420	345473	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3023	CUST_P10056628	345483	345529	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3024	CUST_P10056629	345606	345656	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3025	CUST_P10056630	345637	345686	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3026	CUST_P10056631	345756	345802	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3027	CUST_P10056632	345778	345825	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3028	CUST_P10056633	345818	345863	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3029	CUST_P10056634	345835	345884	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3030	CUST_P10056635	345870	345922	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3031	CUST_P10056636	345979	346023	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3032	CUST_P10056637	346031	346082	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3033	CUST_P10056638	346136	346186	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3034	CUST_P10058309	465895	465941	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3035	CUST_P10058310	465926	465970	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3036	CUST_P10058311	466027	466080	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3037	CUST_P10058312	466064	466113	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3038	CUST_P10058313	466123	466170	Coxiella burnetii	IS1111A transposase	IS1111A transposase

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3039	CUST_P10058314	466146	466192	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3040	CUST_P10058315	466263	466311	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3041	CUST_P10058316	466301	466354	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3042	CUST_P10058317	466422	466466	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3043	CUST_P10058318	466457	466504	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3044	CUST_P10058319	466479	466530	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3045	CUST_P10058320	466511	466555	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3046	CUST_P10058321	466595	466648	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3047	CUST_P10058322	466644	466688	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3048	CUST_P10058323	466684	466728	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3049	CUST_P10058324	466749	466798	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3050	CUST_P10058325	466778	466835	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3051	CUST_P10058326	466943	466999	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3052	CUST_P10058816	502390	502443	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3053	CUST_P10058817	502499	502548	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3054	CUST_P10058818	502510	502563	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3055	CUST_P10058819	502573	502619	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3056	CUST_P10058820	502696	502746	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3057	CUST_P10058821	502727	502776	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3058	CUST_P10058822	502846	502892	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3059	CUST_P10058823	502868	502915	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3060	CUST_P10058824	502908	502953	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3061	CUST_P10058825	502925	502974	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3062	CUST_P10058826	502960	503012	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3063	CUST_P10058827	503069	503113	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3064	CUST_P10058828	503121	503172	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3065	CUST_P10058829	503226	503276	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3066	CUST_P10058830	503308	503358	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3067	CUST_P10058831	503329	503384	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3068	CUST_P10058832	503374	503433	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3069	CUST_P10058833	503541	503597	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3070	CUST_P10058834	503609	503658	Coxiella burnetii	IS1111A transposase	IS1111A transposase

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3071	CUST_P10058835	503681	503725	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3072	CUST_P10058836	503718	503765	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3073	CUST_P10058837	503745	503791	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3074	CUST_P10058838	503852	503911	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3075	CUST_P10065644	1021442	1021488	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3076	CUST_P10065645	1021559	1021607	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3077	CUST_P10065646	1021597	1021650	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3078	CUST_P10065647	1021718	1021762	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3079	CUST_P10065648	1021753	1021800	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3080	CUST_P10065649	1021775	1021826	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3081	CUST_P10065650	1021807	1021851	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3082	CUST_P10065651	1021891	1021944	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3083	CUST_P10065652	1021940	1021984	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3084	CUST_P10065653	1021980	1022024	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3085	CUST_P10065654	1022045	1022094	Coxiella burnetii	IS1111A transposase	IS1111A transposase
3086	CUST_P10079271	1019	1078	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3087	CUST_P10079269	471	530	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3088	CUST_P10079274	1363	1414	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3089	CUST_P10079272	1279	1334	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3090	CUST_P10079270	628	687	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3091	CUST_P10079273	1329	1373	Trypanosoma brucei	kinetoplast apocy	kinetoplast apocy
3092	CUST_P10079280	687	746	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3093	CUST_P10079276	478	526	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3094	CUST_P10079277	547	601	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3095	CUST_P10079275	1	60	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3096	CUST_P10079279	677	736	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3097	CUST_P10079278	554	610	Trypanosoma brucei	kinetoplast DNA m	kinetoplast DNA m
3098	CUST_P10079281	23	67	Trypanosoma Cruzi	Mini satellite	Mini satellite
3099	CUST_P10079284	267	312	Leishmania major	kinetoplast DNA	kinetoplast DNA
3100	CUST_P10079285	319	365	Leishmania major	kinetoplast DNA	kinetoplast DNA
3101	CUST_P10079286	360	404	Leishmania major	kinetoplast DNA	kinetoplast DNA
3102	CUST_P10079283	146	205	Leishmania major	kinetoplast DNA	kinetoplast DNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3103	CUST_P10079287	382	426	Leishmania major	kinetoplast DNA	kinetoplast DNA
3104	CUST_P10079282	1	60	Leishmania major	kinetoplast DNA	kinetoplast DNA
3105	CUST_P10079294	504	548	Leishmania major	kinetoplast DNA	kinetoplast DNA
3106	CUST_P10079292	333	377	Leishmania major	kinetoplast DNA	kinetoplast DNA
3107	CUST_P10079296	588	632	Leishmania major	kinetoplast DNA	kinetoplast DNA
3108	CUST_P10079291	298	342	Leishmania major	kinetoplast DNA	kinetoplast DNA
3109	CUST_P10079290	257	303	Leishmania major	kinetoplast DNA	kinetoplast DNA
3110	CUST_P10079295	551	595	Leishmania major	kinetoplast DNA	kinetoplast DNA
3111	CUST_P10079289	148	200	Leishmania major	kinetoplast DNA	kinetoplast DNA
3112	CUST_P10079288	116	168	Leishmania major	kinetoplast DNA	kinetoplast DNA
3113	CUST_P10079293	462	507	Leishmania major	kinetoplast DNA	kinetoplast DNA
3114	CUST_P10079326	82	141	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3115	CUST_P10079327	140	189	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3116	CUST_P10079328	168	227	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3117	CUST_P10079329	320	364	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3118	CUST_P10079330	336	380	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3119	CUST_P10079331	368	412	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3120	CUST_P10079332	398	450	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3121	CUST_P10079333	434	493	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3122	CUST_P10079334	699	758	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3123	CUST_P10079335	722	781	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3124	CUST_P10079336	771	825	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3125	CUST_P10079337	801	860	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3126	CUST_P10079338	826	885	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3127	CUST_P10079339	891	947	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3128	CUST_P10079340	933	987	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3129	CUST_P10079341	952	1006	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3130	CUST_P10079342	990	1042	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3131	CUST_P10079343	1016	1060	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3132	CUST_P10079344	1055	1101	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3133	CUST_P10079345	1108	1152	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3134	CUST_P10079346	1239	1298	Babesia microti	18S ribosomal RNA	18S ribosomal RNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3135	CUST_P10079347	1357	1405	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3136	CUST_P10079348	1435	1479	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3137	CUST_P10079349	1458	1517	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3138	CUST_P10079350	1620	1675	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3139	CUST_P10079351	1659	1718	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3140	CUST_P10079352	1736	1786	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3141	CUST_P10079353	1758	1802	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3142	CUST_P10079354	1811	1855	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3143	CUST_P10079355	1845	1889	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3144	CUST_P10079356	1894	1938	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3145	CUST_P10079357	1914	1962	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3146	CUST_P10079358	1947	1997	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3147	CUST_P10079359	1975	2019	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3148	CUST_P10079360	2034	2093	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3149	CUST_P10079361	2056	2115	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3150	CUST_P10079362	2125	2174	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3151	CUST_P10079363	2266	2322	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3152	CUST_P10079364	2342	2392	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3153	CUST_P10079365	2363	2418	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3154	CUST_P10079366	2389	2446	Babesia microti	18S ribosomal RNA	18S ribosomal RNA
3155	CUST_P10079478	328	375	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3156	CUST_P10079479	433	492	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3157	CUST_P10079480	517	566	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3158	CUST_P10079481	612	671	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3159	CUST_P10079482	820	879	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3160	CUST_P10079483	945	1003	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3161	CUST_P10079484	971	1030	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3162	CUST_P10079485	1018	1077	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3163	CUST_P10079486	1211	1257	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3164	CUST_P10079487	1284	1343	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3165	CUST_P10079488	1386	1445	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3166	CUST_P10079489	1673	1727	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3167	CUST_P10079490	1817	1876	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3168	CUST_P10079491	1852	1911	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3169	CUST_P10079492	70	129	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3170	CUST_P10079493	321	373	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3171	CUST_P10079494	460	519	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3172	CUST_P10079495	489	548	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3173	CUST_P10079496	519	569	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3174	CUST_P10079497	599	658	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3175	CUST_P10079498	800	859	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3176	CUST_P10079499	826	885	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3177	CUST_P10079500	990	1046	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3178	CUST_P10079501	1014	1073	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3179	CUST_P10079502	1053	1112	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3180	CUST_P10079503	1264	1310	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3181	CUST_P10079504	1332	1391	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3182	CUST_P10079505	1450	1509	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3183	CUST_P10079506	1721	1770	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3184	CUST_P10079507	1742	1801	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3185	CUST_P10079508	1890	1949	Plasmodium falciparum	18S ribosomal RNA	18S ribosomal RNA
3186	CUST_P10079572	2	61	Plasmodium vivax	SSU rRNA	external transcribed spacer
3187	CUST_P10079573	38	89	Plasmodium vivax	SSU rRNA	external transcribed spacer
3188	CUST_P10079574	68	127	Plasmodium vivax	SSU rRNA	external transcribed spacer
3189	CUST_P10079575	112	171	Plasmodium vivax	SSU rRNA	external transcribed spacer
3190	CUST_P10079576	249	308	Plasmodium vivax	SSU rRNA	external transcribed spacer
3191	CUST_P10079577	279	338	Plasmodium vivax	SSU rRNA	external transcribed spacer
3192	CUST_P10079578	319	372	Plasmodium vivax	SSU rRNA	external transcribed spacer
3193	CUST_P10079579	421	480	Plasmodium vivax	SSU rRNA	external transcribed spacer
3194	CUST_P10079580	590	645	Plasmodium vivax	SSU rRNA	external transcribed spacer
3195	CUST_P10079581	671	719	Plasmodium vivax	SSU rRNA	external transcribed spacer
3196	CUST_P10079582	783	842	Plasmodium vivax	SSU rRNA	external transcribed spacer
3197	CUST_P10079583	803	862	Plasmodium vivax	SSU rRNA	external transcribed spacer
3198	CUST_P10079584	829	888	Plasmodium vivax	SSU rRNA	external transcribed spacer

SEQ ID NO:	ProbeID	Start	End	Pathogen	Genomic Region	Product
3199	CUST_P10079585	849	899	Plasmodium vivax	SSU rRNA	external transcribed spacer
3200	CUST_P10079586	946	1005	Plasmodium vivax	SSU rRNA	external transcribed spacer
3201	CUST_P10079587	1153	1212	Plasmodium vivax	SSU rRNA	external transcribed spacer
3202	CUST_P10079588	1314	1373	Plasmodium vivax	SSU rRNA	external transcribed spacer
3203	CUST_P10079589	1346	1405	Plasmodium vivax	SSU rRNA	external transcribed spacer
3204	CUST_P10079590	1545	1591	Plasmodium vivax	SSU rRNA	external transcribed spacer
3205	CUST_P10079591	1610	1669	Plasmodium vivax	SSU rRNA	external transcribed spacer
3206	CUST_P10079592	1717	1776	Plasmodium vivax	SSU rRNA	external transcribed spacer
3207	CUST_P10079593	1757	1816	Plasmodium vivax	SSU rRNA	external transcribed spacer

Table 10. Exemplary control probes

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3208	CUST_P10079594	1561	1605	Housekeeping Gene	ACTB
3209	CUST_P10079595	1703	1750	Housekeeping Gene	ACTB
3210	CUST_P10079596	2220	2264	Housekeeping Gene	ACTB
3211	CUST_P10079597	2242	2286	Housekeeping Gene	ACTB
3212	CUST_P10079598	2276	2320	Housekeeping Gene	ACTB
3213	CUST_P10079599	2402	2446	Housekeeping Gene	ACTB
3214	CUST_P10079600	2489	2533	Housekeeping Gene	ACTB
3215	CUST_P10079601	2659	2703	Housekeeping Gene	ACTB
3216	CUST_P10079602	2696	2740	Housekeeping Gene	ACTB
3217	CUST_P10079603	2823	2867	Housekeeping Gene	ACTB
3218	CUST_P10079604	2847	2891	Housekeeping Gene	ACTB
3219	CUST_P10079605	2874	2918	Housekeeping Gene	ACTB
3220	CUST_P10079606	3005	3049	Housekeeping Gene	ACTB
3221	CUST_P10079607	3046	3090	Housekeeping Gene	ACTB
3222	CUST_P10079608	3213	3257	Housekeeping Gene	ACTB
3223	CUST_P10079609	3338	3382	Housekeeping Gene	ACTB
3224	CUST_P10079610	3376	3420	Housekeeping Gene	ACTB
3225	CUST_P10079611	3393	3437	Housekeeping Gene	ACTB
3226	CUST_P10079612	3438	3482	Housekeeping Gene	ACTB
3227	CUST_P10079613	3545	3593	Housekeeping Gene	ACTB
3228	CUST_P10079614	3568	3622	Housekeeping Gene	ACTB
3229	CUST_P10079615	3601	3645	Housekeeping Gene	ACTB
3230	CUST_P10079616	3744	3788	Housekeeping Gene	ACTB
3231	CUST_P10079617	3858	3902	Housekeeping Gene	ACTB
3232	CUST_P10079618	3973	4017	Housekeeping Gene	ACTB
3233	CUST_P10079619	4130	4177	Housekeeping Gene	ACTB
3234	CUST_P10079620	4223	4267	Housekeeping Gene	ACTB

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3235	CUST_P10079621	4280	4324	Housekeeping Gene	ACTB
3236	CUST_P10079622	4304	4348	Housekeeping Gene	ACTB
3237	CUST_P10079623	4315	4359	Housekeeping Gene	ACTB
3238	CUST_P10079624	4459	4503	Housekeeping Gene	ACTB
3239	CUST_P10079625	4592	4636	Housekeeping Gene	ACTB
3240	CUST_P10079626	4906	4950	Housekeeping Gene	ACTB
3241	CUST_P10079627	4932	4978	Housekeeping Gene	ACTB
3242	CUST_P10079628	4972	5016	Housekeeping Gene	ACTB
3243	CUST_P10079629	5024	5068	Housekeeping Gene	ACTB
3244	CUST_P10079630	5040	5084	Housekeeping Gene	ACTB
3245	CUST_P10079631	5076	5120	Housekeeping Gene	ACTB
3246	CUST_P10079632	5110	5154	Housekeeping Gene	ACTB
3247	CUST_P10079633	5200	5244	Housekeeping Gene	ACTB
3248	CUST_P10079634	5357	5401	Housekeeping Gene	ACTB
3249	CUST_P10079635	5390	5434	Housekeeping Gene	ACTB
3250	CUST_P10079636	5415	5459	Housekeeping Gene	ACTB
3251	CUST_P10079637	5453	5497	Housekeeping Gene	ACTB
3252	CUST_P10079638	5474	5518	Housekeeping Gene	ACTB
3253	CUST_P10079639	5622	5666	Housekeeping Gene	ACTB
3254	CUST_P10079640	5662	5706	Housekeeping Gene	ACTB
3255	CUST_P10079641	5691	5736	Housekeeping Gene	ACTB
3256	CUST_P10079642	5712	5756	Housekeeping Gene	ACTB
3257	CUST_P10079643	5760	5804	Housekeeping Gene	ACTB
3258	CUST_P10079644	5783	5827	Housekeeping Gene	ACTB
3259	CUST_P10079645	5817	5861	Housekeeping Gene	ACTB
3260	CUST_P10079646	5963	6007	Housekeeping Gene	ACTB
3261	CUST_P10079647	6004	6048	Housekeeping Gene	ACTB
3262	CUST_P10079648	6106	6150	Housekeeping Gene	ACTB
3263	CUST_P10079649	6310	6354	Housekeeping Gene	ACTB
3264	CUST_P10079650	6421	6465	Housekeeping Gene	ACTB
3265	CUST_P10079651	6507	6553	Housekeeping Gene	ACTB
3266	CUST_P10079652	6696	6740	Housekeeping Gene	ACTB
3267	CUST_P10079653	6722	6769	Housekeeping Gene	ACTB
3268	CUST_P10079654	6745	6789	Housekeeping Gene	ACTB
3269	CUST_P10079655	6772	6816	Housekeeping Gene	ACTB
3270	CUST_P10079656	6793	6837	Housekeeping Gene	ACTB
3271	CUST_P10079657	6844	6888	Housekeeping Gene	ACTB
3272	CUST_P10079658	7000	7044	Housekeeping Gene	ACTB
3273	CUST_P10079659	7321	7365	Housekeeping Gene	ACTB
3274	CUST_P10079660	7418	7462	Housekeeping Gene	ACTB
3275	CUST_P10079661	7554	7598	Housekeeping Gene	ACTB
3276	CUST_P10079662	7683	7727	Housekeeping Gene	ACTB
3277	CUST_P10079663	7777	7821	Housekeeping Gene	ACTB
3278	CUST_P10079664	7825	7869	Housekeeping Gene	ACTB
3279	CUST_P10079665	7861	7917	Housekeeping Gene	ACTB

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3280	CUST_P10079666	8033	8077	Housekeeping Gene	ACTB
3281	CUST_P10079667	8138	8182	Housekeeping Gene	ACTB
3282	CUST_P10079668	8344	8388	Housekeeping Gene	ACTB
3283	CUST_P10079669	8459	8503	Housekeeping Gene	ACTB
3284	CUST_P10079670	8519	8563	Housekeeping Gene	ACTB
3285	CUST_P10079671	8543	8587	Housekeeping Gene	ACTB
3286	CUST_P10079672	8574	8618	Housekeeping Gene	ACTB
3287	CUST_P10079673	8628	8672	Housekeeping Gene	ACTB
3288	CUST_P10079674	8732	8776	Housekeeping Gene	ACTB
3289	CUST_P10079675	8941	8985	Housekeeping Gene	ACTB
3290	CUST_P10079676	8962	9006	Housekeeping Gene	ACTB
3291	CUST_P10079677	8987	9031	Housekeeping Gene	ACTB
3292	CUST_P10079678	9103	9147	Housekeeping Gene	ACTB
3293	CUST_P10079679	9155	9199	Housekeeping Gene	ACTB
3294	CUST_P10079680	9429	9474	Housekeeping Gene	ACTB
3295	CUST_P10079681	9554	9600	Housekeeping Gene	ACTB
3296	CUST_P10079682	9739	9785	Housekeeping Gene	ACTB
3297	CUST_P10079683	9774	9820	Housekeeping Gene	ACTB
3298	CUST_P10079684	9794	9838	Housekeeping Gene	ACTB
3299	CUST_P10079685	10015	10062	Housekeeping Gene	ACTB
3300	CUST_P10079686	10064	10108	Housekeeping Gene	ACTB
3301	CUST_P10079687	10193	10245	Housekeeping Gene	ACTB
3302	CUST_P10079715	3325	3369	Housekeeping Gene	ARL1
3303	CUST_P10079713	3255	3314	Housekeeping Gene	ARL1
3304	CUST_P10079727	5957	6016	Housekeeping Gene	ARL1
3305	CUST_P10079741	10779	10838	Housekeeping Gene	ARL1
3306	CUST_P10079759	13558	13604	Housekeeping Gene	ARL1
3307	CUST_P10079701	934	979	Housekeeping Gene	ARL1
3308	CUST_P10079692	526	570	Housekeeping Gene	ARL1
3309	CUST_P10079750	11884	11939	Housekeeping Gene	ARL1
3310	CUST_P10079730	6728	6787	Housekeeping Gene	ARL1
3311	CUST_P10079746	11349	11397	Housekeeping Gene	ARL1
3312	CUST_P10079744	11307	11354	Housekeeping Gene	ARL1
3313	CUST_P10079732	7235	7286	Housekeeping Gene	ARL1
3314	CUST_P10079733	7270	7314	Housekeeping Gene	ARL1
3315	CUST_P10079760	13597	13641	Housekeeping Gene	ARL1
3316	CUST_P10079762	13648	13693	Housekeeping Gene	ARL1
3317	CUST_P10079758	13449	13508	Housekeeping Gene	ARL1
3318	CUST_P10079728	6518	6577	Housekeeping Gene	ARL1
3319	CUST_P10079738	9891	9950	Housekeeping Gene	ARL1
3320	CUST_P10079742	10939	10998	Housekeeping Gene	ARL1
3321	CUST_P10079696	746	796	Housekeeping Gene	ARL1
3322	CUST_P10079703	1025	1079	Housekeeping Gene	ARL1
3323	CUST_P10079688	137	181	Housekeeping Gene	ARL1
3324	CUST_P10079755	12703	12762	Housekeeping Gene	ARL1

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3325	CUST_P10079748	11728	11787	Housekeeping Gene	ARL1
3326	CUST_P10079722	5055	5114	Housekeeping Gene	ARL1
3327	CUST_P10079724	5213	5268	Housekeeping Gene	ARL1
3328	CUST_P10079736	8842	8901	Housekeeping Gene	ARL1
3329	CUST_P10079714	3291	3350	Housekeeping Gene	ARL1
3330	CUST_P10079726	5923	5982	Housekeeping Gene	ARL1
3331	CUST_P10079735	8610	8669	Housekeeping Gene	ARL1
3332	CUST_P10079739	10525	10584	Housekeeping Gene	ARL1
3333	CUST_P10079747	11552	11599	Housekeeping Gene	ARL1
3334	CUST_P10079753	12428	12487	Housekeeping Gene	ARL1
3335	CUST_P10079768	14112	14158	Housekeeping Gene	ARL1
3336	CUST_P10079690	310	354	Housekeeping Gene	ARL1
3337	CUST_P10079691	435	483	Housekeeping Gene	ARL1
3338	CUST_P10079702	977	1028	Housekeeping Gene	ARL1
3339	CUST_P10079689	209	253	Housekeeping Gene	ARL1
3340	CUST_P10079743	11265	11317	Housekeeping Gene	ARL1
3341	CUST_P10079745	11327	11379	Housekeeping Gene	ARL1
3342	CUST_P10079712	3205	3264	Housekeeping Gene	ARL1
3343	CUST_P10079740	10708	10767	Housekeeping Gene	ARL1
3344	CUST_P10079710	2561	2620	Housekeeping Gene	ARL1
3345	CUST_P10079717	3630	3689	Housekeeping Gene	ARL1
3346	CUST_P10079761	13619	13672	Housekeeping Gene	ARL1
3347	CUST_P10079707	1616	1675	Housekeeping Gene	ARL1
3348	CUST_P10079767	14091	14135	Housekeeping Gene	ARL1
3349	CUST_P10079699	861	910	Housekeeping Gene	ARL1
3350	CUST_P10079697	794	838	Housekeeping Gene	ARL1
3351	CUST_P10079694	683	742	Housekeeping Gene	ARL1
3352	CUST_P10079749	11842	11901	Housekeeping Gene	ARL1
3353	CUST_P10079716	3606	3665	Housekeeping Gene	ARL1
3354	CUST_P10079708	2224	2283	Housekeeping Gene	ARL1
3355	CUST_P10079719	4420	4479	Housekeeping Gene	ARL1
3356	CUST_P10079763	13695	13749	Housekeeping Gene	ARL1
3357	CUST_P10079752	12271	12330	Housekeeping Gene	ARL1
3358	CUST_P10079721	4794	4853	Housekeeping Gene	ARL1
3359	CUST_P10079766	14055	14099	Housekeeping Gene	ARL1
3360	CUST_P10079764	13860	13919	Housekeeping Gene	ARL1
3361	CUST_P10079765	13910	13963	Housekeeping Gene	ARL1
3362	CUST_P10079706	1514	1573	Housekeeping Gene	ARL1
3363	CUST_P10079705	1462	1509	Housekeeping Gene	ARL1
3364	CUST_P10079695	715	774	Housekeeping Gene	ARL1
3365	CUST_P10079698	836	884	Housekeeping Gene	ARL1
3366	CUST_P10079693	655	710	Housekeeping Gene	ARL1
3367	CUST_P10079754	12585	12644	Housekeeping Gene	ARL1
3368	CUST_P10079731	7083	7139	Housekeeping Gene	ARL1
3369	CUST_P10079723	5093	5152	Housekeeping Gene	ARL1

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3370	CUST_P10079704	1198	1257	Housekeeping Gene	ARL1
3371	CUST_P10079756	12839	12888	Housekeeping Gene	ARL1
3372	CUST_P10079711	2977	3036	Housekeeping Gene	ARL1
3373	CUST_P10079709	2313	2369	Housekeeping Gene	ARL1
3374	CUST_P10079770	14253	14312	Housekeeping Gene	ARL1
3375	CUST_P10079700	891	939	Housekeeping Gene	ARL1
3376	CUST_P10079734	7994	8053	Housekeeping Gene	ARL1
3377	CUST_P10079729	6688	6746	Housekeeping Gene	ARL1
3378	CUST_P10079718	4205	4249	Housekeeping Gene	ARL1
3379	CUST_P10079751	12179	12229	Housekeeping Gene	ARL1
3380	CUST_P10079720	4653	4712	Housekeeping Gene	ARL1
3381	CUST_P10079725	5683	5733	Housekeeping Gene	ARL1
3382	CUST_P10079769	14139	14193	Housekeeping Gene	ARL1
3383	CUST_P10079771	14283	14342	Housekeeping Gene	ARL1
3384	CUST_P10079737	8984	9043	Housekeeping Gene	ARL1
3385	CUST_P10079757	12965	13024	Housekeeping Gene	ARL1
3386	CUST_P10079772	69	113	Housekeeping Gene	CCDN1
3387	CUST_P10079773	104	148	Housekeeping Gene	CCDN1
3388	CUST_P10079774	297	341	Housekeeping Gene	CCDN1
3389	CUST_P10079775	332	376	Housekeeping Gene	CCDN1
3390	CUST_P10079776	395	439	Housekeeping Gene	CCDN1
3391	CUST_P10079777	680	724	Housekeeping Gene	CCDN1
3392	CUST_P10079778	844	903	Housekeeping Gene	CCDN1
3393	CUST_P10079779	1049	1093	Housekeeping Gene	CCDN1
3394	CUST_P10079780	1146	1190	Housekeeping Gene	CCDN1
3395	CUST_P10079781	1368	1412	Housekeeping Gene	CCDN1
3396	CUST_P10079782	1513	1557	Housekeeping Gene	CCDN1
3397	CUST_P10079783	1553	1597	Housekeeping Gene	CCDN1
3398	CUST_P10079784	1811	1855	Housekeeping Gene	CCDN1
3399	CUST_P10079785	1936	1980	Housekeeping Gene	CCDN1
3400	CUST_P10079786	2041	2085	Housekeeping Gene	CCDN1
3401	CUST_P10079787	2206	2250	Housekeeping Gene	CCDN1
3402	CUST_P10079788	2233	2277	Housekeeping Gene	CCDN1
3403	CUST_P10079789	2279	2323	Housekeeping Gene	CCDN1
3404	CUST_P10079790	2321	2365	Housekeeping Gene	CCDN1
3405	CUST_P10079791	2346	2390	Housekeeping Gene	CCDN1
3406	CUST_P10079792	2376	2420	Housekeeping Gene	CCDN1
3407	CUST_P10079793	2385	2429	Housekeeping Gene	CCDN1
3408	CUST_P10079794	2413	2457	Housekeeping Gene	CCDN1
3409	CUST_P10079795	2455	2499	Housekeeping Gene	CCDN1
3410	CUST_P10079796	2584	2628	Housekeeping Gene	CCDN1
3411	CUST_P10079797	2794	2838	Housekeeping Gene	CCDN1
3412	CUST_P10079798	2842	2886	Housekeeping Gene	CCDN1
3413	CUST_P10079799	2899	2943	Housekeeping Gene	CCDN1
3414	CUST_P10079800	2953	2997	Housekeeping Gene	CCDN1

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3415	CUST_P10079801	3037	3081	Housekeeping Gene	CCDN1
3416	CUST_P10079802	3135	3179	Housekeeping Gene	CCDN1
3417	CUST_P10079803	3194	3238	Housekeeping Gene	CCDN1
3418	CUST_P10079804	3365	3409	Housekeeping Gene	CCDN1
3419	CUST_P10079805	3518	3562	Housekeeping Gene	CCDN1
3420	CUST_P10079806	3675	3719	Housekeeping Gene	CCDN1
3421	CUST_P10079807	3753	3797	Housekeeping Gene	CCDN1
3422	CUST_P10079808	3904	3948	Housekeeping Gene	CCDN1
3423	CUST_P10079809	4120	4164	Housekeeping Gene	CCDN1
3424	CUST_P10079810	4201	4245	Housekeeping Gene	CCDN1
3425	CUST_P10079811	4312	4356	Housekeeping Gene	CCDN1
3426	CUST_P10079812	4419	4463	Housekeeping Gene	CCDN1
3427	CUST_P10079813	4486	4530	Housekeeping Gene	CCDN1
3428	CUST_P10079814	4518	4562	Housekeeping Gene	CCDN1
3429	CUST_P10079815	4542	4586	Housekeeping Gene	CCDN1
3430	CUST_P10079816	4560	4609	Housekeeping Gene	CCDN1
3431	CUST_P10079817	4595	4639	Housekeeping Gene	CCDN1
3432	CUST_P10079818	4633	4677	Housekeeping Gene	CCDN1
3433	CUST_P10079819	4645	4692	Housekeeping Gene	CCDN1
3434	CUST_P10079820	4674	4720	Housekeeping Gene	CCDN1
3435	CUST_P10079821	4726	4770	Housekeeping Gene	CCDN1
3436	CUST_P10079822	4753	4797	Housekeeping Gene	CCDN1
3437	CUST_P10079823	4910	4956	Housekeeping Gene	CCDN1
3438	CUST_P10079824	5081	5131	Housekeeping Gene	CCDN1
3439	CUST_P10079825	5281	5325	Housekeeping Gene	CCDN1
3440	CUST_P10079826	5295	5345	Housekeeping Gene	CCDN1
3441	CUST_P10079827	5319	5363	Housekeeping Gene	CCDN1
3442	CUST_P10079828	5472	5516	Housekeeping Gene	CCDN1
3443	CUST_P10079829	5506	5550	Housekeeping Gene	CCDN1
3444	CUST_P10079830	5654	5698	Housekeeping Gene	CCDN1
3445	CUST_P10079831	5680	5724	Housekeeping Gene	CCDN1
3446	CUST_P10079832	5709	5753	Housekeeping Gene	CCDN1
3447	CUST_P10079833	5736	5780	Housekeeping Gene	CCDN1
3448	CUST_P10079834	5775	5819	Housekeeping Gene	CCDN1
3449	CUST_P10079835	5804	5848	Housekeeping Gene	CCDN1
3450	CUST_P10079836	5828	5872	Housekeeping Gene	CCDN1
3451	CUST_P10079837	5876	5920	Housekeeping Gene	CCDN1
3452	CUST_P10079838	6010	6054	Housekeeping Gene	CCDN1
3453	CUST_P10079839	6083	6133	Housekeeping Gene	CCDN1
3454	CUST_P10079840	6163	6207	Housekeeping Gene	CCDN1
3455	CUST_P10079841	6270	6314	Housekeeping Gene	CCDN1
3456	CUST_P10079842	6395	6442	Housekeeping Gene	CCDN1
3457	CUST_P10079843	6557	6604	Housekeeping Gene	CCDN1
3458	CUST_P10079844	6611	6656	Housekeeping Gene	CCDN1
3459	CUST_P10079845	6635	6679	Housekeeping Gene	CCDN1

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3460	CUST_P10079846	6770	6814	Housekeeping Gene	CCDN1
3461	CUST_P10079847	6895	6939	Housekeeping Gene	CCDN1
3462	CUST_P10079848	6976	7020	Housekeeping Gene	CCDN1
3463	CUST_P10079849	7012	7056	Housekeeping Gene	CCDN1
3464	CUST_P10079850	7064	7108	Housekeeping Gene	CCDN1
3465	CUST_P10079851	7224	7268	Housekeeping Gene	CCDN1
3466	CUST_P10079852	7283	7327	Housekeeping Gene	CCDN1
3467	CUST_P10079853	7444	7488	Housekeeping Gene	CCDN1
3468	CUST_P10079854	7649	7693	Housekeeping Gene	CCDN1
3469	CUST_P10079855	7768	7812	Housekeeping Gene	CCDN1
3470	CUST_P10079856	7794	7838	Housekeeping Gene	CCDN1
3471	CUST_P10079857	7858	7902	Housekeeping Gene	CCDN1
3472	CUST_P10079858	7957	8001	Housekeeping Gene	CCDN1
3473	CUST_P10079859	8092	8136	Housekeeping Gene	CCDN1
3474	CUST_P10079860	8120	8168	Housekeeping Gene	CCDN1
3475	CUST_P10079861	8173	8217	Housekeeping Gene	CCDN1
3476	CUST_P10079862	8228	8272	Housekeeping Gene	CCDN1
3477	CUST_P10079863	8422	8473	Housekeeping Gene	CCDN1
3478	CUST_P10079864	8469	8513	Housekeeping Gene	CCDN1
3479	CUST_P10079865	8649	8693	Housekeeping Gene	CCDN1
3480	CUST_P10079866	8842	8887	Housekeeping Gene	CCDN1
3481	CUST_P10079867	8960	9004	Housekeeping Gene	CCDN1
3482	CUST_P10079868	8995	9039	Housekeeping Gene	CCDN1
3483	CUST_P10079869	9060	9104	Housekeeping Gene	CCDN1
3484	CUST_P10079870	9132	9176	Housekeeping Gene	CCDN1
3485	CUST_P10079871	9183	9227	Housekeeping Gene	CCDN1
3486	CUST_P10079872	9196	9240	Housekeeping Gene	CCDN1
3487	CUST_P10079873	9229	9273	Housekeeping Gene	CCDN1
3488	CUST_P10079874	9266	9310	Housekeeping Gene	CCDN1
3489	CUST_P10079875	9309	9353	Housekeeping Gene	CCDN1
3490	CUST_P10079876	9333	9377	Housekeeping Gene	CCDN1
3491	CUST_P10079877	9390	9434	Housekeeping Gene	CCDN1
3492	CUST_P10079878	9430	9474	Housekeeping Gene	CCDN1
3493	CUST_P10079879	9479	9523	Housekeeping Gene	CCDN1
3494	CUST_P10079880	9508	9552	Housekeeping Gene	CCDN1
3495	CUST_P10079881	9519	9563	Housekeeping Gene	CCDN1
3496	CUST_P10079882	9570	9614	Housekeeping Gene	CCDN1
3497	CUST_P10079883	9592	9639	Housekeeping Gene	CCDN1
3498	CUST_P10079884	9705	9749	Housekeeping Gene	CCDN1
3499	CUST_P10079885	9885	9933	Housekeeping Gene	CCDN1
3500	CUST_P10079886	10029	10073	Housekeeping Gene	CCDN1
3501	CUST_P10079887	10165	10209	Housekeeping Gene	CCDN1
3502	CUST_P10079888	10204	10248	Housekeeping Gene	CCDN1
3503	CUST_P10079889	10442	10501	Housekeeping Gene	CCDN1
3504	CUST_P10079890	10526	10574	Housekeeping Gene	CCDN1

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3505	CUST_P10079891	10760	10819	Housekeeping Gene	CCDN1
3506	CUST_P10079892	10833	10877	Housekeeping Gene	CCDN1
3507	CUST_P10079893	10868	10912	Housekeeping Gene	CCDN1
3508	CUST_P10079894	10900	10944	Housekeeping Gene	CCDN1
3509	CUST_P10079895	10931	10975	Housekeeping Gene	CCDN1
3510	CUST_P10079896	11055	11107	Housekeeping Gene	CCDN1
3511	CUST_P10079897	11190	11242	Housekeeping Gene	CCDN1
3512	CUST_P10079898	11364	11410	Housekeeping Gene	CCDN1
3513	CUST_P10079899	11472	11525	Housekeeping Gene	CCDN1
3514	CUST_P10079900	11490	11547	Housekeeping Gene	CCDN1
3515	CUST_P10079901	11807	11852	Housekeeping Gene	CCDN1
3516	CUST_P10079902	11887	11940	Housekeeping Gene	CCDN1
3517	CUST_P10079903	12162	12221	Housekeeping Gene	CCDN1
3518	CUST_P10079904	12355	12412	Housekeeping Gene	CCDN1
3519	CUST_P10079905	12402	12446	Housekeeping Gene	CCDN1
3520	CUST_P10081361	16	63	Negative Control	Aedes albopictus densovirus 2
3521	CUST_P10081362	47	101	Negative Control	Aedes albopictus densovirus 2
3522	CUST_P10081363	79	131	Negative Control	Aedes albopictus densovirus 2
3523	CUST_P10081364	204	248	Negative Control	Aedes albopictus densovirus 2
3524	CUST_P10081365	302	361	Negative Control	Aedes albopictus densovirus 2
3525	CUST_P10081366	330	385	Negative Control	Aedes albopictus densovirus 2
3526	CUST_P10081367	390	435	Negative Control	Aedes albopictus densovirus 2
3527	CUST_P10081368	426	472	Negative Control	Aedes albopictus densovirus 2
3528	CUST_P10081369	590	649	Negative Control	Aedes albopictus densovirus 2
3529	CUST_P10081370	617	673	Negative Control	Aedes albopictus densovirus 2
3530	CUST_P10081371	654	707	Negative Control	Aedes albopictus densovirus 2
3531	CUST_P10081372	753	810	Negative Control	Aedes albopictus densovirus 2
3532	CUST_P10081373	791	844	Negative Control	Aedes albopictus densovirus 2
3533	CUST_P10081374	824	880	Negative Control	Aedes albopictus densovirus 2
3534	CUST_P10081375	966	1015	Negative Control	Aedes albopictus densovirus 2
3535	CUST_P10081376	1174	1233	Negative Control	Aedes albopictus densovirus 2
3536	CUST_P10081377	1295	1339	Negative Control	Aedes albopictus densovirus 2
3537	CUST_P10081378	1385	1433	Negative Control	Aedes albopictus densovirus 2
3538	CUST_P10081379	1538	1582	Negative Control	Aedes albopictus densovirus 2
3539	CUST_P10081380	1556	1601	Negative Control	Aedes albopictus densovirus 2
3540	CUST_P10081381	1636	1689	Negative Control	Aedes albopictus densovirus 2

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3541	CUST_P10081382	1752	1811	Negative Control	Aedes albopictus densovirus 2
3542	CUST_P10081383	1810	1854	Negative Control	Aedes albopictus densovirus 2
3543	CUST_P10081384	1836	1893	Negative Control	Aedes albopictus densovirus 2
3544	CUST_P10081385	1858	1913	Negative Control	Aedes albopictus densovirus 2
3545	CUST_P10081386	1977	2036	Negative Control	Aedes albopictus densovirus 2
3546	CUST_P10081387	2065	2124	Negative Control	Aedes albopictus densovirus 2
3547	CUST_P10081388	2093	2152	Negative Control	Aedes albopictus densovirus 2
3548	CUST_P10081389	2136	2195	Negative Control	Aedes albopictus densovirus 2
3549	CUST_P10081390	2162	2221	Negative Control	Aedes albopictus densovirus 2
3550	CUST_P10081391	2209	2257	Negative Control	Aedes albopictus densovirus 2
3551	CUST_P10081392	2384	2434	Negative Control	Aedes albopictus densovirus 2
3552	CUST_P10081393	2497	2546	Negative Control	Aedes albopictus densovirus 2
3553	CUST_P10081394	2530	2589	Negative Control	Aedes albopictus densovirus 3
3554	CUST_P10081395	2697	2754	Negative Control	Aedes albopictus densovirus 2
3555	CUST_P10081396	2766	2825	Negative Control	Aedes albopictus densovirus 2
3556	CUST_P10081397	281	340	Negative Control	Aedes albopictus densovirus 2
3557	CUST_P10081398	353	404	Negative Control	Aedes albopictus densovirus 2
3558	CUST_P10081399	411	457	Negative Control	Maize streak virus
3559	CUST_P10081400	572	630	Negative Control	Maize streak virus
3560	CUST_P10081401	727	786	Negative Control	Maize streak virus
3561	CUST_P10081402	760	819	Negative Control	Maize streak virus
3562	CUST_P10081403	799	852	Negative Control	Maize streak virus
3563	CUST_P10081404	839	891	Negative Control	Maize streak virus
3564	CUST_P10081405	871	919	Negative Control	Maize streak virus
3565	CUST_P10081406	937	988	Negative Control	Maize streak virus
3566	CUST_P10081407	961	1011	Negative Control	Maize streak virus
3567	CUST_P10081408	1177	1233	Negative Control	Maize streak virus
3568	CUST_P10081409	1316	1365	Negative Control	Maize streak virus
3569	CUST_P10081410	1362	1420	Negative Control	Maize streak virus
3570	CUST_P10081411	1391	1450	Negative Control	Maize streak virus
3571	CUST_P10081412	1447	1506	Negative Control	Maize streak virus
3572	CUST_P10081413	1694	1753	Negative Control	Maize streak virus
3573	CUST_P10081414	1837	1896	Negative Control	Maize streak virus
3574	CUST_P10081415	2047	2106	Negative Control	Maize streak virus
3575	CUST_P10081416	2095	2147	Negative Control	Maize streak virus
3576	CUST_P10081417	2362	2421	Negative Control	Maize streak virus
3577	CUST_P10081418	2387	2446	Negative Control	Maize streak virus
3578	CUST_P10081419	2536	2595	Negative Control	Maize streak virus

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
3579	CUST_P10081420	2666	2713	Negative Control	Maize streak virus
3580	CUST_P10081421	2893	2952	Negative Control	Maize streak virus
3581	CUST_P10081422	2953	3012	Negative Control	Maize streak virus
3582	CUST_P10081423	2987	3045	Negative Control	Maize streak virus
3583	CUST_P10081424	3014	3071	Negative Control	Maize streak virus
3584	CUST_P10081425	3054	3105	Negative Control	Maize streak virus
3585	CUST_P10081426	3093	3142	Negative Control	Maize streak virus
3586	CUST_P10081427	3144	3203	Negative Control	Maize streak virus
3587	CUST_P10081428	3194	3253	Negative Control	Maize streak virus
3588	CUST_P10081429	3330	3389	Negative Control	Maize streak virus
3589	CUST_P10081430	3390	3438	Negative Control	Maize streak virus
3590	CUST_P10081431	3414	3469	Negative Control	Maize streak virus
3591	CUST_P10081432	3441	3494	Negative Control	Maize streak virus
3592	CUST_P10081433	3525	3584	Negative Control	Maize streak virus
3593	CUST_P10081434	3586	3645	Negative Control	Maize streak virus
3594	CUST_P10081435	3727	3786	Negative Control	Maize streak virus
3595	CUST_P10081436	3879	3923	Negative Control	Maize streak virus
3596	CUST_P10081437	3967	4011	Negative Control	Maize streak virus
3597	CUST_P10081438	112	169	Negative Control	Maize streak virus
3598	CUST_P10081439	272	316	Negative Control	Maize streak virus
3599	CUST_P10081440	301	345	Negative Control	Tomato pseudo-curly top virus
3600	CUST_P10081441	341	387	Negative Control	Tomato pseudo-curly top virus
3601	CUST_P10081442	436	480	Negative Control	Tomato pseudo-curly top virus
3602	CUST_P10081443	468	515	Negative Control	Tomato pseudo-curly top virus
3603	CUST_P10081444	490	534	Negative Control	Tomato pseudo-curly top virus
3604	CUST_P10081446	687	731	Negative Control	Tomato pseudo-curly top virus
3605	CUST_P10081447	803	847	Negative Control	Tomato pseudo-curly top virus
3606	CUST_P10081448	813	857	Negative Control	Tomato pseudo-curly top virus
3607	CUST_P10081449	842	887	Negative Control	Tomato pseudo-curly top virus
3608	CUST_P10081451	1031	1090	Negative Control	Tomato pseudo-curly top virus
3609	CUST_P10081452	1120	1164	Negative Control	Tomato pseudo-curly top virus
3610	CUST_P10081453	1166	1214	Negative Control	Tomato pseudo-curly top virus
3611	CUST_P10081454	1187	1246	Negative Control	Tomato pseudo-curly top virus
3612	CUST_P10081455	1216	1260	Negative Control	Tomato pseudo-curly top virus
3613	CUST_P10081456	1332	1385	Negative Control	Tomato pseudo-curly top virus
3614	CUST_P10081457	1370	1429	Negative Control	Tomato pseudo-curly top virus
3615	CUST_P10081458	1407	1459	Negative Control	Tomato pseudo-curly top virus
3616	CUST_P10081459	1440	1499	Negative Control	Tomato pseudo-curly top

SEQ ID NO:	ProbeID	Start	End	Type	Genomic Region
					virus
3617	CUST_P10081460	1600	1650	Negative Control	Tomato pseudo-curly top virus
3618	CUST_P10081461	1615	1669	Negative Control	Tomato pseudo-curly top virus
3619	CUST_P10081462	1648	1698	Negative Control	Tomato pseudo-curly top virus
3620	CUST_P10081463	1740	1797	Negative Control	Tomato pseudo-curly top virus
3621	CUST_P10081464	2072	2128	Negative Control	Tomato pseudo-curly top virus
3622	CUST_P10081465	2114	2173	Negative Control	Tomato pseudo-curly top virus
3623	CUST_P10081466	2158	2217	Negative Control	Tomato pseudo-curly top virus
3624	CUST_P10081467	2296	2346	Negative Control	Tomato pseudo-curly top virus
3625	CUST_P10081468	2446	2490	Negative Control	Tomato pseudo-curly top virus
3626	CUST_P10081470	2548	2592	Negative Control	Tomato pseudo-curly top virus
3627	CUST_P10081471	2596	2650	Negative Control	Tomato pseudo-curly top virus
3628	CUST_P10081472	2633	2683	Negative Control	Tomato pseudo-curly top virus

In view of the many possible embodiments to which the principles of the disclosure may be applied, it should be recognized that the illustrated embodiments are only examples and should not be taken as limiting the scope of the invention. Rather, the scope of the invention is defined by the following claims. We therefore claim as our invention all that comes within the scope and spirit of these claims.

We claim:

1. A probe set comprising probes having at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769 or a subset thereof.

2. The probe set of claim 1, wherein the probe set comprises probes having at least 95% identity with the nucleic acid sequences of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769 or a subset thereof.

3. The probe set of claim 2, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 1-1300, 1391-1570, and 1691-1769 or a subset thereof.

4. The probe set of any one of claims 1 to 3, wherein the probe set comprises at least 30 probes for each of Chikungunya virus, Dengue virus type 1, Dengue virus type 2, Dengue virus type 3, Dengue virus type 4, Hepatitis A virus, Hepatitis C virus type 1, Hepatitis C virus type 2, Hepatitis C virus type 3, Hepatitis E virus, Human immunodeficiency virus type 1, Human immunodeficiency virus type 2, Human T-lymphotropic virus type I, Human T-lymphotropic virus type II, West Nile virus, and Zika virus.

5. The probe set of any one of claims 1 to 4, further comprising at least one negative control probe.

6. The probe set of claim 5, wherein the at least one negative control probe is a probe with at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 1571-1690.

7. The probe set of any one of claims 1 to 6, further comprising at least one positive control probe.

8. The probe set of any one of claims 1 to 7, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 1-1769.

9. A probe set comprising probes having at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 1770-2647 or a subset thereof.

10. The probe set of claim 9, wherein the probe set comprises probes having at least 95% identity with the nucleic acid sequences of SEQ ID NOs: 1770-2647 or a subset thereof.

11. The probe set of claim 10, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 1770-2647 or a subset thereof.

12. The probe set of any one of claims 9 to 11, wherein the probe set comprises at least 30 probes for each of cytomegalovirus, Epstein Barr virus subtype B95-8, Epstein Barr virus subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, human papillomavirus type 6, human papillomavirus type 11, human papillomavirus type 16, and human papillomavirus type 18.

13. The probe set of any one of claims 9 to 12, further comprising at least one negative control probe.

14. The probe set of claim 13, wherein the at least one negative control probe is a probe with at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 3520-3628.

15. The probe set of any one of claims 9 to 14, further comprising at least one positive control probe.

16. The probe set of any one of claims 9 to 16, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 1770-2647.

17. A probe set comprising probes having at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 2648-3207 or a subset thereof.

18. The probe set of claim 17, wherein the probe set comprises probes having at least 95% identity with the nucleic acid sequences of SEQ ID NOs: 2648-3207 or a subset thereof.

19. The probe set of claim 18, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 2648-3207 or a subset thereof.

20. The probe set of any one of claims 17 to 19, wherein the probe set comprises at least one probe for each of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*.

21. The probe set of any one of claims 17 to 20, further comprising at least one negative control probe.

22. The probe set of any one of claims 17 to 21, further comprising at least one positive control probe.

23. The probe set of claim 22, wherein the at least one positive control probe is a probe with at least 90% identity with the nucleic acid sequences of SEQ ID NOs: 3208-3519.

24. The probe set of any one of claims 17 to 22, wherein the probe set comprises probes comprising the nucleic acid sequence of SEQ ID NOs: 2648-3207.

25. A microarray comprising the probe set of any one of claims 1 to 24, or any combination thereof.

26. The microarray of claim 25, comprising a probe set comprising probes comprising the nucleic acid sequence of SEQ ID NOs: 1-1769.

27. The microarray of claim 25, comprising a probe set comprising probes comprising the nucleic acid sequence of SEQ ID NOs: 1770-3628.

28. A method of detecting one or more pathogen nucleic acids in a sample, comprising:

contacting the sample with the probe set of any one of claims 1 to 24 or the microarray of any one of claims 25 to 27 under conditions sufficient to allow hybridization of pathogen nucleic acids present in the sample to the probes of the probe set or microarray; and

measuring hybridization of the sample to one or more of the probes, thereby detecting one or more pathogen nucleic acids in the sample.

29. The method of claim 28, wherein the sample comprises a blood, serum, or plasma sample or nucleic acids isolated from a blood, serum, or plasma sample.

30. The method of claim 29, further comprising isolating nucleic acids from the sample prior to contacting the sample with the probe set or the microarray.

31. The method of claim 30, further comprising labeling the isolated nucleic acids from the sample.

32. The method of claim 31, wherein the isolated nucleic acids are isolated DNA, isolated RNA, isolated cDNA, or a combination of two or more thereof.

33. The method of claim 32, wherein labeling the isolated nucleic acids comprises labeling the nucleic acids with one or more fluorescent labels.

34. The method of claim 33, wherein the fluorescent label is Cy3 or Cy5.

35. The method of any one of claims 30 to 35, wherein the isolated nucleic acids are cDNA.

36. The method of any one of claims 30 to 35, wherein isolating the nucleic acids does not comprise amplifying total RNA from the sample prior to preparing cDNA.

37. The method of any one of claims 28 to 36, wherein measuring hybridization comprises detecting ≥50% of the probes for the virus have a log ratio of >1.5 and/or the log ratio between the signal intensity mean for the probe set and the mean of a control group probe set is ≥1.5.

38. The method of any one of claims 28 to 37, wherein the pathogen nucleic acids comprise nucleic acids from one or more of Chikungunya virus, Dengue virus types 1, 2, 3, or 4, Hepatitis A virus, Hepatitis C virus types 1, 2, or 3, Hepatitis E virus, Human immunodeficiency virus types 1 or 2, Human T-lymphotropic virus types I or II, West Nile virus, and Zika virus.

39. The method of any one of claims 28 to 37, wherein the pathogen nucleic acids comprise nucleic acids from one or more of cytomegalovirus, Epstein Barr virus subtype B95-8, Epstein Barr virus subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B19, human papillomavirus type 6, human papillomavirus type 11, human papillomavirus type 16, and human papillomavirus type 18.

40. The method of any one of claims 28 to 37, wherein the pathogen nucleic acids comprise nucleic acids from one or more of *Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi Leishmania major, Babesia microti*, *Plasmodium falciparum*, and *Plasmodium vivax*.

FIG. 1A

FIG. 1B

FIG. 1C

FIG. 2A

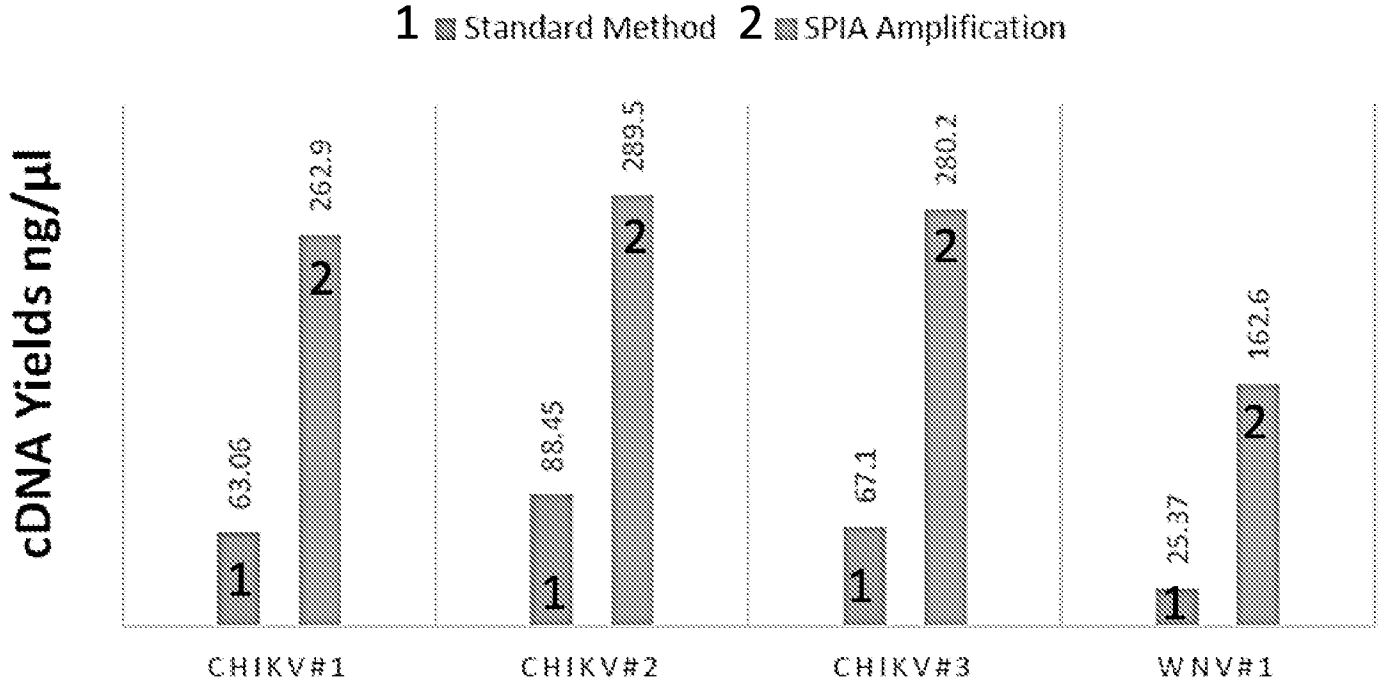

1 Standard Method 2 SPIA Amplification
cDNA Yields ng/µl
63.06
262.9
88.45
289.5
67.1
280.2
25.37
162.6
CHIKV#1
CHIKV#2
CHIKV#3
WNV#1

FIG. 2B

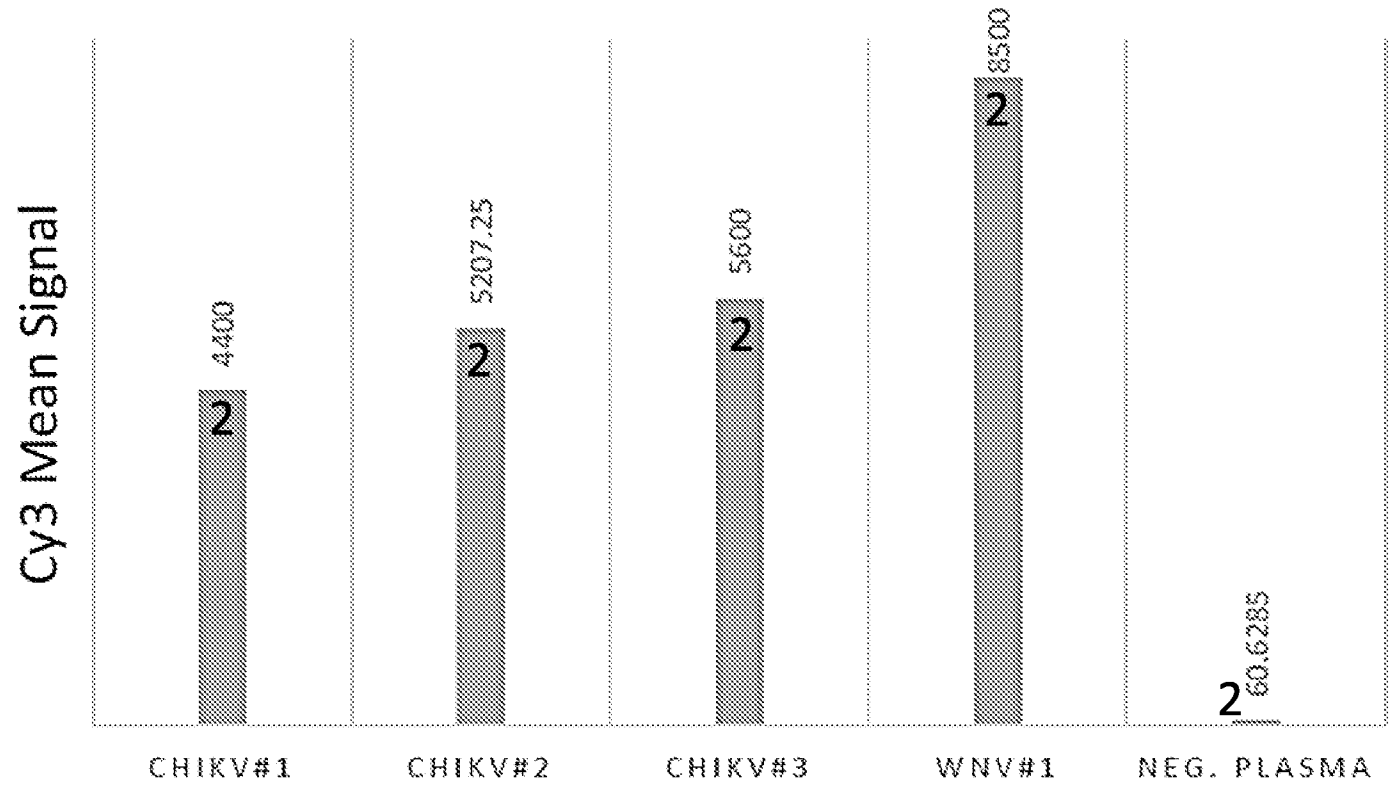
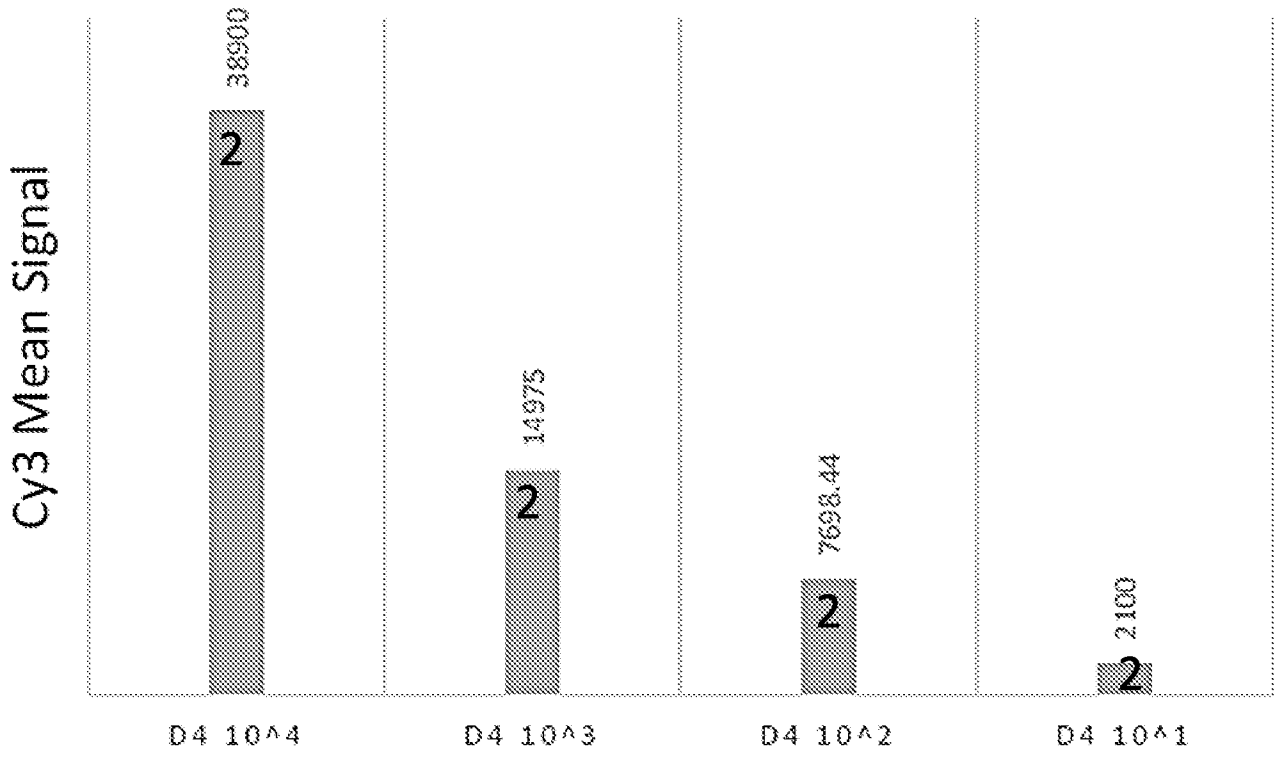

Cy3 Mean Signal
4400
5207.25
5600
8500
60.6285
CHIKV#1
CHIKV#2
CHIKV#3
WNV#1
NEG. PLASMA

FIG. 2C


Cy3 Mean Signal
38900
2
14975
2
7698.44
2
2100
2
D4 10^4
D4 10^3
D4 10^2
D4 10^1

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2020/016262

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12Q1/70
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, Sequence Search, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2012/002594 A1 (BIONEER CORP [KR]; LEE CHUNG-HYUN [KR] ET AL.) 5 January 2012 (2012-01-05) example 2 table 1 abstract the whole document	1-8,25, 26,28-38
A	US 2013/157258 A1 (BARTELS DOUGLAS J [US] ET AL) 20 June 2013 (2013-06-20) paragraphs [0112], [0146] abstract the whole document	1-8,25, 26,28-38

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[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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 April 2020	25/06/2020

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	Helliot, Bertrand

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2009/087685 A2 (PREMAS BIOTECH PVT LTD [IN]; SONI RAJEEV [IN] ET AL.) 16 July 2009 (2009-07-16) page 9, lines 16-26 abstract the whole document	1-8,25, 26,28-38
A	US 2012/088904 A1 (BARTELS DOUGLAS JOHN [US] ET AL) 12 April 2012 (2012-04-12) example 2 abstract the whole document	1-8,25, 26,28-38
X	CN 106 011 309 A (KAIJIE BIOLOGICAL ENG CO LTD) 12 October 2016 (2016-10-12)	1-3,5-7, 25,28-38
A	table 1 sequence 3 paragraphs [0029] - [0030] abstract the whole document	4,8,26
X,P	VALERIA DE GIORGI ET AL: "A microarray-based pathogen chip for simultaneous molecular detection of transfusion-transmitted infectious agents", JOURNAL OF TRANSLATIONAL MEDICINE, vol. 17, no. 1, 14 May 2019 (2019-05-14), XP055687373, DOI: 10.1186/s12967-019-1905-4 figure 1 abstract the whole document	1-8,25, 26,28-38

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2020/016262

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-8, 25, 26, 28-38(all partially)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-8, 25, 26, 28-38(all partially)

A probe set comprising probes having at least 90% identity with the nucleic acid sequences of SEQ ID 1-110 or a subset thereof.
A microarray comprising the probe set of claim 1.
A method for detecting HCV type 1 with the probe set of claim 1.

2-14. claims: 1-8, 25, 26, 28-38(all partially)

A probe set or a subset thereof.
A microarray.
A method for detecting one pathogen selected within Chikungunya virus, Dengue virus, Dengue virus type 3, Dengue virus type 4, Hepatitis A virus, Hepatitis C virus type 2, Hepatitis C virus type 3, Hepatitis E virus, Human immunodeficiency virus type 1, Human immunodeficiency virus type 2, Human T-lymphotropic virus type I, Human T-lymphotropic virus type II, West Nile virus, and Zika virus.

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15. claims: 9-16, 39(completely); 25, 27-37(partially)

A probe set comprising the probes listed as SEQ ID N° 1770-2647, or subset thereof;
An array;
A method for detecting one pathogen selected within cytomegalovirus, Epstein Barr virus subtype B95-8, Epstein Barr virus subtype AG876, human herpes virus 8, Hepatitis B virus subtype adw, Hepatitis B virus subtype ayw, Hepatitis B virus subtype adr, Hepatitis B virus subtype ayr, human parvovirus B 19, human papillomavirus type 6, human papillomavirus type 11, human papillomavirus type 16, and human papillomavirus type 18..

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16. claims: 17-24, 40(completely); 25, 27-37(partially)

A probe set comprising the probes listed as SEQ ID N° 2648-3207, or subset thereof;
An array;
A method for detecting one pathogen selected within Treponema pallidum, Ehrlichia chaffeensis, Ehrlichia ewingii, Ehrlichia muris, Borrelia burgdorferi, Coxiella burnetii, Trypanosoma brucei, Trypanosoma cruzi Leishmania major, Babesia microti, Plasmodium falciparum, and Plasmodium vivax.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2020/016262

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