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(12) **United States Patent**
Nyce(10) **Patent No.:** US 6,825,174 B2
(45) **Date of Patent:** Nov. 30, 2004(54) **COMPOSITION, FORMULATIONS & METHOD FOR PREVENTION & TREATMENT OF DISEASES AND CONDITIONS ASSOCIATED WITH BRONCHOCONSTRICTION, ALLERGY(IES) & INFLAMMATION**(75) Inventor: **Jonathan W. Nyce**, Titusville, NJ (US)(73) Assignee: **East Carolina University**, Greenville, NC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 258 days.

(21) Appl. No.: **09/093,972**(22) Filed: **Jun. 9, 1998**(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 09/016,464, filed on Jan. 30, 1998, and a continuation-in-part of application No. 08/757,024, filed on Nov. 26, 1996, now Pat. No. 6,025,339, and a continuation-in-part of application No. 08/472,527, filed on Jun. 7, 1995, now Pat. No. 6,040,296, and a continuation-in-part of application No. 08/474,497, filed on Jun. 7, 1995, now Pat. No. 5,994,315, said application No. 08/757,024, is a continuation-in-part of application No. 08/472,527, filed on Jun. 7, 1995, now Pat. No. 6,040,296.

(51) **Int. Cl.**⁷ **A01N 43/04**; C12N 15/87; A61K 31/07; C07H 21/04(52) **U.S. Cl.** **514/44**; 435/6; 435/325; 435/375; 435/455; 536/24.3; 536/24.31; 536/24.33; 536/24.5(58) **Field of Search** 536/23.1, 24.3, 536/24.31, 24.5; 514/44; 435/91.1, 6, 375, 325, 69.1, 320.1(56) **References Cited****U.S. PATENT DOCUMENTS**5,320,962 A * 6/1994 Stiles et al. 435/252.3
5,514,788 A * 5/1996 Bennett et al. 536/23.1
5,733,572 A 3/1998 Unger et al.
5,994,315 A * 11/1999 Nyce et al. 514/44
6,207,646 B1 3/2001 Krieg et al.**FOREIGN PATENT DOCUMENTS**WO 9310820 6/1993
WO 9312756 7/1993
WO 9402605 2/1994
WO 9640162 12/1996
WO WO9640162 A1 * 12/1996 A61K/31/70
WO WO9640266 A1 * 12/1996 A61K/48/00
WO 9640266 12/1996
WO 9811211 3/1998
WO 9823294 6/1998
WO 9960166 11/1999
WO 0009525 2/2000**OTHER PUBLICATIONS**Bracket et al., Activities of caffeine, theophylline, and enprofylline analogs as tracheal relaxants, *Biochem. Pharmacol.* (1990), 39(12), 1897-904, 1990.*Rahman, M. Sayeedur, et al., "Nebularine (9-2'-deoxy-beta-D-ribofuranosylpurine) has the template characteristics of adenosine in vivo and in vitro", *Mutation Research*, vol. 377, No. 2, 1997, pp. 263-268.Loakes, D. et al., "5-Nitroindole as an universal base analogue", *Nucleic Acids Research*, vol. 22, No. 20, 1994, pp. 4039-4043.Ohtsuka, E. et al., "An alternative approach to deoxyoligonucleotides as hybridization probes by insertion of deoxyinosine at ambiguous codon positions", *Journal of Biological Chemistry*, vol. 260, No. 5, Mar. 10, 1985, pp. 2605-2608.Nichols, R. et al., "A universal nucleoside for use at ambiguous sites in DNA primers", *Nature*, vol. 369, No. 6480, Jun. 9, 1994, pp. 492-493.Metzger W. James et al., "Oligonucleotide therapy of allergic asthma", *Journal of Allergy and Clinical Immunology*, vol. 104, No. 2 part 1, Aug. 1999, pp. 260-266.Nyce, J.W., "Respirable Antisense Oligonucleotides as Novel Therapeutic Agents for Asthma and Other Pulmonary Diseases", *Exp. Opin. Invest. Drugs*, 6(9): 1-7, (1997).

(List continued on next page.)

Primary Examiner—John L. LeGuyader*Assistant Examiner*—Janet L. Epps-Ford(74) *Attorney, Agent, or Firm*—Albert P. Halluin; Robin C. Chiang; Howrey Simon Arnold & White, LLP(57) **ABSTRACT**

A pharmaceutical composition effective for preventing and alleviating bronchoconstriction, lung allergy(ies) and inflammation comprises a surfactant and an oligonucleotide anti-sense to an adenosine receptor gene, flanking regions or regions bridging the intro/exon borders, analogues which bind thymidine but have low adenosine content or exhibit lower or no adenosine receptor agonist activity, or antisense to the corresponding mRNA, combinations, sales or mixtures thereof, and a carrier, and optionally other therapeutic agents and formulation products. The composition is formulated for administration by a multiplicity of routes, and finds applications in the prevention and treatment of asthma, kidney damage or failure, ARDS, pulmonary vasoconstriction, inflammation, allergies, impeded respiration, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancer, to counter the renal damage and failure associated with ischemic conditions and the administration of certain drugs and radio active diagnostic and therapeutic agents, as well as a joint therapy with the administration of adenosine and adenosine-like agents in the treatment of arrhythmias such as SVT and in cardiovascular function tests (stress tests). The present agent(s) is (are) also suitable for administration before, during and after other treatments, including radiation, chemotherapy, antibody therapy, phototherapy and cancer, and other types of surgery.

16 Claims, 4 Drawing Sheets

OTHER PUBLICATIONS

Nyce, J.W. et al., "DNA Antisense Therapy for Asthma in an Animal Model", *Nature*, 385(20): 721-725, (1997).

Akhter, S. et al., "In Vivo Studies with Antisense Oligonucleotides", *Trends in Pharmacol. Sciences*, 18: 12-18, (1997).

Webb, A. et al., "BCL-2 Antisense Therapy in Patients with Non-Hodgkin Lymphoma", *Lancet*, 349(9059): 1137-41, (1997).

Yazaki, T. et al., "Treatment of Glioblastoma U-87 by Systemic Administration of an Antisense Protein Kinase C-Alpha Phosphothioate Oligodeoxynucleotide", *Molecular Pharmacol.*, 50(2): 236-242, (1996).

Farmer, S.G. et al., "Adenosine Receptor-mediated Contraction and Relaxation of Guinea-pig Isolated Tracheal Smooth Muscle: Effects of Adenosine Antagonists", *Br. J. Pharmacol.*, 95: 371-378 (1988).

Marquardt, D.L. et al., "Aminophylline Exposure Alters Mouse Bone Marrow-derived Mast Cell Adenosine Responsiveness", *J. Allergy Clin Immunol.* 78: 462-469, (1986).

Stull, R.A. et al., "Predicting antisense oligonucleotide inhibitory efficacy: a computational approach using histograms and thermodynamic indices", *Nucleic Acids Research*, 20(13): 3501-3508 (1992).

Monia, B.P. et al., "Selective Inhibition of Mutant Ha-ras mRNA Expression by Antisense Oligonucleotides", *J. Biol. Chem.*, vol. 267 No. 28, Issue of Oct. 5, 1992-1996 (1992).

Pasternak, Gavril W., "Molecular Neuropharmacology", *The Scientist*, 10(8):14 (1996).

Akhtar, S. et al., "In vivo studies with antisense oligonucleotides", *Trends in Pharmacological Science, Current Techniques*, 18:12-18, (1997).

Nyce, J.W., "Antisense oligonucleotides as emerging drugs", *Emerging Drugs*, 3:365-375, (1998).

SIGMA: *Alphabetical List of Compounds, Material Safety Data Sheet and Polypropylene*, (2000).

National Library of Medicine: IGM Full Record Screen: Hill et al., *PNASUSA*, Apr. 14, 1998; 95(8):4258-63.

National Library of Medicine: IGM Full Record Screen: Medical Research Council et al., *Nucleic Acids Res* Oct. 11, 1994; 22(20):4039-43.

* cited by examiner

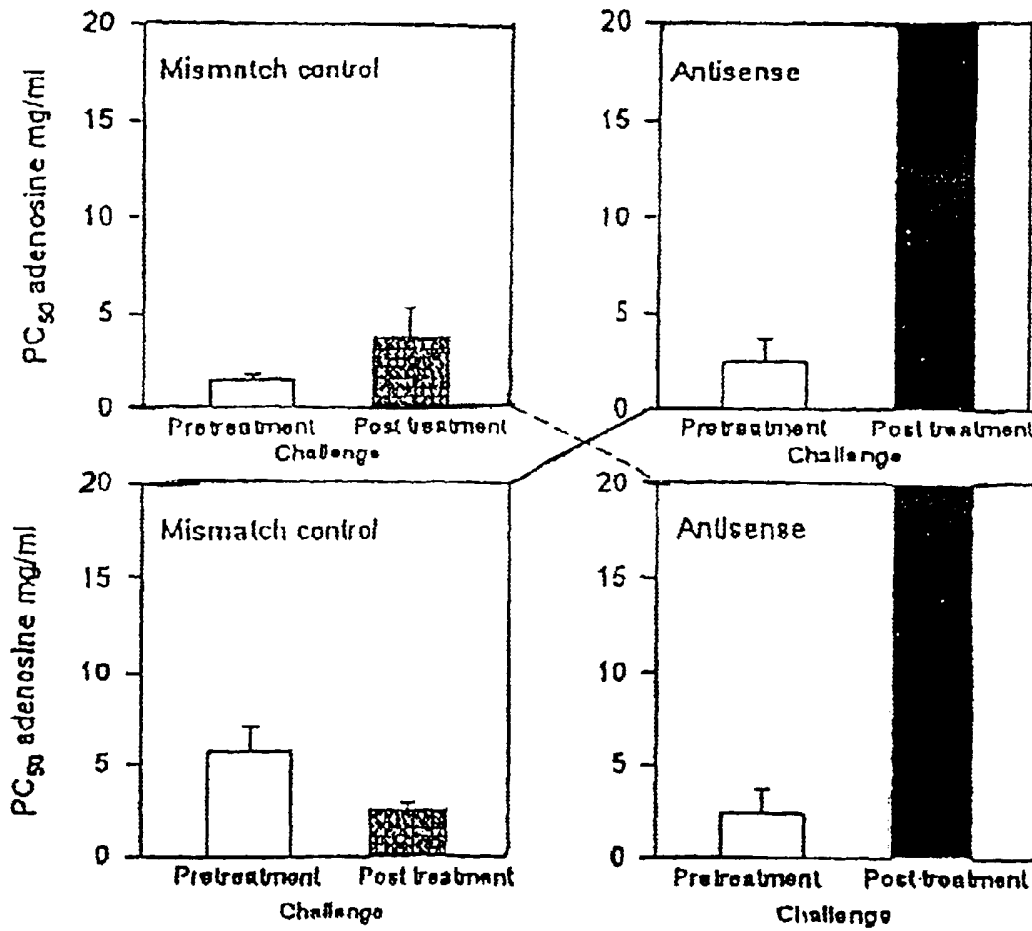


FIGURE 1

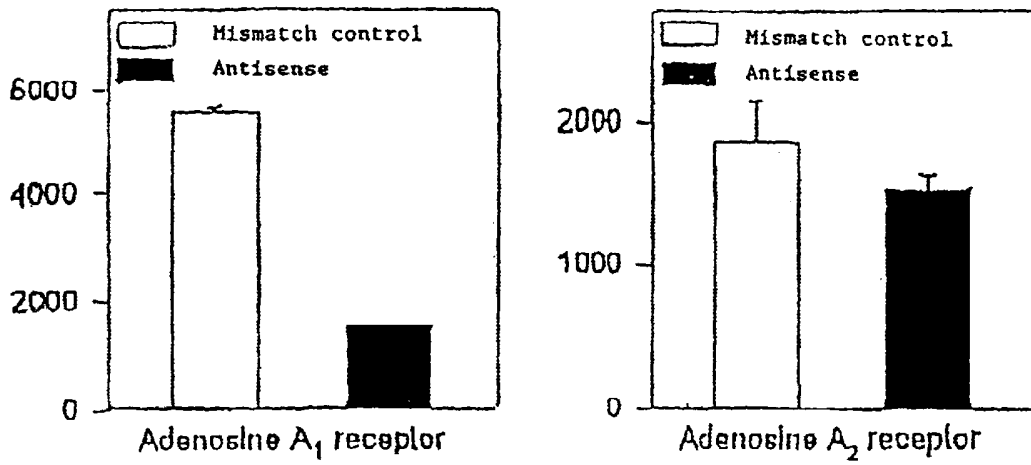


FIGURE 2

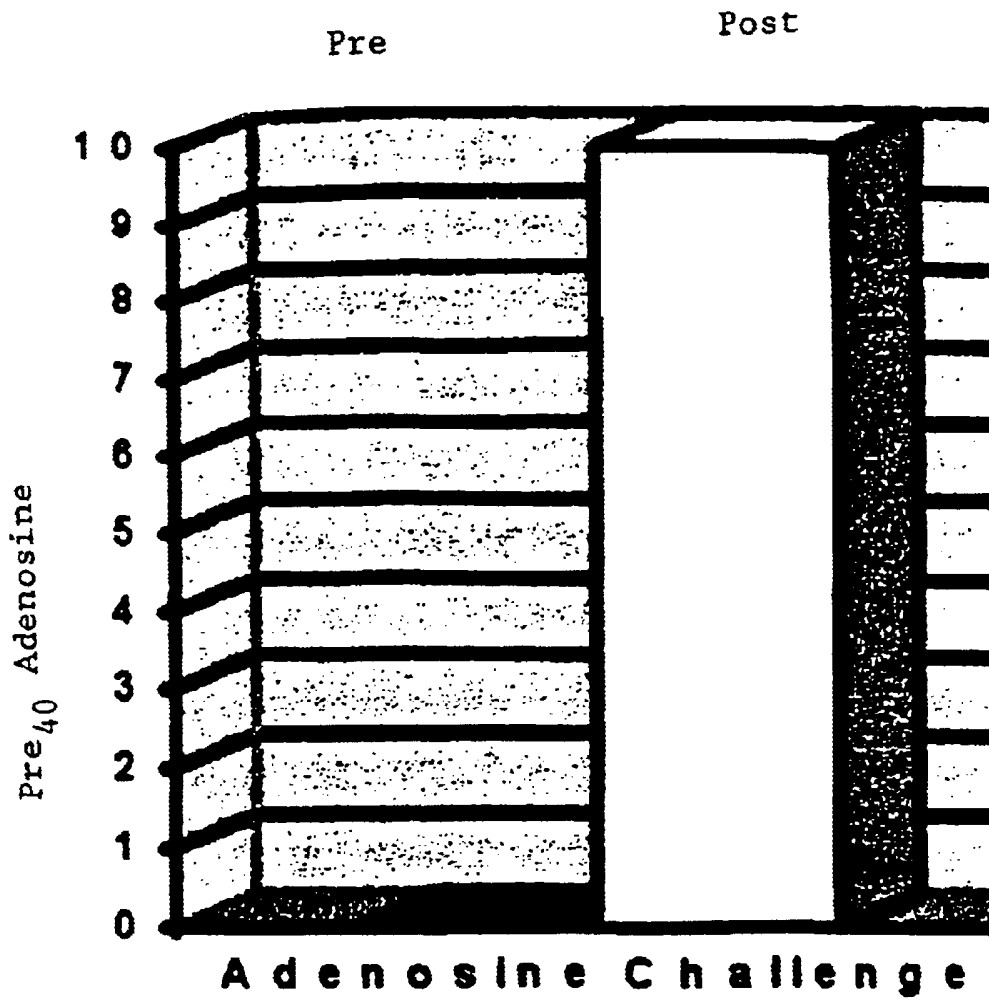


FIGURE 3A Monkey 1

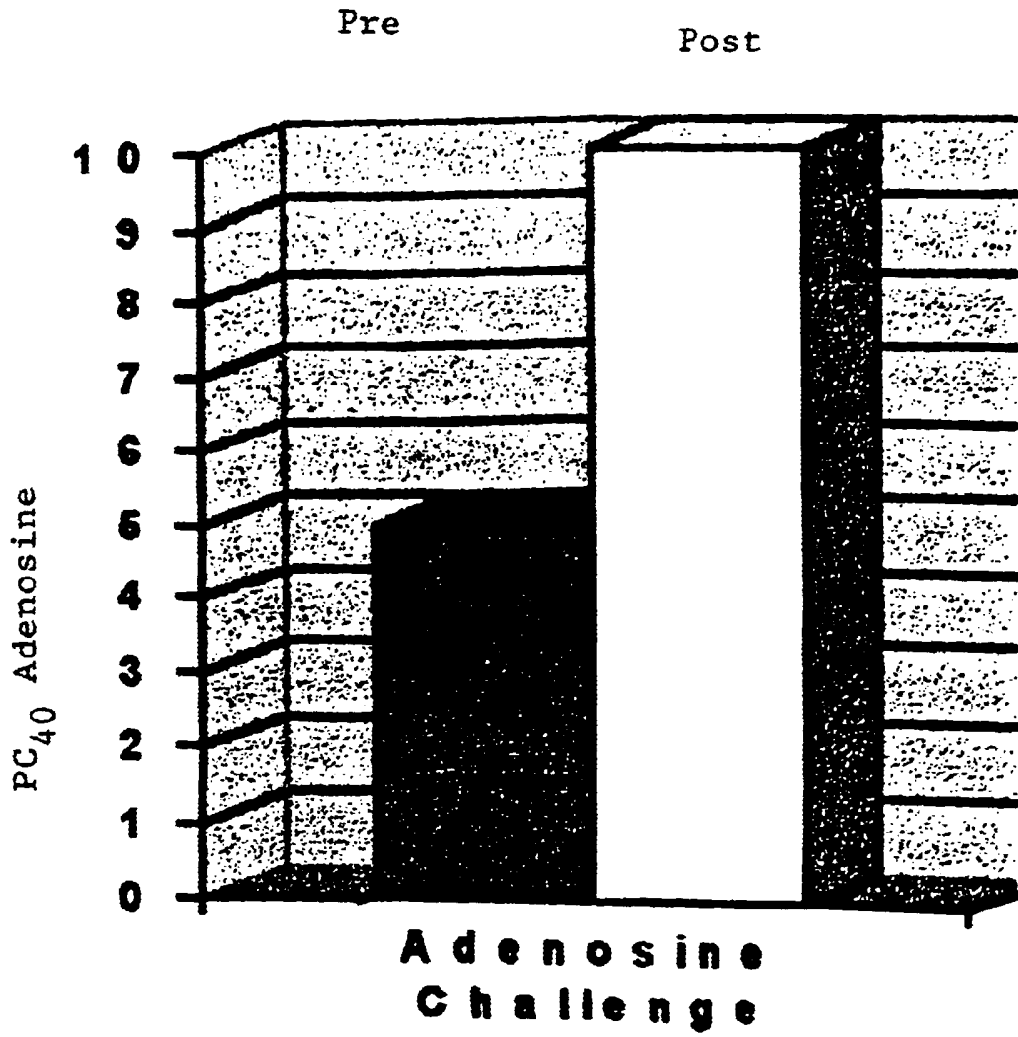


FIGURE 3B

**COMPOSITION, FORMULATIONS &
METHOD FOR PREVENTION &
TREATMENT OF DISEASES AND
CONDITIONS ASSOCIATED WITH
BRONCHOCONSTRICTION, ALLERGY(IES)
& INFLAMMATION**

RELATED APPLICATIONS

This application is a continuation-in-part of U.S. patent application Ser. No. 08/472,527, filed Jun. 7, 1995, CPA filed Feb. 27, 1998, now U.S. Pat. No. 6,040,296; a continuation-in-part of U.S. patent application Ser. No. 08/757,024, filed Nov. 26, 1996, by Jonathan W. Nyce, now U.S. Pat. No. 6,025,339, which is a continuation-in-part of U.S. patent application Ser. No. 08/472,527, filed Jun. 7, 1995; and a continuation-in-part of U.S. patent application Ser. Nos. 08/474,497 filed Jun. 7, 1995, now U.S. Pat. No. 5,994,315, and 09/016,464, filed Jan. 30, 1998, by Jonathan W. Nyce and W. James Metzger, CPA filed Jun. 3, 1998, now pending.

This invention was made at least partially with United States Government support under grant RO1CA47217-06 from National Cancer Institute. The Government may have certain rights to this invention.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to compositions and formulations of oligonucleotides and surfactants, which are highly effective for the prevention and treatment of diseases and conditions associated with difficult breathing, bronchoconstriction, impeded airways, allergy(ies) and inflammation of the lungs.

2. Description of the Background

Adenosine A₁-mediated diseases and conditions, such as asthma and Acute Respiratory Distress Syndrome (ARDS), among others, are common diseases in industrialized countries, and in the United States alone account for extremely high health care costs. These diseases or conditions have recently been increasing for an alarming rate, both in terms of prevalence and mortality. Occupational asthma is predicted to be the preeminent occupational lung disease in the next decade. In many of these, the underlying causes remain poorly understood.

Adenosine, a natural nucleoside, may constitute an important natural mediator of bronchial asthma and ARDS. The potential role of adenosine in these diseases or conditions is supported by experimental findings that, for example and in contrast to normal individuals, asthmatics respond to aerosolized adenosine with marked bronchoconstriction. Similarly, asthmatic rabbits produced using the dust mite allergic rabbit model of human asthma also were shown to respond to aerosolized adenosine with marked bronchoconstriction, while non-asthmatic rabbits showed no response. Recent work using this model system has suggested that adenosine-mediated bronchoconstriction in asthma is mediated through the stimulation of the adenosine A₁ receptor. Other experimental data suggest the possibility that adenosine receptors may also be involved in allergic and inflammatory responses.

Adenosine receptor antagonists, such as theophylline, are known to counter adenosine-mediated bronchoconstriction in asthmatic rabbits. Pre-treatment with another adenosine A₁-specific receptor antagonist, 8-cyclopentyl-1, 3-dipropylxanthine (DPCPX), also inhibited adenosine-

mediated bronchoconstriction and bronchial hyper-responsiveness in an allergic rabbit model. The therapeutic potential, however, of currently available adenosine A₁ receptor-specific antagonists is drastically limited by their toxicity. Theophylline, for example, although widely used in the treatment of asthma, may result in frequent and significant toxicity because of its narrow therapeutic dose range.

The availability of a novel strategy to prevent and/or counter adenosine receptor-associated effects of disorders and conditions associated with symptoms such as pulmonary bronchoconstriction, impeded respiration. Inflammation and allergy(ies), among others, of great practical importance. Such technology is clearly applicable to the treatment of ailments including Acute Respiratory Disorder Syndrome (ARDS), asthma, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer would clearly find an immediate therapeutic application. Similarly, a composition and method which are suitable for administration before, during and after other treatments, included radiation, chemotherapy, antibody therapy, phototherapy an cancer, and other types of surgery, and that may be effectively administered preventatively, prophylactically or therapeutically, and in conjunction with other therapies, or by itself for conditions without known therapies or as a substitute for therapies that have significant negative side effects is also of immediate clinical application.

SUMMARY OF THE INVENTION

The present invention relates to a pharmaceutical composition effective to alleviate bronchoconstriction, allergy and/or inflammation, comprising a surfactant, and an anti-adenosine A₁, A_{2b} or A₃ receptor or anti-adenosine A_{2a} receptor oligonucleotide exhibiting at least some adenosine A₁, A_{2b} or A₃ receptor inhibitory activity, analogues thereof which bind to thymidine but evidence either reduced adenosine content or reduced adenosine receptor activating activity, combinations thereof, physiologically acceptable salts thereof or mixtures thereof. The composition of this invention may be formulated for administration by various different routes, such as topical and systemic, e.g. oral, parenteral, inhalable, and the like, and are generally administered in amounts which prevent or reduce adenosine receptor associated side effects such as bronchoconstriction, allergy(ies), inflammation and airway obstruction, among others. The present compositions and formulations, thus, are suitable for the prevention and alleviation of adenosine receptor associated bronchoconstriction, allergy and/or inflammation and, therefore, in the treatment of Acute Respiratory Disorder Syndrome (ARDS), asthma, side effects associated with adenosine administration in SupraVentricular Tachycardia (SVT) and in stress tests to hyper-sensitized individuals, ischemia, renal damage or failure induced by certain drugs, respiratory distress syndrome, pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), cancers such as leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases,

etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer, among others. The present technology is also applicable in conjunction with other procedures and/

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates the effects of A₁ adenosine receptor anti-sense oligonucleotides and mismatch control anti-sense oligonucleotides on the dynamic compliance of the bronchial airway in a rabbit model. The two stars represent significant difference at p<0.01, Student's t-test.

FIG. 2 illustrates the specificity of A₁ adenosine receptor anti-sense oligonucleotides as indicated by the A₁ and A₂ adenosine receptor number present in airway tissue treated with A₁ adenosine receptor anti-sense oligonucleotides.

FIGS. 3a and 3b illustrate the response of two hyper-responsive monkeys (ascaris sensitive) to a challenge with inhaled adenosine. The right hand bar represents the PC₄₀ adenosine after administration of the Oligo I, whereas the left hand bar represents the PC₄₀ adenosine value prior to treatment with the Oligo I. The PC₄₀ adenosine, represented in the Y axis, is the amount of adenosine in mg that causes a 40% decrease in dynamic compliance in hyper-responsive airways.

FIG. 3a represents the experimental results obtained without and with pre-treatment of a first monkey with a phosphorothioate agent of the invention (anti-sense oligo; I; SEQ. ID NO:1), prior to administration of adenosine.

FIG. 3b represents the experimental results obtained without and with pre-treatment of a second monkey with a phosphorothioate agent of this invention (anti-sense oligo I; SEQ. ID NO:1), prior to administration of adenosine.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

This invention arose from a desire by the inventor to improve on his own prior technology for the treatment of acute bronchoconstriction allergy and/or inflammation associated with various diseases and conditions, including Acute Respiratory Distress Syndrome (ARDS), asthma, adenosine administration e.g. in the treatment of Supra Ventricular Tachycardia (SVT) and other arrhythmias, and in stress tests to hyper-sensitized individuals, ischemia, renal damage of failure induced by certain drugs, infantile respiratory distress syndrome, pain cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas, and the like, including colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular carcinoma, kidney cancer, melanoma, hepatic metastases, etc., as well as all types of cancers which may metastasize or have metastasized to the lung(s), including breast and prostate cancer. The inventor, in addition, wanted to provide a treatment which would improve the outcome and life style of patients undergoing other procedures or being administered other therapies, including antibody therapy, chemotherapy, radiation, phototherapy, and surgery e.g. cancer surgery, and that could be effectively administered preventatively, prophylactically or therapeutically.

He succeeded in this endeavor and is providing in this patent novel and improved compositions, formulations and

methods which afford greatly improved results when compared with previously known treatments for preventing and alleviating bronchoconstriction, allergy(ies), inflammation, breathing difficulties and blockage of airways. The nucleic acid and surfactant components of the bare bone composition of the invention may be formulated alone with a carrier, or with other therapeutic agents and formulation agents as is known in the art. The compositions of this invention, thus, may be incorporated into a variety of formulations for systemic and topical administration.

In the past, anti-sense oligonucleotides received considerable theoretical consideration as being potentially useful as pharmacologic agents for the treatment of human disease. R. Wagner, *Nature* 372: 333-335 (1994). However, it has been difficult to actually apply these molecules to alleviating and curing human diseases. Once important consideration in the pharmacologic application of these molecules has been the failure of various routes of administration to deliver the compounds to its target while avoiding invading the circulation and, therefore, other untargeted tissues which, thus, produces a plethora of side effects. Most in vivo experiments utilizing anti-sense oligonucleotides involved a direct application of the oligo to limited regions of the brain. See, C. Wahlestedt, *Trends in Pharmacol. Sci.* 15: 42-46 (1994); J. Lai et al., *Neuroreport* 5: 1049-1052 (1994); K. Standifer et al., *Neuron* 12: 805-810 (1994); A. Akabayashi et al., *Brain Res.* 21: 55-61 (1994). Others applied them into the spinal fluid See, e.g. L. Tseng et al., *European J. Pharmacol.* 258: R1-3 (1994); R. Raffa et al., *European J. Pharmacol.* 258: R5-7 (1994); F. Gillardon et al., *European J. Neurosci.* 6: 880-884 (1994). Such applications, clearly, have no practical clinical utility due to their invasive nature. Thus, the systemic administration of anti-sense oligonucleotides poses significant problems with respect to their pharmacologic application, not the least of which is the difficulty in selectively targeting disease-involved tissues.

The systemic administration of anti-sense oligonucleotides also poses significant problems with respect to their pharmacologic application, not the least of which is difficult in selectively targeting disease-involved tissues. The respiratory system, and in particular the lung, as the ultimate port of entry into the organism, however, is an excellent route of administration for anti-sense oligonucleotides. This is so not only for the treatment of lung disease, but also when utilizing the lung as a means for delivery, particularly because of its non-invasive and tissue-specific nature. Thus, local delivery of antisense oligonucleotides directly to the target tissue enables the therapeutic use of these compounds. Formivirsen (ISIS 2302) is an example of a local drug delivery into the eye to treat cytomegalovirus (CMV) retinitis, for which a new drug application has been filed by ISIS. The administration of a drug through the lung offers the further advantage that inhalation is non-invasive whereas direct injection in the vitreous of the eye is invasive.

The composition and formulations of this invention have been shown to have an exceedingly high efficacy for preventing and treating a disease or condition associated with bronchoconstriction, difficult breathing, impeded and obstructed lung always, allergy(ies) and/or inflammation. The examples provided below show a complete inhibition of such adenosine receptor associated symptoms in a rabbit model for human bronchoconstriction allergy(ies) and inflammation as well as the elimination of the ability of the adenosine receptor agonist par excellence, adenosine, to cause bronchoconstriction in hyper-responsive monkeys, which are animal models for human hyper-responsiveness to adenosine receptor agonists. The pharmaceutical composi-

tion and formulations of the invention, therefore, are suitable for preventing and alleviating the symptoms associated with stimulation of adenosine receptors, such as the adenosine A₁ receptors. The compositions and formulations of this invention, thus, are also suitable for prevent the untoward side effects of adenosine-mediated hyperresponsive in certain individuals, which are generally seen in disease affecting respiratory activity. Examples of disease and conditions, which may be treated preventatively, prophylactically and therapeutically with the compositions and formulations of this invention, are pulmonary vasoconstriction, inflammation, allergies, asthma, impeded respiration, Acute Respiratory Distress Syndrome (ARDS), renal damage and failure associated with ischemia as well as the administration of certain drugs, side effects associated with adenosine administration e.g. in SupraVentricular Tachycardia (SVT) and in adenosine stress tests, infantile Respiratory Distress Syndrome (infantile RDS), pain, cystic fibrosis, pulmonary hypertension, pulmonary vasoconstriction, emphysema, chronic obstructive pulmonary disease (COPD), and cancers such as leukemias, lymphomas, carcinomas, and the like, e.g. colon cancer, breast cancer, lung cancer, pancreatic cancer, hepatocellular, kidney cancer, melanoma, hepatic metastases, etc., as well as all other metastatic cancers, e.g. cancers with metastasized to the lung(s), breast and prostate. The present compositions and formulations are suitable for administration before, during and after other treatments, including radiation, chemotherapy, antibody therapy, phototherapy an cancer, and other types of surgery. The present compositions and formulations may also be administered effectively as a substitute for therapies that have significant negative side effects.

All nucleotide sequences are represented in this patent by a single strand only, and in the 5' to 3' direction, from left to right. All nucleotide and amino acids are represented in the manner recommended by the IUPAC-IUB Biochemical Nomenclature Commission, or (for amino acids) by three letter code, in accordance with 37 CFR 1.822 and established usage. See, e.g., PatentIn User Manual, 99–102 (Nov. 1990) (U.S. Patent and Trademark Office, Office of the Assistant Commissioner for Patents, Washington, D.C. 20231); U.S. Pat. No. 4,871,670 to Hudson et al., at col. 3, lines 20–43. The relevant sections of the disclosures of the above cited, and of all other patents and references cited in this patent are incorporated herein by reference.

The method of the present invention may be used to reduce adenosine receptor associated bronchoconstriction in the lungs of a subject for any reason, including, but not limited to, bronchoconstriction allergy(ies) and/or inflammation. The compositions and formulations of the invention comprise a surfactant and an oligonucleotide which is anti-sense to the adenosine A₁, A_{2b} and A₃ receptors have shown to be effective in the down-regulation of the adenosine A₁, A_{2b} or A₃ receptors, respectively, in the cell. Others which are anti-sense to the adenosine A₂ receptors are also effective as long as they have some adenosine A₁ inhibitory activity. One novel feature of this treatment, as compared to traditional treatments for adenosine-mediated bronchoconstriction and other symptoms, is that the compositions and formulations of this invention may be administered directly into the respiratory system of an individual, and even to his/her lungs. In addition, the present treatment may reduce the amount or level of a receptor proteins itself rather than merely acting at the receptor as is the case with treatments and/or where the agent is merely an antagonist acting at the receptor site. The selective characteristic of the present compositions and formulations along with their administration by a selected route results in reduced toxicity.

As used herein, the terms “prevent”, “preventing”, “treat” or “treating” refer to a preventive or therapeutic treatment which decreases the likelihood that the subject administered such treatment will manifest symptoms associated with adenosine receptor stimulation. The term “down-regulate” refers to inducing a decrease in production, secretion or availability and, thus, a decrease in concentration of intracellular adenosine A₁, A_{2b} or A₃ receptor or an increase in concentration of the adenosine A₂ receptor. Although the present invention is primarily concerned with the treatment of human subjects, it is also applicable to the treatment of animals, such as other vertebrates, including mammals, large and small, wild and domesticated, including pets, e.g. dogs and cats, for veterinary purposes. In general, “anti-sense” refers to small, many times synthetic, oligonucleotides, resembling single-stranded DNA, targeted to a specific gene, its flanking regions, mRNA or protein encoded by the gene and mRNA, which may be utilized for inhibiting gene expression by inhibiting the function of the target messenger RNA (mRNA). Milligan, J. F. et al., *J. Med. Chem.* 36(14), 1923–1937 (1993). The present invention, thus, is intended for inhibiting gene expression of the adenosine A₁, A_{2b} and A₃ receptor as well as for promoting the gene expression of the adenosine A₂ receptor. As is generally known in the art, the inhibition of gene expression may be brought about through anti-sense oligonucleotide hybridization to the coding (sense) sequences in a specific messenger RNA (mRNA) target, e.g. by hydrogen bonding according to Watson-Crick base pairing rules. In general, the exogenously administered anti-sense oligos decrease the mRNA and protein levels of the target gene or cause changes in the growth characteristics or shapes of the cells. *Ibid.* See, also Helene, C. and Toulme, J., *Biochim. Biophys. Acta* 1049: 99–125 (1990); Cohen, J. S., Ed., *Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression*; CRC Press: Boca Raton, Fla. (1987). As used herein, “adenosine receptor anti-sense oligonucleotide” is a short sequence of synthetic nucleotide that (1) hybridizes to any coding sequence in an mRNA which codes for an adenosine receptor, e.g., the adenosine A₁, A_{2b} or A₃ receptor, under in vivo hybridization conditions described below, and that (2) upon hybridization causes a decrease in gene expression of the adenosine A₁, A_{2b} or A₃ receptor.

The mRNA sequence of the adenosine A₁, A_{2b} and A₃ receptors may be derived from the DNA base sequences of the genes expressing either the adenosine A₁, A_{2b} and A₃ receptors. The sequence of the genomic human adenosine A₁ receptor is known and is disclosed in U.S. Pat. No. 5,320,962 to G. Stiles et al. The adenosine A_{2b} receptor is also known. See, GenBank, Accession No. X68486; GenBank Accession No. X68487. The adenosine A₃ receptor has been cloned, sequenced and expressed in rat and humans. See, F. Zhou et al., *Proc. Nat'l Acad. Sci. (USA)* 89:7432 (1992); M. A. Jacobson et al., U.K. Patent Application No. 9304582.1 (1993). The antisense oligonucleotide that down-regulate the production of the adenosine A₁, A_{2b} and A₃ receptor may be produced in accordance with standard techniques.

The anti-sense agent of this invention binds specifically with any sequence of a mRNA molecule which encodes an adenosine A₁, A_{2a}, A_{2b} or A₃ receptor, and prevents translation of the mRNA molecule. In one embodiment of the present invention, the anti-sense oligonucleotide has one of the following sequences. In another preferred embodiment, the agent of the invention comprises fragments of these sequences or their combinations as well as sequences with decreased adenosine contents when compared with the natu-

ral sequences, where one or more adenosines are replaced by a universal base or adenosine analogue which does not activate adenosine receptors, particularly adenosine A₁ receptors.

5'-GAT GGA GGG CGG CAT GGC GGG-3' (SEQ. ID NO:1)

5'-GTT GTT GGG CAT CTT GCC-3' (SEQ. ID NO:3)

5'-GTG GGC CTA GCT CTC GCC-3' (SEQ. ID NO:5)

In another embodiment of the invention, the sequence of the anti-sense oligonucleotide brackets the initiation codon of the adenosine A₁ receptor, for example that of the human receptor mRNA. Preferred human adenosine A₁ receptor anti-sense oligonucleotide may have the SEQ. ID NO:7 or any one of its fragments, including one of the following sequences. In another preferred embodiment, fragments of these sequences and/or their combinations are also within the confines of the invention.

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (SEQ. ID NO:7)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 1) (SEQ. ID NO:8)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 2) (SEQ. ID NO:9)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 3) (SEQ. ID NO:10)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 4) (SEQ. ID NO:11)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 5) (SEQ. ID NO:12)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 6) (SEQ. ID NO:13)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 7) (SEQ. ID NO:14)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC CGG CAC A-3' (Fragment 8) (SEQ. ID NO:15)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 9) (SEQ. ID NO:16)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CA-3' (Fragment 10) (SEQ. ID NO:17)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 11) (SEQ. ID NO:18)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 12) (SEQ. ID NO:19)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 13) (SEQ. ID NO:20)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 14) (SEQ. ID NO:21)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 15) (SEQ. ID NO:22)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 16) (SEQ. ID NO:23)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 17) (SEQ. ID NO:24)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT-3' (Fragment 18) (SEQ. ID NO:25)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG CA-3' (Fragment 19) (SEQ. ID NO:26)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CGG C-3' (Fragment 20) (SEQ. ID NO:27)

5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 21) (SEQ. ID NO:28)

5'-GGC GGC CTG GAAAGC TGA GAT GGA GGG CG-3' (Fragment 22) (SEQ. ID NO:29)

5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG C-3' (Fragment 23) (SEQ. ID NO:30)

5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 24) (SEQ. ID NO:31)

5'-GGC GGC CTG GAA AGC TGA GAT GGA GG-3' (Fragment 25) (SEQ. ID NO:32)

5'-GGC GGC CTG GAA AGC TGA GAT GGA G-3' (Fragment 26) (SEQ. ID NO:33)

5'-GGC GGC CTG GAA AGC TGA GAT GGA-3' (Fragment 27) (SEQ. ID NO:34)

5'-GGC GGC CTG GAAAGC TGA GAT GG-3' (Fragment 28) (SEQ. ID NO:35)

5'-GGC GGC CTG GAA AGC TGA GAT G-3' (Fragment 29) (SEQ. ID NO:36)

5'-GGC GGC CTG GAA AGC TGA GAT-3' (Fragment 30) (SEQ. ID NO:37)

5'-GGC GGC CTG GAA AGC TGA GA-3' (Fragment 31) (SEQ. ID NO:38)

5'-GGC GGC CTG GAA AGC TGA G-3' (Fragment 32) (SEQ. ID NO:39)

5'-GGC GGC CTG GAA AGC TGA-3' (Fragment 33) (SEQ. ID NO:40)

5'-GGC GGC CTG GAA AGC TG-3' (Fragment 34) (SEQ. ID NO:41)

5'-GGC GGC CTG GAAAGC T-3' (Fragment 35) (SEQ. ID NO:42)

5'-GGC GGC CTG GAA AGC-3' (Fragment 36) (SEQ. ID NO:43)

5'-GGC GGC CTG GAA AG-3' (Fragment 37) (SEQ. ID NO:44)

5'-GGC GGC CTG GAA A-3' (Fragment 38) (SEQ. ID NO:45)

5'-GGC GGC CTG GAA-3' (Fragment 39) (SEQ. ID NO:46)

5'-GGC GGC CTG GA-3' (Fragment 40) (SEQ. ID NO:47)

5'-GGC GGC CTG G-3' (Fragment 41) (SEQ. ID NO:48)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 42) (SEQ. ID NO:49)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GG-3' (Fragment 43) (SEQ. ID NO:50)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG G-3' (Fragment 44) (SEQ. ID NO:51)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG-3' (Fragment 45) (SEQ. ID NO:52)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CT-3' (Fragment 46) (SEQ. ID NO:53)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG C-3' (Fragment 47) (SEQ. ID NO:54)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG-3' (Fragment 48) (SEQ. ID NO:55)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AG-3' (Fragment 49) (SEQ. ID NO:56)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 50) (SEQ. ID NO:57)

5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC-3' (Fragment 51) (SEQ. ID NO:58)
 5'-GC GGC CTG GAA AGC TGA CAT GGA GGG CGG
 CAT GGC GGG CA-3' (Fragment 52) (SEQ. ID NO:59)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG C-3' (Fragment 53) (SEQ. ID NO:60)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG-3' (Fragment 54) (SEQ. ID NO:61)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GG-3' (Fragment 55) (SEQ. ID NO:62)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC G-3' (Fragment 56) (SEQ. ID NO:63)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC-3' (Fragment 57) (SEQ. ID NO:64)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GG-3' (Fragment 58) (SEQ. ID NO:65)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT G-3' (Fragment 59) (SEQ. ID NO:66)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT-3' (Fragment 60) (SEQ. ID NO:67)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CA-3' (Fragment 61) (SEQ. ID NO:68)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG
 C-3' (Fragment 62) (SEQ. ID NO:69)
 5'-GC GGC CTG GAAAGC TGA GAT GGA GGG CGG-3'
 (Fragment 63) (SEQ. ID NO:70)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CG-3'
 (Fragment 64) (SEQ. ID NO:71)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG C-3'
 (Fragment 65) (SEQ. ID NO:72)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG-3'
 (Fragment 66) (SEQ. ID NO:73)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GG-3'
 (Fragment 67) (SEQ. ID NO:74)
 5'-GC GGC CTG GAA AGC TGA GAT GGA G-3'
 (Fragment 68) (SEQ. ID NO:75)
 5'-GC GGC CTG GAAAGC TGA GAT GGA-3' (Fragment
 69) (SEQ. ID NO:76)
 5'-GC GGC CTG GAA AGC TGA GAT GG-3' (Fragment
 70) (SEQ. ID NO:77)
 5'-GC GGC CTG GAAAGC TGA GAT G-3' (Fragment 71)
 (SEQ. ID NO:78)
 5'-GC GGC CTG GAA AGC TGA GAT -3' (Fragment 72)
 (SEQ. ID NO:79)
 5'-GC GGC CTG GAA AGC TGA GA-3' (Fragment 73)
 (SEQ. ID NO:80)
 5'-GC GGC CTG GAA AGC TGA G-3' (Fragment 74)
 (SEQ. ID NO:81)
 5'-GC GGC CTG GAAAGC TGA-3' (Fragment 75) (SEQ.
 ID NO:82)
 5'-GC GGC CTG GAAAGC TG-3' (Fragment 76) (SEQ. ID
 NO:83)
 5'-GC GGC CTG GAA AGC T-3' (Fragment 77) (SEQ. ID
 NO:84)
 5'-GC GGC CTG GAA AGC-3' (Fragment 78) (SEQ. ID
 NO:85)
 5'-GC GGC CTG GAA AG-3' (Fragment 79) (SEQ. ID
 NO:86)
 5'-GC GGC CTG GAA A-3' (Fragment 80) (SEQ. ID
 NO:87)
 5'-GC GGC CTG GAA-3' (Fragment 81) (SEQ. ID NO:88)
 5'-GC GGC CTG GA-3' (Fragment 82) (SEQ. ID NO:89)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 83)
 (SEQ. ID NO:90)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG CTG GG-3' (Fragment 84)
 (SEQ. ID NO:91)

5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG CTG G-3' (Fragment 85)
 (SEQ. ID NO:92)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG CTG-3' (Fragment 86) (SEQ.
 ID NO:93)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG CT-3' (Fragment 87) (SEQ.
 ID NO:94)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG C-3' (Fragment 88) (SEQ. ID
 NO:95)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AGG-3' (Fragment 89) (SEQ. ID
 NO:96)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC AG-3' (Fragment 90) (SEQ. ID
 NO:97)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC A-3' (Fragment 91) (SEQ. ID
 NO:98)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CAC-3' (Fragment 92) (SEQ. ID NO:99)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG CA-3' (Fragment 93) (SEQ. ID NO:100)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG C-3' (Fragment 94) (SEQ. ID NO:101)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GGG-3' (Fragment 95) (SEQ. ID NO:102)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC GG-3' (Fragment 96) (SEQ. ID NO:103)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC G-3' (Fragment 97) (SEQ. ID NO:104)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GGC-3' (Fragment 98) (SEQ. ID NO:105)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT GG-3' (Fragment 99) (SEQ. ID NO:106)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT G-3' (Fragment 100) (SEQ. ID NO:107)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CAT-3' (Fragment 101) (SEQ. ID NO:108)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG
 CA-3' (Fragment 102) (SEQ. ID NO:109)
 5'-C GGC CTG GAAAGC TGA GAT GGA GGG CGG C-3'
 (Fragment 103) (SEQ. ID NO:110)
 5'-C GGC CTG GAAAGC TGA GAT GGA GGG CGG-3'
 (Fragment 104) (SEQ. ID NO:111)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CG-3'
 (Fragment 105) (SEQ. ID NO:112)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG C-3'
 (Fragment 106) (SEQ. ID NO:113)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG-3'
 (Fragment 107) (SEQ. ID NO:114)
 5'-C GGC CTG GAA AGC TGA GAT GGA GG-3'
 (Fragment 108) (SEQ. ID NO:115)
 5'-C GGC CTG GAAAGC TGA GAT GGA G-3' (Fragment
 109) (SEQ. ID NO:116)
 5'-C GGC CTG GAA AGC TGA GAT GGA-3' (Fragment
 110) (SEQ. ID NO:117)
 5'-C GGC CTG GAA AGC TGA GAT GG-3' (Fragment
 111) (SEQ. ID NO:118)
 5'-C GGC CTG GAAAGC TGA GAT G-3' (Fragment 112)
 (SEQ. ID NO:119)
 5'-C GGC CTG GAA AGC TGA GAT-3' (Fragment 113)
 (SEQ. ID NO:120)
 5'-C GGC CTG GAA AGC TGA GA-3' (Fragment 114)
 (SEQ. ID NO:121)

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5'-C GGC CTG GAA AGC TGA G-3' (Fragment 115) (SEQ. ID NO:122)
 5'-C GGC CTG GAA AGC TGA-3' (Fragment 116) (SEQ. ID NO:123)
 5'-C GGC CTG GAA AGC TG-3' (Fragment 117) (SEQ. ID NO:124)
 5'-C GGC CTG GAA AGC T-3' (Fragment 118) (SEQ. ID NO:125)
 5'-C GGC CTG GAA AGC-3' (Fragment 119) (SEQ. ID NO:126)
 5'-C GGC CTG GAA AG-3' (Fragment 120) (SEQ. ID NO:127)
 5'-C GGC CTG GAA A-3' (Fragment 121) (SEQ. ID NO:128)
 5'-C GGC CTG GAA-3' (Fragment 122) (SEQ. ID NO:129)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 123) (SEQ. ID NO:130)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 124) (SEQ. ID NO:131)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 125) (SEQ. ID NO:132)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 126) (SEQ. ID NO:133)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 127) (SEQ. ID NO:134)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 128) (SEQ. ID NO:135)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 129) (SEQ. ID NO:136)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 130) (SEQ. ID NO:137)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 131) (SEQ. ID NO:138)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 132) (SEQ. ID NO:139)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (Fragment 133) (SEQ. ID NO:140)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (Fragment 134) (SEQ. ID NO:141)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG-3' (Fragment 135) (SEQ. ID NO:142)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GG-3' (Fragment 136) (SEQ. ID NO:143)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC G-3' (Fragment 137) (SEQ. ID NO:144)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC-3' (Fragment 138) (SEQ. ID NO:145)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 139) (SEQ. ID NO:146)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 140) (SEQ. ID NO:147)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 141) (SEQ. ID NO:148)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (Fragment 142) (SEQ. ID NO:149)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (Fragment 143) (SEQ. ID NO:150)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 144) (SEQ. ID NO:151)

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5'-GGC CTG GAA AGC TGA GAT GGA GGG CG-3' (Fragment 145) (SEQ. ID NO:152)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG C-3' (Fragment 146) (SEQ. ID NO:153)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 147) (SEQ. ID NO:154)
 5'-GGC CTG GAA AGC TGA GAT GGA GG-3' (Fragment 148) (SEQ. ID NO:155) (Fragment 88) (SEQ. ID NO:95)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 89) (SEQ. ID NO:96)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 90) (SEQ. ID NO:97)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 91) (SEQ. ID NO:98)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 92) (SEQ. ID NO:99)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (Fragment 93) (SEQ. ID NO:100)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (Fragment 94) (SEQ. ID NO:101)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 95) (SEQ. ID NO:102)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 96) (SEQ. ID NO:103)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 97) (SEQ. ID NO:104)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 98) (SEQ. ID NO:105)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 99) (SEQ. ID NO:106)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 100) (SEQ. ID NO:107)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 101) (SEQ. ID NO:108)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (Fragment 102) (SEQ. ID NO:109)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG C-3' (Fragment 103) (SEQ. ID NO:110)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 104) (SEQ. ID NO:111)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CG-3' (Fragment 105) (SEQ. ID NO:112)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG C-3' (Fragment 106) (SEQ. ID NO:113)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 107) (SEQ. ID NO:114)
 5'-C GGC CTG GAA AGC TGA GAT GGA GG-3' (Fragment 108) (SEQ. ID NO:115)
 5'-C GGC CTG GAA AGC TGA GAT GGA G-3' (Fragment 109) (SEQ. ID NO:116)
 5'-C GGC CTG GAA AGC TGA GAT GGA-3' (Fragment 110) (SEQ. ID NO:117)
 5'-C GGC CTG GAA AGC TGA GAT GG-3' (Fragment 111) (SEQ. ID NO:118)
 5'-C GGC CTG GAA AGC TGA GAT G-3' (Fragment 112) (SEQ. ID NO:119)
 5'-C GGC CTG GAA AGC TGA GAT-3' (Fragment 113) (SEQ. ID NO:120)
 5'-C GGC CTG GAA AGC TGA GA-3' (Fragment 114) (SEQ. ID NO:121)
 5'-C GGC CTG GAA AGC TGA G-3' (Fragment 115) (SEQ. ID NO:122)
 5'-C GGC CTG GAA AGC TGA-3' (Fragment 116) (SEQ. ID NO:123)

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5'-C GGC CTG GAAAGC TG-3' (Fragment 117) (SEQ. ID NO:124)
 5'-C GGC CTG GAA AGC T-3' (Fragment 118) (SEQ. ID NO:125)
 5'-C GGC CTG GAA AGC-3' (Fragment 119) (SEQ. ID NO:126)
 5'-C GGC CTG GAA AG-3' (Fragment 120) (SEQ. ID NO:127)
 5'-C GGC CTG GAA A-3' (Fragment 121) (SEQ. ID NO:128)
 5'-C GGC CTG GAA-3' (Fragment 122) (SEQ. ID NO:129)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 123) (SEQ. ID NO:130)
 5'-GGC CTG GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3'
 5'-GC CTG GAA AGC TGA GAT GGA GGG C-3' (Fragment 185) (SEQ. ID NO:192)
 5'-GC CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 186) (SEQ. ID NO:193)
 5'-GC CTG GAA AGC TGA GAT GGA GG-3' (Fragment 187) (SEQ. ID NO:194)
 5'-GC CTG GAA AGC TGA GAT GGA G-3' (Fragment 188) (SEQ. ID NO:195)
 5'-GC CTG GAA AGC TGA GAT GGA-3' (Fragment 189) (SEQ. ID NO:196)
 5'-GC CTG GAA AGC TGA GAT GG-3' (Fragment 190) (SEQ. ID NO:197)
 5'-GC CTG GAA AGC TGA GAT G-3' (Fragment 191) (SEQ. ID NO:198)
 5'-GC CTG GAA AGC TGA GAT-3' (Fragment 192) (SEQ. ID NO:199)
 5'-GC CTG GAA AGC TGA GA-3' (Fragment 193) (SEQ. ID NO:200)
 5'-GC CTG GAAAGC TGA G-3' (Fragment 194) (SEQ. ID NO:201)
 5'-GC CTG GAA AGC TGA-3' (Fragment 195) (SEQ. ID NO:202)
 5'-GC CTG GAA AGC TG-3' (Fragment 196) (SEQ. ID NO:203)
 5'-GC CTG GAA AGC T-3' (Fragment 197) (SEQ. ID NO:204)
 5'-GC CTG GAA AGC-3' (Fragment 198) (SEQ. ID NO:205)
 5'-GC CTG GAAAG-3' (Fragment 199) (SEQ. ID NO:206)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 200) (SEQ. ID NO:207)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 201) (SEQ. ID NO:208)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 202) (SEQ. ID NO:209)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 203) (SEQ. ID NO:210)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 204) (SEQ. ID NO:211)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 205) (SEQ. ID NO:212)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 206) (SEQ. ID NO:213)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 207) (SEQ. ID NO:214)

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5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 208) (SEQ. ID NO:215)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 209) (SEQ. ID NO:216)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (Fragment 210) (SEQ. ID NO:217)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 211) (SEQ. ID NO:218)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 212) (SEQ. ID NO:219)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 213) (SEQ. ID NO:220)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 214) (SEQ. ID NO:221)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 215) (SEQ. ID NO:222)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TG-3' (Fragment 216) (SEQ. ID NO:223)
 5'-C CTG GAAAGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 217) (SEQ. ID NO:224)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 218) (SEQ. ID NO:225)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CA-3' (Fragment 219) (SEQ. ID NO:226)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG C-3' (Fragment 220) (SEQ. ID NO:227)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 221) (SEQ. ID NO:228)
 5'-C CTG GAA AGC TGA GAT GGA GGG CG-3' (Fragment 222) (SEQ. ID NO:229)
 5'-C CTG GAAAGC TGA GAT GGA GGG C-3' (Fragment 223) (SEQ. ID NO:230)
 5'-C CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 224) (SEQ. ID NO:231)
 5'-C CTG GAA AGC TGA GAT GGA GG-3' (Fragment 225) (SEQ. ID NO:232)
 5'-C CTG GAAAGC TGA GAT GGA G-3' (Fragment 226) (SEQ. ID NO:233)
 5'-C CTG GAA AGC TGA GAT GGA-3' (Fragment 227) (SEQ. ID NO:234)
 5'-C CTG GAA AGC TGA GAT GG-3' (Fragment 228) (SEQ. ID NO:235)
 5'-C CTG GAAAGC TGA GAT G-3' (Fragment 229) (SEQ. ID NO:236)
 5'-C CTG GAA AGC TGA GAT-3' (Fragment 230) (SEQ. ID NO:237)
 5'-C CTG GAAAGC TGA GA-3' (Fragment 231) (SEQ. ID NO:238)
 5'-C CTG GAA AGC TGA G-3' (Fragment 232) (SEQ. ID NO:239)
 5'-C CTG GAA AGC TGA-3' (Fragment 233) (SEQ. ID NO:240)
 5'-C CTG GAA AGC TG-3' (Fragment 234) (SEQ. ID NO:241)
 5'-C CTG GAA AGC T-3' (Fragment 235) (SEQ. ID NO:242)
 5'-C CTG GAAAGC-3' (Fragment 236) (SEQ. ID NO:243)
 5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 237) (SEQ. ID NO:244)
 5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 238) (SEQ. ID NO:245)
 5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 239) (SEQ. ID NO:246)
 5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 240) (SEQ. ID NO:247)

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5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CT-3' (Fragment 241) (SEQ. ID
NO:248)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG C-3' (Fragment 242) (SEQ. ID NO:249)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG-3' (Fragment 243) (SEQ. ID NO:250)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AG-3' (Fragment 244) (SEQ. ID NO:251)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC A-3' (Fragment 245) (SEQ. ID NO:252)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC-3' (Fragment 246) (SEQ. ID NO:253)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CA-3' (Fragment 247) (SEQ. ID NO:254)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG C-3' (Fragment 248) (SEQ. ID NO:255)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG-3' (Fragment 249) (SEQ. ID NO:256)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GG-3' (Fragment 250) (SEQ. ID NO:257)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC
G-3' (Fragment 251) (SEQ. ID NO:258)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT
GGC-3' (Fragment 252) (SEQ. ID NO:259)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GG-3'
(Fragment 253) (SEQ. ID NO:260)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT G-3'
(Fragment 254) (SEQ. ID NO:261)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT-3'
(Fragment 255) (SEQ. ID NO:262)

5'-CTG GAA AGC TGA GAT GGA GGG CGG CA-3'
(Fragment 256) (SEQ. ID NO:263)

5'-CTG GAA AGC TGA GAT GGA GGG CGG C-3'
(Fragment 257) (SEQ. ID NO:264)

5'-CTG GAA AGC TGA GAT GGA GGG CGG-3'
(Fragment 258) (SEQ. ID NO:265)

5'-CTG GAA AGC TGA GAT GGA GGG CG-3' (Fragment
259) (SEQ. ID NO:266)

5'-CTG GAA AGC TGA GAT GGA GGG C-3' (Fragment
260) (SEQ. ID NO:267)

5'-CTG GAA AGC TGA GAT GGA GGG-3' (Fragment 261)
(SEQ. ID NO:268)

5'-CTG GAA AGC TGA GAT GGA GG-3' (Fragment 262)
(SEQ. ID NO:269)

5'-CTG GAA AGC TGA GAT GGA G-3' (Fragment 263)
(SEQ. ID NO:270)

5'-CTG GAA AGC TGA GAT GGA-3' (Fragment 264)
(SEQ. ID NO:271)

5'-CTG GAA AGC TGA GAT GG-3' (Fragment 265) (SEQ.
ID NO:272)

5'-CTG GAA AGC TGA GAT G-3' (Fragment 266) (SEQ.
ID NO:273)

5'-CTG GAA AGC TGA GAT-3' (Fragment 267) (SEQ. ID
NO:274)

5'-CTG GAA AGC TGA GA-3' (Fragment 268) (SEQ. ID
NO:275)

5'-CTG GAA AGC TGA G-3' (Fragment 269) (SEQ. ID
NO:276)

5'-CTG GAA AGC TGA-3' (Fragment 270) (SEQ. ID
NO:277)

5'-CTG GAA AGC TG-3' (Fragment 271) (SEQ. ID
NO:278)

5'-CTG GAA AGC T-3' (Fragment 272) (SEQ. ID NO:279)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CTG GGC-3' (Fragment 273) (SEQ. ID
NO:280)

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5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CTG GG-3' (Fragment 274) (SEQ. ID
NO:281)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CTG G-3' (Fragment 275) (SEQ. ID
NO:282)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CTG-3' (Fragment 276) (SEQ. ID
NO:283)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG CT-3' (Fragment 277) (SEQ. ID
NO:284)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG C-3' (Fragment 278) (SEQ. ID NO:285)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AGG-3' (Fragment 279) (SEQ. ID NO:286)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC AG-3' (Fragment 280) (SEQ. ID NO:287)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC A-3' (Fragment 281) (SEQ. ID NO:288)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CAC-3' (Fragment 282) (SEQ. ID NO:289)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG CA-3' (Fragment 283) (SEQ. ID NO:290)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG-C3' (Fragment 284) (SEQ. ID NO:291)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GGG-3' (Fragment 285) (SEQ. ID NO:292)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
GG-3' (Fragment 286) (SEQ. ID NO:293)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC
G-3' (Fragment 287) (SEQ. ID NO:294)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC-3'
(Fragment 288) (SEQ. ID NO:295)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GG-3'
(Fragment 289) (SEQ. ID NO:296)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT-G3'
(Fragment 290) (SEQ. ID NO:297)

5'-TG GAA AGC TGA GAT GGA GGG CGG CAT-3'
(Fragment 291) (SEQ. ID NO:298)

5'-TG GAA AGC TGA GAT GGA GGG CGG CA-3'
(Fragment 292) (SEQ. ID NO:299)

5'-TG GAA AGC TGA GAT GGA GGG CGG-C3'
(Fragment 293) (SEQ. ID NO:300)

5'-TG GAA AGC TGA GAT GGA GGG CGG-3' (Fragment
294) (SEQ. ID NO:301)

5'-TG GAA AGC TGA GAT GGA GGG CG-3' (Fragment
295) (SEQ. ID NO:302)

5'-TG GAA AGC TGA GAT GGA GGG-C3' (Fragment 296)
(SEQ. ID NO:303)

5'-TG GAA AGC TGA GAT GGA GGG-3' (Fragment 297)
(SEQ. ID NO:304)

5'-TG GAA AGC TGA GAT GGA GG-3' (Fragment 298)
(SEQ. ID NO:305)

5'-TG GAA AGC TGA GAT GGA G-3' (Fragment 299)
(SEQ. ID NO:306)

5'-TG GAA AGC TGA GAT GGA-3' (Fragment 300) (SEQ.
ID NO:307)

5'-TG GAA AGC TGA GAT GG-3' (Fragment 301) (SEQ.
ID NO:308)

5'-TG GAA AGC TGA GAT G-3' (Fragment 302) (SEQ. ID
NO:309)

5'-TG GAA AGC TGA GAT-3' (Fragment 303) (SEQ. ID
NO:310)

5'-TG GAA AGC TGA GA-3' (Fragment 304) (SEQ. ID
NO:311)

5'-TG GAA AGC TGA G-3' (Fragment 305) (SEQ. ID
NO:312)

5'-TG GAA AGC TGA-3' (Fragment 306) (SEQ. ID NO:313)
 5'-TG GAAAGC TG-3' (Fragment 307) (SEQ. ID NO:314)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 308) (SEQ. ID NO:315)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 309) (SEQ. ID NO:316)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 310) (SEQ. ID NO:317)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 311) (SEQ. ID NO:318)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 312) (SEQ. ID NO:319)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 313) (SEQ. ID NO:320)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 314) (SEQ. ID NO:321)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 315) (SEQ. ID NO:322)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 316) (SEQ. ID NO:323)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 317) (SEQ. ID NO:324)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CA-3' (Fragment 318) (SEQ. ID NO:325)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 319) (SEQ. ID NO:326)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 320) (SEQ. ID NO:327)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 321) (SEQ. ID NO:328)
 5'-G GAAAGC TGA GAT GGA GGG CGG CAT GGC G-3' (Fragment 322) (SEQ. ID NO:329)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 323) (SEQ. ID NO:330)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 324) (SEQ. ID NO:331)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 325) (SEQ. ID NO:332)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 326) (SEQ. ID NO:333)
 5'-G GAA AGC TGA GAT GGA GGG CGG CA-3' (Fragment 327) (SEQ. ID NO:334)
 5'-G GAAAGC TGA GAT GGA GGG CGG C-3' (Fragment 328) (SEQ. ID NO:335)
 5'-G GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 329) (SEQ. ID NO:336)
 5'-G GAA AGC TGA GAT GGA GGG CG-3' (Fragment 330) (SEQ. ID NO:337)
 5'-G GAAAGC TGA GAT GGA GGG C-3' (Fragment 331) (SEQ. ID NO:338)
 5'-G GAA AGC TGA GAT GGA GGG-3' (Fragment 332) (SEQ. ID NO:339)
 5'-G GAA AGC TGA GAT GGA GG-3' (Fragment 333) (SEQ. ID NO:340)
 5'-G GAAAGC TGA GAT GGA G-3' (Fragment 334) (SEQ. ID NO:341)
 5'-G GAA AGC TGA GAT GGA-3' (Fragment 335) (SEQ. ID NO:342)
 5'-G GAAAGC TGA GAT GG-3' (Fragment 336) (SEQ. ID NO:343)
 5'-G GAA AGC TGA GAT G-3' (Fragment 337) (SEQ. ID NO:344)

5'-G GAA AGC TGA GAT-3' (Fragment 338) (SEQ. ID NO:345)
 5'-G GAA AGC TGA GA-3' (Fragment 339) (SEQ. ID NO:346)
 5'-G GAA AGC TGA G-3' (Fragment 340) (SEQ. ID NO:347)
 5'-G GAAAGC TGA-3' (Fragment 341) (SEQ. ID NO:348)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 342) (SEQ. ID NO:349)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GG-3' (Fragment 343) (SEQ. ID NO:350)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG G-3' (Fragment 344) (SEQ. ID NO:351)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG-3' (Fragment 345) (SEQ. ID NO:352)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CT-3' (Fragment 346) (SEQ. ID NO:353)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG C-3' (Fragment 347) (SEQ. ID NO:354)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG-3' (Fragment 348) (SEQ. ID NO:355)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AG-3' (Fragment 349) (SEQ. ID NO:356)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 350) (SEQ. ID NO:357)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 351) (SEQ. ID NO:358)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG CA-3' (Fragment 352) (SEQ. ID NO:359)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 353) (SEQ. ID NO:360)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 354) (SEQ. ID NO:361)
 5'-GAAAGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 355) (SEQ. ID NO:362)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 356) (SEQ. ID NO:363)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 357) (SEQ. ID NO:364)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 358) (SEQ. ID NO:365)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 359) (SEQ. ID NO:366)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 360) (SEQ. ID NO:367)
 5'-GAAAGC TGA GAT GGA GGG CGG CA-3' (Fragment 361) (SEQ. ID NO:368)
 5'-GAA AGC TGA GAT GGA GGG CGG C-3' (Fragment 362) (SEQ. ID NO:369)
 5'-GAA AGC TGA GAT GGA GGG CGG-3' (Fragment 363) (SEQ. ID NO:370)
 5'-GAAAGC TGA GAT GGA GGG CG-3' (Fragment 364) (SEQ. ID NO:371)
 5'-GAA AGC TGA GAT GGA GGG C-3' (Fragment 365) (SEQ. ID NO:372)
 5'-GAA AGC TGA GAT GGA GGG-3' (Fragment 366) (SEQ. ID NO:373)
 5'-GAAAGC TGA GAT GGA GG-3' (Fragment 367) (SEQ. ID NO:374)
 5'-GAA AGC TGA GAT GGA G-3' (Fragment 368) (SEQ. ID NO:375)
 5'-GAAAGC TGA GAT GGA-3' (Fragment 369) (SEQ. ID NO:376)
 5'-GAA AGC TGA GAT GG-3' (Fragment 370) (SEQ. ID NO:377)

5'-GAA AGC TGA GAT G-3' (Fragment 371) (SEQ. ID NO:378)
 5'-GAA AGC TGA GAT-3' (Fragment 372) (SEQ. ID NO:379)
 5'-GAA AGC TGA GA-3' (Fragment 373) (SEQ. ID NO:380)
 5'-GAAAGC TGA G-3' (Fragment 374) (SEQ. ID NO:381)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 375) (SEQ. ID NO:382)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 376) (SEQ. ID NO:383)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 377) (SEQ. ID NO:384)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 378) (SEQ. ID NO:385)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 379) (SEQ. ID NO:386)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 380) (SEQ. ID NO:387)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 381) (SEQ. ID NO:388)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 382) (SEQ. ID NO:389)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 383) (SEQ. ID NO:390)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 384) (SEQ. ID NO:391)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3' (Fragment 385) (SEQ. ID NO:392)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3' (Fragment 386) (SEQ. ID NO:393)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GGC GGG-3' (Fragment 387) (SEQ. ID NO:394)
 5'-AA AGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 388) (SEQ. ID NO:395)
 5'-AA AGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 389) (SEQ. ID NO:396)
 5'-AA AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 390) (SEQ. ID NO:397)
 5'-AA AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 391) (SEQ. ID NO:398)
 5'-AA AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 392) (SEQ. ID NO:399)
 5'-AA AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 393) (SEQ. ID NO:400)
 5'-AA AGC TGA GAT GGA GGG CGG CA-3' (Fragment 394) (SEQ. ID NO:401)
 5'-AA AGC TGA GAT GGA GGG CGG C-3' (Fragment 395) (SEQ. ID NO:402)
 5'-AA AGC TGA GAT GGA GGG CGG-3' (Fragment 396) (SEQ. ID NO:403)
 5'-AA AGC TGA GAT GGA GGG CG-3' (Fragment 397) (SEQ. ID NO:404)
 5'-AA AGC TGA GAT GGA GGG C-3' (Fragment 398) (SEQ. ID NO:405)
 5'-AA AGC TGA GAT GGA GGG-3' (Fragment 399) (SEQ. ID NO:406)
 5'-AA AGC TGA GAT GGA GG-3' (Fragment 400) (SEQ. ID NO:407)
 5'-AA AGC TGA GAT GGA G-3' (Fragment 401) (SEQ. ID NO:408)
 5'-AA AGC TGA GAT GGA-3' (Fragment 402) (SEQ. ID NO:409)
 5'-AA AGC TGA GAT GG-3' (Fragment 403) (SEQ. ID NO:410)

5'-AA AGC TGA GAT G-3' (Fragment 404) (SEQ. ID NO:411)
 5'-AAAGC TGA GAT-3' (Fragment 405) (SEQ. ID NO:412)
 5'-AAAGC TGA GA-3' (Fragment 406) (SEQ. ID NO:413)
 5'-A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 407) (SEQ. ID NO:414)
 5'-A AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 408) (SEQ. ID NO:415)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG G-3' (Fragment 409) (SEQ. ID NO:416)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG-3' (Fragment 410) (SEQ. ID NO:417)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CT-3' (Fragment 411) (SEQ. ID NO:418)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG C-3' (Fragment 412) (SEQ. ID NO:419)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG-3' (Fragment 413) (SEQ. ID NO:420)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AG-3' (Fragment 414) (SEQ. ID NO:421)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 415) (SEQ. ID NO:422)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 416) (SEQ. ID NO:423)
 5'-AAGC TGA GAT GGA GGG CGG CAT TGC GGG CA A-3' (Fragment 417) (SEQ. ID NO:424)
 5'-AAGC TGA GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 418) (SEQ. ID NO:425)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 419) (SEQ. ID NO:426)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GG-3' (Fragment 420) (SEQ. ID NO:427)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC G-3' (Fragment 421) (SEQ. ID NO:428)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC-3' (Fragment 422) (SEQ. ID NO:429)
 5'-A AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment 423) (SEQ. ID NO:430)
 5'-AAGC TGA GAT GGA GGG CGG CAT G-3' (Fragment 424) (SEQ. ID NO:431)
 5'-A AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 425) (SEQ. ID NO:432)
 5'-A AGC TGA GAT GGA GGG CGG CA-3' (Fragment 426) (SEQ. ID NO:433)
 5'-AAGC TGA GAT GGA GGG CGG C-3' (Fragment 427) (SEQ. ID NO:434)
 5'-A AGC TGA GAT GGA GGG CGG-3' (Fragment 428) (SEQ. ID NO:435)
 5'-A AGC TGA GAT GGA GGG CG-3' (Fragment 429) (SEQ. ID NO:436)
 5'-AAGC TGA GAT GGA GGG C-3' (Fragment 430) (SEQ. ID NO:437)
 5'-A AGC TGA GAT GGA GGG-3' (Fragment 431) (SEQ. ID NO:438)
 5'-AAGC TGA GAT GGA GG-3' (Fragment 432) (SEQ. ID NO:439)
 5'-A AGC TGA GAT GGA G-3' (Fragment 433) (SEQ. ID NO:440)
 5'-A AGC TGA GAT GGA-3' (Fragment 434) (SEQ. ID NO:441)
 5'-A AGC TGA GAT GG-3' (Fragment 435) (SEQ. ID NO:442)
 5'-A AGC TGA GAT G-3' (Fragment 436) (SEQ. ID NO:443)
 5'-A AGC TGA GAT-3' (Fragment 437) (SEQ. ID NO:444)

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5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG GGC-3' (Fragment 438) (SEQ. ID NO:445)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG GG-3' (Fragment 439) (SEQ. ID NO:446)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG G-3' (Fragment 440) (SEQ. ID NO:447)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG-3' (Fragment 441) (SEQ. ID NO:448)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CT-3' (Fragment 442) (SEQ. ID NO:449)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG C-3' (Fragment 443) (SEQ. ID NO:450)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG-3' (Fragment 444) (SEQ. ID NO:451)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AG-3' (Fragment 445) (SEQ. ID NO:452)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC
A-3' (Fragment 446) (SEQ. ID NO:453)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG
CAC-3' (Fragment 447) (SEQ. ID NO:454)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG CA-3'
(Fragment 448) (SEQ. ID NO:455)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG C-3'
(Fragment 449) (SEQ. ID NO:456)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GGG-3'
(Fragment 450) (SEQ. ID NO:457)
5'-AGC TGA GAT GGA GGG CGG CAT GGC GG-3'
(Fragment 451) (SEQ. ID NO:458)
5'-AGC TGA GAT GGA GGG CGG CAT GGC G-3'
(Fragment 452) (SEQ. ID NO:459)
5'-AGC TGA GAT GGA GGG CGG CAT GGC-3'
(Fragment 453) (SEQ. ID NO:460)
5'-AGC TGA GAT GGA GGG CGG CAT GG-3' (Fragment
454) (SEQ. ID NO:461)
5'-AGC TGA GAT GGA GGG CGG CAT G-3' (Fragment
455) (SEQ. ID NO:462)
5'-AGC TGA GAT GGA GGG CGG CAT-3' (Fragment 456)
(SEQ. ID NO:463)
5'-AGC TGA GAT GGA GGG CGG CA-3' (Fragment 457)
(SEQ. ID NO:464)
5'-AGC TGA GAT GGA GGG CGG C-3' (Fragment 458)
(SEQ. ID NO:465)
5'-AGC TGA GAT GGA GGG CGG-3' (Fragment 459)
(SEQ. ID NO:466)
5'-AGC TGA GAT GGA GGG CG-3' (Fragment 460) (SEQ.
ID NO:467)
5'-AGC TGA GAT GGA GGG-C3' (Fragment 461) (SEQ.
ID NO:468)
5'-AGC TGA GAT GGA GGG-3' (Fragment 462) (SEQ. ID
NO:469)
5'-AGC TGA GAT GGA GG-3' (Fragment 463) (SEQ. ID
NO:470)
5'-AGC TGA GAT GGA G-3' (Fragment 464) (SEQ. ID
NO:471)
5'-AGC TGA GAT GGA-3' (Fragment 465) (SEQ. ID
NO:472)
5'-AGC TGA GAT GG-3' (Fragment 466) (SEQ. ID
NO:473)
5'-AGC TGA GAT G-3' (Fragment 467) (SEQ. ID NO:474)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG GGG-3' (Fragment 468) (SEQ. ID NO:475)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG GG-3' (Fragment 469) (SEQ. ID NO:476)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG G-3' (Fragment 470) (SEQ. ID NO:477)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CTG-3' (Fragment 471) (SEQ. ID NO:478)

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5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG CT-3' (Fragment 472) (SEQ. ID NO:479)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG C-3' (Fragment 473) (SEQ. ID NO:480)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG-3' (Fragment 474) (SEQ. ID NO:481)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC
AG-3' (Fragment 475) (SEQ. ID NO:482)
5'-GC TGA GAT GGA GGG CGG CAT TGC GGG CAC
A-3' (Fragment 476) (SEQ. ID NO:483)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CAC-3'
(Fragment 477) (SEQ. ID NO:484)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG CA-3'
(Fragment 478) (SEQ. ID NO:485)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG C-3'
(Fragment 479) (SEQ. ID NO:486)
5'-GC TGA GAT GGA GGG CGG CAT GGC GGG-3'
(Fragment 480) (SEQ. ID NO:487)
5'-GC TGA GAT GGA GGG CGG CAT GGC GG-3'
(Fragment 481) (SEQ. ID NO:488)
5'-GC TGA GAT GGA GGG CGG CAT GGC G-3'
(Fragment 482) (SEQ. ID NO:489)
5'-GC TGA GAT GGA GGG CGG CAT GGC-3' (Fragment
483) (SEQ. ID NO:490)
5'-GC TGA GAT GGA GGG CGG CAT GG-3' (Fragment
484) (SEQ. ID NO:491)
5'-GC TGA GAT GGA GGG CGG CAT G-3' (Fragment
485) (SEQ. ID NO:492)
5'-GC TGA GAT GGA GGG CGG CAT-3' (Fragment 486)
(SEQ. ID NO:493)
5'-GC TGA GAT GGA GGG CGG CA-3' (Fragment 487)
(SEQ. ID NO:494)
5'-GC TGA GAT GGA GGG CGG C-3' (Fragment 488)
(SEQ. ID NO:495)
5'-GC TGA GAT GGA GGG CGG-3' (Fragment 489) (SEQ.
ID NO:496)
5'-GC TGA GAT GGA GGG CG-3' (Fragment 490) (SEQ.
ID NO:497)
5'-GC TGA GAT GGA GGG C-3' (Fragment 491) (SEQ. ID
NO:498)
5'-GC TGA GAT GGA GGG-3' (Fragment 492) (SEQ. ID
NO:499)
5'-GC TGA GAT GGA GG-3' (Fragment 493) (SEQ. ID
NO:500)
5'-GC TGA GAT GGA G-3' (Fragment 494) (SEQ. ID
NO:501)
5'-GC TGA GAT GGA-3' (Fragment 495) (SEQ. ID
NO:502)
5'-GC TGA GAT GG-3' (Fragment 496) (SEQ. ID NO:503)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG CTG GGC-3' (Fragment 497) (SEQ. ID NO:504)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG CTG GG-3' (Fragment 498) (SEQ. ID NO:505)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG CTG G-3' (Fragment 499) (SEQ. ID NO:506)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG CTG-3' (Fragment 500) (SEQ. ID NO:507)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG CT-3' (Fragment 501) (SEQ. ID NO:508)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG C-3' (Fragment 502) (SEQ. ID NO:509)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AGG-3' (Fragment 503) (SEQ. ID NO:510)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC
AG-3' (Fragment 504) (SEQ. ID NO:511)
5'-CTGA GAT GGA GGG CGG CAT TGC GGG CAC A-3'
(Fragment 505) (SEQ. ID NO:512)

5'-CTGA GAT GGA GGG CGG CAT GGC GGG CAC-3'
(Fragment 506) (SEQ. ID NO:513)

5'-CTGA GAT GGA GGG CGG CAT GGC GGG CA-3'
(Fragment 507) (SEQ. ID NO:514)

5'-CTGA GAT GGA GGG CGG CAT GGC GGG C-3'
(Fragment 508) (SEQ. ID NO:515)

5'-CTGA GAT GGA GGG CGG CAT GGC GGG-3'
(Fragment 509) (SEQ. ID NO:516)

5'-CTGA GAT GGA GGG CGG CAT GGC GG-3'
(Fragment 510) (SEQ. ID NO:517)

5'-CTGA GAT GGA GGG CGG CAT GGC G-3' (Fragment
511) (SEQ. ID NO:518)

5'-CTGA GAT GGA GGG CGG CAT GGC-3' (Fragment
512) (SEQ. ID NO:519)

5'-CTGA GAT GGA GGG CGG CAT GG-3' (Fragment 513)
(SEQ. ID NO:520)

5'-CTGA GAT GGA GGG CGG CAT G-3' (Fragment 514)
(SEQ. ID NO:521)

5'-CTGA GAT GGA GGG CGG CAT-3' (Fragment 515)
(SEQ. ID NO:522)

5'-CTGA GAT GGA GGG CGG CA-3' (Fragment 516)
(SEQ. ID NO:523)

5'-CTGA GAT GGA GGG CGG C-3' (Fragment 517) (SEQ.
ID NO:524)

5'-CTGA GAT GGA GGG CGG-3' (Fragment 518) (SEQ.
ID NO:525)

5'-CTGA GAT GGA GGG CG-3' (Fragment 519) (SEQ. ID
NO:526)

5'-CTGA GAT GGA GGG C-3' (Fragment 520) (SEQ. ID
NO:527)

5'-CTGA GAT GGA GGG-3' (Fragment 521) (SEQ. ID
NO:528)

5'-CTGA GAT GGA GG-3' (Fragment 522) (SEQ. ID
NO:529)

5'-CTGA GAT GGA G-3' (Fragment 523) (SEQ. ID
NO:530)

5'-CTGA GAT GGA-3' (Fragment 524) (SEQ. ID NO:531)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG GGC-3' (Fragment 525) (SEQ. ID NO:532)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG GG-3' (Fragment 526) (SEQ. ID NO:533) 5'-TGA
GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG
G-3' (Fragment 527) (SEQ. ID NO:534)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG-3' (Fragment 528) (SEQ. ID NO:535)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CT-3' (Fragment 529) (SEQ. ID NO:536)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
C-3' (Fragment 530) (SEQ. ID NO:537)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC
AGG-3' (Fragment 531) (SEQ. ID NO:538)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AG-3'
(Fragment 532) (SEQ. ID NO:539)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC A-3'
(Fragment 533) (SEQ. ID NO:540)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC-3'
(Fragment 534) (SEQ. ID NO:541)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CA-3'
(Fragment 535) (SEQ. ID NO:542)

5'-TGA GAT GGA GGG CGG CAT GGC GGG C-3'
(Fragment 536) (SEQ. ID NO:543)

5'-TGA GAT GGA GGG CGG CAT GGC GGG-3'
(Fragment 537) (SEQ. ID NO:544)

5'-TGA GAT GGA GGG CGG CAT GGC GG-3' (Fragment
538) (SEQ. ID NO:545)

5'-TGA GAT GGA GGG CGG CAT GGC G-3' (Fragment
539) (SEQ. ID NO:546)

5'-TGA GAT GGA GGG CGG CAT GGC-3' (Fragment 540)
(SEQ. ID NO:547)

5'-TGA GAT GGA GGG CGG CAT GG-3' (Fragment 541)
(SEQ. ID NO:548)

5'-TGA GAT GGA GGG CGG CAT G-3' (Fragment 542)
(SEQ. ID NO:549)

5'-TGA GAT GGA GGG CGG CAT-3' (Fragment 543)
(SEQ. ID NO:550)

5'-TGA GAT GGA GGG CGG CA-3' (Fragment 544) (SEQ.
ID NO:551)

5'-TGA GAT GGA GGG CGG C-3' (Fragment 545) (SEQ.
ID NO:552)

5'-TGA GAT GGA GGG CGG-3' (Fragment 546) (SEQ. ID
NO:553)

5'-TGA GAT GGA GGG CG-3' (Fragment 547) (SEQ. ID
NO:554)

5'-TGA GAT GGA GGG C-3' (Fragment 548) (SEQ. ID
NO:555)

5'-TGA GAT GGA GGG-3' (Fragment 549) (SEQ. ID
NO:556)

5'-TGA GAT GGA GG-3' (Fragment 550) (SEQ. ID
NO:557)

5'-TGA GAT GGA G-3' (Fragment 551) (SEQ. ID NO:558)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG GGC-3' (Fragment 552) (SEQ ID NO:559) 5'-GA
GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG
GG-3' (Fragment 553) (SEQ ID NO:560)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG G-3' (Fragment 554) (SEQ ID NO:561)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG-3' (Fragment 555) (SEQ ID NO:562)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CT-3' (Fragment 556) (SEQ ID NO:563)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
C-3' (Fragment 557) (SEQ ID NO:564)

5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG-3'
(Fragment 558) (SEQ ID NO:565)

5'-GA GAT GGA GGG CGG CAT TGC GGG CAC AG-3'
(Fragment 559) (SEQ ID NO:566)

5'-GA GAT GGA GGG CGG CAT TGC GGG CAC A-3'
(Fragment 560) (SEQ ID NO:567)

5'-GA GAT GGA GGG CGG CAT TGC GGG CAC-3'
(Fragment 561) (SEQ ID NO:568)

5'-GA GAT GGA GGG CGG CAT TGC GGG CA-3'
(Fragment 562) (SEQ ID NO:569)

5'-GA GAT GGA GGG CGG CAT TGC GGG C-3'
(Fragment 563) (SEQ ID NO:570)

5'-GA GAT GGA GGG CGG CAT TGC GGG-3' (Fragment
564) (SEQ ID NO:571)

5'-GA GAT GGA GGG CGG CAT TGC GG-3' (Fragment
565) (SEQ ID NO:572)

5'-GA GAT GGA GGG CGG CAT TGC G-3' (Fragment
566) (SEQ ID NO:573)

5'-GA GAT GGA GGG CGG CAT TGC-3' (Fragment 567)
(SEQ ID NO:574)

5'-GA GAT GGA GGG CGG CAT GG-3' (Fragment 568)
(SEQ ID NO:575)

5'-GA GAT GGA GGG CGG CAT T-3' (Fragment 569)
(SEQ ID NO:576)

5'-GA GAT GGA GGG CGG CAT-3' (Fragment 570) (SEQ
ID NO:577)

5'-GA GAT GGA GGG CGG CA-3' (Fragment 571) (SEQ
ID NO:578)

5'-GA GAT GGA GGG CGG C-3' (Fragment 572) (SEQ ID
NO:579)

5'-GA GAT GGA GGG CGG-3' (Fragment 573) (SEQ ID
NO:580)

5'-GA GAT GGA GGG CG-3' (Fragment 574) (SEQ ID NO:581)
 5'-GA GAT GGA GGG C-3' (Fragment 575) (SEQ ID NO:582)
 5'-GA GAT GGA GGG-3' (Fragment 576) (SEQ ID NO:583)
 5'-GA GAT GGA GG-3' (Fragment 577) (SEQ ID NO:584)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 578) (SEQ. ID NO:585)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 579) (SEQ. ID NO:586)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 580) (SEQ. ID NO:587)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 581) (SEQ. ID NO:588)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 582) (SEQ. ID NO:589)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 583) (SEQ. ID NO:590)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 584) (SEQ. ID NO:591)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 585) (SEQ. ID NO:592)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 586) (SEQ. ID NO:593)
 5'-A GAT GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 587) (SEQ. ID NO:594)
 5'-A GAT GGA GGG CGG CAT GGC GGG CA-3' (Fragment 588) (SEQ. ID NO:595)
 5'-A GAT GGA GGG CGG CAT GGC GGG C-3' (Fragment 589) (SEQ. ID NO:596)
 5'-A GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 590) (SEQ. ID NO:597)
 5'-A GAT GGA GGG CGG CAT GGC GG-3' (Fragment 591) (SEQ. ID NO:598)
 5'-A GAT GGA GGG CGG CAT GGC G-3' (Fragment 592) (SEQ. ID NO:599)
 5'-A GAT GGA GGG CGG CAT GGC-3' (Fragment 593) (SEQ. ID NO:600)
 5'-A GAT GGA GGG CGG CAT GG-3' (Fragment 594) (SEQ. ID NO:601)
 5'-A GAT GGA GGG CGG CAT G-3' (Fragment 595) (SEQ. ID NO:602)
 5'-A GAT GGA GGG CGG CAT-3' (Fragment 596) (SEQ. ID NO:603)
 5'-A GAT GGA GGG CGG CA-3' (Fragment 597) (SEQ. ID NO:604)
 5'-A GAT GGA GGG CGG C-3' (Fragment 598) (SEQ. ID NO:605)
 5'-A GAT GGA GGG CGG-3' (Fragment 599) (SEQ. ID NO:606)
 5'-A GAT GGA GGG CG-3' (Fragment 600) (SEQ. ID NO:607)
 5'-A GAT GGA GGG C-3' (Fragment 601) (SEQ. ID NO:608)
 5'-A GAT GGA GGG-3' (Fragment 602) (SEQ. ID NO:609)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 603) (SEQ. ID NO:610)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GG-3' (Fragment 604) (SEQ. ID NO:611)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG G-3' (Fragment 605) (SEQ. ID NO:612)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG-3' (Fragment 606) (SEQ. ID NO:613)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG CT-3' (Fragment 607) (SEQ. ID NO:614)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG C-3' (Fragment 608) (SEQ. ID NO:615)

5'-GAT GGA GGG CGG CAT TGC GGG CAC AGG-3' (Fragment 609) (SEQ. ID NO:616)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC AG-3' (Fragment 610) (SEQ. ID NO:617)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 611) (SEQ. ID NO:618)
 5'-GAT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 612) (SEQ. ID NO:619)
 5'-GAT GGA GGG CGG CAT TGC GGG CA-3' (Fragment 613) (SEQ. ID NO:620)
 5'-GAT GGA GGG CGG CAT TGC GGG C-3' (Fragment 614) (SEQ. ID NO:621)
 5'-GAT GGA GGG CGG CAT TGC GGG-3' (Fragment 615) (SEQ. ID NO:622)
 5'-GAT GGA GGG CGG CAT TGC GG-3' (Fragment 616) (SEQ. ID NO:623)
 5'-GAT GGA GGG CGG CAT TGC G-3' (Fragment 617) (SEQ. ID NO:624)
 5'-GAT GGA GGG CGG CAT TGC-3' (Fragment 618) (SEQ. ID NO:625)
 5'-GAT GGA GGG CGG CAT GG-3' (Fragment 619) (SEQ. ID NO:626)
 5'-GAT GGA GGG CGG CAT G-3' (Fragment 620) (SEQ. ID NO:627)
 5'-GAT GGA GGG CGG CAT-3' (Fragment 621) (SEQ. ID NO:628)
 5'-GAT GGA GGG CGG CA-3' (Fragment 622) (SEQ. ID NO:629)
 5'-GAT GGA GGG CGG C-3' (Fragment 623) (SEQ. ID NO:630)
 5'-GAT GGA GGG CGG-3' (Fragment 624) (SEQ. ID NO:631)
 5'-GAT GGA GGG CG-3' (Fragment 625) (SEQ. ID NO:632)
 5'-GAT GGA GGG C-3' (Fragment 626) (SEQ. ID NO:633)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 627) (SEQ. ID NO:634)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG CTG GG-3' (Fragment 628) (SEQ. ID NO:635)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG CTG G-3' (Fragment 629) (SEQ. ID NO:636)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG CTG-3' (Fragment 630) (SEQ. ID NO:637)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG CT-3' (Fragment 631) (SEQ. ID NO:638)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG C-3' (Fragment 632) (SEQ. ID NO:639)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AGG-3' (Fragment 633) (SEQ. ID NO:640)
 5'-AT GGA GGG CGG CAT TGC GGG CAC AG-3' (Fragment 634) (SEQ. ID NO:641)
 5'-AT GGA GGG CGG CAT TGC GGG CAC A-3' (Fragment 635) (SEQ. ID NO:642)
 5'-AT GGA GGG CGG CAT TGC GGG CAC-3' (Fragment 636) (SEQ. ID NO:643)
 5'-AT GGA GGG CGG CAT TGC GGG CA-3' (Fragment 637) (SEQ. ID NO:644)
 5'-AT GGA GGG CGG CAT TGC GGG C-3' (Fragment 638) (SEQ. ID NO:645)
 5'-AT GGA GGG CGG CAT TGC GGG-3' (Fragment 639) (SEQ. ID NO:646)
 5'-AT GGA GGG CGG CAT TGC GG-3' (Fragment 640) (SEQ. ID NO:647)
 5'-AT GGA GGG CGG CAT TGC G-3' (Fragment 641) (SEQ. ID NO:648)
 5'-AT GGA GGG CGG CAT TGC-3' (Fragment 642) (SEQ. ID NO:649)

5'-AT GGA GGG CGG CAT GG-3' (Fragment 643) (SEQ. ID NO:650)
 5'-AT GGA GGG CGG CAT G-3' (Fragment 644) (SEQ. ID NO:651)
 5'-AT GGA GGG CGG CAT-3' (Fragment 645) (SEQ. ID NO:652)
 5'-AT GGA GGG CGG CA-3' (Fragment 646) (SEQ. ID NO:653)
 5'-AT GGA GGG CGG C-3' (Fragment 647) (SEQ. ID NO:654)
 5'-AT GGA GGG CGG-3' (Fragment 648) (SEQ. ID NO:655)
 5'-AT GGA GGG CG-3' (Fragment 649) (SEQ. ID NO:656)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 650) (SEQ. ID NO:657)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 651) (SEQ. ID NO:658)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 652) (SEQ. ID NO:659)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 653) (SEQ. ID NO:660)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 654) (SEQ. ID NO:661)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 655) (SEQ. ID NO:662)
 5'-TGGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 656) (SEQ. ID NO:663)
 5'-TGGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 657) (SEQ. ID NO:664)
 5'-TGGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 658) (SEQ. ID NO:665)
 5'-TGGA GGG CGG CAT GGC GGG CAC-3' (Fragment 659) (SEQ. ID NO:666)
 5'-TGGA GGG CGG CAT GGC GGG CA-3' (Fragment 660) (SEQ. ID NO:667)
 5'-TGGA GGG CGG CAT GGC GGG C-3' (Fragment 661) (SEQ. ID NO:668)
 5'-TGGA GGG CGG CAT GGC GGG-3' (Fragment 662) (SEQ. ID NO:669)
 5'-TGGA GGG CGG CAT GGC GG-3' (Fragment 663) (SEQ. ID NO:670)
 5'-TGGA GGG CGG CAT GGC G-3' (Fragment 664) (SEQ. ID NO:671)
 5'-TGGA GGG CGG CAT GGC-3' (Fragment 665) (SEQ. ID NO:672)
 5'-TGGA GGG CGG CAT GG-3' (Fragment 666) (SEQ. ID NO:673)
 5'-TGGA GGG CGG CAT G-3' (Fragment 667) (SEQ. ID NO:674)
 5'-TGGA GGG CGG CAT-3' (Fragment 668) (SEQ. ID NO:675)
 5'-TGGA GGG CGG CA-3' (Fragment 669) (SEQ. ID NO:676)
 5'-TGGA GGG CGG C-3' (Fragment 670) (SEQ. ID NO:677)
 5'-TGGA GGG CGG-3' (Fragment 671) (SEQ. ID NO:678)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 672) (SEQ. ID NO:679)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 673) (SEQ. ID NO:680)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 674) (SEQ. ID NO:681)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 675) (SEQ. ID NO:682)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 676) (SEQ. ID NO:683)
 5'-GGA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 677) (SEQ. ID NO:684)

5'-GGA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 678) (SEQ. ID NO:685)
 5'-GGA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 679) (SEQ. ID NO:686)
 5'-GGA GGG CGG CAT GGC GGG CAC A-3' (Fragment 680) (SEQ. ID NO:687)
 5'-GGA GGG CGG CAT GGC GGG CAC-3' (Fragment 681) (SEQ. ID NO:688)
 5'-GGA GGG CGG CAT GGC GGG CA-3' (Fragment 682) (SEQ. ID NO:689)
 5'-GGA GGG CGG CAT GGC GGG C-3' (Fragment 683) (SEQ. ID NO:690)
 5'-GGA GGG CGG CAT GGC GGG-3' (Fragment 684) (SEQ. ID NO:691)
 5'-GGA GGG CGG CAT GGC GG-3' (Fragment 685) (SEQ. ID NO:692)
 5'-GGA GGG CGG CAT GGC G-3' (Fragment 686) (SEQ. ID NO:693)
 5'-GGA GGG CGG CAT GGC-3' (Fragment 687) (SEQ. ID NO:694)
 5'-GGA GGG CGG CAT GG-3' (Fragment 688) (SEQ. ID NO:695)
 5'-GGA GGG CGG CAT G-3' (Fragment 689) (SEQ. ID NO:696)
 5'-GGA GGG CGG CAT-3' (Fragment 690) (SEQ. ID NO:697)
 5'-GGA GGG CGG CA-3' (Fragment 691) (SEQ. ID NO:698)
 5'-GGA GGG CGG C-3' (Fragment 692) (SEQ. ID NO:699)
 5'-GAGGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 693) (SEQ. ID NO:700)
 5'-GA GGG CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment 694) (SEQ. ID NO:701)
 5'-GA GGG CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment 695) (SEQ. ID NO:702)
 5'-GA GGG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment 696) (SEQ. ID NO:703)
 5'-GA GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment 697) (SEQ. ID NO:704)
 5'-GA GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment 698) (SEQ. ID NO:705)
 5'-GA GGG CGG CAT GGC GGG CAC AGG-3' (Fragment 699) (SEQ. ID NO:706)
 5'-GA GGG CGG CAT GGC GGG CAC AG-3' (Fragment 700) (SEQ. ID NO:707)
 5'-GA GGG CGG CAT GGC GGG CAC A-3' (Fragment 701) (SEQ. ID NO:708)
 5'-GA GGG CGG CAT GGC GGG CAC-3' (Fragment 702) (SEQ. ID NO:709)
 5'-GA GGG CGG CAT GGC GGG CA-3' (Fragment 703) (SEQ. ID NO:710)
 5'-GA GGG CGG CAT GGC GGG C-3' (Fragment 704) (SEQ. ID NO:711)
 5'-GAGGG CGG CAT GGC GGG-3' (Fragment 705) (SEQ. ID NO:712)
 5'-GA GGG CGG CAT GGC GG-3' (Fragment 706) (SEQ. ID NO:713)
 5'-GAGGG CGG CAT GGC G-3' (Fragment 707) (SEQ. ID NO:714)
 5'-GA GGG CGG CAT GGC-3' (Fragment 708) (SEQ. ID NO:715)
 5'-GA GGG CGG CAT GG-3' (Fragment 709) (SEQ. ID NO:716)
 5'-GA GGG CGG CAT G-3' (Fragment 710) (SEQ. ID NO:717)
 5'-GA GGG CGG CAT-3' (Fragment 711) (SEQ. ID NO:718)

5'-GA GGG CGG CA-3' (Fragment 712) (SEQ. ID NO:719)
 5'-A GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'
 (Fragment 713) (SEQ. ID NO:720)
 5'-A GGG CGG CAT GGC GGG CAC AGG CTG GG-3'
 (Fragment 714) (SEQ. ID NO:721)
 5'-A GGG CGG CAT GGC GGG CAC AGG CTG G-3'
 (Fragment 715) (SEQ. ID NO:722)
 5'-A GGG CGG CAT GGC GGG CAC AGG CTG-3'
 (Fragment 716) (SEQ. ID NO:723)
 5'-A GGG CGG CAT GGC GGG CAC AGG CT-3'
 (Fragment 717) (SEQ. ID NO:724)
 5'-A GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment
 718) (SEQ. ID NO:725)
 5'-A GGG CGG CAT GGC GGG CAC AGG-3' (Fragment
 719) (SEQ. ID NO:726)
 5'-A GGG CGG CAT GGC GGG CAC AG-3' (Fragment
 720) (SEQ. ID NO:727)
 5'-A GGG CGG CAT GGC GGG CAC A-3' (Fragment 721)
 (SEQ. ID NO:728)
 5'-A GGG CGG CAT GGC GGG CAC-3' (Fragment 722)
 (SEQ. ID NO:729)
 5'-A GGG CGG CAT GGC GGG CA-3' (Fragment 723)
 (SEQ. ID NO:730)
 5'-A GGG CGG CAT GGC GGG C-3' (Fragment 724)
 (SEQ. ID NO:731)
 5'-A GGG CGG CAT GGC GGG-3' (Fragment 725) (SEQ.
 ID NO:732)
 5'-A GGG CGG CAT GGC GG-3' (Fragment 726) (SEQ. ID
 NO:733)
 5'-A GGG CGG CAT GGC G-3' (Fragment 727) (SEQ. ID
 NO:734)
 5'-A GGG CGG CAT GGC-3' (Fragment 728) (SEQ. ID
 NO:735)
 5'-A GGG CGG CAT GG-3' (Fragment 729) (SEQ. ID
 NO:736)
 5'-A GGG CGG CAT G-3' (Fragment 730) (SEQ. ID
 NO:737)
 5'-A GGG CGG CAT-3' (Fragment 731) (SEQ. ID NO:738)
 5'-GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'
 (Fragment 732) (SEQ. ID NO:739)
 5'-GGG CGG CAT GGC GGG CAC AGG CTG GG-3'
 (Fragment 733) (SEQ. ID NO:740)
 5'-GGG CGG CAT GGC GGG CAC AGG CTG G-3'
 (Fragment 734) (SEQ. ID NO:741)
 5'-GGG CGG CAT GGC GGG CAC AGG CTG-3'
 (Fragment 735) (SEQ. ID NO:742)
 5'-GGG CGG CAT GGC GGG CAC AGG CT-3' (Fragment
 736) (SEQ. ID NO:743)
 5'-GGG CGG CAT GGC GGG CAC AGG C-3' (Fragment
 737) (SEQ. ID NO:744)
 5'-GGG CGG CAT GGC GGG CAC AGG-3' (Fragment
 738) (SEQ. ID NO:745)
 5'-GGG CGG CAT GGC GGG CAC AG-3' (Fragment 739)
 (SEQ. ID NO:746)
 5'-GGG CGG CAT GGC GGG CAC A-3' (Fragment 740)
 (SEQ. ID NO:747)
 5'-GGG CGG CAT GGC GGG CAC-3' (Fragment 741)
 (SEQ. ID NO:748)
 5'-GGG CGG CAT GGC GGG CA-3' (Fragment 742) (SEQ.
 ID NO:749)
 5'-GGG CGG CAT GGC GGG C-3' (Fragment 743) (SEQ.
 ID NO:750)
 5'-GGG CGG CAT GGC GGG-3' (Fragment 744) (SEQ. ID
 NO:751)
 5'-GGG CGG CAT GGC GG-3' (Fragment 745) (SEQ. ID
 NO:752)
 5'-GGG CGG CAT GGC G-3' (Fragment 746) (SEQ. ID
 NO:753)

5'-GGG CGG CAT GGC-3' (Fragment 747) (SEQ. ID
 NO:754)
 5'-GGG CGG CAT GG-3' (Fragment 748) (SEQ. ID
 NO:755)
 5'-GGG CGG CAT G-3' (Fragment 749) (SEQ. ID NO:756)
 5'-GG CGG CAT GGC GGG CAC AGG CTG GGC-3'
 (Fragment 750) (SEQ. ID NO:757)
 5'-GG CGG CAT GGC GGG CAC AGG CTG GG-3'
 (Fragment 751) (SEQ. ID NO:758)
 5'-GG CGG CAT GGC GGG CAC AGG CTG G-3'
 (Fragment 752) (SEQ. ID NO:759)
 5'-GG CGG CAT GGC GGG CAC AGG CTG-3' (Fragment
 753) (SEQ. ID NO:760)
 5'-GG CGG CAT GGC GGG CAC AGG CT-3' (Fragment
 754) (SEQ. ID NO:761)
 5'-GG CGG CAT GGC GGG CAC AGG C-3' (Fragment
 755) (SEQ. ID NO:762)
 5'-GG CGG CAT GGC GGG CAC AGG-3' (Fragment 756)
 (SEQ. ID NO:763)
 5'-GG CGG CAT GGC GGG CAC AG-3' (Fragment 757)
 (SEQ. ID NO:764)
 5'-GG CGG CAT GGC GGG CAC A-3' (Fragment 758)
 (SEQ. ID NO:765)
 5'-GG CGG CAT GGC GGG CAC-3' (Fragment 759) (SEQ.
 ID NO:766)
 5'-GG CGG CAT GGC GGG CA-3' (Fragment 760) (SEQ.
 ID NO:767)
 5'-GG CGG CAT GGC GGG C-3' (Fragment 761) (SEQ. ID
 NO:768)
 5'-GG CGG CAT GGC GGG-3' (Fragment 762) (SEQ. ID
 NO:769)
 5'-GG CGG CAT GGC GG-3' (Fragment 763) (SEQ. ID
 NO:770)
 5'-GG CGG CAT GGC G-3' (Fragment 764) (SEQ. ID
 NO:771)
 5'-GG CGG CAT GGC-3' (Fragment 765) (SEQ. ID
 NO:772)
 5'-GG CGG CAT GG-3' (Fragment 766) (SEQ. ID NO:773)
 5'-G CGG CAT GGC GGG CAC AGG CTG GGC-3'
 (Fragment 767) (SEQ. ID NO:774)
 5'-G CGG CAT GGC GGG CAC AGG CTG GG-3'
 (Fragment 768) (SEQ. ID NO:775)
 5'-G CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment
 769) (SEQ. ID NO:776)
 5'-G CGG CAT GGC GGG CAC AGG CTG-3' (Fragment
 770) (SEQ. ID NO:777)
 5'-G CGG CAT GGC GGG CAC AGG CT-3' (Fragment
 771) (SEQ. ID NO:778)
 5'-G CGG CAT GGC GGG CAC AGG C-3' (Fragment 772)
 (SEQ. ID NO:779)
 5'-G CGG CAT GGC GGG CAC AGG-3' (Fragment 773)
 (SEQ. ID NO:780)
 5'-G CGG CAT GGC GGG CAC AG-3' (Fragment 774)
 (SEQ. ID NO:781)
 5'-G CGG CAT GGC GGG CAC A-3' (Fragment 775) (SEQ.
 ID NO:782)
 5'-G CGG CAT GGC GGG CAC-3' (Fragment 776) (SEQ.
 ID NO:783)
 5'-G CGG CAT GGC GGG CA-3' (Fragment 777) (SEQ. ID
 NO:784)
 5'-G CGG CAT GGC GGG C-3' (Fragment 778) (SEQ. ID
 NO:785)
 5'-G CGG CAT GGC GGG-3' (Fragment 779) (SEQ. ID
 NO:786)
 5'-G CGG CAT GGC GG-3' (Fragment 780) (SEQ. ID
 NO:787)
 5'-G CGG CAT GGC G-3' (Fragment 781) (SEQ. ID
 NO:788)

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5'-G CGG CAT GGC-3' (Fragment 782) (SEQ. ID NO:789)
 5'-CGG CAT GGC GGG CAC AGG CTG GGC-3'
 (Fragment 783) (SEQ. ID NO:790)
 5'-CGG CAT GGC GGG CAC AGG CTG GG-3' (Fragment
 784) (SEQ. ID NO:791)
 5'-CGG CAT GGC GGG CAC AGG CTG G-3' (Fragment
 785) (SEQ. ID NO:792)
 5'-CGG CAT GGC GGG CAC AGG CTG-3' (Fragment
 786) (SEQ. ID NO:793)
 5'-CGG CAT GGC GGG CAC AGG CT-3' (Fragment 787)
 (SEQ. ID NO:794)
 5'-CGG CAT GGC GGG CAC AGG C-3' (Fragment 788)
 (SEQ. ID NO:795)
 5'-CGG CAT GGC GGG CAC AGG-3' (Fragment 789)
 (SEQ. ID NO:796)
 5'-CGG CAT GGC GGG CACAG-3' (Fragment 790) (SEQ.
 ID NO:797)
 5'-CGG CAT GGC GGG CAC A-3' (Fragment 791) (SEQ.
 ID NO:798)
 5'-CGG CAT GGC GGG CAC-3' (Fragment 792) (SEQ. ID
 NO:799)
 5'-CGG CAT GGC GGG CA-3' (Fragment 793) (SEQ. ID
 NO:800)
 5'-CGG CAT GGC GGG C-3' (Fragment 794) (SEQ. ID
 NO:801)
 5'-CGG CAT GGC GGG-3' (Fragment 795) (SEQ. ID
 NO:802)
 5'-CGG CAT GGC GG-3' (Fragment 796) (SEQ. ID
 NO:803)
 5'-CGG CAT GGC G-3' (Fragment 797) (SEQ. ID NO:804)
 5'-GG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
 798) (SEQ. ID NO:805)
 5'-GG CAT GGC GGG CAC AGG CTG GG-3' (Fragment
 799) (SEQ. ID NO:806)
 5'-GG CAT GGC GGG CAC AGG CTG G-3' (Fragment
 800) (SEQ. ID NO:807)
 5'-GG CAT GGC GGG CAC AGG CTG-3' (Fragment 801)
 (SEQ. ID NO:808)
 5'-GG CAT GGC GGG CAC AGG CT-3' (Fragment 802)
 (SEQ. ID NO:809)
 5'-GG CAT GGC GGG CAC AGG C-3' (Fragment 803)
 (SEQ. ID NO:810)
 5'-GG CAT GGC GGG CAC AGG-3' (Fragment 804) (SEQ.
 ID NO:811)
 5'-GG CAT GGC GGG CAC AG-3' (Fragment 805) (SEQ.
 ID NO:812)
 5'-GG CAT GGC GGG CACA-3' (Fragment 806) (SEQ. ID
 NO:813)
 5'-GG CAT GGC GGG CAC-3' (Fragment 807) (SEQ. ID
 NO:814)
 5'-GG CAT GGC GGG CA-3' (Fragment 808) (SEQ. ID
 NO:815)
 5'-GG CAT GGC GGG C-3' (Fragment 809) (SEQ. ID
 NO:816)
 5'-GG CAT GGC GGG-3' (Fragment 810) (SEQ. ID
 NO:817)
 5'-GG CAT GGC GG-3' (Fragment 811) (SEQ. ID NO:818)
 5'-G CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
 812) (SEQ. ID NO:819)
 5'-G CAT GGC GGG CAC AGG CTG GG-3' (Fragment
 813) (SEQ. ID NO:820)
 5'-G CAT GGC GGG CAC AGG CTG G-3' (Fragment 814)
 (SEQ. ID NO:821)
 5'-G CAT GGC GGG CAC AGG CTG-3' (Fragment 815)
 (SEQ. ID NO:822)
 5'-G CAT GGC GGG CAC AGG CT-3' (Fragment 816)
 (SEQ. ID NO:823)

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5'-G CAT GGC GGG CAC AGG C-3' (Fragment 817) (SEQ.
 ID NO:824)
 5'-G CAT GGC GGG CAC AGG-3' (Fragment 818) (SEQ.
 ID NO:825)
 5'-G CAT GGC GGG CAC AG-3' (Fragment 819) (SEQ. ID
 NO:826)
 5'-G CAT GGC GGG CAC A-3' (Fragment 820) (SEQ. ID
 NO:827)
 5'-G CAT GGC GGG CAC-3' (Fragment 821) (SEQ. ID
 NO:828)
 5'-G CAT GGC GGG CA-3' (Fragment 822) (SEQ. ID
 NO:829)
 5'-G CAT GGC GGG C-3' (Fragment 823) (SEQ. ID
 NO:830)
 5'-G CAT GGC GGG-3' (Fragment 824) (SEQ. ID NO:831)
 5'-CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
 825) (SEQ. ID NO:832)
 5'-CAT GGC GGG CAC AGG CTG GG-3' (Fragment 826)
 (SEQ. ID NO:833)
 5'-CAT GGC GGG CAC AGG CTG G-3' (Fragment 827)
 (SEQ. ID NO:834)
 5'-CAT GGC GGG CAC AGG CTG-3' (Fragment 828)
 (SEQ. ID NO:835)
 5'-CAT GGC GGG CAC AGG CT-3' (Fragment 829) (SEQ.
 ID NO:836)
 5'-CAT GGC GGG CAC AGG C-3' (Fragment 830) (SEQ.
 ID NO:837)
 5'-CAT GGC GGG CAC AGG-3' (Fragment 831) (SEQ. ID
 NO:838)
 5'-CAT GGC GGG CAC AG-3' (Fragment 832) (SEQ. ID
 NO:839)
 5'-CAT GGC GGG CAC A-3' (Fragment 833) (SEQ. ID
 NO:840)
 5'-CAT GGC GGG CAC-3' (Fragment 834) (SEQ. ID
 NO:841)
 5'-CAT GGC GGG CA-3' (Fragment 835) (SEQ. ID
 NO:842)
 5'-CAT GGC GGG C-3' (Fragment 836) (SEQ. ID NO:843)
 5'-AT GGC GGG CAC AGG CTG GGC-3' (Fragment 837)
 (SEQ. ID NO:844)
 5'-AT GGC GGG CAC AGG CTG GG-3' (Fragment 838)
 (SEQ. ID NO:845)
 5'-AT GGC GGG CAC AGG CTG G-3' (Fragment 839)
 (SEQ. ID NO:846)
 5'-AT GGC GGG CAC AGG CTG-3' (Fragment 840) (SEQ.
 ID NO:847)
 5'-AT GGC GGG CAC AGG CT-3' (Fragment 841) (SEQ.
 ID NO:848)
 5'-AT GGC GGG CAC AGG C-3' (Fragment 842) (SEQ. ID
 NO:849)
 5'-AT GGC GGG CAC AGG-3' (Fragment 843) (SEQ. ID
 NO:850)
 5'-AT GGC GGG CAC AG-3' (Fragment 844) (SEQ. ID
 NO:851)
 5'-AT GGC GGG CAC A-3' (Fragment 845) (SEQ. ID
 NO:852)
 5'-AT GGC GGG CAC-3' (Fragment 846) (SEQ. ID
 NO:853)
 5'-AT GGC GGG CA-3' (Fragment 847) (SEQ. ID NO:854)
 5'-T GGC GGG CAC AGG CTG GGC-3' (Fragment 848)
 (SEQ. ID NO:855)
 5'-T GGC GGG CAC AGG CTG GG-3' (Fragment 849)
 (SEQ. ID NO:856)
 5'-T GGC GGG CAC AGG CTG G-3' (Fragment 850)
 (SEQ. ID NO:857)
 5'-T GGC GGG CAC AGG CTG-3' (Fragment 851) (SEQ.
 ID NO:858)

5'-T GGC GGG CAC AGG CT-3' (Fragment 852) (SEQ. ID NO:859)
 5'-T GGC GGG CAC AGG C-3' (Fragment 853) (SEQ. ID NO:860)
 5'-T GGC GGG CAC AGG-3' (Fragment 854) (SEQ. ID NO:861)
 5'-T GGC GGG CAC AG-3' (Fragment 855) (SEQ. ID NO:862)
 5'-T GGC GGG CAC A-3' (Fragment 856) (SEQ. ID NO:863)
 5'-T GGC GGG CAC-3' (Fragment 857) (SEQ. ID NO:864)
 5'-GGC GGG CAC AGG CTG GGC-3' (Fragment 858) (SEQ. ID NO:865)
 5'-GGC GGG CAC AGG CTG GG-3' (Fragment 859) (SEQ. ID NO:866)
 5'-GGC GGG CAC AGG CTG G-3' (Fragment 860) (SEQ. ID NO:867)
 5'-GGC GGG CAC AGG CTG-3' (Fragment 861) (SEQ. ID NO:868)
 5'-GGC GGG CAC AGG CT-3' (Fragment 862) (SEQ. ID NO:869)
 5'-GGC GGG CAC AGG C-3' (Fragment 863) (SEQ. ID NO:870)
 5'-GGC GGG CAC AGG-3' (Fragment 864) (SEQ. ID NO:871)
 5'-GGC GGG CAC AG-3' (Fragment 865) (SEQ. ID NO:872)
 5'-GGC GGG CAC A-3' (Fragment 866) (SEQ. ID NO:873)
 5'-GC GGG CAC AGG CTG GGC-3' (Fragment 867) (SEQ. ID NO:874)
 5'-GC GGG CAC AGG CTG GG-3' (Fragment 868) (SEQ. ID NO:875)
 5'-GC GGG CAC AGG CTG G-3' (Fragment 869) (SEQ. ID NO:876)
 5'-GC GGG CAC AGG CTG-3' (Fragment 870) (SEQ. ID NO:877)
 5'-GC GGG CAC AGG CT-3' (Fragment 871) (SEQ. ID NO:878)
 5'-GC GGG CAC AGG C-3' (Fragment 872) (SEQ. ID NO:879)
 5'-GC GGG CAC AGG-3' (Fragment 873) (SEQ. ID NO:880)
 5'-GC GGG CAC AG-3' (Fragment 874) (SEQ. ID NO:881)
 5'-C GGG CAC AGG CTG GGC-3' (Fragment 875) (SEQ. ID NO:882)
 5'-C GGG CAC AGG CTG GG-3' (Fragment 876) (SEQ. ID NO:883)
 5'-C GGG CAC AGG CTG G-3' (Fragment 877) (SEQ. ID NO:884)
 5'-C GGG CAC AGG CTG-3' (Fragment 878) (SEQ. ID NO:885)
 5'-C GGG CAC AGG CT-3' (Fragment 879) (SEQ. ID NO:886)
 5'-C GGG CAC AGG C-3' (Fragment 880) (SEQ. ID NO:887)
 5'-C GGG CAC AGG-3' (Fragment 881) (SEQ. ID NO:888)
 5'-GGG CAC AGG CTG GGC-3' (Fragment 882) (SEQ. ID NO:889)
 5'-GGG CAC AGG CTG GG-3' (Fragment 883) (SEQ. ID NO:890)
 5'-GGG CAC AGG CTG G-3' (Fragment 884) (SEQ. ID NO:891)
 5'-GGG CAC AGG CTG-3' (Fragment 885) (SEQ. ID NO:892)
 5'-GGG CAC AGG CT-3' (Fragment 886) (SEQ. ID NO:893)
 5'-GGG CAC AGG C-3' (Fragment 887) (SEQ. ID NO:894)

5'-GG CAC AGG CTG GGC-3' (Fragment 888) (SEQ. ID NO:895)
 5'-GG CAC AGG CTG GG-3' (Fragment 889) (SEQ. ID NO:896)
 5'-GG CAC AGG CTG G-3' (Fragment 890) (SEQ. ID NO:897)
 5'-GG CAC AGG CTG-3' (Fragment 891) (SEQ. ID NO:898)
 5'-GG CAC AGG CT-3' (Fragment 892) (SEQ. ID NO:899)
 5'-G CAC AGG CTG GGC-3' (Fragment 893) (SEQ. ID NO:900)
 5'-G CAC AGG CTG GG-3' (Fragment 894) (SEQ. ID NO:901)
 5'-G CAC AGG CTG G-3' (Fragment 895) (SEQ. ID NO:902)
 5'-G CAC AGG CTG-3' (Fragment 896) (SEQ. ID NO:903)
 5'-CAC AGG CTG GGC-3' (Fragment 897) (SEQ. ID NO:904)
 5'-CAC AGG CTG GG-3' (Fragment 898) (SEQ. ID NO:905)
 5'-CAC AGG CTG G-3' (Fragment 899) (SEQ. ID NO:906)
 5'-AC AGG CTG GGC-3' (Fragment 900) (SEQ. ID NO:907)
 5'-AC AGG CTG GG-3' (Fragment 901) (SEQ. ID NO:908)
 5'-C AGG CTG GGC-3' (Fragment 902) (SEQ. ID NO:909)
 5'-GGC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 903) (SEQ. ID NO:910)
 5'-GC GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 904) (SEQ. ID NO:911)
 5'-C GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 905) (SEQ. ID NO:912)
 5'-GGC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 906) (SEQ. ID NO:913)
 5'-GC CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 907) (SEQ. ID NO:914)
 5'-C CTG GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 908) (SEQ. ID NO:915)
 5'-CTG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 909) (SEQ. ID NO:916)
 5'-TG GAA AGC TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment 910) (SEQ. ID NO:917)
 5'-G GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 911) (SEQ. ID NO:918)
 5'-GAA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 912) (SEQ. ID NO:919)
 5'-AA AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 913) (SEQ. ID NO:920)
 5'-A AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 914) (SEQ. ID NO:921)
 5'-AGC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 915) (SEQ. ID NO:922)
 5'-GC TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 916) (SEQ. ID NO:923)
 5'-C TGA GAT GGA GGG CGG CAT TGC GGG CAC AGG CTG GGC-3' (Fragment 917) (SEQ. ID NO:924)

5'-TGA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG GGC-3' (Fragment 918) (SEQ. ID NO:925)
5'-GA GAT GGA GGG CGG CAT GGC GGG CAC AGG
CTG GGC-3' (Fragment 919) (SEQ. ID NO:926)
5'-GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG
GGC-3' (Fragment 920) (SEQ. ID NO:927)
5'-GAT GGA GGG CGG CAT GGC GGG CAC AGG CTG
GGC-3' (Fragment 921) (SEQ. ID NO:928)
5'-AT GGA GGG CGG CAT GGC CGG CAC AGG CTG
GGC-3' (Fragment 922) (SEQ. ID NO:929)
5'-T GGA GGG CGG CAT GGC GGG CAC AGG CTG
GGC-3' (Fragment 923) (SEQ. ID NO:930)
5'-GGA GGG CGG CAT GGC GGG CAC AGG CTG
GGC-3' (Fragment 924) (SEQ. ID NO:931)
5'-GA GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 925) (SEQ. ID NO:932)
5'-A GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 926) (SEQ. ID NO:933)
5'-GGG CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 927) (SEQ. ID NO:934)
5'-GG CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 928) (SEQ. ID NO:935)
5'-G CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 929) (SEQ. ID NO:936)
5'-CGG CAT GGC GGG CAC AGG CTG GGC-3'
(Fragment 930) (SEQ. ID NO:937)
5'-GG CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
931) (SEQ. ID NO:938)
5'-G CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
932) (SEQ. ID NO:939)
5'-CAT GGC GGG CAC AGG CTG GGC-3' (Fragment
933) (SEQ. ID NO:940)
5'-AT GGC GGG CAC AGG CTG GGC-3' (Fragment 934)
(SEQ. ID NO:941)
5'-T GGC GGG CAC AGG CTG GGC-3' (Fragment 935)
(SEQ. ID NO:942)
5'-GGC GGG CAC AGG CTG GGC-3' (Fragment 936)
(SEQ. ID NO:943)
5'-GC GGG CAC AGG CTG GGC-3' (Fragment 937) (SEQ.
ID NO:944)
5'-C GGG CAC AGG CTG GGC-3' (Fragment 938) (SEQ.
ID NO:945)
5'-GGG CAC AGG CTG GGC-3' (Fragment 939) (SEQ. ID
NO:946)
5'-GG CAC AGG CTG GGC-3' (Fragment 940) (SEQ. ID
NO:947)
5'-G CAC AGG CTG GGC-3' (Fragment 941) (SEQ. ID
NO:948)
5'-CAC AGG CTG GGC-3' (Fragment 942) (SEQ. ID
NO:949)
5'-AC AGG CTG GGC-3' (Fragment 943) (SEQ. ID
NO:950)
5'-C AGG CTG GGC-3' (Fragment 944) (SEQ. ID NO:951)
5'-AGG CTG GGC-3' (Fragment 945) (SEQ. ID NO:952)

Other adenosine fragments, for example those with low
adenosine content or lacking adenosine altogether, are also
suitable and in some cases even preferred, for use with the
invention. The following sequences, their fragments and
combinations, are one particularly preferred group of anti-
sense oligos.

TTT TCC TTC CTT TGT CTC TCT TC (FRAG 946) (SEQ
ID NO: 953)
GCT CCC GGC TGC CTG (FRAG 947) (SEQ. ID NO: 954)
CTC GGC CGT GCG GCT CTG TCG CTC CCG GT
(FRAG 948) (SEQ. ID NO: 955)
CCG CCG CCC TCC GGG GGG TC (FRAG 949) (SEQ. ID
NO: 956)

TGC TGC CGT TGG CTG CCC (FRAG 950) (SEQ. ID
NO: 957)
CTT CTG CGG GTC GCC GG (FRAG 951) (SEQ. ID NO:
958)
5 TGC TGG GCT TGT GGC (FRAG 952) (SEQ. ID NO: 959)
GGC CTC TCT TCT GGG (FRAG 953) (SEQ. ID NO: 960)
CCT GGT CCC TCC GT (FRAG 954) (SEQ. ID NO: 961)
GGT GGC TCC TCT GC (FRAG 955) (SEQ. ID NO: 962)
GCT TGG TCC TGG GGC TGC (FRAG 956) (SEQ. ID
NO: 963)

TGC TCT CCT CTC CTT (FRAG 957) (SEQ. ID NO: 964)
In another embodiment of this invention, the oligos are
anti-sense to an adenosine A_{2a} receptor, and must either be
"up-regulated", or if they have some adenosine A₁ activity
they are treated as the other anti-sense oligos. The following
sequences are preferred examples of anti-sense oligos asso-
ciated with the human adenosine A_{2a} receptor. Another
preferred group is composed of fragments of these
sequences and combinations thereof as well as mixtures.
Also preferred are these sequences, fragments and their
combinations where one or more adenosines are substituted
by a universal base or an adenosine analogue which either is
not an agonist or a ligand for the adenosine A₁ receptor, or
which acts as an antagonist of the A₁ receptor, such as, for
example, theophylline or enprophylline.

5'-TGC TTT TCT TTT CTG GGC CTC-3' (FRAG 958)
(SEQ. ID NO: 965)
5'-TGT GGT CTG TTT TTT TCT G-3' (FRAG 959) (SEQ.
ID NO: 966)
5'-GCC CTG CTG GGG CGC TCT CC-3' (FRAG 960)
(SEQ. ID NO: 967)
5'-GCC GCC CGC CTG GCT CCC-3' (FRAG 961) (SEQ.
ID NO: 968)
5'-GGB GCC CBT GBT GGG CBT GCC-3' (FRAG 962)
(SEQ. ID NO: 969)
5'-GTG GTT CTT GCC CTC CTT TGG CTG-3' (FRAG
963) (SEQ. ID NO: 970)
5'-CCG TGC CCG CTC CCC GGC-3' (FRAG 964) (SEQ.
ID NO: 971)
5'-CTC CTG GCG GGT GGC CGT TG-3' (FRAG 965)
(SEQ. ID NO: 972)
5'-GGC CCG TGT TCC CCT GGG-3' (FRAG 966) (SEQ.
ID NO: 973)
5'-GCC TGG GGC TCC CTT CTC TC-3' (FRAG 967)
(SEQ. ID NO: 974)
5'-GCC CTT CTT GCT GGG CCT C-3' (FRAG 968) (SEQ.
ID NO: 975)
5'-TGC TGC TGG TGC TGT GGC CCC C-3' (FRAG
969) (SEQ. ID NO: 976)
50 GTACACCGAGGAGCCCATGATGGGCAT-
GCCACAGACGACAGGC (FRAG 970) (SEQ. ID NO:
977)
GTBCBCCGBGGBGCCCBTGBTGGGCBT-
GCCBCBGBCBGCBGGC (FRAG 971) (SEQ. ID NO:
978)

In another embodiment, the anti-sense oligo of the inven-
tion may be a sequence which is anti-sense to the adenosine
A_{2b} receptor. By means of example, the following sequences
associated with the human receptor are provided. These
sequences as well as their fragments and combinations,
desadenosine fragments and those where one or more A
are substituted with a universal base or adenosine analogue as
described above are preferred.

5'-GGC GCC GTG CCG CGT CTT GGT GGC GGC GG-3'
(FRAG 972) (SEQ. ID NO: 979)
5'-GTT CGC GCC CGC GCG GGG CCC CTC CGG
TCC-3' (FRAG 973) (SEQ. ID NO: 980)

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5'-TTG GCC CGC GCG CCC GCC CGT CTC GGG CTG
GGC GG-3' (FRAG 974) (SEQ. ID NO: 981)
5'-CGG GTC GGG GCC CCC CGC GGC C-3' (FRAG 975)
(SEQ. ID NO: 982)
5'-GCC TCG GGG CTG GGG CGC TGG TGG CCG GG-3'
(FRAG 976) (SEQ. ID NO: 983)
5'-CCG CGC CTC CGC CTG CCG CTT CTG-3' (FRAG
977) (SEQ. ID NO: 984)
5'-GCT GGG CCC CGG GCG CCC CCT-3' (FRAG 978)
(SEQ. ID NO: 985)
5'-CCC CTC TTG CTC GGG TCC CCG TG-3' (FRAG 979)
(SEQ. ID NO: 986)
A C A G C G C G T C C T G T G T C T C C A G C A G -
C A T G C C C G G G C C A G C T G G G C C C C (FRAG 980)
(SEQ. ID NO: 987)
B C B G C G C G T C C T G T G T C T C C B G C B -
G C B T G C C G G G C C B G C T G G G C C C C (FRAG 981)
(SEQ. ID NO: 988)

In still another embodiment, the oligo of this invention may be anti-sense to any fragment of the adenosine A₃ receptor gene or mRNA, including overlapping regions with the flanking regions or introns. The following are examples of these fragments associated with the human receptor. These are preferred sequences. Also preferred are their fragments and combinations, as well as desadenosine fragments and those where one or more A are substituted by a universal base or A analogue as described above.

ACA GAG CA TGC TGT TGT TGG GCA TCT TGC CTT
CCC AGG G (FRAG 982) (SEQ. ID NO: 989)
BCB GBG CB TGC TGT TGT TGG GCB TCT TGC CTT
CCC BGG G (FRAG 983) (SEQ. ID NO: 990)
CCC TTT TCT GGT GGG GTG (FRAG 984) (SEQ. ID NO:
991)
GTG CTG TTG TTG GGC (FRAG 985) (SEQ. ID NO: 992)
TTT CTT CTG TTC CC (FRAG 986) (SEQ. ID NO: 993)
CCC TTT TCT GGT GGG GTG (FRAG 987) (SEQ. ID NO:
994)
GTG CTG TTG TTG GGC (FRAG 988) (SEQ. ID NO: 995)
TTT CTT CTG TTC CC (FRAG 989) (SEQ. ID NO: 996)

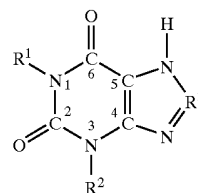
In the anti-sense oligonucleotides of the present invention, exemplified by the preceding sequences, a number of adenosine bases may be replaced with an appropriate "spacer" or universal base (e.g., 1-[β-D-2'-deoxyribofuranosyl]-5-nitroindole, or with an adenosine agonist or antagonist that does not stimulate adenosine A₁, A_{2b}, or A₃ receptors, but which may stimulate adenosine A_{2a} receptors. In this manner, a specific adenosine receptor gene may be targeted to obtain one or more anti-sense oligonucleotide(s) (oligos) that selectively bind(s) to the corresponding mRNA, and then, if necessary, their content of adenosine may be reduced by substituting one or more universal bases or adenosine analogues incapable of activating adenosine A₁, A_{2b}, or A₃ receptors or which activate the adenosine A_{2a} receptor. Thus, in addition to "down-regulating" specific adenosine receptor genes, the present oligos have an increased effect when administered by either selection of genes, RNA and flanking regions that are devoid, or have a low A content, or alternatively one or more of the adenosine(s) present in the oligonucleotide(s) are substituted with other nucleotide bases, so called universal bases, which bind to thymidine (T) but lack the ability to activate adenosine receptors and otherwise may not activate adenosine receptors. Given that adenosine (A) is a nucleotide base complementary to thymidine (T), when a T appears in the RNA, the anti-sense oligo will have an A at the same position.

The method of the present invention may be used to treat ailments associated with or causing bronchoconstriction

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allegy(ies) and/or inflammation association with any of the diseases and conditions described above in a subject, regardless of its cause. The anti-sense agent(s) of the invention have preferably a low (or reduced) A content to prevent its liberation upon in vivo degradation of the agent(s), preferably up to about 15%, more preferably up to about 10%, still more preferably up to about 5%, and even more preferred being devoid of A ("desadenosine oligos").

The oligos of this invention may be obtained by first selecting fragments of a target nucleic acid having at least 4 contiguous nucleic acids selected from the group consisting of G and C, and then obtaining a first oligonucleotide 4 to 60 nucleotide long which comprises the selected fragment and has a C and G nucleic acid content of up to and including about 15%. The latter step may be conducted by obtaining a second oligonucleotide 4 to 60 nucleotide long comprising a sequence which is anti-sense to the selected fragment, the second oligonucleotide having an adenosine base content of up to and including about 15%. This method may also comprise, when the selected fragment comprises at least one thymidine base, substituting an adenosine base in the corresponding nucleotide of the anti-sense fragment with a universal base selected from the group consisting of heteroaromatic bases which bind to a thymidine base but have antagonist activity and less than about 0.3 of the adenosine base agonist activity at the adenosine A₁, A_{2b}, and A₃ receptors, and heteroaromatic bases which have no activity or have an agonist activity at the adenosine A_{2a} receptor. The analogue heteroaromatic bases may be selected from all pyrimidines and purines, which may be substituted by O, halo, NH₂, SH, SO, SO₂, SO₃, COOH and branched and fused primary and secondary amino, alkyl, alkenyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, alkoxy, alkenoxy, acyl, cycloacyl, arylacyl, alkynoxy, cycloalkoxy, aroyl, arylthio, arylsulfoxyl, halocycloalkyl, alkylcycloalkyl, alkenylcycloalkyl, alkynylcycloalkyl, haloaryl, alkylaryl, alkenylaryl, alkynylaryl, arylalkyl, arylalkenyl, arylalkynyl, arylcycloalkyl, which may be further substituted by O, halo, NH₂, primary, secondary and tertiary amine, SH, SO, SO₂, SO₃, cycloalkyl, heterocycloalkyl and heteroaryl. The pyrimidines and purines may be substituted at all positions as is known in the art, but preferred are those which are substituted at positions 1, 2, 3, 4, 7 and/or 8. More preferred are pyrimidines and purines such as theophylline, caffeine, dyphylline, etophylline, acetylamine piperazine, bamifylline, emprophylline and xantine having the chemical formula



wherein R¹ and R² are independently H, alkyl, alkenyl or alkynyl and R³ is H, aryl, dicycloalkyl, dicycloalkenyl, dicycloalkynyl, cycloalkyl, cycloalkenyl, cycloalkynyl, O-cycloalkyl, O-cycloalkenyl, O-cycloalkynyl, NH₂-alkylamino ketoxalkyloxy-aryl, mono and dialkylaminoalkyl-N-alkylamino-SO₂ aryl, among others. However, other methods may also be employed. The inventor reduced the adenosine content of the anti-sense oligos corresponding to the thymidines (T) present in the target gene, RNA, flanking regions, and bridging sections to less than about 15%, or fully eliminated A from the oligonucle-

otide sequence as a means for preventing their breakdown products from freeing adenosine into the lung tissue environment and, thereby, aggravating the subject's ailment and/or countering the beneficial effect of the administered.

Also part of this invention are chemical analogues of the nucleic acids in which, for example, the phosphodiester bonds have been modified, e.g., to a methylphosphonate, a phosphotriester, a phosphorothioate, a phosphorodithioate, or a phosphoramidate, so as to render the nucleic acids more stable in vivo. The naturally occurring phosphodiester linkages in nucleic acids are susceptible to degradation by endogenously occurring cellular nucleases, while many analogues linkages are highly resistant to nuclease degradation. See Milligan et al., and Coben, J. S., supra. The use of a "3'-end cap" strategy by which nuclease-resistant linkages are substituted for phosphodiester linkages at the 3' end of the oligonucleotide protects oligonucleotides from degradation. See, Tidd, D. M. and Warenus, H. M., Br. J. Cancer 60: 343-350 (1989); Shaw, J. P. et al., Nucleic Acids Res. 19, 747-750 (1991). Phosphoramidate, phosphorothioate, and methylphosphonate linkages are suitable for use in this invention. In addition, extensive modification of the phosphodiester backbone has been shown to impart stability and may allow for enhanced affinity and increased cellular permeation of oligonucleotides. See Milligan, et al., supra. Many different chemical strategies have been employed to replace the entire phosphodiester backbone with novel linkages. Id. The analogues of the oligonucleotides of the invention include phosphorothioate, phosphorodithioate, phosphorotrithioate, methylphosphonate, phosphoramidate, boranophosphate, phosphotriester, formacetal, 2'-O-methyl, Thioformacetal such as 3'-thioformacetal and 5'-thioformacetal, 5'-thioether, carbonate, 5'-N-carbamate, sulfate, sulfonate, sulfamate, sulfonamide, sulfone, sulfite, sulfoxide, sulfide, hydroxylamine, methylene (methylimino) (MMI) and methyleneoxy (methylimino) (MOMI) linkages among others. The oligonucleotides of the invention may also be modified by addition of a terminal 1,3-propanediol or a terminal dodecanol, among others, or they may be conjugated to a polyethylene glycol, cholesterol, cholesteryl, dehydroepiandrosterone, dehydroepiandrosterone sulfate, dehydroepiandrosterone sulfatide, ubiquinone, dolichol, poly L-lysine, sulfatidic acid and fatty acid, among others. The oligos of the invention may also be modified by 2'-O-methoxyethyl, C-5-propynyl pyrimidine, C-5 methyl cytidine, C-5 ethynyl pyrimidine, 2'-propoxy, C-18 amine, N3'-P5' phosphoramidates, 3'-alkylamino, 2'-fluoro; 5-fluoro pyrimidine, 5-iodo pyrimidine, 5-bromo pyrimidine, 2'-borano, C-5 hexynyl pyrimidine, 2'-O-(2-methoxy)ethyl, 2'-O-aminopropyl, 5-(phenylethyl) and peptide nucleic acid interbase linkages. Phosphorothioate and methylphosphonate-modified oligonucleotides are particularly preferred because of their availability and suitability for automated oligonucleotide synthesis. Id. Anti-sense oligonucleotides containing modifications to the nucleotide base itself, e.g. a C-5 propyne, or to the sugar, e.g. a carbohydrate modification, are also aspects of the present invention.

Where appropriate, the antisense nucleotide may be administered in the form of their pharmaceutically acceptable salts or as a mixture.

Anti-sense oligonucleotides may be of any suitable length, e.g., from about 7 to 60 nucleotide in length, depending on the particular target being bound and their mode of delivery. Preferably the antisense oligonucleotide is directed to a gene or mRNA region containing a junction between intron and exon. Where the anti-sense oligonucleotide is

directed to an intron/exon junction, it may either entirely overlie the junction or may be sufficiently close to the junction to inhibit the splicing out of the intervening exon during processing of precursor mRNA to mature mRNA, e.g., with the 3' or 5' terminus of the antisense oligonucleotide being positioned within about, for example, 10, 5, 3, or 2 nucleotide of the intron/exon junction. Also preferred are anti-sense oligonucleotides which overlap the initiation codon.

When practicing the present invention, the anti-sense oligonucleotides administered may be related in origin to the species to which it is administered. When treating humans, the anti-sense may be derived from human sequences. However, sequences obtained from one species are also suitable for administering to a second species.

The pharmaceutical compositions provided herein comprise nucleic acid(s) comprising the anti-sense oligonucleotide(s) described above and one or more surfactants. Suitable surfactants or surfactant components for enhancing the uptake of the anti-sense oligonucleotides of the invention include synthetic and natural as well as full and truncated forms of surfactant protein A, surfactant protein B, surfactant protein C, surfactant protein D and surfactant Protein E, di-saturated phosphatidylcholine (other than dipalmitoyl), dipalmitoylphosphatidylcholine, phosphatidylcholine, phosphatidylglycerol, phosphatidylinositol, phosphatidylethanolamine, phosphatidylserine; phosphatidic acid, ubiquinones, lysophosphatidylethanolamine, lysophosphatidylcholine, palmitoyl-lysophosphatidylcholine, dehydroepiandrosterone, dilichols, sulfatidic acid, glycerol-3-phosphate, dihydroxyacetone phosphate, glycerol, glycerol-3-phosphocholine, dihydroxyacetone, palmitate, cytidine diphosphate (CDP) diacylglycerol, CDP choline, choline, choline phosphate; as well as natural and artificial lamellar bodies which are the natural carrier vehicles for the components of surfactant, omega-3 fatty acids, polyenic acid, polyenoic acid, lecithin, palmitic acid, non-ionic block copolymers of ethylene or propylene oxides, polyoxypropylene, monomeric and polymeric, polyoxyethylene, monomeric and polymeric, poly (vinyl amine) with dextran and/or alkanoyl side chains, polyoxyethylene 23 lauryl ether (Brij 35®), t-octyl phenoxy polyethoxy ethanol (Triton X-100®), dipalmitoyl phosphatidyl choline (DPPC) and phosphatidyl glycerol (PG) (ALEC®), tyloxapol (Exosurf®), phospholipids, fatty acids and surfactant-associated proteins (Survanta®) and C₂₂H₁₉C₁₀ (Atovaquone®), among others. These surfactants may be used either as single or part of a multiple component surfactant in a formulation, or as covalently bound additions to the 5' and/or 3' ends of the anti-sense oligonucleotides (oligos).

These compositions are administered in amounts effective to reduce the expression of an adenosine receptor, such as the adenosine A₁, A_{2b} or A₃ receptor by passing through a cell membrane and binding specifically with mRNA encoding an adenosine A₁, A_{2b} or A₃ receptor in the cell and prevent its translation. In addition, the present oligos may be targeted to the adenosine A_{2a} receptor, as long as they have some anti-A₁, A_{2b} or A₃ receptor activity. Such compositions may contain a suitable pharmaceutically acceptable carrier, e.g., sterile pyrogen-free saline solution, and the like. The present pharmaceutical compositions may be formulated as topical and systemic formulations, in a variety of types, including oral, buccal, nasal, otical, rectal, inhalable, slow release, enteric coated, dermal, intradermal, injectable, and many more as is known in the art. The formulation of the

invention may also comprise a hydrophobic carrier capable of passing through a cell membrane, e.g., in a liposome, with the liposomes carried in a pharmaceutically acceptable aqueous carrier. The oligonucleotides may also be coupled to a substance which inactivates mRNA, such as a ribozyme. The present compositions may be administered to a subject afflicted with a disease or condition associated with the stimulation of lung adenosine A₁, A_{2α}, A_{2β} or A₃ receptors, such as any of the ones described above, in order to inhibit the activation of the adenosine receptors. The pharmaceutical formulation may also contain chimeric molecules comprising antisense oligonucleotides attached to molecules which are known to be internalized by cells either in a non-specific or in a tissue-specific manner. These oligonucleotide conjugates utilize cellular uptake pathways to increase the cellular concentrations of oligonucleotides. Examples of macromolecules used in this manner include transferrin, asialoglycoprotein, e.g. bound to oligonucleotides via polylysine, streptavidin, or other chemical linkages.

The anti-sense compound may be contained in the pharmaceutical formulation within a lipid particle or vesicle, such as a liposome or microcrystal. The lipid particles may be of any suitable structure, such as unilamellar or plurilamellar, so long as the antisense oligonucleotide is contained therein. Positively charged lipids such as N-[1-(2,3-dioleoyloxy)propyl]-N,N,N-trimethylammoniummethylsulfate, or "DOTAP," are particularly preferred for such particles and vesicles. The preparation of such lipid particles is well known. See, e.g., U.S. Pat. No. 4,880,635 to Janoff et al.; U.S. Pat. No. 4,906,477 to Kurono et al.; U.S. Pat. No. 4,911,928 to Wallach; U.S. Pat. No. 4,917,951 to Wallach; U.S. Pat. No. 4,920,016 to Allen et al.; U.S. Pat. No. 4,921,757 to Wheatley et al.; etc.

The composition of the invention may be administered by any means which transports the anti-sense nucleotide and the surfactant composition to the lung. The antisense compounds disclosed herein may be administered to the lungs of a patient by any suitable means, but are preferably administered by inhalation of an aerosol comprised of respirable particles which comprise the anti-sense compound. The respirable particles may be liquid or solid, and they may optionally contain other therapeutic or diagnostic ingredients as well as other typical ingredients for a particular formulation. Examples of other agents are analgesics such as acetaminophen, anilerdine, aspirin, buprenorphine, butabital, butorphanol, Choline Salicylate, Codeine, Dezocine, Diclofenac, Diflunisal, Dihydrocodeine, Eleatonin, Etodolac, Fenopropfen, Hydrocodone, Hydromorphone, Ibuprofen, Ketoprofen, Ketorolac, Levorphanol, Magnesium Salicylate, Meclofenamate, Mefenamic Acid, Meperidine, Methadone, Methotrimeprazine, Morphine, Nalbuphine, Naproxen, Opium, Oxycodone, Oxymorphone, Pentazocine, Phenobarbital, Propoxyphene, Salsalate, Sodium Salicylate, Tramadol and Narcotic analgesics in addition to those listed above. See, Mosby's Physician's GenRx. Anti-anxiety agents are also useful including Alprazolam, Bromazepam, Buspirone, Chlordiazepoxide, Chlormezanone, Clorazepate, Diazepam, Halazepam, Hydroxyzine, Ketazolam, Lorazepam, Meprobamate, Oxazepam and Prazepam, among others. Anti-anxiety agents associated with mental depression, such as Chlordiazepoxide, Amitriptyline, Loxapine Meprotiline and Perphenazine, among others. Anti-inflammatory agents such as non-rheumatic Aspirin, Choline Salicylate, Diclofenac, Diflunisal, Etodolac, Fenopropfen, Floctafenine, Flurbiprofen, Ibuprofen, Indomethacin, Ketoprofen, Mag-

nesium Salicylate, Meclofenamate, Mefenamic Acid, Naburnetone, Naproxen, Oxaprozin, Phenylbutazone, Piroxicam, Salsalate, Sodium Salicylate, Sulindac, Tenoxicam, Tiaprofenic Acid, Tolmetin, anti-inflammatories for ocular treatment such as Diclofenac, Flurbiprofen, Indomethacin, Ketorolac, Rimexolone (generally for post-operative treatment), anti-inflammatories for, non-infectious nasal applications such as Beclomethaxone, Budesonide, Dexamethasone, Flunisolide, Triamcinolone, and the like. Soporifics (anti-insomnia/sleep inducing agents) such as those utilized for treatment of insomnia, including Alprazolam, Bromazepam, Diazepam, Diphenhydramine, Doxylamine, Estazolam, Elurazepam, Halazepam, Ketazolam, Lorazepam, Nitrazepam, Prazepam Quazepam, Temazepam, Triazolam, Zolpidem and Sopiclone, among others. Sedatives including Diphenhydramine, Hydroxyzine, Methotrimeprazine, Promethazine, Propofol, Melatonin, Trimeprazine, and the like. Sedatives and agents used for treatment of petit mal and tremors, among other conditions, such as Amitriptyline HCl; Chlordiazepoxide, Amobarbital; Secobarbital, Aprobarrbital, Butabarrbital, Ethchiovynol, Glutethimide, L-Tryptophan, Mephobarbital, Methohexital Na, Midazolam Hcl, Oxazepam, Pentobarbital Na, Phenobarbital, Secobarbital Na, Thiamylal Na, and many others. Agents used in the treatment of head trauma (Brain Injury/Ischemia), such as Enadoline HCl (e.g. for treatment of severe head injury; orphan status, Warner Lambert), cytoprotective agents, and agents for the treatment of menopause, menopausal symptoms (treatment), e.g. Ergotamine, Belladonna Alkaloids and Phenobarbital, for the treatment of menopausal vasomotor symptoms, e.g. Clonidine, Conjugated Estrogens and Medroxyprogesterone, Estradiol, Estradiol Cypionate, Estradiol Valerate, Estrogens, conjugated Estrogens, esterified Estrone, Estropipate, and Ethinyl Estradiol. Examples of agents for treatment of pre menstrual syndrome (PMS) are Progesterone, Progestin, Gonadotrophic Releasing Hormone, Oral contraceptives, Danazol, Luprolide Acetate. Vitamin B6. Examples of agents for treatment of emotional/psychiatric treatments such as Tricyclic Antidepressants, including Amitriptyline HCl (Elavil), Amitriptyline HCl, Perphenazine (Triavil) and Doxepin HCl (Sinequan). Examples of tranquilizers, anti-depressants and anti-anxiety agents are Diazepam (Valium), Lorazepam (Ativan), Alprazolam (Xanax), SSRI's (selective Serotonin reuptake inhibitors), Fluoxetine HCl (Prozac), Sertaline HCl (Zoloft), Paroxetine HCl (Paxil), Fluvoxamine Maleate (Luvox), Venlafaxine HCl (Effexor), Serotonin, Sertonin Agonists (Fenfluramine), and other over the counter (OTC) medications.

The composition of the present invention may be administered into the respiratory system as a formulation including particles of respirable size, e.g. particles of a size sufficiently small to pass through the nose, mouth and larynx upon inhalation and through the bronchi and alveoli of the lungs. In general, respirable particles range from about 0.5 to 10 microns in size. Particles of non-respirable size which are included in the aerosol tend to deposit in the throat and be swallowed, and the quantity of non-respirable particles in the aerosol is thus minimized. For nasal administration, a particle size in the range of 10–500 μm is preferred to ensure retention in the nasal cavity.

Liquid pharmaceutical compositions of active compound for producing an aerosol may be prepared by combining the antisense compound with a suitable vehicle, such as sterile pyrogen free water. Other therapeutic compounds may optionally be included.

Solid particulate compositions containing respirable dry particles of micronized antisense compound may be prepared by grinding dry antisense compound with a mortar and pestle, and then passing the micronized composition through a 400 mesh screen to break up or separate out large agglomerates. A solid particulate composition comprising of the antisense compound may optionally contain a dispersant which serves to facilitate the formation of an aerosol as well as other therapeutic compounds. A suitable dispersant is lactose, which may be blended with the antisense compound in any suitable ratio, e.g., a 1 to 1 ratio by weight.

The anti-sense compound may be administered in an anti-brochoconstriction, anti-allergy(ies) and/or anti-inflammatory effective amount, which amount depends upon the degree of disease being treated, the condition of the subject, the particular formulation, the route of administration, the timing of administration to a subject, etc. In general, intracellular concentrations of the oligonucleotide of from 0.05 to 50 μ M, or more particularly 0.2 to 5 μ M, are desirable. For administration to a subject such as a human, a dosage of about 0.01, 0.1, or 1 mg/Kg up to about 50, 100, or 150 mg/Kg or more is typically employed. However, other doses are also contemplated in this patent. Depending on the solubility of the active compound in any particular formulation, the daily dose may be divided among one or several unit dose administrations.

The aerosols of liquid particles comprising the antisense compound may be produced by any suitable means, such as with a nebulizer. See, e.g., U.S. Pat. No. 4,501,729. Nebulizers are commercially available devices which transform solutions or suspensions of the active ingredient into a therapeutic aerosol mist either by means of acceleration of a compressed gas, typically air or oxygen, through a narrow venturi orifice or by means of ultrasonic agitation. Suitable formulations for use in nebulizers comprise the active ingredient in a liquid carrier in an amount of up to 40% w/w preferably less than 20% w/w of the formulation. The carrier is typically water or a dilute aqueous alcoholic solution, preferably made isotonic with body fluids by the addition of, for example, sodium chloride. Optional additives include preservatives if the formulation is not prepared sterile, for example, methyl hydroxybenzoate, anti-oxidants, flavorings, volatile oils, buffering agents and emulsifiers and other formulation surfactants.

The aerosols of solid particles comprising the active compound and surfactant may likewise be produced with any solid particulate medicament aerosol generator. Aerosol generators for administering solid particulate medicaments to a subject produce particles which are respirable, as explained above, and generate a volume of aerosol containing a predetermined metered dose of a medicament at a rate suitable for human administration. One illustrative type of solid particulate aerosol generator is an insufflator. Suitable formulations for administration by insufflation include finely comminuted powders which may be delivered by means of an insufflator or taken into the nasal cavity in the manner of a snuff. In the insufflator, the powder, e.g., a metered dose thereof effective to carry out the treatments described herein, is contained in capsules or cartridges, typically made of gelatin or plastic, which are either pierced or opened in situ and the powder delivered by air drawn through the device upon inhalation or by means of a manually-operated pump. The powder employed in the insufflator consists either solely of the active ingredient or of a powder blend comprising the active ingredient, a suitable powder diluent, such as lactose, and an optional surfactant. The active ingredient typically comprises from 0.1 to 100 w/w of the formulation. A second

type of illustrative aerosol generator comprises a metered dose inhaler. Metered dose inhalers are pressurized aerosol dispensers, typically containing a suspension or solution formulation of the active ingredient in a liquified propellant. During use these devices discharge the formulation through a valve adapted to deliver a metered volume, typically from 10 to 150 μ l, to produce a fine particle spray containing the active ingredient. Suitable propellants include certain chlorofluorocarbon compounds, for example, dichlorodifluoromethane, trichlorofluoromethane, dichlorotetrafluoroethane and mixtures thereof. The formulation may additionally contain one or more co-solvents, for example, ethanol, emulsifiers and other formulation surfactants, such as oleic acid or sorbitan trioleate, anti-oxidants and suitable flavoring agents.

The aerosol, whether formed from solid or liquid particles, may be produced by the aerosol generator at a rate of from about 10 to 150 liters per minute, more preferably from about 30 to 150 liters per minute, and most preferably about 60 liters per minute. Aerosols containing greater amounts of medicament may be administered more rapidly.

The following examples are provided to illustrate the present invention, and should not be construed as limiting thereon. In these examples, μ M means micromolar, mL means milliliters, μ m means micrometers, mm means millimeters, cm means centimeters, $^{\circ}$ C means degrees Celsius, μ g means micrograms, mg means milligrams, g means grams, kg means kilograms, M means molar, and h means hours.

EXAMPLES

Example 1

Design and Synthesis of Anti-sense Oligonucleotides & Controls

The design of anti-sense oligonucleotides against the adenosine receptors is based on the primary and secondary structure of the target receptor mRNA. The anti-sense oligonucleotides are selected, and optimally modified, to target regions of mRNA which confer functional activity or stability to the mRNA and which preferably may overlap the initiation codon. For instance, regions that afford particularly strong binding, such as CG strings are preferred, i.e. runs of G and/or C, preferably at the 5'-end of the target region within the target gene or mRNA. However, other target sites within the molecule are suitable as well, particularly those which have low sequence overlapping with other gene sequences, thus increasing the specificity of the treatment.

Other oligonucleotides not totally complementary to the target mRNA, but containing identical nucleotide compositions on a w/w basis (controls), are included as controls in anti-sense experiments to demonstrate the specificity of the activity of the agents of this invention.

The primary and secondary structure of the human adenosine A_1 receptor mRNA was analyzed and used as described above to design anti-sense oligonucleotides, including the ones, whose sequences are provided. One anti-sense oligonucleotide (Oligo 1) was synthesized as a phosphorothioate, designated HAdA1AS, and has the following sequence:

5'-GAT GGA GGG CGG CAT GGC GGG-3' (SEQ ID NO:1)

As a control, a mis-matched phosphorothioate anti-sense nucleotide designated HAdA1MM was synthesized with the following sequence.

5'-GTA GCA GGC GGG GAT GGG GGC-3' (SEQ ID NO:2)

The oligonucleotides of SEQ. ID NOS: 1 and 2 shown above have identical base contents and general sequence structures. Homology searches in GENBANK (release 85.0) and EMBL (release 40.0) indicated that the anti-sense oligonucleotide was specific for the human and rabbit adenosine A₁ receptor genes, and that the mis-matched control was not a candidate for hybridization with any known gene sequence.

In the same manner, the primary and secondary structure of the human adenosine A₃ receptor mRNA was analyzed and various oligos selected, and the following two synthesized as phosphorothioate anti-sense oligonucleotides. The first anti-sense oligonucleotide (HAdA3AS1) synthesized has the following sequence.

5'-GTT GTT GGG CAT CTT GCC-3' (SEQ ID NO:3)

As a control, a mis-matched phosphorothioate anti-sense oligonucleotide (HAdA3MM1) was synthesized, which has the following sequence.

5'-GTA CTT GCG GAT CTA GGC-3' (SEQ ID NO:4)

The second phosphorothioate anti-sense oligonucleotide (HAdA3AS2) has the following sequence.

5'-GTG GGC CTA GCT CTC GCC-3' (SEQ ID NO: 5)

As a control, its mis-matched oligonucleotide (HAdA3MM2) has the following sequence.

5'-GTC GGG GTA CCT GTC GGC-3' (SEQ ID NO:6)

All phosphorothioate oligonucleotides were synthesized on an Applied Biosystems Model 396 Oligonucleotide Synthesizer, and purified using NENSORB chromatography (DuPont, Md.).

Example 2

In Vitro Testing of A₁-Adenosine Receptor Anti-sense Oligonucleotides

The anti-sense oligonucleotide against the human A₁ receptor (SEQ ID NO:1) described above was tested for efficacy in an in vitro model utilizing lung adenocarcinoma cells HTB-54. HTB-54 lung adenocarcinoma cells were demonstrated to express the A₁ adenosine receptor using standard northern blotting procedures and receptor probes designed and synthesized in the laboratory.

HTB-54 human lung adenocarcinoma cells (10⁶/100 mm tissue culture dish) were exposed to 5.0 μM HAdA1AS or HAdA1MM for 24 hours, with a fresh change of media and oligonucleotides after 12 hours of incubation. Following 24 hour exposure to the oligonucleotides, cells were harvested and their RNA extracted by standard procedures. A 21-mer probe corresponding to the region of mRNA targeted by the anti-sense (and therefore having the same sequence as the anti-sense, but not phosphorothioated) was synthesized and used to probe northern blots of RNA prepared from HAdA1AS-treated, HAdA1MM-treated and non-treated HTB-54 cells. These blots showed clearly that HAdA1AS but not HAdA1MM effectively reduced human adenosine receptor mRNA by >50%. This result showed that HAdA1AS is a good candidate for an anti-asthma drug since it depletes intracellular mRNA for the adenosine A₁ receptor, which is involved in asthma.

Example 3

In Vivo Efficacy of A₁ Adenosine Receptor Anti-sense Oligonucleotides

A fortuitous homology between the rabbit and human DNA sequences within the adenosine A₁ gene overlapping

the initiation codon permitted the use of the phosphorothioate anti-sense oligonucleotides initially designed for use against the human adenosine A₁ receptor in a rabbit model.

Neonatal New Zealand white Pasteurella-free rabbits were immunized intraperitoneally within 24 hours of birth with 312 antigen units/mL house dust mite (*D. farinae*) extract (Berkeley Biologicals, Berkeley, Calif.), mixed with 10% kaolin. Immunizations were repeated weekly for the first month and then biweekly for the next 2 months. At 3-4 months of age, eight sensitized rabbits were anesthetized and relaxed with a mixture of ketamine hydrochloride (44 mg/kg) and acepromazine maleate (0.4 mg/kg) administered intramuscularly.

The rabbits were then laid supine in a comfortable position on a small molded, padded animal board and intubated with a 4.0-mm intratracheal tube (Mallinkrodt, Inc., Glens Falls, N.Y.). A polyethylene catheter of external diameter 2.4 mm with an attached latex balloon was passed into the esophagus and maintained at the same distance (approximately 16 cm) for the mouth throughout the experiments. The intratracheal tube was attached to a heated Fleisch pneumotachograph (size 00; DOM Medical, Richmond, Va.), and flow was measured using a Validyne differential pressure transducer (Model DP-45161927; Validyne Engineering Corp., Northridge, Calif.) driven by a Gould carrier amplifier (Model 11-4113; Gould Electronic, Cleveland, Ohio). The esophageal balloon was attached to one side of the differential pressure transducer, and the outflow of the intratracheal tube was connected to the opposite side of the pressure transducer to allow recording of transpulmonary pressure. Flow was integrated to give a continuous tidal volume, and measurements of total lung resistance (RL) and dynamic compliance (C_{dyn}) were calculated at isovolumetric and flow zero points, respectively, using an automated respiratory analyzer (Model 6; Buxco, Sharon, Conn.).

Animals were randomized and on Day 1 pretreatment values for PC50 were obtained for aerosolized adenosine. Anti-sense (HAdA1AS) or mismatched control (HAdA1MM) oligonucleotides were dissolved in sterile physiological saline at a concentration of 5000 μg (5 mg) per 1.0 ml. Animals were subsequently administered the aerosolized anti-sense or mismatch oligonucleotide via the intratracheal tube (approximately 5000 μg in a volume of 1.0 ml), twice daily for two days. Aerosols of either saline, adenosine, or anti-sense or mismatch oligonucleotides were generated by an ultrasonic nebulizer (DeVilbiss, Somerset, Pa.), producing aerosol droplets 80% of which were smaller than 5 μm in diameter.

In the first arm of the experiment, four randomly selected allergic rabbits were administered anti-sense oligonucleotide and four the mismatched control oligonucleotide. On the morning of the third day, PC50 values (the concentration of aerosolized adenosine in mg/ml required to reduce the dynamic compliance of the bronchial airway 50% from the baseline value) were obtained and compared to PC50 values obtained for these animals prior to exposure to oligonucleotide.

Following a 1 week interval, animals were crossed over, with those previously administered mismatch control oligonucleotide now administered anti-sense oligonucleotide, and those previously treated with anti-sense oligonucleotide now administered mismatch control oligonucleotide. Treatment methods and measurements were identical to those employed in the first arm of the experiment. It should be noted that in six of the eight animals treated with anti-sense

oligonucleotide, adenosine-mediated bronchoconstriction could not be obtained up to the limit of solubility of adenosine, 20 mg/ml. For the purpose of calculation, PC50 values for these animals were set at 20 mg/ml. The values given therefore represent a minimum figure for anti-sense effectiveness. Actual effectiveness was higher. The results of this experiment are illustrated in both FIG. 1 and Table 1.

TABLE 1

| Adenosine A ₁ Receptor Anti-sense Oligonucleotide Effect upon PC50 Values in Asthmatic Rabbits | | | |
|---|----------------------|--|----------------------|
| Mismatch Control | | A ₁ Receptor Anti-sense Oligonucleotide | |
| Pre oligonucleotide | Post oligonucleotide | Pre oligonucleotide | Post oligonucleotide |
| 3.56 ± 1.02 | 5.16 ± 1.93 | 2.36 ± 0.68 | >19.5 ± 0.34** |

Results are presented as the mean (n = 8)XSEM. Significance was determined by repeated-measures analysis of variance (ANOVA), and Tukey's protected t test. **Significantly different from all other groups, p < 0.01.

In both arms of the experiment, animals receiving the anti-sense oligonucleotide showed an order of magnitude increase in the dose of aerosolized adenosine required to reduce dynamic compliance of the lung by 50%. No effect of the mismatched control oligonucleotide upon PC50 values were observed. No toxicity was observed in any animal receiving either anti-sense or control inhaled oligonucleotide.

These results show clearly that the lung has exceptional potential as a target for anti-sense oligonucleotide-based therapeutic intervention in lung disease. They further show, in a model system which closely resembles human asthma, that down regulation of the adenosine A₁ receptor largely eliminates adenosine-mediated bronchoconstriction in asthmatic airways. Bronchial hyper-responsiveness in the allergic rabbit model of human asthma is an excellent endpoint for anti-sense intervention since the tissues involved in this response lie near to the point of contact with aerosolized oligonucleotides, and the model closely simulates an important human disease.

Example 4

Specificity of A₁-adenosine Receptor Anti-sense Oligonucleotide

At the conclusion of the crossover experiment of Example 3, airway smooth muscle from all rabbits was quantitatively analyzed for adenosine A₁ receptor number. As a control for the specificity of the anti-sense oligonucleotide, adenosine A₂ receptors, which should not have been affected, were also quantified.

Airway smooth muscle tissue was dissected from each rabbit and a membrane fraction prepared according to described methods (Kleinstein, J., and Glossman, H., Naunyn-Schmiedeberg's Arch. Pharmacol. 305, 191-200 (1978), with slight modifications. Crude plasma membrane preparations were stored at 70 °C. until the time of assay. Protein content was determined by the method of Bradford (M. Bradford, Anal. Biochem. 72, 240-254 (1976)). Frozen plasma membranes were thawed at room temperature and were incubated with 0.2 U/ml adenosine deaminase for 30 minutes at 37° C. to remove endogenous adenosine. The binding of [³H] DPCPX (A₁ receptor-specific) or [³H] CGS-21680 (A₂ receptor-specific) was measured as previously described. See, Ali, S., et al., J. Pharmacol. Exp. Ther.

268, 1328-1334 (1994); S. Ali et al., Am. J. Physiol. 266, L271-277 (1994).

As illustrated in both FIG. 2 and Table 2, animals treated with adenosine A₁ anti-sense oligonucleotide in the crossover experiment had a nearly 75% decrease in A₁ receptor number compared to controls, as assayed by specific binding of the A₁-specific antagonist DPCPX. There was no change in adenosine A₂ receptor number, as assayed by specific binding of the A₂ receptor-specific agonist 2-[p-(2-carboxyethyl)-phenethylamino]-5'-(N-ethylcarboxamide) adenosine (CGS-21680).

TABLE 2

| Specificity or Action of Adenosine A ₁ Receptor Anti-sense Oligonucleotide | | |
|---|--|--|
| | Mismatch Control Oligonucleotide (Mean ± SD) n = 8 | A ₁ -Anti-sense Oligonucleotide (Mean ± SD) n = 8 |
| A ₁ -Specific Binding | 1,105 ± 48** | 293 ± 18 |
| A ₂ -Specific Binding | 302 ± 22** | 442 ± 171 |

Significance was determined by repeated-measures analysis of variance (ANOVA), and Tukey's protected t test. **Significantly different from mismatch control, p < 0.01.

Example 5

In Vivo Response to Adenosine Challenge with & without Oligo I Pretreatment

Two hyper responsive monkeys (ascaris sensitive) were challenged with inhaled adenosine, with and without pretreatment with anti-sense oligo I (SEQ. ID NO: 1). The PC₄₀ adenosine was calculated from the data collected as being equivalent to that amount of adenosine in mg that causes a 40% decrease in dynamic compliance in hyper-responsive airways.

The Oligo I (SEQ. ID NO:1; EPI 2010) was subsequently administered at 10 mg/day for 2 days by inhalation. On the third day, PC adenosine was again measured. The results are shown in FIG. 3 accompanying this patent. The left bar shows the PC₄₀ adenosine value prior to treatment with Oligo I whereas the right bar shows the PC₄₀ adenosine taken after administration of Oligo I. As can be seen in FIG. 3, any sensitivity to adenosine was completely eliminated by the administration of the oligo of this invention in one animal, and substantially reduced in the second.

The foregoing examples are illustrative of the present invention, but are not to be construed as limiting thereof. The invention is further defined by the following claims, with equivalents of the claims to be included therein.

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(iii) NUMBER OF SEQUENCES: 996

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

GATGGAGGGC GGCATGGCGG G

21

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

GTAGCAGGCG GGGATGGGGG C

21

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

GTTGTTGGGC ATCTTGCC

18

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

GTACTTGCGG ATCTAGGC

18

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

-continued

GTGGGCCTAG CTCTCGCC 18

(2) INFORMATION FOR SEQ ID NO: 6:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

GTCGGGTAC CTGTCGGC 18

(2) INFORMATION FOR SEQ ID NO: 7:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 51 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

GGCGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG C 51

(2) INFORMATION FOR SEQ ID NO: 8:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 50 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

GGCGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG 50

(2) INFORMATION FOR SEQ ID NO: 9:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 49 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG 49

(2) INFORMATION FOR SEQ ID NO: 10:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 48 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTG 48

-continued

(2) INFORMATION FOR SEQ ID NO: 11:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGCT

47

(2) INFORMATION FOR SEQ ID NO: 12:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 46 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGC

46

(2) INFORMATION FOR SEQ ID NO: 13:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 45 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGG

45

(2) INFORMATION FOR SEQ ID NO: 14:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 44 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAG

44

(2) INFORMATION FOR SEQ ID NO: 15:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACA

43

(2) INFORMATION FOR SEQ ID NO: 16:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 42 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:
GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC AC 42

(2) INFORMATION FOR SEQ ID NO: 17:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:
GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC A 41

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:
GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC 40

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:
GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGG 39

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:
GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGG 38

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 37 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:
GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGCG 37

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 36 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:
GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGGC 36

(2) INFORMATION FOR SEQ ID NO: 23:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:
GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATGG 35

(2) INFORMATION FOR SEQ ID NO: 24:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:
GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CATG 34

(2) INFORMATION FOR SEQ ID NO: 25:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:
GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CAT 33

(2) INFORMATION FOR SEQ ID NO: 26:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

-continued

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG CA

32

(2) INFORMATION FOR SEQ ID NO: 27:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 31 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG C

31

(2) INFORMATION FOR SEQ ID NO: 28:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG

30

(2) INFORMATION FOR SEQ ID NO: 29:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

GGCGGCCTGG AAAGCTGAGA TGGAGGGCGG

29

(2) INFORMATION FOR SEQ ID NO: 30:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

GGCGGCCTGG AAAGCTGAGA TGGAGGGC

28

(2) INFORMATION FOR SEQ ID NO: 31:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

GGCGGCCTGG AAAGCTGAGA TGGAGGG

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(2) INFORMATION FOR SEQ ID NO: 32:

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:
 GCGGCCTGG AAAGCTGAGA TGGAGG 26
- (2) INFORMATION FOR SEQ ID NO: 33:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 25 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:
 GCGGCCTGG AAAGCTGAGA TGGAG 25
- (2) INFORMATION FOR SEQ ID NO: 34:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:
 GCGGCCTGG AAAGCTGAGA TGGA 24
- (2) INFORMATION FOR SEQ ID NO: 35:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:
 GCGGCCTGG AAAGCTGAGA TGG 23
- (2) INFORMATION FOR SEQ ID NO: 36:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:
 GCGGCCTGG AAAGCTGAGA TG 22
- (2) INFORMATION FOR SEQ ID NO: 37:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:
GGCGGCTGG AAAGCTGAGA T 21

(2) INFORMATION FOR SEQ ID NO: 38:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:
GGCGGCTGG AAAGCTGAGA 20

(2) INFORMATION FOR SEQ ID NO: 39:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:
GGCGGCTGG AAAGCTGAG 19

(2) INFORMATION FOR SEQ ID NO: 40:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:
GGCGGCTGG AAAGCTGA 18

(2) INFORMATION FOR SEQ ID NO: 41:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:
GGCGGCTGG AAAGCTG 17

(2) INFORMATION FOR SEQ ID NO: 42:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:
GGCGGCCTGG AAAGCT 16
- (2) INFORMATION FOR SEQ ID NO: 43:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:
GGCGGCCTGG AAAGC 15
- (2) INFORMATION FOR SEQ ID NO: 44:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:
GGCGGCCTGG AAAG 14
- (2) INFORMATION FOR SEQ ID NO: 45:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:
GGCGGCCTGG AAA 13
- (2) INFORMATION FOR SEQ ID NO: 46:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:
GGCGGCCTGG AA 12
- (2) INFORMATION FOR SEQ ID NO: 47:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:
GGCGGCCTGG A 11

-continued

(2) INFORMATION FOR SEQ ID NO: 48:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

GCGGCCTGG 10

(2) INFORMATION FOR SEQ ID NO: 49:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 50 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGGGC 50

(2) INFORMATION FOR SEQ ID NO: 50:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 49 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 50:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGGG 49

(2) INFORMATION FOR SEQ ID NO: 51:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 48 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGG 48

(2) INFORMATION FOR SEQ ID NO: 52:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTG 47

(2) INFORMATION FOR SEQ ID NO: 53:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 46 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCT 46
- (2) INFORMATION FOR SEQ ID NO: 54:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 45 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGC 45
- (2) INFORMATION FOR SEQ ID NO: 55:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGG 44
- (2) INFORMATION FOR SEQ ID NO: 56:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 43 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAG 43
- (2) INFORMATION FOR SEQ ID NO: 57:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CA 42
- (2) INFORMATION FOR SEQ ID NO: 58:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 41 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA C 41

(2) INFORMATION FOR SEQ ID NO: 59:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 40 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA 40

(2) INFORMATION FOR SEQ ID NO: 60:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 39 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 60:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGC 39

(2) INFORMATION FOR SEQ ID NO: 61:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 38 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 61:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGG 38

(2) INFORMATION FOR SEQ ID NO: 62:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 62:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGG 37

(2) INFORMATION FOR SEQ ID NO: 63:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 63:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCG 36

(2) INFORMATION FOR SEQ ID NO: 64:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 64:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGC 35

(2) INFORMATION FOR SEQ ID NO: 65:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 65:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGG 34

(2) INFORMATION FOR SEQ ID NO: 66:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 66:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATG 33

(2) INFORMATION FOR SEQ ID NO: 67:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 67:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC AT 32

(2) INFORMATION FOR SEQ ID NO: 68:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 68:
GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC A 31

-continued

(2) INFORMATION FOR SEQ ID NO: 69:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 69:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC

30

(2) INFORMATION FOR SEQ ID NO: 70:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 70:

GCGGCCTGGA AAGCTGAGAT GGAGGGCGG

29

(2) INFORMATION FOR SEQ ID NO: 71:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 71:

GCGGCCTGGA AAGCTGAGAT GGAGGGCG

28

(2) INFORMATION FOR SEQ ID NO: 72:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 72:

GCGGCCTGGA AAGCTGAGAT GGAGGGC

27

(2) INFORMATION FOR SEQ ID NO: 73:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 73:

GCGGCCTGGA AAGCTGAGAT GGAGGG

26

(2) INFORMATION FOR SEQ ID NO: 74:

- (i) SEQUENCE CHARACTERISTICS:

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(A) LENGTH: 25 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 74:

GCGGCCTGGA AAGCTGAGAT GGAGG 25

(2) INFORMATION FOR SEQ ID NO: 75:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 75:

GCGGCCTGGA AAGCTGAGAT GGAG 24

(2) INFORMATION FOR SEQ ID NO: 76:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 76:

GCGGCCTGGA AAGCTGAGAT GGA 23

(2) INFORMATION FOR SEQ ID NO: 77:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 77:

GCGGCCTGGA AAGCTGAGAT GG 22

(2) INFORMATION FOR SEQ ID NO: 78:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 78:

GCGGCCTGGA AAGCTGAGAT G 21

(2) INFORMATION FOR SEQ ID NO: 79:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 79:

GCGGCCTGGA AAGCTGAGAT 20

(2) INFORMATION FOR SEQ ID NO: 80:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 19 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 80:

GCGGCCTGGA AAGCTGAGA 19

(2) INFORMATION FOR SEQ ID NO: 81:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 81:

GCGGCCTGGA AAGCTGAG 18

(2) INFORMATION FOR SEQ ID NO: 82:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 82:

GCGGCCTGGA AAGCTGA 17

(2) INFORMATION FOR SEQ ID NO: 83:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 83:

GCGGCCTGGA AAGCTG 16

(2) INFORMATION FOR SEQ ID NO: 84:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 84:

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|---|----|
| GCGGCCTGGA AAGCT | 15 |
| (2) INFORMATION FOR SEQ ID NO: 85: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 14 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 85: | |
| GCGGCCTGGA AAGC | 14 |
| (2) INFORMATION FOR SEQ ID NO: 86: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 13 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 86: | |
| GCGGCCTGGA AAG | 13 |
| (2) INFORMATION FOR SEQ ID NO: 87: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 12 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 87: | |
| GCGGCCTGGA AA | 12 |
| (2) INFORMATION FOR SEQ ID NO: 88: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 11 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 88: | |
| GCGGCCTGGA A | 11 |
| (2) INFORMATION FOR SEQ ID NO: 89: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 10 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 89: | |
| GCGGCCTGGA | 10 |

-continued

(2) INFORMATION FOR SEQ ID NO: 90:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 49 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 90:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCTGGG 49

(2) INFORMATION FOR SEQ ID NO: 91:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 48 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 91:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCTGGG 48

(2) INFORMATION FOR SEQ ID NO: 92:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 92:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCTGG 47

(2) INFORMATION FOR SEQ ID NO: 93:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 46 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 93:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCTG 46

(2) INFORMATION FOR SEQ ID NO: 94:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 45 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 94:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCT 45

(2) INFORMATION FOR SEQ ID NO: 95:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 44 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 95:
CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGC 44

(2) INFORMATION FOR SEQ ID NO: 96:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 43 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 96:
CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGG 43

(2) INFORMATION FOR SEQ ID NO: 97:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 42 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 97:
CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AG 42

(2) INFORMATION FOR SEQ ID NO: 98:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 98:
CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC A 41

(2) INFORMATION FOR SEQ ID NO: 99:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 99:
CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC 40

(2) INFORMATION FOR SEQ ID NO: 100:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 100:

CGGCCTGGAA AGCTGAGATG GAGGCGGCA TGGCGGGCA 39

(2) INFORMATION FOR SEQ ID NO: 101:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 38 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 101:

CGGCCTGGAA AGCTGAGATG GAGGCGGCA TGGCGGGC 38

(2) INFORMATION FOR SEQ ID NO: 102:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 102:

CGGCCTGGAA AGCTGAGATG GAGGCGGCA TGGCGGG 37

(2) INFORMATION FOR SEQ ID NO: 103:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 103:

CGGCCTGGAA AGCTGAGATG GAGGCGGCA TGGCGG 36

(2) INFORMATION FOR SEQ ID NO: 104:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 104:

CGGCCTGGAA AGCTGAGATG GAGGCGGCA TGGCG 35

(2) INFORMATION FOR SEQ ID NO: 105:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 105:

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CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGC

34

(2) INFORMATION FOR SEQ ID NO: 106:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 33 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 106:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGG

33

(2) INFORMATION FOR SEQ ID NO: 107:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 32 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 107:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TG

32

(2) INFORMATION FOR SEQ ID NO: 108:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 31 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 108:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA T

31

(2) INFORMATION FOR SEQ ID NO: 109:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 109:

CGGCCTGGAA AGCTGAGATG GAGGGCGGCA

30

(2) INFORMATION FOR SEQ ID NO: 110:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 110:

CGGCCTGGAA AGCTGAGATG GAGGGCGGC

29

(2) INFORMATION FOR SEQ ID NO: 111:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 28 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 111:
 CGGCCTGGAA AGCTGAGATG GAGGGCGG 28
- (2) INFORMATION FOR SEQ ID NO: 112:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 27 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 112:
 CGGCCTGGAA AGCTGAGATG GAGGGCG 27
- (2) INFORMATION FOR SEQ ID NO: 113:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 113:
 CGGCCTGGAA AGCTGAGATG GAGGGC 26
- (2) INFORMATION FOR SEQ ID NO: 114:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 25 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 114:
 CGGCCTGGAA AGCTGAGATG GAGGG 25
- (2) INFORMATION FOR SEQ ID NO: 115:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 115:
 CGGCCTGGAA AGCTGAGATG GAGG 24
- (2) INFORMATION FOR SEQ ID NO: 116:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 116:
CGGCCTGGAA AGCTGAGATG GAG 23

(2) INFORMATION FOR SEQ ID NO: 117:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 117:
CGGCCTGGAA AGCTGAGATG GA 22

(2) INFORMATION FOR SEQ ID NO: 118:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 118:
CGGCCTGGAA AGCTGAGATG G 21

(2) INFORMATION FOR SEQ ID NO: 119:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 119:
CGGCCTGGAA AGCTGAGATG 20

(2) INFORMATION FOR SEQ ID NO: 120:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 120:
CGGCCTGGAA AGCTGAGAT 19

(2) INFORMATION FOR SEQ ID NO: 121:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 121:
CGGCCTGGAA AGCTGAGA 18
- (2) INFORMATION FOR SEQ ID NO: 122:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 122:
CGGCCTGGAA AGCTGAG 17
- (2) INFORMATION FOR SEQ ID NO: 123:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 123:
CGGCCTGGAA AGCTGA 16
- (2) INFORMATION FOR SEQ ID NO: 124:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 124:
CGGCCTGGAA AGCTG 15
- (2) INFORMATION FOR SEQ ID NO: 125:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 125:
CGGCCTGGAA AGCT 14
- (2) INFORMATION FOR SEQ ID NO: 126:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 126:
CGGCCTGGAA AGC 13

-continued

(2) INFORMATION FOR SEQ ID NO: 127:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 127:

CGGCCTGGAA AG

12

(2) INFORMATION FOR SEQ ID NO: 128:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 128:

CGGCCTGGAA A

11

(2) INFORMATION FOR SEQ ID NO: 129:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 129:

CGGCCTGGAA

10

(2) INFORMATION FOR SEQ ID NO: 130:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 48 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 130:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGGCACA GGCTGGGC

48

(2) INFORMATION FOR SEQ ID NO: 131:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 131:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGGCACA GGCTGGG

47

(2) INFORMATION FOR SEQ ID NO: 132:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 46 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 132:
 GGCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA GGCTGG 46
- (2) INFORMATION FOR SEQ ID NO: 133:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 45 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 133:
 GGCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA GGCTG 45
- (2) INFORMATION FOR SEQ ID NO: 134:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 134:
 GGCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA GGCT 44
- (2) INFORMATION FOR SEQ ID NO: 135:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 43 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 135:
 GGCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA GG 43
- (2) INFORMATION FOR SEQ ID NO: 136:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 136:
 GGCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA GG 42
- (2) INFORMATION FOR SEQ ID NO: 137:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 41 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 137:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA G 41

(2) INFORMATION FOR SEQ ID NO: 138:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 40 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 138:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCACA 40

(2) INFORMATION FOR SEQ ID NO: 139:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 39 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 139:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCAC 39

(2) INFORMATION FOR SEQ ID NO: 140:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 38 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 140:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGCA 38

(2) INFORMATION FOR SEQ ID NO: 141:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 141:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGC 37

(2) INFORMATION FOR SEQ ID NO: 142:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 142:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GGC GGG 36

(2) INFORMATION FOR SEQ ID NO: 143:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 143:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GGC GG 35

(2) INFORMATION FOR SEQ ID NO: 144:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 144:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GGCG 34

(2) INFORMATION FOR SEQ ID NO: 145:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 145:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GGC 33

(2) INFORMATION FOR SEQ ID NO: 146:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 146:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT GG 32

(2) INFORMATION FOR SEQ ID NO: 147:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 147:
GGCCTGGAAA GCTGAGATGG AGGGCGGCAT G 31

-continued

(2) INFORMATION FOR SEQ ID NO: 148:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 148:

GGCCTGGAAA GCTGAGATGG AGGGCGGCAT

30

(2) INFORMATION FOR SEQ ID NO: 149:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 149:

GGCCTGGAAA GCTGAGATGG AGGGCGGCA

29

(2) INFORMATION FOR SEQ ID NO: 150:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 150:

GGCCTGGAAA GCTGAGATGG AGGGCGGC

28

(2) INFORMATION FOR SEQ ID NO: 151:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 151:

GGCCTGGAAA GCTGAGATGG AGGGCGG

27

(2) INFORMATION FOR SEQ ID NO: 152:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 152:

GGCCTGGAAA GCTGAGATGG AGGGCG

26

(2) INFORMATION FOR SEQ ID NO: 153:

- (i) SEQUENCE CHARACTERISTICS:

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(A) LENGTH: 25 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 153:

GGCCTGGAAA GCTGAGATGG AGGGC 25

(2) INFORMATION FOR SEQ ID NO: 154:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 154:

GGCCTGGAAA GCTGAGATGG AGGG 24

(2) INFORMATION FOR SEQ ID NO: 155:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 155:

GGCCTGGAAA GCTGAGATGG AGG 23

(2) INFORMATION FOR SEQ ID NO: 156:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 156:

GGCCTGGAAA GCTGAGATGG AG 22

(2) INFORMATION FOR SEQ ID NO: 157:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 157:

GGCCTGGAAA GCTGAGATGG A 21

(2) INFORMATION FOR SEQ ID NO: 158:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 158:

GGCCTGGAAA GCTGAGATGG 20

(2) INFORMATION FOR SEQ ID NO: 159:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 19 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 159:

GGCCTGGAAA GCTGAGATG 19

(2) INFORMATION FOR SEQ ID NO: 160:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 160:

GGCCTGGAAA GCTGAGAT 18

(2) INFORMATION FOR SEQ ID NO: 161:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 161:

GGCCTGGAAA GCTGAGA 17

(2) INFORMATION FOR SEQ ID NO: 162:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 162:

GGCCTGGAAA GCTGAG 16

(2) INFORMATION FOR SEQ ID NO: 163:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 163:

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| | |
|--|----|
| GGCCTGGAAA GCTGA | 15 |
| (2) INFORMATION FOR SEQ ID NO: 164: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 14 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 164: | |
| GGCCTGGAAA GCTG | 14 |
| (2) INFORMATION FOR SEQ ID NO: 165: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 13 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 165: | |
| GGCCTGGAAA GCT | 13 |
| (2) INFORMATION FOR SEQ ID NO: 166: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 12 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 166: | |
| GGCCTGGAAA GC | 12 |
| (2) INFORMATION FOR SEQ ID NO: 167: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 11 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 167: | |
| GGCCTGGAAA G | 11 |
| (2) INFORMATION FOR SEQ ID NO: 168: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 10 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 168: | |
| GGCCTGGAAA | 10 |

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(2) INFORMATION FOR SEQ ID NO: 169:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 169:

GCCTGGAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGGC 47

(2) INFORMATION FOR SEQ ID NO: 170:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 46 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 170:

GCCTGGAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGG 46

(2) INFORMATION FOR SEQ ID NO: 171:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 45 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 171:

GCCTGGAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGG 45

(2) INFORMATION FOR SEQ ID NO: 172:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 44 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 172:

GCCTGGAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTG 44

(2) INFORMATION FOR SEQ ID NO: 173:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 173:

GCCTGGAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCT 43

(2) INFORMATION FOR SEQ ID NO: 174:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 42 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 174:
GCCTGGAAAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GC 42

(2) INFORMATION FOR SEQ ID NO: 175:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 175:
GCCTGGAAAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG G 41

(2) INFORMATION FOR SEQ ID NO: 176:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 176:
GCCTGGAAAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG 40

(2) INFORMATION FOR SEQ ID NO: 177:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 177:
GCCTGGAAAAG CTGAGATGGA GGGCGGCATG GCGGGCACA 39

(2) INFORMATION FOR SEQ ID NO: 178:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 178:
GCCTGGAAAAG CTGAGATGGA GGGCGGCATG GCGGGCAC 38

(2) INFORMATION FOR SEQ ID NO: 179:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 37 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 179:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCGGGCA 37

(2) INFORMATION FOR SEQ ID NO: 180:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 36 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 180:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCGGGC 36

(2) INFORMATION FOR SEQ ID NO: 181:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 35 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 181:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCGGG 35

(2) INFORMATION FOR SEQ ID NO: 182:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 182:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCGG 34

(2) INFORMATION FOR SEQ ID NO: 183:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 183:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCG 33

(2) INFORMATION FOR SEQ ID NO: 184:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 32 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 184:

-continued

GCCTGGAAAG CTGAGATGGA GGGCGGCATG GC

32

(2) INFORMATION FOR SEQ ID NO: 185:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 31 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 185:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG G

31

(2) INFORMATION FOR SEQ ID NO: 186:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 186:

GCCTGGAAAG CTGAGATGGA GGGCGGCATG

30

(2) INFORMATION FOR SEQ ID NO: 187:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 187:

GCCTGGAAAG CTGAGATGGA GGGCGGCAT

29

(2) INFORMATION FOR SEQ ID NO: 188:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 188:

GCCTGGAAAG CTGAGATGGA GGGCGGCA

28

(2) INFORMATION FOR SEQ ID NO: 189:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 189:

GCCTGGAAAG CTGAGATGGA GGGCGGC

27

(2) INFORMATION FOR SEQ ID NO: 190:

-continued

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 190:
- GCCTGGAAAAG CTGAGATGGA GGGCGG 26
- (2) INFORMATION FOR SEQ ID NO: 191:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 191:
- GCCTGGAAAAG CTGAGATGGA GGGCG 25
- (2) INFORMATION FOR SEQ ID NO: 192:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 192:
- GCCTGGAAAAG CTGAGATGGA GGGC 24
- (2) INFORMATION FOR SEQ ID NO: 193:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 193:
- GCCTGGAAAAG CTGAGATGGA GGG 23
- (2) INFORMATION FOR SEQ ID NO: 194:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 194:
- GCCTGGAAAAG CTGAGATGGA GG 22
- (2) INFORMATION FOR SEQ ID NO: 195:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 195:
GCCTGGAAAG CTGAGATGGA G 21

(2) INFORMATION FOR SEQ ID NO: 196:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 196:
GCCTGGAAAG CTGAGATGGA 20

(2) INFORMATION FOR SEQ ID NO: 197:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 197:
GCCTGGAAAG CTGAGATGG 19

(2) INFORMATION FOR SEQ ID NO: 198:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 198:
GCCTGGAAAG CTGAGATG 18

(2) INFORMATION FOR SEQ ID NO: 199:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 199:
GCCTGGAAAG CTGAGAT 17

(2) INFORMATION FOR SEQ ID NO: 200:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 200:
GCCTGGAAAG CTGAGA 16

(2) INFORMATION FOR SEQ ID NO: 201:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 201:
GCCTGGAAAG CTGAG 15

(2) INFORMATION FOR SEQ ID NO: 202:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 202:
GCCTGGAAAG CTGA 14

(2) INFORMATION FOR SEQ ID NO: 203:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 203:
GCCTGGAAAG CTG 13

(2) INFORMATION FOR SEQ ID NO: 204:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 204:
GCCTGGAAAG CT 12

(2) INFORMATION FOR SEQ ID NO: 205:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 205:
GCCTGGAAAG C 11

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(2) INFORMATION FOR SEQ ID NO: 206:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 206:

GCCTGGAAG

10

(2) INFORMATION FOR SEQ ID NO: 207:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 46 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 207:

CCTGGAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CTGGGC

46

(2) INFORMATION FOR SEQ ID NO: 208:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 45 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 208:

CCTGGAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CTGGG

45

(2) INFORMATION FOR SEQ ID NO: 209:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 44 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 209:

CCTGGAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CTGG

44

(2) INFORMATION FOR SEQ ID NO: 210:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 210:

CCTGGAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CTG

43

(2) INFORMATION FOR SEQ ID NO: 211:

-continued

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 211:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CT 42

(2) INFORMATION FOR SEQ ID NO: 212:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 41 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 212:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG C 41

(2) INFORMATION FOR SEQ ID NO: 213:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 40 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 213:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG 40

(2) INFORMATION FOR SEQ ID NO: 214:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 39 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 214:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACAG 39

(2) INFORMATION FOR SEQ ID NO: 215:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 38 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 215:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACA 38

(2) INFORMATION FOR SEQ ID NO: 216:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 37 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 216:

CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCAC 37

(2) INFORMATION FOR SEQ ID NO: 217:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 217:

CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCA 36

(2) INFORMATION FOR SEQ ID NO: 218:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 218:

CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGC 35

(2) INFORMATION FOR SEQ ID NO: 219:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 219:

CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGG 34

(2) INFORMATION FOR SEQ ID NO: 220:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 220:

CCTGGAAAGC TGAGATGGAG GCGGCATGG CGG 33

(2) INFORMATION FOR SEQ ID NO: 221:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 221:
 CCTGGAAAAGC TGAGATGGAG GCGGCATGG CG 32

(2) INFORMATION FOR SEQ ID NO: 222:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 222:
 CCTGGAAAAGC TGAGATGGAG GCGGCATGG C 31

(2) INFORMATION FOR SEQ ID NO: 223:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 223:
 CCTGGAAAAGC TGAGATGGAG GCGGCATGG 30

(2) INFORMATION FOR SEQ ID NO: 224:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 224:
 CCTGGAAAAGC TGAGATGGAG GCGGCATG 29

(2) INFORMATION FOR SEQ ID NO: 225:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 28 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 225:
 CCTGGAAAAGC TGAGATGGAG GCGGCAT 28

(2) INFORMATION FOR SEQ ID NO: 226:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 27 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 226:
 CCTGGAAAAGC TGAGATGGAG GCGGCA 27

-continued

(2) INFORMATION FOR SEQ ID NO: 227:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 227:

CCTGGAAAGC TGAGATGGAG GCGCGC

26

(2) INFORMATION FOR SEQ ID NO: 228:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 228:

CCTGGAAAGC TGAGATGGAG GCGCGC

25

(2) INFORMATION FOR SEQ ID NO: 229:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 229:

CCTGGAAAGC TGAGATGGAG GGCG

24

(2) INFORMATION FOR SEQ ID NO: 230:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 230:

CCTGGAAAGC TGAGATGGAG GGC

23

(2) INFORMATION FOR SEQ ID NO: 231:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 231:

CCTGGAAAGC TGAGATGGAG GG

22

(2) INFORMATION FOR SEQ ID NO: 232:

- (i) SEQUENCE CHARACTERISTICS:

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| | |
|--|----|
| <ul style="list-style-type: none"> (A) LENGTH: 21 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 232: | |
| CCTGGAAAGC TGAGATGGAG G | 21 |
| (2) INFORMATION FOR SEQ ID NO: 233: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 233: | |
| CCTGGAAAGC TGAGATGGAG | 20 |
| (2) INFORMATION FOR SEQ ID NO: 234: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 19 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 234: | |
| CCTGGAAAGC TGAGATGGA | 19 |
| (2) INFORMATION FOR SEQ ID NO: 235: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 18 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 235: | |
| CCTGGAAAGC TGAGATGG | 18 |
| (2) INFORMATION FOR SEQ ID NO: 236: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 17 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 236: | |
| CCTGGAAAGC TGAGATG | 17 |
| (2) INFORMATION FOR SEQ ID NO: 237: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 16 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 237:

CCTGGAAAGC TGAGAT 16

(2) INFORMATION FOR SEQ ID NO: 238:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 238:

CCTGGAAAGC TGAGA 15

(2) INFORMATION FOR SEQ ID NO: 239:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 239:

CCTGGAAAGC TGAG 14

(2) INFORMATION FOR SEQ ID NO: 240:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 240:

CCTGGAAAGC TGA 13

(2) INFORMATION FOR SEQ ID NO: 241:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 241:

CCTGGAAAGC TG 12

(2) INFORMATION FOR SEQ ID NO: 242:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 242:

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| | |
|--|----|
| CCTGGAAAGC T | 11 |
| (2) INFORMATION FOR SEQ ID NO: 243: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 10 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 243: | |
| CCTGGAAAGC | 10 |
| (2) INFORMATION FOR SEQ ID NO: 244: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 45 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 244: | |
| CTGGAAGCT GAGATGGAG GCGGCATGG GGGCACAGC TGGC | 45 |
| (2) INFORMATION FOR SEQ ID NO: 245: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 44 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 245: | |
| CTGGAAGCT GAGATGGAG GCGGCATGG GGGCACAGC TGGC | 44 |
| (2) INFORMATION FOR SEQ ID NO: 246: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 43 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 246: | |
| CTGGAAGCT GAGATGGAG GCGGCATGG GGGCACAGC TGG | 43 |
| (2) INFORMATION FOR SEQ ID NO: 247: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 42 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 247: | |
| CTGGAAGCT GAGATGGAG GCGGCATGG GGGCACAGC TG | 42 |

-continued

(2) INFORMATION FOR SEQ ID NO: 248:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 41 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 248:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACAGGC T

41

(2) INFORMATION FOR SEQ ID NO: 249:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 40 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 249:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACAGGC

40

(2) INFORMATION FOR SEQ ID NO: 250:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 39 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 250:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACAGG

39

(2) INFORMATION FOR SEQ ID NO: 251:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 251:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACAG

38

(2) INFORMATION FOR SEQ ID NO: 252:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 37 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 252:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACA

37

(2) INFORMATION FOR SEQ ID NO: 253:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 36 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 253:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCAC 36

(2) INFORMATION FOR SEQ ID NO: 254:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 254:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCA 35

(2) INFORMATION FOR SEQ ID NO: 255:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 255:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGC 34

(2) INFORMATION FOR SEQ ID NO: 256:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 256:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGG 33

(2) INFORMATION FOR SEQ ID NO: 257:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 257:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC GG 32

(2) INFORMATION FOR SEQ ID NO: 258:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 258:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC G 31

(2) INFORMATION FOR SEQ ID NO: 259:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 259:

CTGGAAAGCT GAGATGGAGG GCGGCATGGC 30

(2) INFORMATION FOR SEQ ID NO: 260:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 260:

CTGGAAAGCT GAGATGGAGG GCGGCATGG 29

(2) INFORMATION FOR SEQ ID NO: 261:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 261:

CTGGAAAGCT GAGATGGAGG GCGGCATG 28

(2) INFORMATION FOR SEQ ID NO: 262:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 262:

CTGGAAAGCT GAGATGGAGG GCGGCAT 27

(2) INFORMATION FOR SEQ ID NO: 263:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 263:

-continued

CTGGAAAGCT GAGATGGAGG GCGCA

26

(2) INFORMATION FOR SEQ ID NO: 264:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 264:

CTGGAAAGCT GAGATGGAGG GCGC

25

(2) INFORMATION FOR SEQ ID NO: 265:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 265:

CTGGAAAGCT GAGATGGAGG GCGG

24

(2) INFORMATION FOR SEQ ID NO: 266:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 266:

CTGGAAAGCT GAGATGGAGG GCG

23

(2) INFORMATION FOR SEQ ID NO: 267:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 267:

CTGGAAAGCT GAGATGGAGG GC

22

(2) INFORMATION FOR SEQ ID NO: 268:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 268:

CTGGAAAGCT GAGATGGAGG G

21

(2) INFORMATION FOR SEQ ID NO: 269:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 269:
 CTGGAAAGCT GAGATGGAG 20
- (2) INFORMATION FOR SEQ ID NO: 270:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 270:
 CTGGAAAGCT GAGATGGAG 19
- (2) INFORMATION FOR SEQ ID NO: 271:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 271:
 CTGGAAAGCT GAGATGGA 18
- (2) INFORMATION FOR SEQ ID NO: 272:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 272:
 CTGGAAAGCT GAGATGG 17
- (2) INFORMATION FOR SEQ ID NO: 273:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 273:
 CTGGAAAGCT GAGATG 16
- (2) INFORMATION FOR SEQ ID NO: 274:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 274:

CTGGAAAGCT GAGAT 15

(2) INFORMATION FOR SEQ ID NO: 275:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 275:

CTGGAAAGCT GAGA 14

(2) INFORMATION FOR SEQ ID NO: 276:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 276:

CTGGAAAGCT GAG 13

(2) INFORMATION FOR SEQ ID NO: 277:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 277:

CTGGAAAGCT GA 12

(2) INFORMATION FOR SEQ ID NO: 278:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 278:

CTGGAAAGCT G 11

(2) INFORMATION FOR SEQ ID NO: 279:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 279:
CTGGAAGCT 10

(2) INFORMATION FOR SEQ ID NO: 280:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 44 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 280:
TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT GGCC 44

(2) INFORMATION FOR SEQ ID NO: 281:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 43 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 281:
TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT GGG 43

(2) INFORMATION FOR SEQ ID NO: 282:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 42 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 282:
TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT GG 42

(2) INFORMATION FOR SEQ ID NO: 283:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 283:
TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT G 41

(2) INFORMATION FOR SEQ ID NO: 284:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 284:
TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT 40

-continued

(2) INFORMATION FOR SEQ ID NO: 285:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 39 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 285:

TGGAAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGC 39

(2) INFORMATION FOR SEQ ID NO: 286:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 286:

TGGAAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGG 38

(2) INFORMATION FOR SEQ ID NO: 287:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 37 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 287:

TGGAAAGCTG AGATGGAGGG CGGCATGGCG GGCACAG 37

(2) INFORMATION FOR SEQ ID NO: 288:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 36 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 288:

TGGAAAGCTG AGATGGAGGG CGGCATGGCG GGCACA 36

(2) INFORMATION FOR SEQ ID NO: 289:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 35 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 289:

TGGAAAGCTG AGATGGAGGG CGGCATGGCG GGCAC 35

(2) INFORMATION FOR SEQ ID NO: 290:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 34 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 290:
 TGGAAGCTG AGATGGAGGG CGGCATGGCG GGCA 34
- (2) INFORMATION FOR SEQ ID NO: 291:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 291:
 TGGAAGCTG AGATGGAGGG CGGCATGGCG GGC 33
- (2) INFORMATION FOR SEQ ID NO: 292:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 292:
 TGGAAGCTG AGATGGAGGG CGGCATGGCG GG 32
- (2) INFORMATION FOR SEQ ID NO: 293:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 293:
 TGGAAGCTG AGATGGAGGG CGGCATGGCG G 31
- (2) INFORMATION FOR SEQ ID NO: 294:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 294:
 TGGAAGCTG AGATGGAGGG CGGCATGGCG 30
- (2) INFORMATION FOR SEQ ID NO: 295:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 295:

TGGAAAGCTG AGATGGAGGG CGGCATGGC 29

(2) INFORMATION FOR SEQ ID NO: 296:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 296:

TGGAAAGCTG AGATGGAGGG CGGCATGG 28

(2) INFORMATION FOR SEQ ID NO: 297:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 297:

TGGAAAGCTG AGATGGAGGG CGGCATG 27

(2) INFORMATION FOR SEQ ID NO: 298:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 298:

TGGAAAGCTG AGATGGAGGG CGGCAT 26

(2) INFORMATION FOR SEQ ID NO: 299:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 299:

TGGAAAGCTG AGATGGAGGG CGGCA 25

(2) INFORMATION FOR SEQ ID NO: 300:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 24 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 300:
 TGGAAAGCTG AGATGGAGGG CGGC 24

(2) INFORMATION FOR SEQ ID NO: 301:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 301:
 TGGAAAGCTG AGATGGAGGG CGG 23

(2) INFORMATION FOR SEQ ID NO: 302:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 302:
 TGGAAAGCTG AGATGGAGGG CG 22

(2) INFORMATION FOR SEQ ID NO: 303:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 303:
 TGGAAAGCTG AGATGGAGGG C 21

(2) INFORMATION FOR SEQ ID NO: 304:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 304:
 TGGAAAGCTG AGATGGAGGG 20

(2) INFORMATION FOR SEQ ID NO: 305:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 305:
 TGGAAAGCTG AGATGGAGG 19

-continued

(2) INFORMATION FOR SEQ ID NO: 306:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 306:

TGGAAGCTG AGATGGAG

18

(2) INFORMATION FOR SEQ ID NO: 307:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 307:

TGGAAGCTG AGATGGA

17

(2) INFORMATION FOR SEQ ID NO: 308:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 308:

TGGAAGCTG AGATGG

16

(2) INFORMATION FOR SEQ ID NO: 309:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 309:

TGGAAGCTG AGATG

15

(2) INFORMATION FOR SEQ ID NO: 310:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 310:

TGGAAGCTG AGAT

14

(2) INFORMATION FOR SEQ ID NO: 311:

- (i) SEQUENCE CHARACTERISTICS:

-continued

-
- (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 311:
- TGGAAAGCTG AGA 13
- (2) INFORMATION FOR SEQ ID NO: 312:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 312:
- TGGAAAGCTG AG 12
- (2) INFORMATION FOR SEQ ID NO: 313:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 313:
- TGGAAAGCTG A 11
- (2) INFORMATION FOR SEQ ID NO: 314:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 314:
- TGGAAAGCTG 10
- (2) INFORMATION FOR SEQ ID NO: 315:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 43 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 315:
- GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCTG GGC 43
- (2) INFORMATION FOR SEQ ID NO: 316:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 316:
GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCTG GG 42

(2) INFORMATION FOR SEQ ID NO: 317:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 317:
GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCTG G 41

(2) INFORMATION FOR SEQ ID NO: 318:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 318:
GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCTG 40

(2) INFORMATION FOR SEQ ID NO: 319:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 319:
GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCT 39

(2) INFORMATION FOR SEQ ID NO: 320:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 320:
GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGC 38

(2) INFORMATION FOR SEQ ID NO: 321:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 37 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 321:

-continued

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGG 37

(2) INFORMATION FOR SEQ ID NO: 322:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 322:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAG 36

(2) INFORMATION FOR SEQ ID NO: 323:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 323:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACA 35

(2) INFORMATION FOR SEQ ID NO: 324:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 324:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCAC 34

(2) INFORMATION FOR SEQ ID NO: 325:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 325:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCA 33

(2) INFORMATION FOR SEQ ID NO: 326:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 326:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GC 32

-continued

(2) INFORMATION FOR SEQ ID NO: 327:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 31 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 327:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG G

31

(2) INFORMATION FOR SEQ ID NO: 328:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 328:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG

30

(2) INFORMATION FOR SEQ ID NO: 329:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 329:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG

29

(2) INFORMATION FOR SEQ ID NO: 330:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 330:

GGAAAGCTGA GATGGAGGGC GGCATGGC

28

(2) INFORMATION FOR SEQ ID NO: 331:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 331:

GGAAAGCTGA GATGGAGGGC GGCATGG

27

(2) INFORMATION FOR SEQ ID NO: 332:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 332:

GGAAAGCTGA GATGGAGGGC GGCATG 26

(2) INFORMATION FOR SEQ ID NO: 333:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 333:

GGAAAGCTGA GATGGAGGGC GGCAT 25

(2) INFORMATION FOR SEQ ID NO: 334:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 334:

GGAAAGCTGA GATGGAGGGC GGCA 24

(2) INFORMATION FOR SEQ ID NO: 335:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 335:

GGAAAGCTGA GATGGAGGGC GGC 23

(2) INFORMATION FOR SEQ ID NO: 336:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 336:

GGAAAGCTGA GATGGAGGGC GG 22

(2) INFORMATION FOR SEQ ID NO: 337:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 337:

GGAAAGCTGA GATGGAGGGC G 21

(2) INFORMATION FOR SEQ ID NO: 338:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 338:

GGAAAGCTGA GATGGAGGGC 20

(2) INFORMATION FOR SEQ ID NO: 339:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 339:

GGAAAGCTGA GATGGAGGG 19

(2) INFORMATION FOR SEQ ID NO: 340:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 340:

GGAAAGCTGA GATGGAGG 18

(2) INFORMATION FOR SEQ ID NO: 341:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 341:

GGAAAGCTGA GATGGAG 17

(2) INFORMATION FOR SEQ ID NO: 342:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 342:

-continued

GGAAAGCTGA GATGGA

16

(2) INFORMATION FOR SEQ ID NO: 343:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 343:

GGAAAGCTGA GATGG

15

(2) INFORMATION FOR SEQ ID NO: 344:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 344:

GGAAAGCTGA GATG

14

(2) INFORMATION FOR SEQ ID NO: 345:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 345:

GGAAAGCTGA GAT

13

(2) INFORMATION FOR SEQ ID NO: 346:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 346:

GGAAAGCTGA GA

12

(2) INFORMATION FOR SEQ ID NO: 347:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 347:

GGAAAGCTGA G

11

(2) INFORMATION FOR SEQ ID NO: 348:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 348:
 GGAAAGCTGA 10
- (2) INFORMATION FOR SEQ ID NO: 349:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 349:
 GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCTGG GC 42
- (2) INFORMATION FOR SEQ ID NO: 350:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 41 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 350:
 GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCTGG G 41
- (2) INFORMATION FOR SEQ ID NO: 351:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 40 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 351:
 GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCTGG 40
- (2) INFORMATION FOR SEQ ID NO: 352:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 39 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 352:
 GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCTG 39
- (2) INFORMATION FOR SEQ ID NO: 353:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 38 base pairs
 (B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 353:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCT 38

(2) INFORMATION FOR SEQ ID NO: 354:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 37 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 354:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGC 37

(2) INFORMATION FOR SEQ ID NO: 355:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 36 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 355:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGG 36

(2) INFORMATION FOR SEQ ID NO: 356:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 356:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAG 35

(2) INFORMATION FOR SEQ ID NO: 357:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 357:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACA 34

(2) INFORMATION FOR SEQ ID NO: 358:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 33 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 358:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CAC 33
- (2) INFORMATION FOR SEQ ID NO: 359:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 32 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 359:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CA 32
- (2) INFORMATION FOR SEQ ID NO: 360:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 31 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 360:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG C 31
- (2) INFORMATION FOR SEQ ID NO: 361:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 361:
GAAAGCTGAG ATGGAGGGCG GCATGGCGGG 30
- (2) INFORMATION FOR SEQ ID NO: 362:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 29 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 362:
GAAAGCTGAG ATGGAGGGCG GCATGGCGG 29
- (2) INFORMATION FOR SEQ ID NO: 363:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 28 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 363:
GAAAGCTGAG ATGGAGGGCG GCATGGCG 28

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(2) INFORMATION FOR SEQ ID NO: 364:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 364:

GAAAGCTGAG ATGGAGGGCG GCATGGC

27

(2) INFORMATION FOR SEQ ID NO: 365:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 365:

GAAAGCTGAG ATGGAGGGCG GCATGG

26

(2) INFORMATION FOR SEQ ID NO: 366:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 366:

GAAAGCTGAG ATGGAGGGCG GCATG

25

(2) INFORMATION FOR SEQ ID NO: 367:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 367:

GAAAGCTGAG ATGGAGGGCG GCAT

24

(2) INFORMATION FOR SEQ ID NO: 368:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 368:

GAAAGCTGAG ATGGAGGGCG GCA

23

(2) INFORMATION FOR SEQ ID NO: 369:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 369:
 GAAAGCTGAG ATGGAGGGCG GC 22
- (2) INFORMATION FOR SEQ ID NO: 370:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 370:
 GAAAGCTGAG ATGGAGGGCG G 21
- (2) INFORMATION FOR SEQ ID NO: 371:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 371:
 GAAAGCTGAG ATGGAGGGCG 20
- (2) INFORMATION FOR SEQ ID NO: 372:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 372:
 GAAAGCTGAG ATGGAGGGC 19
- (2) INFORMATION FOR SEQ ID NO: 373:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 373:
 GAAAGCTGAG ATGGAGGG 18
- (2) INFORMATION FOR SEQ ID NO: 374:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 374:

GAAAGCTGAG ATGGAG 17

(2) INFORMATION FOR SEQ ID NO: 375:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 375:

GAAAGCTGAG ATGGAG 16

(2) INFORMATION FOR SEQ ID NO: 376:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 376:

GAAAGCTGAG ATGGA 15

(2) INFORMATION FOR SEQ ID NO: 377:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 377:

GAAAGCTGAG ATGG 14

(2) INFORMATION FOR SEQ ID NO: 378:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 378:

GAAAGCTGAG ATG 13

(2) INFORMATION FOR SEQ ID NO: 379:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 379:
GAAAGCTGAG AT 12

(2) INFORMATION FOR SEQ ID NO: 380:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 380:
GAAAGCTGAG A 11

(2) INFORMATION FOR SEQ ID NO: 381:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 381:
GAAAGCTGAG 10

(2) INFORMATION FOR SEQ ID NO: 382:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 41 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 382:
AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG C 41

(2) INFORMATION FOR SEQ ID NO: 383:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 383:
AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG 40

(2) INFORMATION FOR SEQ ID NO: 384:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 384:
AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGG 39

-continued

(2) INFORMATION FOR SEQ ID NO: 385:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 385:

AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGCTG 38

(2) INFORMATION FOR SEQ ID NO: 386:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 37 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 386:

AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGCT 37

(2) INFORMATION FOR SEQ ID NO: 387:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 36 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 387:

AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGGC 36

(2) INFORMATION FOR SEQ ID NO: 388:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 35 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 388:

AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAGG 35

(2) INFORMATION FOR SEQ ID NO: 389:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 34 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 389:

AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACAG 34

(2) INFORMATION FOR SEQ ID NO: 390:

- (i) SEQUENCE CHARACTERISTICS:

-continued

-
- (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 390:
- AAAGCTGAGA TGGAGGGCGG CATGGCGGGC ACA 33
- (2) INFORMATION FOR SEQ ID NO: 391:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 391:
- AAAGCTGAGA TGGAGGGCGG CATGGCGGGC AC 32
- (2) INFORMATION FOR SEQ ID NO: 392:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 392:
- AAAGCTGAGA TGGAGGGCGG CATGGCGGGC A 31
- (2) INFORMATION FOR SEQ ID NO: 393:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 393:
- AAAGCTGAGA TGGAGGGCGG CATGGCGGGC 30
- (2) INFORMATION FOR SEQ ID NO: 394:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 394:
- AAAGCTGAGA TGGAGGGCGG CATGGCGGG 29
- (2) INFORMATION FOR SEQ ID NO: 395:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 28 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 395:

AAAGCTGAGA TGGAGGGCGG CATGGCGG 28

(2) INFORMATION FOR SEQ ID NO: 396:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 396:

AAAGCTGAGA TGGAGGGCGG CATGGCG 27

(2) INFORMATION FOR SEQ ID NO: 397:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 397:

AAAGCTGAGA TGGAGGGCGG CATGGC 26

(2) INFORMATION FOR SEQ ID NO: 398:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 398:

AAAGCTGAGA TGGAGGGCGG CATGG 25

(2) INFORMATION FOR SEQ ID NO: 399:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 399:

AAAGCTGAGA TGGAGGGCGG CATG 24

(2) INFORMATION FOR SEQ ID NO: 400:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 400:

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| | |
|--|----|
| AAAGCTGAGA TGGAGGGCGG CAT | 23 |
| (2) INFORMATION FOR SEQ ID NO: 401: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 22 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 401: | |
| AAAGCTGAGA TGGAGGGCGG CA | 22 |
| (2) INFORMATION FOR SEQ ID NO: 402: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 21 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 402: | |
| AAAGCTGAGA TGGAGGGCGG C | 21 |
| (2) INFORMATION FOR SEQ ID NO: 403: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 20 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 403: | |
| AAAGCTGAGA TGGAGGGCGG | 20 |
| (2) INFORMATION FOR SEQ ID NO: 404: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 19 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 404: | |
| AAAGCTGAGA TGGAGGGCGG | 19 |
| (2) INFORMATION FOR SEQ ID NO: 405: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 18 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 405: | |
| AAAGCTGAGA TGGAGGGCG | 18 |

-continued

(2) INFORMATION FOR SEQ ID NO: 406:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 406:

AAAGCTGAGA TGGAGG

17

(2) INFORMATION FOR SEQ ID NO: 407:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 407:

AAAGCTGAGA TGGAGG

16

(2) INFORMATION FOR SEQ ID NO: 408:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 408:

AAAGCTGAGA TGGAG

15

(2) INFORMATION FOR SEQ ID NO: 409:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 409:

AAAGCTGAGA TGGA

14

(2) INFORMATION FOR SEQ ID NO: 410:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 410:

AAAGCTGAGA TGG

13

(2) INFORMATION FOR SEQ ID NO: 411:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs

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(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 411:

AAAGCTGAGA TG 12

(2) INFORMATION FOR SEQ ID NO: 412:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 412:

AAAGCTGAGA T 11

(2) INFORMATION FOR SEQ ID NO: 413:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 413:

AAAGCTGAGA 10

(2) INFORMATION FOR SEQ ID NO: 414:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 40 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 414:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGGGC 40

(2) INFORMATION FOR SEQ ID NO: 415:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 415:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGGG 39

(2) INFORMATION FOR SEQ ID NO: 416:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 416:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGG 38

(2) INFORMATION FOR SEQ ID NO: 417:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 417:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTG 37

(2) INFORMATION FOR SEQ ID NO: 418:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 418:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCT 36

(2) INFORMATION FOR SEQ ID NO: 419:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 419:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGC 35

(2) INFORMATION FOR SEQ ID NO: 420:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 420:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGG 34

(2) INFORMATION FOR SEQ ID NO: 421:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 421:

-continued

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAG

33

(2) INFORMATION FOR SEQ ID NO: 422:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 32 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 422:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CA

32

(2) INFORMATION FOR SEQ ID NO: 423:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 31 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 423:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA C

31

(2) INFORMATION FOR SEQ ID NO: 424:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 424:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA

30

(2) INFORMATION FOR SEQ ID NO: 425:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 425:

AAGCTGAGAT GGAGGGCGGC ATGGCGGGC

29

(2) INFORMATION FOR SEQ ID NO: 426:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 426:

AAGCTGAGAT GGAGGGCGGC ATGGCGGG

28

(2) INFORMATION FOR SEQ ID NO: 427:

-continued

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 427:
AAGCTGAGAT GGAGGGCGGC ATGGCGG 27
- (2) INFORMATION FOR SEQ ID NO: 428:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 428:
AAGCTGAGAT GGAGGGCGGC ATGGCGG 26
- (2) INFORMATION FOR SEQ ID NO: 429:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 429:
AAGCTGAGAT GGAGGGCGGC ATGGC 25
- (2) INFORMATION FOR SEQ ID NO: 430:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 430:
AAGCTGAGAT GGAGGGCGGC ATGG 24
- (2) INFORMATION FOR SEQ ID NO: 431:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 431:
AAGCTGAGAT GGAGGGCGGC ATG 23
- (2) INFORMATION FOR SEQ ID NO: 432:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 432:

AAGCTGAGAT GGAGGGCGGC AT 22

(2) INFORMATION FOR SEQ ID NO: 433:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 433:

AAGCTGAGAT GGAGGGCGGC A 21

(2) INFORMATION FOR SEQ ID NO: 434:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 434:

AAGCTGAGAT GGAGGGCGGC 20

(2) INFORMATION FOR SEQ ID NO: 435:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 435:

AAGCTGAGAT GGAGGGCGG 19

(2) INFORMATION FOR SEQ ID NO: 436:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 436:

AAGCTGAGAT GGAGGGCG 18

(2) INFORMATION FOR SEQ ID NO: 437:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 437:
AAGCTGAGAT GGAGGGC 17

(2) INFORMATION FOR SEQ ID NO: 438:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 438:
AAGCTGAGAT GGAGGG 16

(2) INFORMATION FOR SEQ ID NO: 439:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 439:
AAGCTGAGAT GGAGG 15

(2) INFORMATION FOR SEQ ID NO: 440:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 440:
AAGCTGAGAT GGAG 14

(2) INFORMATION FOR SEQ ID NO: 441:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 441:
AAGCTGAGAT GGA 13

(2) INFORMATION FOR SEQ ID NO: 442:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 442:
AAGCTGAGAT GG 12

-continued

(2) INFORMATION FOR SEQ ID NO: 443:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 443:

AAGCTGAGAT G

11

(2) INFORMATION FOR SEQ ID NO: 444:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 444:

AAGCTGAGAT

10

(2) INFORMATION FOR SEQ ID NO: 445:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 39 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 445:

AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCTGGGC

39

(2) INFORMATION FOR SEQ ID NO: 446:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 38 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 446:

AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCTGGG

38

(2) INFORMATION FOR SEQ ID NO: 447:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 37 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 447:

AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCTGG

37

(2) INFORMATION FOR SEQ ID NO: 448:

-continued

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 36 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 448:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCTG 36

(2) INFORMATION FOR SEQ ID NO: 449:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 449:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCT 35

(2) INFORMATION FOR SEQ ID NO: 450:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 34 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 450:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGC 34

(2) INFORMATION FOR SEQ ID NO: 451:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 451:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGG 33

(2) INFORMATION FOR SEQ ID NO: 452:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 452:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AG 32

(2) INFORMATION FOR SEQ ID NO: 453:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 453:

AGCTGAGATG GAGGGCGGCA TGGCGGGCAC A 31

(2) INFORMATION FOR SEQ ID NO: 454:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 454:

AGCTGAGATG GAGGGCGGCA TGGCGGGCAC 30

(2) INFORMATION FOR SEQ ID NO: 455:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 455:

AGCTGAGATG GAGGGCGGCA TGGCGGGCA 29

(2) INFORMATION FOR SEQ ID NO: 456:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 28 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 456:

AGCTGAGATG GAGGGCGGCA TGGCGGGC 28

(2) INFORMATION FOR SEQ ID NO: 457:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 457:

AGCTGAGATG GAGGGCGGCA TGGCGGG 27

(2) INFORMATION FOR SEQ ID NO: 458:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 458:
AGCTGAGATG GAGGGCGGCA TGGCGG 26

(2) INFORMATION FOR SEQ ID NO: 459:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 459:
AGCTGAGATG GAGGGCGGCA TGGCG 25

(2) INFORMATION FOR SEQ ID NO: 460:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 460:
AGCTGAGATG GAGGGCGGCA TGGC 24

(2) INFORMATION FOR SEQ ID NO: 461:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 461:
AGCTGAGATG GAGGGCGGCA TGG 23

(2) INFORMATION FOR SEQ ID NO: 462:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 462:
AGCTGAGATG GAGGGCGGCA TG 22

(2) INFORMATION FOR SEQ ID NO: 463:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 463:
AGCTGAGATG GAGGGCGGCA T 21

-continued

(2) INFORMATION FOR SEQ ID NO: 464:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 464:

AGCTGAGATG GAGGCGGCA

20

(2) INFORMATION FOR SEQ ID NO: 465:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 465:

AGCTGAGATG GAGGCGGGC

19

(2) INFORMATION FOR SEQ ID NO: 466:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 466:

AGCTGAGATG GAGGCGGG

18

(2) INFORMATION FOR SEQ ID NO: 467:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 467:

AGCTGAGATG GAGGGCG

17

(2) INFORMATION FOR SEQ ID NO: 468:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 468:

AGCTGAGATG GAGGGC

16

(2) INFORMATION FOR SEQ ID NO: 469:

- (i) SEQUENCE CHARACTERISTICS:

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| | |
|--|----|
| (A) LENGTH: 15 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 469: | |
| AGCTGAGATG GAGGG | 15 |
| (2) INFORMATION FOR SEQ ID NO: 470: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 14 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 470: | |
| AGCTGAGATG GAGG | 14 |
| (2) INFORMATION FOR SEQ ID NO: 471: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 13 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 471: | |
| AGCTGAGATG GAG | 13 |
| (2) INFORMATION FOR SEQ ID NO: 472: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 12 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 472: | |
| AGCTGAGATG GA | 12 |
| (2) INFORMATION FOR SEQ ID NO: 473: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 11 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 473: | |
| AGCTGAGATG G | 11 |
| (2) INFORMATION FOR SEQ ID NO: 474: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 10 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 474:

AGCTGAGATG 10

(2) INFORMATION FOR SEQ ID NO: 475:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 38 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 475:

GCTGAGATGG AGGCGGCAT GCGGGCACA GGCTGGGC 38

(2) INFORMATION FOR SEQ ID NO: 476:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 37 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 476:

GCTGAGATGG AGGCGGCAT GCGGGCACA GGCTGGG 37

(2) INFORMATION FOR SEQ ID NO: 477:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 477:

GCTGAGATGG AGGCGGCAT GCGGGCACA GGCTGG 36

(2) INFORMATION FOR SEQ ID NO: 478:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 478:

GCTGAGATGG AGGCGGCAT GCGGGCACA GGCTG 35

(2) INFORMATION FOR SEQ ID NO: 479:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 479:

-continued

GCTGAGATGG AGGGCGGCAT GCGGGGCACA GGCT 34

(2) INFORMATION FOR SEQ ID NO: 480:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 480:

GCTGAGATGG AGGGCGGCAT GCGGGGCACA GGC 33

(2) INFORMATION FOR SEQ ID NO: 481:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 481:

GCTGAGATGG AGGGCGGCAT GCGGGGCACA GG 32

(2) INFORMATION FOR SEQ ID NO: 482:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 482:

GCTGAGATGG AGGGCGGCAT GCGGGGCACA G 31

(2) INFORMATION FOR SEQ ID NO: 483:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 483:

GCTGAGATGG AGGGCGGCAT GCGGGGCACA 30

(2) INFORMATION FOR SEQ ID NO: 484:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 484:

GCTGAGATGG AGGGCGGCAT GCGGGGCAC 29

-continued

(2) INFORMATION FOR SEQ ID NO: 485:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 485:

GCTGAGATGG AGGCGGCAT GC CGGGCA

28

(2) INFORMATION FOR SEQ ID NO: 486:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 486:

GCTGAGATGG AGGCGGCAT GC CGGGC

27

(2) INFORMATION FOR SEQ ID NO: 487:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 487:

GCTGAGATGG AGGCGGCAT GC CGGG

26

(2) INFORMATION FOR SEQ ID NO: 488:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 488:

GCTGAGATGG AGGCGGCAT GC CGG

25

(2) INFORMATION FOR SEQ ID NO: 489:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 489:

GCTGAGATGG AGGCGGCAT GC CG

24

(2) INFORMATION FOR SEQ ID NO: 490:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 490:

GCTGAGATGG AGGCGGCAT GGC 23

(2) INFORMATION FOR SEQ ID NO: 491:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 491:

GCTGAGATGG AGGCGGCAT GG 22

(2) INFORMATION FOR SEQ ID NO: 492:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 492:

GCTGAGATGG AGGCGGCAT G 21

(2) INFORMATION FOR SEQ ID NO: 493:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 493:

GCTGAGATGG AGGCGGCAT 20

(2) INFORMATION FOR SEQ ID NO: 494:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 494:

GCTGAGATGG AGGCGGCA 19

(2) INFORMATION FOR SEQ ID NO: 495:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 495:

GCTGAGATGG AGGGCGGC 18

(2) INFORMATION FOR SEQ ID NO: 496:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 17 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 496:

GCTGAGATGG AGGGCGG 17

(2) INFORMATION FOR SEQ ID NO: 497:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 497:

GCTGAGATGG AGGGCG 16

(2) INFORMATION FOR SEQ ID NO: 498:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 498:

GCTGAGATGG AGGGC 15

(2) INFORMATION FOR SEQ ID NO: 499:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 499:

GCTGAGATGG AGGG 14

(2) INFORMATION FOR SEQ ID NO: 500:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 500:

-continued

GCTGAGATGG AGG

13

(2) INFORMATION FOR SEQ ID NO: 501:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 501:

GCTGAGATGG AG

12

(2) INFORMATION FOR SEQ ID NO: 502:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 502:

GCTGAGATGG A

11

(2) INFORMATION FOR SEQ ID NO: 503:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 503:

GCTGAGATGG

10

(2) INFORMATION FOR SEQ ID NO: 504:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 37 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 504:

CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGGGC

37

(2) INFORMATION FOR SEQ ID NO: 505:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 36 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 505:

CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGGG

36

(2) INFORMATION FOR SEQ ID NO: 506:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 506:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGG 35
- (2) INFORMATION FOR SEQ ID NO: 507:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 34 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 507:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTG 34
- (2) INFORMATION FOR SEQ ID NO: 508:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 508:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG GCT 33
- (2) INFORMATION FOR SEQ ID NO: 509:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 509:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG GC 32
- (2) INFORMATION FOR SEQ ID NO: 510:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 510:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG G 31
- (2) INFORMATION FOR SEQ ID NO: 511:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 511:
CTGAGATGGA GGGCGGCATG GCGGGCACAG 30

(2) INFORMATION FOR SEQ ID NO: 512:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 29 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 512:
CTGAGATGGA GGGCGGCATG GCGGGCACA 29

(2) INFORMATION FOR SEQ ID NO: 513:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 28 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 513:
CTGAGATGGA GGGCGGCATG GCGGGCAC 28

(2) INFORMATION FOR SEQ ID NO: 514:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 514:
CTGAGATGGA GGGCGGCATG GCGGGCA 27

(2) INFORMATION FOR SEQ ID NO: 515:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 515:
CTGAGATGGA GGGCGGCATG GCGGGC 26

(2) INFORMATION FOR SEQ ID NO: 516:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 516:
 CTGAGATGGA GGGCGGCATG GCGGG 25
- (2) INFORMATION FOR SEQ ID NO: 517:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 517:
 CTGAGATGGA GGGCGGCATG GCGG 24
- (2) INFORMATION FOR SEQ ID NO: 518:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 518:
 CTGAGATGGA GGGCGGCATG GCG 23
- (2) INFORMATION FOR SEQ ID NO: 519:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 519:
 CTGAGATGGA GGGCGGCATG GC 22
- (2) INFORMATION FOR SEQ ID NO: 520:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 520:
 CTGAGATGGA GGGCGGCATG G 21
- (2) INFORMATION FOR SEQ ID NO: 521:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 521:
 CTGAGATGGA GGGCGGCATG 20

-continued

(2) INFORMATION FOR SEQ ID NO: 522:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 522:

CTGAGATGGA GGGCGGCAT

19

(2) INFORMATION FOR SEQ ID NO: 523:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 523:

CTGAGATGGA GGGCGGCA

18

(2) INFORMATION FOR SEQ ID NO: 524:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 524:

CTGAGATGGA GGGCGGC

17

(2) INFORMATION FOR SEQ ID NO: 525:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 525:

CTGAGATGGA GGGCGG

16

(2) INFORMATION FOR SEQ ID NO: 526:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 526:

CTGAGATGGA GGGCG

15

(2) INFORMATION FOR SEQ ID NO: 527:

-continued

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 527:
 CTGAGATGGA GGGC 14

(2) INFORMATION FOR SEQ ID NO: 528:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 528:
 CTGAGATGGA GGG 13

(2) INFORMATION FOR SEQ ID NO: 529:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 529:
 CTGAGATGGA GG 12

(2) INFORMATION FOR SEQ ID NO: 530:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 530:
 CTGAGATGGA G 11

(2) INFORMATION FOR SEQ ID NO: 531:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 531:
 CTGAGATGGA 10

(2) INFORMATION FOR SEQ ID NO: 532:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 36 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 532:

TGAGATGGAG GCGGGCATGG CGGGCACAGG CTGGGC 36

(2) INFORMATION FOR SEQ ID NO: 533:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 35 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 533:

TGAGATGGAG GCGGGCATGG CGGGCACAGG CTGGG 35

(2) INFORMATION FOR SEQ ID NO: 534:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 534:

TGAGATGGAG GCGGGCATGG CGGGCACAGG CTGG 34

(2) INFORMATION FOR SEQ ID NO: 535:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 535:

TGAGATGGAG GCGGGCATGG CGGGCACAGG CTG 33

(2) INFORMATION FOR SEQ ID NO: 536:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 536:

TGAGATGGAG GCGGGCATGG CGGGCACAGG CT 32

(2) INFORMATION FOR SEQ ID NO: 537:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 537:
 TGAGATGGAG GCGGGCATGG CCGGCACAGG C 31

(2) INFORMATION FOR SEQ ID NO: 538:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 538:
 TGAGATGGAG GCGGGCATGG CCGGCACAGG 30

(2) INFORMATION FOR SEQ ID NO: 539:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 539:
 TGAGATGGAG GCGGGCATGG CCGGCACAG 29

(2) INFORMATION FOR SEQ ID NO: 540:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 28 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 540:
 TGAGATGGAG GCGGGCATGG CCGGCACA 28

(2) INFORMATION FOR SEQ ID NO: 541:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 27 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 541:
 TGAGATGGAG GCGGGCATGG CCGGCAC 27

(2) INFORMATION FOR SEQ ID NO: 542:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 542:
 TGAGATGGAG GCGGGCATGG CCGGCA 26

-continued

(2) INFORMATION FOR SEQ ID NO: 543:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 543:

TGAGATGGAG GCGGCATGG CGGC

25

(2) INFORMATION FOR SEQ ID NO: 544:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 544:

TGAGATGGAG GCGGCATGG CGGG

24

(2) INFORMATION FOR SEQ ID NO: 545:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 545:

TGAGATGGAG GCGGCATGG CGG

23

(2) INFORMATION FOR SEQ ID NO: 546:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 546:

TGAGATGGAG GCGGCATGG CG

22

(2) INFORMATION FOR SEQ ID NO: 547:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 547:

TGAGATGGAG GCGGCATGG C

21

(2) INFORMATION FOR SEQ ID NO: 548:

- (i) SEQUENCE CHARACTERISTICS:

-continued

(A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 548:

TGAGATGGAG GCGGCATGG 20

(2) INFORMATION FOR SEQ ID NO: 549:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 549:

TGAGATGGAG GCGGCATG 19

(2) INFORMATION FOR SEQ ID NO: 550:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 550:

TGAGATGGAG GCGGCAT 18

(2) INFORMATION FOR SEQ ID NO: 551:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 551:

TGAGATGGAG GCGGCA 17

(2) INFORMATION FOR SEQ ID NO: 552:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 552:

TGAGATGGAG GCGGCC 16

(2) INFORMATION FOR SEQ ID NO: 553:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 553:

TGAGATGGAG GGCGG 15

(2) INFORMATION FOR SEQ ID NO: 554:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 554:

TGAGATGGAG GGCG 14

(2) INFORMATION FOR SEQ ID NO: 555:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 555:

TGAGATGGAG GGC 13

(2) INFORMATION FOR SEQ ID NO: 556:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 556:

TGAGATGGAG GG 12

(2) INFORMATION FOR SEQ ID NO: 557:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 557:

TGAGATGGAG G 11

(2) INFORMATION FOR SEQ ID NO: 558:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 558:

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| | |
|--|----|
| TGAGATGGAG | 10 |
| (2) INFORMATION FOR SEQ ID NO: 559: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 35 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 559: | |
| GAGATGGAGG GCGGCATGGC GGGCACAGGC TGGGC | 35 |
| (2) INFORMATION FOR SEQ ID NO: 560: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 34 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 560: | |
| GAGATGGAGG GCGGCATGGC GGGCACAGGC TGGG | 34 |
| (2) INFORMATION FOR SEQ ID NO: 561: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 33 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 561: | |
| GAGATGGAGG GCGGCATGGC GGGCACAGGC TGG | 33 |
| (2) INFORMATION FOR SEQ ID NO: 562: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 32 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 562: | |
| GAGATGGAGG GCGGCATGGC GGGCACAGGC TG | 32 |
| (2) INFORMATION FOR SEQ ID NO: 563: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 31 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 563: | |
| GAGATGGAGG GCGGCATGGC GGGCACAGGC T | 31 |

-continued

(2) INFORMATION FOR SEQ ID NO: 564:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 564:

GAGATGGAGG GCGGCATGGC GGGCACAGGC

30

(2) INFORMATION FOR SEQ ID NO: 565:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 565:

GAGATGGAGG GCGGCATGGC GGGCACAGG

29

(2) INFORMATION FOR SEQ ID NO: 566:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 566:

GAGATGGAGG GCGGCATGGC GGGCACAG

28

(2) INFORMATION FOR SEQ ID NO: 567:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 567:

GAGATGGAGG GCGGCATGGC GGGCACA

27

(2) INFORMATION FOR SEQ ID NO: 568:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 568:

GAGATGGAGG GCGGCATGGC GGGCAC

26

(2) INFORMATION FOR SEQ ID NO: 569:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 569:

GAGATGGAGG GCGGCATGGC GGGCA 25

(2) INFORMATION FOR SEQ ID NO: 570:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 570:

GAGATGGAGG GCGGCATGGC GGGC 24

(2) INFORMATION FOR SEQ ID NO: 571:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 571:

GAGATGGAGG GCGGCATGGC GGG 23

(2) INFORMATION FOR SEQ ID NO: 572:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 572:

GAGATGGAGG GCGGCATGGC GG 22

(2) INFORMATION FOR SEQ ID NO: 573:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 573:

GAGATGGAGG GCGGCATGGC G 21

(2) INFORMATION FOR SEQ ID NO: 574:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 574:

GAGATGGAGG GCGGCATGG 20

(2) INFORMATION FOR SEQ ID NO: 575:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 19 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 575:

GAGATGGAGG GCGGCATGG 19

(2) INFORMATION FOR SEQ ID NO: 576:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 576:

GAGATGGAGG GCGGCATG 18

(2) INFORMATION FOR SEQ ID NO: 577:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 577:

GAGATGGAGG GCGGCAT 17

(2) INFORMATION FOR SEQ ID NO: 578:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 578:

GAGATGGAGG GCGGCA 16

(2) INFORMATION FOR SEQ ID NO: 579:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 579:

-continued

GAGATGGAGG GCGGC

15

(2) INFORMATION FOR SEQ ID NO: 580:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 580:

GAGATGGAGG GCGG

14

(2) INFORMATION FOR SEQ ID NO: 581:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 581:

GAGATGGAGG GCG

13

(2) INFORMATION FOR SEQ ID NO: 582:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 582:

GAGATGGAGG GC

12

(2) INFORMATION FOR SEQ ID NO: 583:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 583:

GAGATGGAGG G

11

(2) INFORMATION FOR SEQ ID NO: 584:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 584:

GAGATGGAGG

10

(2) INFORMATION FOR SEQ ID NO: 585:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 34 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 585:
 AGATGGAGGG CGGCATGGCG GGCACAGGCT GGGC 34
- (2) INFORMATION FOR SEQ ID NO: 586:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 586:
 AGATGGAGGG CGGCATGGCG GGCACAGGCT GGG 33
- (2) INFORMATION FOR SEQ ID NO: 587:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 587:
 AGATGGAGGG CGGCATGGCG GGCACAGGCT GG 32
- (2) INFORMATION FOR SEQ ID NO: 588:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 588:
 AGATGGAGGG CGGCATGGCG GGCACAGGCT G 31
- (2) INFORMATION FOR SEQ ID NO: 589:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 589:
 AGATGGAGGG CGGCATGGCG GGCACAGGCT 30
- (2) INFORMATION FOR SEQ ID NO: 590:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 590:
AGATGGAGGG CGGCATGGCG GGCACAGC 29

(2) INFORMATION FOR SEQ ID NO: 591:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 28 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 591:
AGATGGAGGG CGGCATGGCG GGCACAGG 28

(2) INFORMATION FOR SEQ ID NO: 592:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 592:
AGATGGAGGG CGGCATGGCG GGCACAG 27

(2) INFORMATION FOR SEQ ID NO: 593:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 593:
AGATGGAGGG CGGCATGGCG GGCACA 26

(2) INFORMATION FOR SEQ ID NO: 594:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 594:
AGATGGAGGG CGGCATGGCG GGCAC 25

(2) INFORMATION FOR SEQ ID NO: 595:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 595:
AGATGGAGGG CGGCATGGCG GGCA 24

(2) INFORMATION FOR SEQ ID NO: 596:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 596:
AGATGGAGGG CGGCATGGCG GGC 23

(2) INFORMATION FOR SEQ ID NO: 597:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 597:
AGATGGAGGG CGGCATGGCG GG 22

(2) INFORMATION FOR SEQ ID NO: 598:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 598:
AGATGGAGGG CGGCATGGCG G 21

(2) INFORMATION FOR SEQ ID NO: 599:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 599:
AGATGGAGGG CGGCATGGCG 20

(2) INFORMATION FOR SEQ ID NO: 600:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 600:
AGATGGAGGG CGGCATGGC 19

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(2) INFORMATION FOR SEQ ID NO: 601:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 601:

AGATGGAGGG CGGCATGG

18

(2) INFORMATION FOR SEQ ID NO: 602:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 602:

AGATGGAGGG CGGCATG

17

(2) INFORMATION FOR SEQ ID NO: 603:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 603:

AGATGGAGGG CGGCAT

16

(2) INFORMATION FOR SEQ ID NO: 604:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 604:

AGATGGAGGG CGGCA

15

(2) INFORMATION FOR SEQ ID NO: 605:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 605:

AGATGGAGGG CGGC

14

(2) INFORMATION FOR SEQ ID NO: 606:

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-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 606:
 AGATGGAGGG CGG 13
- (2) INFORMATION FOR SEQ ID NO: 607:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 607:
 AGATGGAGGG CG 12
- (2) INFORMATION FOR SEQ ID NO: 608:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 608:
 AGATGGAGGG C 11
- (2) INFORMATION FOR SEQ ID NO: 609:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 609:
 AGATGGAGGG 10
- (2) INFORMATION FOR SEQ ID NO: 610:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 33 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 610:
 GATGGAGGGC GGCATGGCGG GCACAGGCTG GGC 33
- (2) INFORMATION FOR SEQ ID NO: 611:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 32 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 611:

GATGGAGGGC GGCATGGCGG GCACAGGCTG GG 32

(2) INFORMATION FOR SEQ ID NO: 612:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 612:

GATGGAGGGC GGCATGGCGG GCACAGGCTG G 31

(2) INFORMATION FOR SEQ ID NO: 613:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 613:

GATGGAGGGC GGCATGGCGG GCACAGGCTG 30

(2) INFORMATION FOR SEQ ID NO: 614:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 614:

GATGGAGGGC GGCATGGCGG GCACAGGCT 29

(2) INFORMATION FOR SEQ ID NO: 615:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 28 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 615:

GATGGAGGGC GGCATGGCGG GCACAGGC 28

(2) INFORMATION FOR SEQ ID NO: 616:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 616:
GATGGAGGGC GGCATGGCGG GCACAGG 27

(2) INFORMATION FOR SEQ ID NO: 617:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 617:
GATGGAGGGC GGCATGGCGG GCACAG 26

(2) INFORMATION FOR SEQ ID NO: 618:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 618:
GATGGAGGGC GGCATGGCGG GCACA 25

(2) INFORMATION FOR SEQ ID NO: 619:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 619:
GATGGAGGGC GGCATGGCGG GCAC 24

(2) INFORMATION FOR SEQ ID NO: 620:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 620:
GATGGAGGGC GGCATGGCGG GCA 23

(2) INFORMATION FOR SEQ ID NO: 621:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 621:
GATGGAGGGC GGCATGGCGG GC 22

-continued

(2) INFORMATION FOR SEQ ID NO: 622:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 622:

GATGGAGGGC GGCATGGCGG G

21

(2) INFORMATION FOR SEQ ID NO: 623:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 623:

GATGGAGGGC GGCATGGCGG

20

(2) INFORMATION FOR SEQ ID NO: 624:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 624:

GATGGAGGGC GGCATGGCGG

19

(2) INFORMATION FOR SEQ ID NO: 625:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 625:

GATGGAGGGC GGCATGGC

18

(2) INFORMATION FOR SEQ ID NO: 626:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 626:

GATGGAGGGC GGCATGG

17

(2) INFORMATION FOR SEQ ID NO: 627:

- (i) SEQUENCE CHARACTERISTICS:

-continued

(A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 627:

GATGGAGGGC GGCATG 16

(2) INFORMATION FOR SEQ ID NO: 628:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 628:

GATGGAGGGC GGCAT 15

(2) INFORMATION FOR SEQ ID NO: 629:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 629:

GATGGAGGGC GGCA 14

(2) INFORMATION FOR SEQ ID NO: 630:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 630:

GATGGAGGGC GGC 13

(2) INFORMATION FOR SEQ ID NO: 631:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 631:

GATGGAGGGC GG 12

(2) INFORMATION FOR SEQ ID NO: 632:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 632:

GATGGAGGGC G 11

(2) INFORMATION FOR SEQ ID NO: 633:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 633:

GATGGAGGGC 10

(2) INFORMATION FOR SEQ ID NO: 634:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 634:

ATGGAGGGCG GCATGGCGGG CACAGGCTGG GC 32

(2) INFORMATION FOR SEQ ID NO: 635:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 635:

ATGGAGGGCG GCATGGCGGG CACAGGCTGG G 31

(2) INFORMATION FOR SEQ ID NO: 636:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 636:

ATGGAGGGCG GCATGGCGGG CACAGGCTGG 30

(2) INFORMATION FOR SEQ ID NO: 637:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 637:

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| | |
|--|----|
| ATGGAGGGCG GCATGGCGGG CACAGGCTG | 29 |
| (2) INFORMATION FOR SEQ ID NO: 638: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 28 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 638: | |
| ATGGAGGGCG GCATGGCGGG CACAGGCT | 28 |
| (2) INFORMATION FOR SEQ ID NO: 639: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 27 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 639: | |
| ATGGAGGGCG GCATGGCGGG CACAGGC | 27 |
| (2) INFORMATION FOR SEQ ID NO: 640: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 26 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 640: | |
| ATGGAGGGCG GCATGGCGGG CACAGG | 26 |
| (2) INFORMATION FOR SEQ ID NO: 641: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 25 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 641: | |
| ATGGAGGGCG GCATGGCGGG CACAG | 25 |
| (2) INFORMATION FOR SEQ ID NO: 642: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 24 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 642: | |
| ATGGAGGGCG GCATGGCGGG CACA | 24 |

-continued

(2) INFORMATION FOR SEQ ID NO: 643:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 643:

ATGGAGGGCG GCATGGCGGG CAC

23

(2) INFORMATION FOR SEQ ID NO: 644:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 644:

ATGGAGGGCG GCATGGCGGG CA

22

(2) INFORMATION FOR SEQ ID NO: 645:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 645:

ATGGAGGGCG GCATGGCGGG C

21

(2) INFORMATION FOR SEQ ID NO: 646:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 646:

ATGGAGGGCG GCATGGCGGG

20

(2) INFORMATION FOR SEQ ID NO: 647:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 647:

ATGGAGGGCG GCATGGCGG

19

(2) INFORMATION FOR SEQ ID NO: 648:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 648:

ATGGAGGGCG GCATGGCG 18

(2) INFORMATION FOR SEQ ID NO: 649:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 649:

ATGGAGGGCG GCATGGC 17

(2) INFORMATION FOR SEQ ID NO: 650:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 650:

ATGGAGGGCG GCATGG 16

(2) INFORMATION FOR SEQ ID NO: 651:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 651:

ATGGAGGGCG GCATG 15

(2) INFORMATION FOR SEQ ID NO: 652:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 652:

ATGGAGGGCG GCAT 14

(2) INFORMATION FOR SEQ ID NO: 653:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 653:

ATGGAGGGCG GCA 13

(2) INFORMATION FOR SEQ ID NO: 654:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 654:

ATGGAGGGCG GC 12

(2) INFORMATION FOR SEQ ID NO: 655:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 655:

ATGGAGGGCG G 11

(2) INFORMATION FOR SEQ ID NO: 656:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 656:

ATGGAGGGCG 10

(2) INFORMATION FOR SEQ ID NO: 657:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 657:

TGGAGGGCGG CATGGCGGGC ACAGCTGGG C 31

(2) INFORMATION FOR SEQ ID NO: 658:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 658:

-continued

TGGAGGGCGG CATGGCGGGC ACAGGCTGGG

30

(2) INFORMATION FOR SEQ ID NO: 659:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 659:

TGGAGGGCGG CATGGCGGGC ACAGGCTGG

29

(2) INFORMATION FOR SEQ ID NO: 660:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 660:

TGGAGGGCGG CATGGCGGGC ACAGGCTG

28

(2) INFORMATION FOR SEQ ID NO: 661:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 661:

TGGAGGGCGG CATGGCGGGC ACAGGCT

27

(2) INFORMATION FOR SEQ ID NO: 662:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 662:

TGGAGGGCGG CATGGCGGGC ACAGGC

26

(2) INFORMATION FOR SEQ ID NO: 663:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 663:

TGGAGGGCGG CATGGCGGGC ACAGG

25

(2) INFORMATION FOR SEQ ID NO: 664:

-continued

-
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 664:
 TGGAGGGCGG CATGGCGGGC ACAG 24
- (2) INFORMATION FOR SEQ ID NO: 665:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 665:
 TGGAGGGCGG CATGGCGGGC ACA 23
- (2) INFORMATION FOR SEQ ID NO: 666:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 666:
 TGGAGGGCGG CATGGCGGGC AC 22
- (2) INFORMATION FOR SEQ ID NO: 667:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 667:
 TGGAGGGCGG CATGGCGGGC A 21
- (2) INFORMATION FOR SEQ ID NO: 668:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 668:
 TGGAGGGCGG CATGGCGGGC 20
- (2) INFORMATION FOR SEQ ID NO: 669:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 669:
TGGAGGGCGG CATGGCGG 19

(2) INFORMATION FOR SEQ ID NO: 670:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 670:
TGGAGGGCGG CATGGCGG 18

(2) INFORMATION FOR SEQ ID NO: 671:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 671:
TGGAGGGCGG CATGGCG 17

(2) INFORMATION FOR SEQ ID NO: 672:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 672:
TGGAGGGCGG CATGGC 16

(2) INFORMATION FOR SEQ ID NO: 673:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 673:
TGGAGGGCGG CATGG 15

(2) INFORMATION FOR SEQ ID NO: 674:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 674:
TGGAGGGCGG CATG 14

(2) INFORMATION FOR SEQ ID NO: 675:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 675:
TGGAGGGCGG CAT 13

(2) INFORMATION FOR SEQ ID NO: 676:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 676:
TGGAGGGCGG CA 12

(2) INFORMATION FOR SEQ ID NO: 677:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 677:
TGGAGGGCGG C 11

(2) INFORMATION FOR SEQ ID NO: 678:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 678:
TGGAGGGCGG 10

(2) INFORMATION FOR SEQ ID NO: 679:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 679:
GGAGGGCGGC ATGGCGGGCA CAGGCTGGGC 30

-continued

(2) INFORMATION FOR SEQ ID NO: 680:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 680:

GGAGGGCGGC ATGCGGGCA CAGGCTGGG

29

(2) INFORMATION FOR SEQ ID NO: 681:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 681:

GGAGGGCGGC ATGCGGGCA CAGGCTGG

28

(2) INFORMATION FOR SEQ ID NO: 682:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 682:

GGAGGGCGGC ATGCGGGCA CAGGCTG

27

(2) INFORMATION FOR SEQ ID NO: 683:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 683:

GGAGGGCGGC ATGCGGGCA CAGGCT

26

(2) INFORMATION FOR SEQ ID NO: 684:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 684:

GGAGGGCGGC ATGCGGGCA CAGG

25

(2) INFORMATION FOR SEQ ID NO: 685:

-continued

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 685:
 GGAGGGCGGC ATGGCGGGCA CAGG 24
- (2) INFORMATION FOR SEQ ID NO: 686:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 686:
 GGAGGGCGGC ATGGCGGGCA CAG 23
- (2) INFORMATION FOR SEQ ID NO: 687:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 687:
 GGAGGGCGGC ATGGCGGGCA CA 22
- (2) INFORMATION FOR SEQ ID NO: 688:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 688:
 GGAGGGCGGC ATGGCGGGCA C 21
- (2) INFORMATION FOR SEQ ID NO: 689:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 689:
 GGAGGGCGGC ATGGCGGGCA 20
- (2) INFORMATION FOR SEQ ID NO: 690:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 690:

GGAGGGCGGC ATGGCGGGC 19

(2) INFORMATION FOR SEQ ID NO: 691:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 691:

GGAGGGCGGC ATGGCGGG 18

(2) INFORMATION FOR SEQ ID NO: 692:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 692:

GGAGGGCGGC ATGGCGG 17

(2) INFORMATION FOR SEQ ID NO: 693:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 693:

GGAGGGCGGC ATGGCG 16

(2) INFORMATION FOR SEQ ID NO: 694:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 694:

GGAGGGCGGC ATGGC 15

(2) INFORMATION FOR SEQ ID NO: 695:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 695:
GGAGGGCGGC ATGG 14

(2) INFORMATION FOR SEQ ID NO: 696:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 696:
GGAGGGCGGC ATG 13

(2) INFORMATION FOR SEQ ID NO: 697:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 697:
GGAGGGCGGC AT 12

(2) INFORMATION FOR SEQ ID NO: 698:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 698:
GGAGGGCGGC A 11

(2) INFORMATION FOR SEQ ID NO: 699:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 699:
GGAGGGCGGC 10

(2) INFORMATION FOR SEQ ID NO: 700:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 29 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 700:
GAGGGCGGCA TGGCGGGCAC AGGCTGGGC 29

-continued

(2) INFORMATION FOR SEQ ID NO: 701:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 28 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 701:

GAGGGCGGCA TGGCGGCAC AGGCTGG

28

(2) INFORMATION FOR SEQ ID NO: 702:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 702:

GAGGGCGGCA TGGCGGCAC AGGCTGG

27

(2) INFORMATION FOR SEQ ID NO: 703:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 703:

GAGGGCGGCA TGGCGGCAC AGGCTG

26

(2) INFORMATION FOR SEQ ID NO: 704:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 704:

GAGGGCGGCA TGGCGGCAC AGGCT

25

(2) INFORMATION FOR SEQ ID NO: 705:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 705:

GAGGGCGGCA TGGCGGCAC AGGC

24

(2) INFORMATION FOR SEQ ID NO: 706:

- (i) SEQUENCE CHARACTERISTICS:

-continued

(A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 706:

GAGGGCGGCA TGGCGGGCAC AGG 23

(2) INFORMATION FOR SEQ ID NO: 707:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 707:

GAGGGCGGCA TGGCGGGCAC AG 22

(2) INFORMATION FOR SEQ ID NO: 708:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 708:

GAGGGCGGCA TGGCGGGCAC A 21

(2) INFORMATION FOR SEQ ID NO: 709:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 709:

GAGGGCGGCA TGGCGGGCAC 20

(2) INFORMATION FOR SEQ ID NO: 710:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 710:

GAGGGCGGCA TGGCGGGCAC 19

(2) INFORMATION FOR SEQ ID NO: 711:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 711:

GAGGGCGGCA TGGCGGGC 18

(2) INFORMATION FOR SEQ ID NO: 712:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 712:

GAGGGCGGCA TGGCGGG 17

(2) INFORMATION FOR SEQ ID NO: 713:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 16 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 713:

GAGGGCGGCA TGGCGG 16

(2) INFORMATION FOR SEQ ID NO: 714:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 714:

GAGGGCGGCA TGGCG 15

(2) INFORMATION FOR SEQ ID NO: 715:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 715:

GAGGGCGGCA TGGC 14

(2) INFORMATION FOR SEQ ID NO: 716:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 716:

-continued

| | |
|--|----|
| GAGGGCGGCA TGG | 13 |
| (2) INFORMATION FOR SEQ ID NO: 717: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 12 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 717: | |
| GAGGGCGGCA TG | 12 |
| (2) INFORMATION FOR SEQ ID NO: 718: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 11 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 718: | |
| GAGGGCGGCA T | 11 |
| (2) INFORMATION FOR SEQ ID NO: 719: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 10 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 719: | |
| GAGGGCGGCA | 10 |
| (2) INFORMATION FOR SEQ ID NO: 720: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 28 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 720: | |
| AGGGCGGCAT GCGGGCACA GGCTGGC | 28 |
| (2) INFORMATION FOR SEQ ID NO: 721: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 27 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 721: | |
| AGGGCGGCAT GCGGGCACA GGCTGGG | 27 |

-continued

(2) INFORMATION FOR SEQ ID NO: 722:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 722:

AGGGCGGCAT GCGGGCACA GGCTGG

26

(2) INFORMATION FOR SEQ ID NO: 723:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 723:

AGGGCGGCAT GCGGGCACA GGCTG

25

(2) INFORMATION FOR SEQ ID NO: 724:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 724:

AGGGCGGCAT GCGGGCACA GGCT

24

(2) INFORMATION FOR SEQ ID NO: 725:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 725:

AGGGCGGCAT GCGGGCACA GGC

23

(2) INFORMATION FOR SEQ ID NO: 726:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 726:

AGGGCGGCAT GCGGGCACA GG

22

(2) INFORMATION FOR SEQ ID NO: 727:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 727:

AGGGCGGCAT GGCGGGCACA G 21

(2) INFORMATION FOR SEQ ID NO: 728:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 728:

AGGGCGGCAT GGCGGGCACA 20

(2) INFORMATION FOR SEQ ID NO: 729:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 729:

AGGGCGGCAT GGCGGGCAC 19

(2) INFORMATION FOR SEQ ID NO: 730:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 730:

AGGGCGGCAT GGCGGGCA 18

(2) INFORMATION FOR SEQ ID NO: 731:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 731:

AGGGCGGCAT GGCGGGC 17

(2) INFORMATION FOR SEQ ID NO: 732:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 732:

AGGGCGGCAT GCCTGG 16

(2) INFORMATION FOR SEQ ID NO: 733:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 733:

AGGGCGGCAT GCCTGG 15

(2) INFORMATION FOR SEQ ID NO: 734:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 734:

AGGGCGGCAT GCCTG 14

(2) INFORMATION FOR SEQ ID NO: 735:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 735:

AGGGCGGCAT GGC 13

(2) INFORMATION FOR SEQ ID NO: 736:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 736:

AGGGCGGCAT GG 12

(2) INFORMATION FOR SEQ ID NO: 737:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 737:

-continued

AGGGCGGCAT G

11

(2) INFORMATION FOR SEQ ID NO: 738:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 738:

AGGGCGGCAT

10

(2) INFORMATION FOR SEQ ID NO: 739:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 739:

GGGCGGCATG GCGGGCACAG GCTGGGC

27

(2) INFORMATION FOR SEQ ID NO: 740:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 740:

GGGCGGCATG GCGGGCACAG GCTGGG

26

(2) INFORMATION FOR SEQ ID NO: 741:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 741:

GGGCGGCATG GCGGGCACAG GCTGG

25

(2) INFORMATION FOR SEQ ID NO: 742:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 24 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 742:

GGGCGGCATG GCGGGCACAG GCTG

24

(2) INFORMATION FOR SEQ ID NO: 743:

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 743:
- GGGCGGCATG GCGGGCACAG GCT 23
- (2) INFORMATION FOR SEQ ID NO: 744:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 744:
- GGGCGGCATG GCGGGCACAG GC 22
- (2) INFORMATION FOR SEQ ID NO: 745:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 745:
- GGGCGGCATG GCGGGCACAG G 21
- (2) INFORMATION FOR SEQ ID NO: 746:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 746:
- GGGCGGCATG GCGGGCACAG 20
- (2) INFORMATION FOR SEQ ID NO: 747:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 747:
- GGGCGGCATG GCGGGCACA 19
- (2) INFORMATION FOR SEQ ID NO: 748:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 748:
GGCGGCATG GCGGGCAC 18

(2) INFORMATION FOR SEQ ID NO: 749:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 749:
GGCGGCATG GCGGGCA 17

(2) INFORMATION FOR SEQ ID NO: 750:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 750:
GGCGGCATG GCGGGC 16

(2) INFORMATION FOR SEQ ID NO: 751:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 751:
GGCGGCATG GCGGG 15

(2) INFORMATION FOR SEQ ID NO: 752:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 752:
GGCGGCATG GCGG 14

(2) INFORMATION FOR SEQ ID NO: 753:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 753:
GGGCGGCATG GCG 13
- (2) INFORMATION FOR SEQ ID NO: 754:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 754:
GGGCGGCATG GC 12
- (2) INFORMATION FOR SEQ ID NO: 755:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 755:
GGGCGGCATG G 11
- (2) INFORMATION FOR SEQ ID NO: 756:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 756:
GGGCGGCATG 10
- (2) INFORMATION FOR SEQ ID NO: 757:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 757:
GGCGGCATGG CGGGCACAGG CTGGGC 26
- (2) INFORMATION FOR SEQ ID NO: 758:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 758:
GGCGGCATGG CGGGCACAGG CTGGG 25

-continued

(2) INFORMATION FOR SEQ ID NO: 759:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 759:

GCGGCATGG CGGGCACAGG CTGG

24

(2) INFORMATION FOR SEQ ID NO: 760:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 760:

GCGGCATGG CGGGCACAGG CTG

23

(2) INFORMATION FOR SEQ ID NO: 761:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 761:

GCGGCATGG CGGGCACAGG CT

22

(2) INFORMATION FOR SEQ ID NO: 762:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 762:

GCGGCATGG CGGGCACAGG C

21

(2) INFORMATION FOR SEQ ID NO: 763:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 763:

GCGGCATGG CGGGCACAGG

20

(2) INFORMATION FOR SEQ ID NO: 764:

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 764:
 GGCGGCATGG CGGGCACAG 19
- (2) INFORMATION FOR SEQ ID NO: 765:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 765:
 GGCGGCATGG CGGGCACA 18
- (2) INFORMATION FOR SEQ ID NO: 766:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 766:
 GGCGGCATGG CGGGCAC 17
- (2) INFORMATION FOR SEQ ID NO: 767:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 767:
 GGCGGCATGG CGGGCA 16
- (2) INFORMATION FOR SEQ ID NO: 768:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 768:
 GGCGGCATGG CGGGC 15
- (2) INFORMATION FOR SEQ ID NO: 769:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 769:

GGCGGCATGG CGGG 14

(2) INFORMATION FOR SEQ ID NO: 770:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 770:

GGCGGCATGG CGG 13

(2) INFORMATION FOR SEQ ID NO: 771:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 771:

GGCGGCATGG CG 12

(2) INFORMATION FOR SEQ ID NO: 772:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 772:

GGCGGCATGG C 11

(2) INFORMATION FOR SEQ ID NO: 773:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 773:

GGCGGCATGG 10

(2) INFORMATION FOR SEQ ID NO: 774:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 25 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 774:
 GCGGCATGGC GGGCACAGGC TGGGC 25

(2) INFORMATION FOR SEQ ID NO: 775:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 775:
 GCGGCATGGC GGGCACAGGC TGGG 24

(2) INFORMATION FOR SEQ ID NO: 776:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 23 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 776:
 GCGGCATGGC GGGCACAGGC TGG 23

(2) INFORMATION FOR SEQ ID NO: 777:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 777:
 GCGGCATGGC GGGCACAGGC TG 22

(2) INFORMATION FOR SEQ ID NO: 778:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 778:
 GCGGCATGGC GGGCACAGGC T 21

(2) INFORMATION FOR SEQ ID NO: 779:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 779:
 GCGGCATGGC GGGCACAGGC 20

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(2) INFORMATION FOR SEQ ID NO: 780:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 780:

GCGGCATGGC GGGCACAGG

19

(2) INFORMATION FOR SEQ ID NO: 781:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 781:

GCGGCATGGC GGGCACAG

18

(2) INFORMATION FOR SEQ ID NO: 782:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 782:

GCGGCATGGC GGGCACA

17

(2) INFORMATION FOR SEQ ID NO: 783:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 783:

GCGGCATGGC GGGCAC

16

(2) INFORMATION FOR SEQ ID NO: 784:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 784:

GCGGCATGGC GGGCA

15

(2) INFORMATION FOR SEQ ID NO: 785:

- (i) SEQUENCE CHARACTERISTICS:

-continued

(A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 785:
 GCGGCATGGC GGGC 14

(2) INFORMATION FOR SEQ ID NO: 786:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 786:
 GCGGCATGGC GGG 13

(2) INFORMATION FOR SEQ ID NO: 787:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 787:
 GCGGCATGGC GG 12

(2) INFORMATION FOR SEQ ID NO: 788:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 11 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 788:
 GCGGCATGGC G 11

(2) INFORMATION FOR SEQ ID NO: 789:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 789:
 GCGGCATGGC 10

(2) INFORMATION FOR SEQ ID NO: 790:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 790:

CGGCATGGCG GGCACAGGCT GGGC 24

(2) INFORMATION FOR SEQ ID NO: 791:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 791:

CGGCATGGCG GGCACAGGCT GGG 23

(2) INFORMATION FOR SEQ ID NO: 792:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 792:

CGGCATGGCG GGCACAGGCT GG 22

(2) INFORMATION FOR SEQ ID NO: 793:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 793:

CGGCATGGCG GGCACAGGCT G 21

(2) INFORMATION FOR SEQ ID NO: 794:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 794:

CGGCATGGCG GGCACAGGCT 20

(2) INFORMATION FOR SEQ ID NO: 795:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 19 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 795:

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| | |
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| CGGCATGGCG GGCACAGGC | 19 |
| (2) INFORMATION FOR SEQ ID NO: 796: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 18 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 796: | |
| CGGCATGGCG GGCACAGG | 18 |
| (2) INFORMATION FOR SEQ ID NO: 797: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 17 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 797: | |
| CGGCATGGCG GGCACAG | 17 |
| (2) INFORMATION FOR SEQ ID NO: 798: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 16 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 798: | |
| CGGCATGGCG GGCACA | 16 |
| (2) INFORMATION FOR SEQ ID NO: 799: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 15 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 799: | |
| CGGCATGGCG GGCAC | 15 |
| (2) INFORMATION FOR SEQ ID NO: 800: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 14 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 800: | |
| CGGCATGGCG GGCA | 14 |

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(2) INFORMATION FOR SEQ ID NO: 801:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 801:

CGGCATGGCG GGC

13

(2) INFORMATION FOR SEQ ID NO: 802:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 802:

CGGCATGGCG GG

12

(2) INFORMATION FOR SEQ ID NO: 803:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 803:

CGGCATGGCG G

11

(2) INFORMATION FOR SEQ ID NO: 804:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 804:

CGGCATGGCG

10

(2) INFORMATION FOR SEQ ID NO: 805:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 805:

GGCATGGCGG GCACAGGCTG GGC

23

(2) INFORMATION FOR SEQ ID NO: 806:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 806:
GGCATGGCGG GCACAGGCTG GG 22

(2) INFORMATION FOR SEQ ID NO: 807:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 807:
GGCATGGCGG GCACAGGCTG G 21

(2) INFORMATION FOR SEQ ID NO: 808:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 808:
GGCATGGCGG GCACAGGCTG 20

(2) INFORMATION FOR SEQ ID NO: 809:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 809:
GGCATGGCGG GCACAGGCT 19

(2) INFORMATION FOR SEQ ID NO: 810:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 810:
GGCATGGCGG GCACAGGC 18

(2) INFORMATION FOR SEQ ID NO: 811:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 811:

GGCATGGCGG GCACAGG 17

(2) INFORMATION FOR SEQ ID NO: 812:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 812:

GGCATGGCGG GCACAG 16

(2) INFORMATION FOR SEQ ID NO: 813:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 813:

GGCATGGCGG GCACA 15

(2) INFORMATION FOR SEQ ID NO: 814:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 814:

GGCATGGCGG GCAC 14

(2) INFORMATION FOR SEQ ID NO: 815:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 815:

GGCATGGCGG GCA 13

(2) INFORMATION FOR SEQ ID NO: 816:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 816:

-continued

GGCATGGCGG GC

12

(2) INFORMATION FOR SEQ ID NO: 817:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 817:

GGCATGGCGG G

11

(2) INFORMATION FOR SEQ ID NO: 818:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 818:

GGCATGGCGG

10

(2) INFORMATION FOR SEQ ID NO: 819:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 819:

GCATGGCGGG CACAGGCTGG GC

22

(2) INFORMATION FOR SEQ ID NO: 820:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 820:

GCATGGCGGG CACAGGCTGG G

21

(2) INFORMATION FOR SEQ ID NO: 821:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 821:

GCATGGCGGG CACAGGCTGG

20

(2) INFORMATION FOR SEQ ID NO: 822:

-continued

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 822:
 GCATGGCGGG CACAGGCTG 19
- (2) INFORMATION FOR SEQ ID NO: 823:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 823:
 GCATGGCGGG CACAGGCT 18
- (2) INFORMATION FOR SEQ ID NO: 824:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 824:
 GCATGGCGGG CACAGGC 17
- (2) INFORMATION FOR SEQ ID NO: 825:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 825:
 GCATGGCGGG CACAGG 16
- (2) INFORMATION FOR SEQ ID NO: 826:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 826:
 GCATGGCGGG CACAG 15
- (2) INFORMATION FOR SEQ ID NO: 827:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 827:

GCATGGCGGG CACA 14

(2) INFORMATION FOR SEQ ID NO: 828:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 828:

GCATGGCGGG CAC 13

(2) INFORMATION FOR SEQ ID NO: 829:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 829:

GCATGGCGGG CA 12

(2) INFORMATION FOR SEQ ID NO: 830:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 830:

GCATGGCGGG C 11

(2) INFORMATION FOR SEQ ID NO: 831:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 831:

GCATGGCGGG 10

(2) INFORMATION FOR SEQ ID NO: 832:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 832:
CATGGCGGGC ACAGGCTGGG C 21

(2) INFORMATION FOR SEQ ID NO: 833:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 833:
CATGGCGGGC ACAGGCTGGG 20

(2) INFORMATION FOR SEQ ID NO: 834:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 834:
CATGGCGGGC ACAGGCTGG 19

(2) INFORMATION FOR SEQ ID NO: 835:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 835:
CATGGCGGGC ACAGGCTG 18

(2) INFORMATION FOR SEQ ID NO: 836:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 836:
CATGGCGGGC ACAGGCT 17

(2) INFORMATION FOR SEQ ID NO: 837:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULE TYPE: DNA (genomic)
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 837:
CATGGCGGGC ACAGGC 16

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(2) INFORMATION FOR SEQ ID NO: 838:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 838:

CATGGCGGGC ACAGG

15

(2) INFORMATION FOR SEQ ID NO: 839:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 839:

CATGGCGGGC ACAG

14

(2) INFORMATION FOR SEQ ID NO: 840:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 840:

CATGGCGGGC ACA

13

(2) INFORMATION FOR SEQ ID NO: 841:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 841:

CATGGCGGGC AC

12

(2) INFORMATION FOR SEQ ID NO: 842:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 842:

CATGGCGGGC A

11

(2) INFORMATION FOR SEQ ID NO: 843:

-continued

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 843:
 CATGGCGGGC 10
- (2) INFORMATION FOR SEQ ID NO: 844:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 20 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 844:
 ATGGCGGGCA CAGGCTGGG 20
- (2) INFORMATION FOR SEQ ID NO: 845:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 845:
 ATGGCGGGCA CAGGCTGGG 19
- (2) INFORMATION FOR SEQ ID NO: 846:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 846:
 ATGGCGGGCA CAGGCTGG 18
- (2) INFORMATION FOR SEQ ID NO: 847:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 847:
 ATGGCGGGCA CAGGCTG 17
- (2) INFORMATION FOR SEQ ID NO: 848:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

-continued

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 848:

ATGGCGGGCA CAGGCT 16

(2) INFORMATION FOR SEQ ID NO: 849:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 849:

ATGGCGGGCA CAGGC 15

(2) INFORMATION FOR SEQ ID NO: 850:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 14 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 850:

ATGGCGGGCA CAGG 14

(2) INFORMATION FOR SEQ ID NO: 851:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 851:

ATGGCGGGCA CAG 13

(2) INFORMATION FOR SEQ ID NO: 852:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 852:

ATGGCGGGCA CA 12

(2) INFORMATION FOR SEQ ID NO: 853:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 853:
 ATGGCGGGCA C 11

(2) INFORMATION FOR SEQ ID NO: 854:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 854:
 ATGGCGGGCA 10

(2) INFORMATION FOR SEQ ID NO: 855:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 19 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 855:
 TGGCGGGCAC AGGCTGGG 19

(2) INFORMATION FOR SEQ ID NO: 856:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 856:
 TGGCGGGCAC AGGCTGGG 18

(2) INFORMATION FOR SEQ ID NO: 857:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 857:
 TGGCGGGCAC AGGCTGG 17

(2) INFORMATION FOR SEQ ID NO: 858:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 858:
 TGGCGGGCAC AGGCTG 16

-continued

(2) INFORMATION FOR SEQ ID NO: 859:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 859:

TGGCGGGCAC AGGCT

15

(2) INFORMATION FOR SEQ ID NO: 860:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 860:

TGGCGGGCAC AGGC

14

(2) INFORMATION FOR SEQ ID NO: 861:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 861:

TGGCGGGCAC AGG

13

(2) INFORMATION FOR SEQ ID NO: 862:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 862:

TGGCGGGCAC AG

12

(2) INFORMATION FOR SEQ ID NO: 863:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 863:

TGGCGGGCAC A

11

(2) INFORMATION FOR SEQ ID NO: 864:

- (i) SEQUENCE CHARACTERISTICS:

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| <ul style="list-style-type: none"> (A) LENGTH: 10 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 864: | |
| TGGCGGGCAC | 10 |
| (2) INFORMATION FOR SEQ ID NO: 865: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 18 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 865: | |
| GGCGGGCACA GGCTGGGC | 18 |
| (2) INFORMATION FOR SEQ ID NO: 866: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 17 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 866: | |
| GGCGGGCACA GGCTGGG | 17 |
| (2) INFORMATION FOR SEQ ID NO: 867: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 16 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 867: | |
| GGCGGGCACA GGCTGG | 16 |
| (2) INFORMATION FOR SEQ ID NO: 868: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 15 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 868: | |
| GGCGGGCACA GGCTG | 15 |
| (2) INFORMATION FOR SEQ ID NO: 869: | |
| <ul style="list-style-type: none"> (i) SEQUENCE CHARACTERISTICS: <ul style="list-style-type: none"> (A) LENGTH: 14 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear | |

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 869:

GCGGGGCACA GGCT 14

(2) INFORMATION FOR SEQ ID NO: 870:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 13 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 870:

GCGGGGCACA GGC 13

(2) INFORMATION FOR SEQ ID NO: 871:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 871:

GCGGGGCACA GG 12

(2) INFORMATION FOR SEQ ID NO: 872:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 872:

GCGGGGCACA G 11

(2) INFORMATION FOR SEQ ID NO: 873:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 873:

GCGGGGCACA 10

(2) INFORMATION FOR SEQ ID NO: 874:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 874:

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| | |
|--|----|
| GCGGGCACAG GCTGGGC | 17 |
| (2) INFORMATION FOR SEQ ID NO: 875: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 16 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 875: | |
| GCGGGCACAG GCTGGG | 16 |
| (2) INFORMATION FOR SEQ ID NO: 876: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 15 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 876: | |
| GCGGGCACAG GCTGG | 15 |
| (2) INFORMATION FOR SEQ ID NO: 877: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 14 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 877: | |
| GCGGGCACAG GCTG | 14 |
| (2) INFORMATION FOR SEQ ID NO: 878: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 13 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 878: | |
| GCGGGCACAG GCT | 13 |
| (2) INFORMATION FOR SEQ ID NO: 879: | |
| (i) SEQUENCE CHARACTERISTICS: | |
| (A) LENGTH: 12 base pairs | |
| (B) TYPE: nucleic acid | |
| (C) STRANDEDNESS: single | |
| (D) TOPOLOGY: linear | |
| (ii) MOLECULE TYPE: DNA (genomic) | |
| (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 879: | |
| GCGGGCACAG GC | 12 |

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(2) INFORMATION FOR SEQ ID NO: 880:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 880:

GCGGGCACAG G

11

(2) INFORMATION FOR SEQ ID NO: 881:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 881:

GCGGGCACAG

10

(2) INFORMATION FOR SEQ ID NO: 882:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 882:

CGGGCACAGG CTGGGC

16

(2) INFORMATION FOR SEQ ID NO: 883:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 883:

CGGGCACAGG CTGGG

15

(2) INFORMATION FOR SEQ ID NO: 884:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 884:

CGGGCACAGG CTGG

14

(2) INFORMATION FOR SEQ ID NO: 885:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 885:

CGGGCACAGG CTG 13

(2) INFORMATION FOR SEQ ID NO: 886:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 886:

CGGGCACAGG CT 12

(2) INFORMATION FOR SEQ ID NO: 887:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 887:

CGGGCACAGG C 11

(2) INFORMATION FOR SEQ ID NO: 888:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 888:

CGGGCACAGG 10

(2) INFORMATION FOR SEQ ID NO: 889:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 15 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 889:

GGGCACAGGC TGGGC 15

(2) INFORMATION FOR SEQ ID NO: 890:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 890:

GGGCACAGGC TGGG 14

(2) INFORMATION FOR SEQ ID NO: 891:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 891:

GGGCACAGGC TGG 13

(2) INFORMATION FOR SEQ ID NO: 892:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 892:

GGGCACAGGC TG 12

(2) INFORMATION FOR SEQ ID NO: 893:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 893:

GGGCACAGGC T 11

(2) INFORMATION FOR SEQ ID NO: 894:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 894:

GGGCACAGGC 10

(2) INFORMATION FOR SEQ ID NO: 895:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 895:

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GGCACAGGCT GGGC

14

(2) INFORMATION FOR SEQ ID NO: 896:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 896:

GGCACAGGCT GGG

13

(2) INFORMATION FOR SEQ ID NO: 897:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 897:

GGCACAGGCT GG

12

(2) INFORMATION FOR SEQ ID NO: 898:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 898:

GGCACAGGCT G

11

(2) INFORMATION FOR SEQ ID NO: 899:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 899:

GGCACAGGCT

10

(2) INFORMATION FOR SEQ ID NO: 900:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 900:

GCACAGGCTG GGC

13

(2) INFORMATION FOR SEQ ID NO: 901:

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- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 901:
- GCACAGGCTG GG 12
- (2) INFORMATION FOR SEQ ID NO: 902:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 902:
- GCACAGGCTG G 11
- (2) INFORMATION FOR SEQ ID NO: 903:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 903:
- GCACAGGCTG 10
- (2) INFORMATION FOR SEQ ID NO: 904:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 12 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 904:
- CACAGGCTGG GC 12
- (2) INFORMATION FOR SEQ ID NO: 905:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 905:
- CACAGGCTGG G 11
- (2) INFORMATION FOR SEQ ID NO: 906:
- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid

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(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 906:

CACAGGCTGG 10

(2) INFORMATION FOR SEQ ID NO: 907:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 907:

ACAGGCTGGG C 11

(2) INFORMATION FOR SEQ ID NO: 908:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 908:

ACAGGCTGGG 10

(2) INFORMATION FOR SEQ ID NO: 909:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 909:

CAGGCTGGGC 10

(2) INFORMATION FOR SEQ ID NO: 910:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 51 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 910:

GCGGCCTGG AAAGCTGAGA TGGAGGCGG CATGGCGGC ACAGGCTGGG C 51

(2) INFORMATION FOR SEQ ID NO: 911:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 50 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 911:
 GCGGCCTGGA AAGCTGAGAT GGAGGGCGGC ATGGCGGGCA CAGGCTGGGC 50
- (2) INFORMATION FOR SEQ ID NO: 912:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 49 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 912:
 CGGCCTGGAA AGCTGAGATG GAGGGCGGCA TGGCGGGCAC AGGCTGGGC 49
- (2) INFORMATION FOR SEQ ID NO: 913:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 48 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 913:
 GGCCCTGGAAA GCTGAGATGG AGGGCGGCAT GCGGGGCACA GGCTGGGC 48
- (2) INFORMATION FOR SEQ ID NO: 914:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 47 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 914:
 GCCTGGAAAG CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGGGC 47
- (2) INFORMATION FOR SEQ ID NO: 915:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 46 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 915:
 CCTGGAAAGC TGAGATGGAG GCGGCATGG CGGGCACAGG CTGGGC 46
- (2) INFORMATION FOR SEQ ID NO: 916:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 45 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 916:
 CTGGAAAGCT GAGATGGAGG GCGGCATGGC GGGCACAGGC TGGGC 45

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(2) INFORMATION FOR SEQ ID NO: 917:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 44 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 917:

TGAAAAGCTG AGATGGAGGG CGGCATGGCG GGCACAGGCT GGCC

44

(2) INFORMATION FOR SEQ ID NO: 918:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 43 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 918:

GGAAAGCTGA GATGGAGGGC GGCATGGCGG GCACAGGCTG GGC

43

(2) INFORMATION FOR SEQ ID NO: 919:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 42 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 919:

GAAAGCTGAG ATGGAGGGCG GCATGGCGGG CACAGGCTGG GC

42

(2) INFORMATION FOR SEQ ID NO: 920:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 41 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 920:

AAAGCTGAGA TGGAGGGCGG CATGGCGGC ACAGGCTGGG C

41

(2) INFORMATION FOR SEQ ID NO: 921:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 40 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 921:

AAGCTGAGAT GGAGGGCGG ATGGCGGCA CAGGCTGGG

40

(2) INFORMATION FOR SEQ ID NO: 922:

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- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 39 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 922:
 AGCTGAGATG GAGGGCGGCA TGGCGGCAC AGGCTGGGC 39
- (2) INFORMATION FOR SEQ ID NO: 923:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 38 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 923:
 GCTGAGATGG AGGGCGGCAT GCGGGCACA GGCTGGGC 38
- (2) INFORMATION FOR SEQ ID NO: 924:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 37 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 924:
 CTGAGATGGA GGGCGGCATG GCGGGCACAG GCTGGGC 37
- (2) INFORMATION FOR SEQ ID NO: 925:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 36 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 925:
 TGAGATGGAG GCGGCATGG CGGGCACAGG CTGGGC 36
- (2) INFORMATION FOR SEQ ID NO: 926:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 926:
 GAGATGGAGG GCGGCATGGC GGGCACAGC TGGGC 35
- (2) INFORMATION FOR SEQ ID NO: 927:
- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 34 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 927:

AGATGGAGGG CGGCATGGCG GGCACAGGCT GGGC 34

(2) INFORMATION FOR SEQ ID NO: 928:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 33 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 928:

GATGGAGGGC GGCATGGCGG GCACAGGCTG GGC 33

(2) INFORMATION FOR SEQ ID NO: 929:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 929:

ATGGAGGGCG GCATGGCGGG CACAGGCTGG GC 32

(2) INFORMATION FOR SEQ ID NO: 930:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 31 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 930:

TGGAGGGCGG CATGGCGGGC ACAGGCTGGG C 31

(2) INFORMATION FOR SEQ ID NO: 931:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 931:

GGAGGGCGGC ATGGCGGGCA CAGGCTGGGC 30

(2) INFORMATION FOR SEQ ID NO: 932:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 932:
GAGGGCGGCA TGGCGGGCAC AGGCTGGGC 29

(2) INFORMATION FOR SEQ ID NO: 933:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 28 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 933:
AGGGCGGCAT GCGGGGCACA GGCTGGGC 28

(2) INFORMATION FOR SEQ ID NO: 934:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 27 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 934:
GGGCGGCATG GCGGGCACAG GCTGGGC 27

(2) INFORMATION FOR SEQ ID NO: 935:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 935:
GGCGGCATGG CGGGCACAGG CTGGGC 26

(2) INFORMATION FOR SEQ ID NO: 936:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 936:
GCGGCATGGC GGGCACAGG TGGGC 25

(2) INFORMATION FOR SEQ ID NO: 937:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 24 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 937:
CGGCATGGCG GGCACAGGCT GGGC 24

-continued

(2) INFORMATION FOR SEQ ID NO: 938:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 23 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 938:

GGCATGGCGG GCACAGGCTG GGC

23

(2) INFORMATION FOR SEQ ID NO: 939:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 22 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 939:

GCATGGCGGG CACAGGCTGG GC

22

(2) INFORMATION FOR SEQ ID NO: 940:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 940:

CATGGCGGGC ACAGGCTGG C

21

(2) INFORMATION FOR SEQ ID NO: 941:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 20 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 941:

ATGGCGGGCA CAGGCTGGG C

20

(2) INFORMATION FOR SEQ ID NO: 942:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 942:

TGGCGGGCAC AGGCTGGG C

19

(2) INFORMATION FOR SEQ ID NO: 943:

- (i) SEQUENCE CHARACTERISTICS:

-continued

(A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 943:
 GCGGGCACA GGCTGGGC 18

(2) INFORMATION FOR SEQ ID NO: 944:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 944:
 GCGGGCACAG GCTGGGC 17

(2) INFORMATION FOR SEQ ID NO: 945:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 16 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 945:
 CGGGCACAGG CTGGGC 16

(2) INFORMATION FOR SEQ ID NO: 946:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 946:
 GGGCACAGGC TGGGC 15

(2) INFORMATION FOR SEQ ID NO: 947:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 947:
 GGCACAGGCT GGGC 14

(2) INFORMATION FOR SEQ ID NO: 948:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 13 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 948:

GCACAGGCTG GGC 13

(2) INFORMATION FOR SEQ ID NO: 949:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 949:

CACAGGCTGG GC 12

(2) INFORMATION FOR SEQ ID NO: 950:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 950:

ACAGGCTGGG C 11

(2) INFORMATION FOR SEQ ID NO: 951:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 951:

CAGGCTGGGC 10

(2) INFORMATION FOR SEQ ID NO: 952:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 952:

AGGCTGGGC 9

(2) INFORMATION FOR SEQ ID NO: 953:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 953:

-continued

TTT TCC TTC CTT TGT CTC TCT TC 23

(2) INFORMATION FOR SEQ ID NO: 954:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 954:

GCT CCC GGC TGC CTG 15

(2) INFORMATION FOR SEQ ID NO: 955:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 29 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 955:

CTC GGC CGT GCG GCT CTG TCG CTC CCG GT 29

(2) INFORMATION FOR SEQ ID NO: 956:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 956:

CCG CCG CCC TCC GGG GGG TC 20

(2) INFORMATION FOR SEQ ID NO: 957:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 18 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 957:

TGC TGC CGT TGG CTG CCC 18

(2) INFORMATION FOR SEQ ID NO: 958:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 958:

CTT CTG CGG GTC GCC GG 17

-continued

(2) INFORMATION FOR SEQ ID NO: 959:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 959:

TGC TGG GCT TGT GGC

15

(2) INFORMATION FOR SEQ ID NO: 960:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 960:

GGC CTC TCT TCT GGG

15

(2) INFORMATION FOR SEQ ID NO: 961:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 961:

CCT GGT CCC TCC GT

14

(2) INFORMATION FOR SEQ ID NO: 962:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 14 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 962:

GGT GGC TCC TCT GC

14

(2) INFORMATION FOR SEQ ID NO: 963:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 18 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 963:

GCT TGG TCC TGG GGC TGC

18

(2) INFORMATION FOR SEQ ID NO: 964:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 15 base pairs

-continued

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 964:

TGC TCT CCT CTC CTT 15

(2) INFORMATION FOR SEQ ID NO: 965:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 965:

TGC TTT TCT TTT CTG GGC CTC 21

(2) INFORMATION FOR SEQ ID NO: 966:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 19 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 966:

TGT GGT CTG TTT TTT TCT G 19

(2) INFORMATION FOR SEQ ID NO: 967:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 967:

GCC CTG CTG GGG CGC TCT CC 20

(2) INFORMATION FOR SEQ ID NO: 968:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 968:

GCC GCC CGC CTG GCT CCC 18

(2) INFORMATION FOR SEQ ID NO: 969:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

-continued

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 969:

GGB GCC CBT GBT GGG CBT GCC 21

(2) INFORMATION FOR SEQ ID NO: 970:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 970:

GTG GTT CTT GCC CTC CTT TGG CTG 24

(2) INFORMATION FOR SEQ ID NO: 971:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 971:

CCG TGC CCG CTC CCC GGC 18

(2) INFORMATION FOR SEQ ID NO: 972:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 972:

CTC CTG GCG GGT GGC CGT TG 20

(2) INFORMATION FOR SEQ ID NO: 973:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 973:

GGC CCG TGT TCC CCT GGG 18

(2) INFORMATION FOR SEQ ID NO: 974:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 974:

-continued

GCC TGG GGC TCC CTT CTC TC

20

(2) INFORMATION FOR SEQ ID NO: 975:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 19 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 975:

GCC CTT CTT GCT GGG CCT C

19

(2) INFORMATION FOR SEQ ID NO: 976:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 25 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 976:

TGC TGC TGC TGG TGC TGT GGC CCC C

25

(2) INFORMATION FOR SEQ ID NO: 977:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 977:

GTA CAC CGA GGA GCC CAT GAT GGG CAT GCC ACA GAC GAC AGG C

43

(2) INFORMATION FOR SEQ ID NO: 978:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 43 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 978:

GTB CBC CGB GGB GCC CBT GBT GGG CBT GCC BCB GBC GBC BGG C

43

(2) INFORMATION FOR SEQ ID NO: 979:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 29 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 979:

GGC GCC GTG CCG CGT CTT GGT GGC GGC GG

29

(2) INFORMATION FOR SEQ ID NO: 980:

-continued

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 30 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 980:

GTT CGC GCC CGC GCG GGG CCC CTC CGG TCC 30

(2) INFORMATION FOR SEQ ID NO: 981:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 35 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 981:

TTG GCC CGC GCG CCC GCC CGT CTC GGG CTG GGC GG 35

(2) INFORMATION FOR SEQ ID NO: 982:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 22 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 982:

CGG GTC GGG GCC CCC CGC GGC C 22

(2) INFORMATION FOR SEQ ID NO: 983:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 29 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 983:

GCC TCG GGG CTG GGG CGC TGG TGG CCG GG 29

(2) INFORMATION FOR SEQ ID NO: 984:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 24 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 984:

CCG CGC CTC CGC CTG CCG CTT CTG 24

(2) INFORMATION FOR SEQ ID NO: 985:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 21 base pairs
 (B) TYPE: nucleic acid

-continued

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 985:

GCT GGG CCC CGG GCG CCC CCT 21

(2) INFORMATION FOR SEQ ID NO: 986:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 986:

CCC CTC TTG CTC GGG TCC CCG TG 23

(2) INFORMATION FOR SEQ ID NO: 987:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 48 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 987:

ACA GCG CGT CCT GTG TCT CCA GCA GCA TGG CCG GGC CAG CTG GGC CCC 48

(2) INFORMATION FOR SEQ ID NO: 988:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 48 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 988:

BCB GCG CGT CCT GTG TCT CCB GCB GCB TGG CCG GGC CBG CTG GGC CCC 48

(2) INFORMATION FOR SEQ ID NO: 989:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 989:

ACA GAG CAT GCT GTT GTT GGG CAT CTT GCC TTC CCA GGG 39

(2) INFORMATION FOR SEQ ID NO: 990:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

-continued

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 990:
 BCB GBG CBT GCT GTT GTT GGG CBT CTT GCC TTC CCB GGG 39

(2) INFORMATION FOR SEQ ID NO: 991:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 991:
 CCC TTT TCT GGT GGG GTG 18

(2) INFORMATION FOR SEQ ID NO: 992:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 992:
 GTG CTG TTG TTG GGC 15

(2) INFORMATION FOR SEQ ID NO: 993:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 993:
 TTT CTT CTG TTC CC 14

(2) INFORMATION FOR SEQ ID NO: 994:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 18 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 994:
 CCC TTT TCT GGT GGG GTG 18

(2) INFORMATION FOR SEQ ID NO: 995:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
 (ii) MOLECULE TYPE: DNA (genomic)
 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 995:
 GTG CTG TTG TTG GGC 15

-continued

(2) INFORMATION FOR SEQ ID NO: 996:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 14 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 996:

TTT CTT CTG TTC CC

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What is claimed as being novel & unobvious in United States Letters Patent is:

1. An in vivo method of delivering a pharmaceutical composition to a target polynucleotide comprising administering to the airways of a subject said pharmaceutical composition of a respirable or inhalable particle size of about 0.5 μm to 500 μm in size comprising at least one oligonucleotide effective to alleviate hyper-responsiveness to adenosine or increased levels of adenosine, or to alleviate bronchoconstriction, asthma, or lung allergy, wherein the oligonucleotide is 4 to 60 nucleotides long and comprises 15% or less adenosine, wherein said oligonucleotide is antisense to a gene encoding an adenosine receptor associated with bronchoconstriction, and selected from the group consisting of genes encoding an adenosine A_1 receptor, adenosine A_{2b} receptor or adenosine A_3 receptor.
2. The method of claim 1, wherein the oligonucleotide comprises 10% or less adenosine.
3. The method of claim 2, wherein the oligonucleotide comprises 3% or less adenosine.
4. The method of claim 3, wherein the oligonucleotide is adenosine-free.
5. The method of claim 1, wherein the oligonucleotide is 9 to 51 nucleotides long.
6. The method of claim 5, wherein the oligonucleotide is 18 or 21 nucleotides long.
7. The method of claim 1, wherein the pharmaceutical composition is administered by inhalation directly to the airway or lung of the subject.
8. The method of claim 1, wherein the oligonucleotide is antisense to the initiation codon, the coding region or the 5' or 3' intron-exon junction of a gene encoding an adenosine receptor associated with bronchoconstriction, and selected from the group consisting of genes encoding an adenosine A_1 receptor, adenosine A_{2b} receptor or adenosine A_3 receptor and it is associated with hyper-responsiveness to adenosine, hyper-responsiveness to increased levels of adenosine, hyper-responsiveness to increased levels of an adenosine receptor, bronchoconstriction, asthma, lung allergy, or lung inflammation, or is antisense to the corresponding mRNA thereof.
9. The method of claim 1, wherein the particle size is about 0.5 μm to about 10 μm in size.
10. The method of claim 1, wherein the particle size is 10 μm to 500 μm in size.
11. The method of claim 1, wherein the pharmaceutical composition further comprises a surfactant.
12. The method of claim 1, wherein the hyper-responsiveness to adenosine, hyper-responsiveness to

increased levels of adenosine, hyper-responsiveness to increased levels of an adenosine receptor, bronchoconstriction, asthma, lung allergy, or lung inflammation is associated with allergy, chronic obstructive pulmonary disease, asthma, acute respiratory distress syndrome, respiratory distress syndrome, or a side effect of adenosine administration.

13. The method of claim 1, wherein the nucleic acid is administered in an amount of about 0.005 to about 150 mg/kg body weight.

14. The method of claim 1, wherein said method is a prophylactic or therapeutic method.

15. The method of claim 1, wherein the oligonucleotide is antisense to the initiation codon, the coding region or the 5' or 3' intron-exon junctions of a gene encoding an adenosine A_1 receptor, adenosine A_{2b} receptor or adenosine A_3 receptor.

16. An in vivo method of delivering a pharmaceutical composition to a target polynucleotide comprising administering to the airways of a subject said pharmaceutical composition of a respirable or inhalable particle size of about 0.5 μm to 500 μm in size comprising at least one oligonucleotide, wherein the oligonucleotide comprises the sequence of SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7 to SEQ ID NO: 966, or SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5 or SEQ ID NO: 7 to SEQ ID NO: 966, wherein at least one mononucleotide is linked or modified by one or more of phosphorothioate, phosphorodithioate, methylphosphonate, phosphoramidate, boranophosphate, phosphotriester, formacetal, 2'-O-methyl, thioformacetal, 5'-thioether, carbonate, 5'-N-carbamate, sulfate, sulfonate, sulfamate, sulfonamide, sulfone, sulfite, sulfoxide, sulfide, hydroxylamine, methylene (methylimino) and methyleneoxy (methylimino), terminal 1,3-propanediol, terminal dodecanol, 2-O-methoxyethyl, C-5-propynyl pyrimidine, C-5 methyl cytidine, C-5 ethynyl pyrimidine, 2' propoxy, C-18 amine, N3'-P5 phosphoramidates, 3'-alkylamino, 2'-fluoro pyrimidine, 5-fluoro pyrimidine, 5-iodo pyrimidine, 5-bromo pyrimidine, 2'-borano, C-5 hexynyl pyrimidine, 2'-O-(2-methoxy)ethyl, 2'-O-aminopropyl, 5-(phenylethyl) or a peptide nucleic acid interbase linkages or conjugated to a polyethylene glycol, cholesterol, cholesteryl, dehydroepiandrosterone, dehydroepiandrosterone sulfate, dehydroepiandrosterone sulfatide, ubiquinone, dolichol, poly L-lysine, sulfatidic acid or a fatty acid.

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