(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 June 2016 (30.06.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/106401 A2

(51) International Patent Classification: Not classified

(21) International Application Number:
PCT/US2015/067556

(22) International Filing Date:
28 December 2015 (28.12.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2014-266198 26 December 2014 (26.12.2014) JP
62/184,209 24 June 2015 (24.06.2015) US
62/266,668 13 December 2015 (13.12.2015) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

— *with sequence listing part of description (Rule 5.2(a))*

(54) Title: RNA AGENTS FOR P21 GENE MODULATION

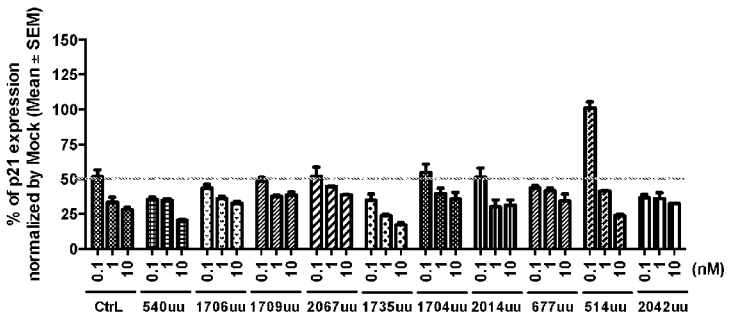

FIG. 2

(57) Abstract: This invention provides compounds, compositions and methods for modulating the expression of human p21 using RNA interference. The RNA interference molecules can be used in methods for preventing or treating diseases such as malignant tumor. A nucleic acid molecule can have a) a polynucleotide sense strand and a polynucleotide antisense strand; b) each strand of the molecule being from 15 to 30 nucleotides in length; c) a contiguous region of from 15 to 30 nucleotides of the antisense strand being complementary to a sequence of an mRNA encoding p21; and d) at least a portion of the sense strand can be complementary to at least a portion of the antisense strand, and the molecule has a duplex region of from 15 to 30 nucleotides in length.

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RNA AGENTS FOR P21 GENE MODULATION

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates to the fields of biopharmaceuticals and therapeutics composed of nucleic acid based molecules. More particularly, this invention relates to compounds and compositions utilizing RNA interference (RNAi) for modulating the expression of human p21.

SEQUENCE LISTING

[0002] This application includes a Sequence Listing submitted electronically as an ASCII file created on December 23, 2015, named ND5123458WO_SL.txt, which is 1,311,243 bytes in size, and is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

[0003] p21 is a cell cycle-regulating protein that is encoded by CDKN1A gene and belongs to the CIP/KIP family. This protein has the function of inhibiting cell cycle progression at the G1 phase and the G2/M phase by inhibiting the effect of a cyclin-CDK complex through binding to the complex. Specifically, the p21 gene undergoes activation by p53, one of tumor suppressor genes. It has been reported that upon activation of p53 due to DNA damage or the like, p53 activates p21 so that the cell cycle is arrested at the G1 phase and the G2/M phase.

[0004] p21 is overexpressed in a variety of human cancers including prostate, cervical, breast and squamous cell carcinomas and, in many cases, p21 upregulation correlates positively with tumor grade, invasiveness and aggressiveness. See, e.g., Chang et al., Proc. Natl. Acad. Sci. USA, 2000, Vol. 97, No. 8, pp. 4291-96. Also, up-regulation of p21 has been reported to be associated with tumorigenicity and poor prognosis in many forms of cancers, including brain, prostate, ovarian, breast, and esophageal cell cancers. See, e.g., Winters et al., Breast Cancer Research, 2003, Vol. 5, No. 6, pp. R242-R249. Also, the disease can be age related diseases, including atherosclerosis,

Alzheimer's disease, amyloidosis, and arthritis. See, e.g., Chang et al., Proc. Natl. Acad. Sci. USA, 2000, Vol. 97, No. 8, pp. 4291-96.

[0005] Therapeutics for inhibition of p21 expression will require highly potent siRNA sequences and structures.

[0006] What is needed are siRNA sequences, compounds and structures for inhibition of p21 expression.

BRIEF SUMMARY

[0007] This invention relates to compounds, compositions and methods for modulating the expression of human p21 using RNA interference.

[0008] In some embodiments, this invention provides molecules for RNA interference gene silencing of p21.

[0009] In further embodiments, the structures, molecules and compositions of this invention can be used in methods for preventing or treating diseases, or ameliorating symptoms of conditions or disorders associated with p21, including malignant tumor.

[0010] Embodiments of this invention include the following:

[0011] A nucleic acid molecule, where a) the molecule has a polynucleotide sense strand and a polynucleotide antisense strand; b) each strand of the molecule is from 15 to 30 nucleotides in length; c) a contiguous region of from 15 to 30 nucleotides of the antisense strand is complementary to a sequence of an mRNA encoding p21; and d) at least a portion of the sense strand is complementary to at least a portion of the antisense strand, and the molecule has a duplex region of from 15 to 30 nucleotides in length.

[0012] In some embodiments, the nucleic acid molecule can have a contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21, and is located in the duplex region of the molecule.

[0013] In additional embodiments, the nucleic acid molecule can have a contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21, and is selected from a sequence of human p21 mRNA in SEQ ID NO:1.

[0014] Embodiments of this invention provide nucleic acid molecules having a contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21, and is selected from a sequence of human p21, wherein the sequence of human p21 is selected from the group of positions 1 to 125 of SEQ ID NO:1, positions 126 to 620 of SEQ ID NO:1, and positions 621 to 2175 of SEQ ID NO:1.

[0015] In certain embodiments, a nucleic acid molecule can have an antisense strand that contains a sequence selected from SEQ ID NOs:2033 to 4063. In further embodiments, a nucleic acid molecule can have an antisense strand that contains a sequence selected from SEQ ID NOs:4092 to 4119.

[0016] Nucleic acid molecules of this invention can be composed of a sense and antisense strand pair selected from the group of SEQ ID NO:4066 and 4094, SEQ ID NO:4067 and 4095, SEQ ID NO:4068 and 4096, SEQ ID NO:4073 and 4101, SEQ ID NO:4075 and 4103, SEQ ID NO:4080 and 4108, SEQ ID NO:4084 and 4112, SEQ ID NO:4085 and 4113, SEQ ID NO:4088 and 4116, and SEQ ID NO:4091 and 4119.

[0017] In further aspects, a nucleic acid molecule of this invention can have each strand of the molecule being from 18 to 22 nucleotides in length. A nucleic acid molecule can have a duplex region of 19 nucleotides in length.

[0018] In certain embodiments, a nucleic acid molecule can have a polynucleotide sense strand and the polynucleotide antisense strand that are connected as a single strand, and form a duplex region connected at one end by a loop.

[0019] The nucleic acid molecules of this invention can have a blunt end, and can have one or more 3' overhangs.

[0020] The nucleic acid molecules of this invention can be RNAi molecules that are active for gene silencing, for example, a dsRNA that is active for gene silencing, a siRNA, a micro-RNA, or a shRNA active for gene silencing, as well as a DNA-directed RNA (ddRNA), a Piwi-interacting RNA (piRNA), and a repeat associated siRNA (rasiRNA).

[0021] This invention provides a range of nucleic acid molecules that are active for inhibiting expression of p21. In some embodiments, the nucleic acid molecule can have an IC50 for knockdown of p21 of less than 100 pM.

[0022] This invention further contemplates compositions containing one or more inventive nucleic acid molecules and a pharmaceutically acceptable carrier. The carrier can be a lipid molecule or liposome.

[0023] In further aspects, this invention includes methods for treating a disease associated with p21 expression, by administering to a subject in need a composition containing one or more inventive nucleic acid molecules. The disease can be malignant tumor, which may be presented in a disease such as cancers associated with p21 expression, among others.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] FIG. 1: Fig. 1 shows SEQ ID NO: 1, which is the nucleic acid sequence of an example target p21 mRNA, disclosed in GenBank accession number NM_000389.4 (CDKN1A), which is 2175 nucleotides in length.

[0025] FIG. 2: Fig. 2 shows p21 siRNAs tested for ability to down regulate p21 mRNA in A549 cells. A549 cells were plated at 2000/well, 24 hours before transfection. Cells were then transfected with p21 siRNAs at 0.1, 1, and 10 nM concentrations for 24 hours. The fold change of p21 expression level was measured using qRT-PCR (n=3).

DETAILED DESCRIPTION OF THE INVENTION

[0026] This invention relates to compounds, compositions and methods for nucleic acid based therapeutics for modulating expression of p21.

[0027] In some embodiments, this invention provides molecules active in RNA interference, as well as structures and compositions that can silence expression of p21.

[0028] The structures and compositions of this disclosure can be used in preventing or treating various diseases such as malignant tumor.

[0029] In further embodiments, this invention provides compositions for delivery and uptake of one or more therapeutic RNAi molecules of this invention, as well as

methods of use thereof. The RNA-based compositions of this invention can be used in methods for preventing or treating malignant tumors, such as cancers.

[0030] Therapeutic compositions of this invention include nucleic acid molecules that are active in RNA interference. The therapeutic nucleic acid molecules can be targeted to CDKN1A (p21) for gene silencing.

[0031] In various embodiments, this invention provides a range of molecules that can be active as a small interfering RNA (siRNA), and can regulate or silence p21 expression.

[0032] The siRNAs of this invention can be used for preventing or treating malignant tumors.

[0033] Embodiments of this invention further provide a vehicle, formulation, or lipid nanoparticle formulation for delivery of the inventive siRNAs to subjects in need of preventing or treating a malignant tumor. This invention further contemplates methods for administering siRNAs as therapeutics to mammals.

[0034] The therapeutic molecules and compositions of this invention can be used for RNA interference directed to preventing or treating a p21 associated disease, by administering a compound or composition to a subject in need.

[0035] The methods of this invention can utilize the inventive compounds for preventing or treating malignant tumor. The malignant tumor can be presented in various diseases, for example, cancers that highly expressing p21, sarcomas, fibrosarcoma, malignant fibrous histiocytoma, liposarcoma, rhabdomyosarcoma, leiomyosarcoma, angiosarcoma, Kaposi's sarcoma, lymphangiosarcoma, synovial sarcoma, chondrosarcoma, osteosarcoma, carcinomas, brain tumor, head and neck cancer, breast cancer, lung cancer, esophageal cancer, stomach cancer, duodenal cancer, appendix cancer, colorectal cancer, rectal cancer, liver cancer, pancreatic cancer, gallbladder cancer, bile duct cancer, anus cancer, kidney cancer, urethral cancer, urinary bladder cancer, prostate cancer, testicular cancer, uterine cancer, ovary cancer, skin cancer, leukemia, malignant lymphoma, epithelial malignant tumors, and non-epithelial malignant tumors.

[0036] In certain embodiments, a combination of therapeutic molecules of this invention can be used for silencing or inhibiting p21 gene expression.

[0037] This invention provides a range of RNAi molecules, where each molecule has a polynucleotide sense strand and a polynucleotide antisense strand; each strand of the molecule is from 15 to 30 nucleotides in length; a contiguous region of from 15 to 30 nucleotides of the antisense strand is complementary to a sequence of an mRNA encoding p21; and at least a portion of the sense strand is complementary to at least a portion of the antisense strand, and the molecule has a duplex region of from 15 to 30 nucleotides in length.

[0038] A RNAi molecule of this invention can have a contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21, which is located in the duplex region of the molecule.

[0039] In some embodiments, a RNAi molecule can have a contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21.

[0040] Embodiments of this invention may further provide methods for preventing, treating or ameliorating one or more symptoms of malignant tumor, or reducing the risk of developing malignant tumor, or delaying the onset of malignant tumor in a mammal in need thereof.

[0041] P21 and RNAi molecules

[0042] p21 is present in various animals including humans. Sequence information for human CDKN1A (p21) is found at: NM_000389.4, NM_078467.2, NM_001291549.1, NM_001220778.1, NM_001220777.1 (NP_001207707.1, NP_001278478.1, NP_001207706.1, NP_510867.1, NP_000380.1).

[0043] Fig. 1 shows the nucleic acid sequence of an example target human p21 mRNA, which is disclosed in GenBank accession number NM_000389.4 (CDKN1A), and is 2175 base pairs in length (SEQ ID NO: 1).

[0044] One of ordinary skill in the art would understand that a reported sequence may change over time and to incorporate any changes needed in the nucleic acid molecules herein accordingly.

[0045] Embodiments of this invention can provide compositions and methods for gene silencing of p21 expression using small nucleic acid molecules. Examples of nucleic acid molecules include molecules active in RNA interference (RNAi molecules), short interfering RNA (siRNA), micro-RNA (miRNA), and short hairpin RNA (shRNA) molecules, as well as DNA-directed RNA (ddRNA), Piwi-interacting RNA (piRNA), and repeat associated siRNA (rasiRNA). Such molecules are capable of mediating RNA interference against p21 gene expression.

[0046] The composition and methods disclosed herein can also be used in treating various kinds of malignant tumors in a subject.

[0047] The nucleic acid molecules and methods of this invention may be used to down regulate the expression of genes that encode p21.

[0048] The compositions and methods of this invention can include one or more nucleic acid molecules, which, independently or in combination, can modulate or regulate the expression of p21 protein and/or genes encoding p21 proteins, proteins and/or genes encoding p21 associated with the maintenance and/or development of diseases, conditions or disorders associated with p21, such as malignant tumor.

[0049] The compositions and methods of this invention are described with reference to exemplary sequences of p21. A person of ordinary skill in the art would understand that various aspects and embodiments of the invention are directed to any related p21 genes, sequences, or variants, such as homolog genes and transcript variants, and polymorphisms, including single nucleotide polymorphism (SNP) associated with any p21 genes.

[0050] In some embodiments, the compositions and methods of this invention can provide a double-stranded short interfering nucleic acid (siRNA) molecule that downregulates the expression of a p21 gene, for example human CDKN1A.

[0051] A RNAi molecule of this invention can be targeted to p21 and any homologous sequences, for example, using complementary sequences or by incorporating non-canonical base pairs, for example, mismatches and/or wobble base pairs, that can provide additional target sequences.

[0052] In instances where mismatches are identified, non-canonical base pairs, for example, mismatches and/or wobble bases can be used to generate nucleic acid molecules that target more than one gene sequence.

[0053] For example, non-canonical base pairs such as UU and CC base pairs can be used to generate nucleic acid molecules that are capable of targeting sequences for differing p21 targets that share sequence homology. Thus, a RNAi molecule can be targeted to a nucleotide sequence that is conserved between homologous genes, and a single RNAi molecule can be used to inhibit expression of more than one gene.

[0054] In some aspects, the compositions and methods of this invention include RNAi molecules that are active against p21 mRNA, where the RNAi molecule includes a sequence complementary to any mRNA encoding a p21 sequence.

[0055] In some embodiments, a RNAi molecule of this disclosure can have activity against p21 RNA, where the RNAi molecule includes a sequence complementary to an RNA having a variant p21 encoding sequence, for example, a mutant p21 gene known in the art to be associated with malignant tumor.

[0056] In further embodiments, a RNAi molecule of this invention can include a nucleotide sequence that can interact with a nucleotide sequence of a p21 gene and mediate silencing of p21 gene expression.

[0057] Examples of RNAi molecules of this invention targeted to p21 mRNA are shown in Tables 1 and 2.

Table 1: RNAi molecule sequences for p21

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
126	2	AUGUCAGAACCGGCUGGGGmUmU	2033	CCCCAGCCGGUUCUGACAUmUmU
127	3	UGUCAGAACCGGCUGGGGAmUmU	2034	UCCCCAGCCGGUUCUGACAmUmU
128	4	GUCAGAACCGGCUGGGGAUmUmU	2035	AUCCCCAGCCGGUUCUGACmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
129	5	UCAGAACCGGCUGGGGAUGmUmU	2036	CAUCCCCAGCCGGUUCUGAmUmU
130	6	CAGAACCGGCUGGGGAUGUmUmU	2037	ACAUCCCCAGCCGGUUCUGmUmU
131	7	AGAACCGGCUGGGGAUGUCmUmU	2038	GACAUCCCCAGCCGGUUCUmUmU
132	8	GAACCGGCUGGGGAUGUCCmUmU	2039	GGACAUCCCCAGCCGGUUCmUmU
133	9	AACCGGCUGGGGAUGUCCGmUmU	2040	CGGACAUCCCCAGCCGGUUmUmU
134	10	ACCGGCUGGGGAUGUCCGUmUmU	2041	ACGGACAUCCCCAGCCGGUmUmU
135	11	CCGGCUGGGGAUGUCCGUCmUmU	2042	GACGGACAUCCCCAGCCGGmUmU
136	12	CGGCUGGGGAUGUCCGUCAmUmU	2043	UGACGGACAUCCCCAGCCGmUmU
137	13	GGCUGGGGAUGUCCGUCAGmUmU	2044	CUGACGGACAUCCCCAGCCmUmU
138	14	GCUGGGGAUGUCCGUCAGAmUmU	2045	UCUGACGGACAUCCCCAGCmUmU
139	15	CUGGGGAUGUCCGUCAGAAmUmU	2046	UUCUGACGGACAUCCCCAGmUmU
140	16	UGGGGAUGUCCGUCAGAACmUmU	2047	GUUCUGACGGACAUCCCCAmUmU
141	17	GGGGAUGUCCGUCAGAACCmUmU	2048	GGUUCUGACGGACAUCCCCmUmU
142	18	GGGAUGUCCGUCAGAACCCmUmU	2049	GGGUUCUGACGGACAUCCCmUmU
143	19	GGAUGUCCGUCAGAACCCAmUmU	2050	UGGGUUCUGACGGACAUCCmUmU
144	20	GAUGUCCGUCAGAACCCAUmUmU	2051	AUGGGUUCUGACGGACAUCmUmU
145	21	AUGUCCGUCAGAACCCAUGmUmU	2052	CAUGGGUUCUGACGGACAUmUmU
146	22	UGUCCGUCAGAACCCAUGCmUmU	2053	GCAUGGGUUCUGACGGACAmUmU
147	23	GUCCGUCAGAACCCAUGCGmUmU	2054	CGCAUGGGUUCUGACGGACmUmU
148	24	UCCGUCAGAACCCAUGCGGmUmU	2055	CCGCAUGGGUUCUGACGGAmUmU
149	25	CCGUCAGAACCCAUGCGGCmUmU	2056	GCCGCAUGGGUUCUGACGGmUmU
150	26	CGUCAGAACCCAUGCGGCAmUmU	2057	UGCCGCAUGGGUUCUGACGmUmU
151	27	GUCAGAACCCAUGCGGCAGmUmU	2058	CUGCCGCAUGGGUUCUGACmUmU
152	28	UCAGAACCCAUGCGGCAGCmUmU	2059	GCUGCCGCAUGGGUUCUGAmUmU
153	29	CAGAACCCAUGCGGCAGCAmUmU	2060	UGCUGCCGCAUGGGUUCUGmUmU
154	30	AGAACCCAUGCGGCAGCAAmUmU	2061	UUGCUGCCGCAUGGGUUCUmUmU
155	31	GAACCCAUGCGGCAGCAAGmUmU	2062	CUUGCUGCCGCAUGGGUUCmUmU
156	32	AACCCAUGCGGCAGCAAGGmUmU	2063	CCUUGCUGCCGCAUGGGUUmUmU
157	33	ACCCAUGCGGCAGCAAGGCmUmU	2064	GCCUUGCUGCCGCAUGGGUmUmU
158	34	CCCAUGCGGCAGCAAGGCCmUmU	2065	GGCCUUGCUGCCGCAUGGGmUmU
159	35	CCAUGCGGCAGCAAGGCCUmUmU	2066	AGGCCUUGCUGCCGCAUGGmUmU
160	36	CAUGCGGCAGCAAGGCCUGmUmU	2067	CAGGCCUUGCUGCCGCAUGmUmU
161	37	AUGCGGCAGCAAGGCCUGCmUmU	2068	GCAGGCCUUGCUGCCGCAUmUmU
162	38	UGCGGCAGCAAGGCCUGCCmUmU	2069	GGCAGGCCUUGCUGCCGCAmUmU
163	39	GCGGCAGCAAGGCCUGCCGmUmU	2070	CGGCAGGCCUUGCUGCCGCmUmU
164	40	CGGCAGCAAGGCCUGCCGCmUmU	2071	GCGGCAGGCCUUGCUGCCGmUmU
165	41	GGCAGCAAGGCCUGCCGCCmUmU	2072	GGCGGCAGGCCUUGCUGCCmUmU
166	42	GCAGCAAGGCCUGCCGCCGmUmU	2073	CGGCGGCAGGCCUUGCUGCmUmU
167	43	CAGCAAGGCCUGCCGCCGCmUmU	2074	GCGGCGGCAGGCCUUGCUGmUmU
168	44	AGCAAGGCCUGCCGCCGCCmUmU	2075	GGCGGCGGCAGGCCUUGCUmUmU
169	45	GCAAGGCCUGCCGCCGCCUmUmU	2076	AGGCGGCGGCAGGCCUUGCmUmU
170	46	CAAGGCCUGCCGCCGCCUCmUmU	2077	GAGGCGGCGGCAGGCCUUGmUmU
171	47	AAGGCCUGCCGCCGCCUCUmUmU	2078	AGAGGCGGCGGCAGGCCUUmUmU
172	48	AGGCCUGCCGCCGCCUCUUmUmU	2079	AAGAGGCGGCGGCAGGCCUmUmU
173	49	GGCCUGCCGCCGCCUCUUCmUmU	2080	GAAGAGGCGGCGGCAGGCCmUmU
174	50	GCCUGCCGCCGCCUCUUCGmUmU	2081	CGAAGAGGCGGCGGCAGGCmUmU
175	51	CCUGCCGCCGCCUCUUCGGmUmU	2082	CCGAAGAGGCGGCGGCAGGmUmU
176	52	CUGCCGCCGCCUCUUCGGCmUmU	2083	GCCGAAGAGGCGGCGGCAGmUmU
177	53	UGCCGCCGCCUCUUCGGCCmUmU	2084	GGCCGAAGAGGCGGCGGCAmUmU
178	54	GCCGCCGCCUCUUCGGCCCmUmU	2085	GGGCCGAAGAGGCGGCGGCmUmU
179	55	CCGCCGCCUCUUCGGCCCAmUmU	2086	UGGGCCGAAGAGGCGGCGGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
180	56	CGCCGCCUCUUCGGCCCAGmUmU	2087	CUGGGCCGAAGAGGCGGCGmUmU
181	57	GCCGCCUCUUCGGCCCAGUmUmU	2088	ACUGGGCCGAAGAGGCGGCmUmU
182	58	CCGCCUCUUCGGCCCAGUGmUmU	2089	CACUGGGCCGAAGAGGCGGmUmU
183	59	CGCCUCUUCGGCCCAGUGGmUmU	2090	CCACUGGGCCGAAGAGGCGmUmU
184	60	GCCUCUUCGGCCCAGUGGAmUmU	2091	UCCACUGGGCCGAAGAGGCmUmU
185	61	CCUCUUCGGCCCAGUGGACmUmU	2092	GUCCACUGGGCCGAAGAGGmUmU
186	62	CUCUUCGGCCCAGUGGACAmUmU	2093	UGUCCACUGGGCCGAAGAGmUmU
187	63	UCUUCGGCCCAGUGGACAGmUmU	2094	CUGUCCACUGGGCCGAAGAmUmU
188	64	CUUCGGCCCAGUGGACAGCmUmU	2095	GCUGUCCACUGGGCCGAAGmUmU
189	65	UUCGGCCCAGUGGACAGCGmUmU	2096	CGCUGUCCACUGGGCCGAAmUmU
190	66	UCGGCCCAGUGGACAGCGAmUmU	2097	UCGCUGUCCACUGGGCCGAmUmU
191	67	CGGCCCAGUGGACAGCGAGmUmU	2098	CUCGCUGUCCACUGGGCCGmUmU
192	68	GGCCCAGUGGACAGCGAGCmUmU	2099	GCUCGCUGUCCACUGGGCCmUmU
193	69	GCCCAGUGGACAGCGAGCAmUmU	2100	UGCUCGCUGUCCACUGGGCmUmU
194	70	CCCAGUGGACAGCGAGCAGmUmU	2101	CUGCUCGCUGUCCACUGGGmUmU
195	71	CCAGUGGACAGCGAGCAGCmUmU	2102	GCUGCUCGCUGUCCACUGGmUmU
196	72	CAGUGGACAGCGAGCAGCUmUmU	2103	AGCUGCUCGCUGUCCACUGmUmU
197	73	AGUGGACAGCGAGCAGCUGmUmU	2104	CAGCUGCUCGCUGUCCACUmUmU
198	74	GUGGACAGCGAGCAGCUGAmUmU	2105	UCAGCUGCUCGCUGUCCACmUmU
199	75	UGGACAGCGAGCAGCUGAGmUmU	2106	CUCAGCUGCUCGCUGUCCAmUmU
200	76	GGACAGCGAGCAGCUGAGCmUmU	2107	GCUCAGCUGCUCGCUGUCCmUmU
201	77	GACAGCGAGCAGCUGAGCCmUmU	2108	GGCUCAGCUGCUCGCUGUCmUmU
202	78	ACAGCGAGCAGCUGAGCCGmUmU	2109	CGGCUCAGCUGCUCGCUGUmUmU
203	79	CAGCGAGCAGCUGAGCCGCmUmU	2110	GCGGCUCAGCUGCUCGCUGmUmU
204	80	AGCGAGCAGCUGAGCCGCGmUmU	2111	CGCGGCUCAGCUGCUCGCUmUmU
205	81	GCGAGCAGCUGAGCCGCGAmUmU	2112	UCGCGGCUCAGCUGCUCGCmUmU
206	82	CGAGCAGCUGAGCCGCGACmUmU	2113	GUCGCGGCUCAGCUGCUCGmUmU
207	83	GAGCAGCUGAGCCGCGACUmUmU	2114	AGUCGCGGCUCAGCUGCUCmUmU
208	84	AGCAGCUGAGCCGCGACUGmUmU	2115	CAGUCGCGGCUCAGCUGCUmUmU
209	85	GCAGCUGAGCCGCGACUGUmUmU	2116	ACAGUCGCGGCUCAGCUGCmUmU
210	86	CAGCUGAGCCGCGACUGUGmUmU	2117	CACAGUCGCGGCUCAGCUGmUmU
211	87	AGCUGAGCCGCGACUGUGAmUmU	2118	UCACAGUCGCGGCUCAGCUmUmU
212	88	GCUGAGCCGCGACUGUGAUmUmU	2119	AUCACAGUCGCGGCUCAGCmUmU
213	89	CUGAGCCGCGACUGUGAUGmUmU	2120	CAUCACAGUCGCGGCUCAGmUmU
214	90	UGAGCCGCGACUGUGAUGCmUmU	2121	GCAUCACAGUCGCGGCUCAmUmU
215	91	GAGCCGCGACUGUGAUGCGmUmU	2122	CGCAUCACAGUCGCGGCUCmUmU
216	92	AGCCGCGACUGUGAUGCGCmUmU	2123	GCGCAUCACAGUCGCGGCUmUmU
217	93	GCCGCGACUGUGAUGCGCUmUmU	2124	AGCGCAUCACAGUCGCGGCmUmU
218	94	CCGCGACUGUGAUGCGCUAmUmU	2125	UAGCGCAUCACAGUCGCGGmUmU
219	95	CGCGACUGUGAUGCGCUAAmUmU	2126	UUAGCGCAUCACAGUCGCGmUmU
220	96	GCGACUGUGAUGCGCUAAUmUmU	2127	AUUAGCGCAUCACAGUCGCmUmU
221	97	CGACUGUGAUGCGCUAAUGmUmU	2128	CAUUAGCGCAUCACAGUCGmUmU
222	98	GACUGUGAUGCGCUAAUGGmUmU	2129	CCAUUAGCGCAUCACAGUCmUmU
223	99	ACUGUGAUGCGCUAAUGGCmUmU	2130	GCCAUUAGCGCAUCACAGUmUmU
224	100	CUGUGAUGCGCUAAUGGCGmUmU	2131	CGCCAUUAGCGCAUCACAGmUmU
225	101	UGUGAUGCGCUAAUGGCGGmUmU	2132	CCGCCAUUAGCGCAUCACAmUmU
226	102	GUGAUGCGCUAAUGGCGGGmUmU	2133	CCCGCCAUUAGCGCAUCACmUmU
227	103	UGAUGCGCUAAUGGCGGGCmUmU	2134	GCCCGCCAUUAGCGCAUCAmUmU
228	104	GAUGCGCUAAUGGCGGGCUmUmU	2135	AGCCCGCCAUUAGCGCAUCmUmU
229	105	AUGCGCUAAUGGCGGGCUGmUmU	2136	CAGCCCGCCAUUAGCGCAUmUmU
230	106	UGCGCUAAUGGCGGGCUGCmUmU	2137	GCAGCCCGCCAUUAGCGCAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
231	107	GCGCUAAUGGCGGGCUGCAmUmU	2138	UGCAGCCCGCCAUUAGCGCmUmU
232	108	CGCUAAUGGCGGGCUGCAUmUmU	2139	AUGCAGCCCGCCAUUAGCGmUmU
233	109	GCUAAUGGCGGGCUGCAUCmUmU	2140	GAUGCAGCCCGCCAUUAGCmUmU
234	110	CUAAUGGCGGGCUGCAUCCmUmU	2141	GGAUGCAGCCCGCCAUUAGmUmU
235	111	UAAUGGCGGGCUGCAUCCAmUmU	2142	UGGAUGCAGCCCGCCAUUAmUmU
236	112	AAUGGCGGGCUGCAUCCAGmUmU	2143	CUGGAUGCAGCCCGCCAUUmUmU
237	113	AUGGCGGGCUGCAUCCAGGmUmU	2144	CCUGGAUGCAGCCCGCCAUmUmU
238	114	UGGCGGGCUGCAUCCAGGAmUmU	2145	UCCUGGAUGCAGCCCGCCAmUmU
239	115	GGCGGGCUGCAUCCAGGAGmUmU	2146	CUCCUGGAUGCAGCCCGCCmUmU
240	116	GCGGGCUGCAUCCAGGAGGmUmU	2147	CCUCCUGGAUGCAGCCCGCmUmU
241	117	CGGGCUGCAUCCAGGAGGCmUmU	2148	GCCUCCUGGAUGCAGCCCGmUmU
242	118	GGGCUGCAUCCAGGAGGCCmUmU	2149	GGCCUCCUGGAUGCAGCCCmUmU
243	119	GGCUGCAUCCAGGAGGCCCmUmU	2150	GGGCCUCCUGGAUGCAGCCmUmU
244	120	GCUGCAUCCAGGAGGCCCGmUmU	2151	CGGGCCUCCUGGAUGCAGCmUmU
245	121	CUGCAUCCAGGAGGCCCGUmUmU	2152	ACGGGCCUCCUGGAUGCAGmUmU
246	122	UGCAUCCAGGAGGCCCGUGmUmU	2153	CACGGGCCUCCUGGAUGCAmUmU
247	123	GCAUCCAGGAGGCCCGUGAmUmU	2154	UCACGGGCCUCCUGGAUGCmUmU
248	124	CAUCCAGGAGGCCCGUGAGmUmU	2155	CUCACGGGCCUCCUGGAUGmUmU
249	125	AUCCAGGAGGCCCGUGAGCmUmU	2156	GCUCACGGGCCUCCUGGAUmUmU
250	126	UCCAGGAGGCCCGUGAGCGmUmU	2157	CGCUCACGGGCCUCCUGGAmUmU
251	127	CCAGGAGGCCCGUGAGCGAmUmU	2158	UCGCUCACGGGCCUCCUGGmUmU
252	128	CAGGAGGCCCGUGAGCGAUmUmU	2159	AUCGCUCACGGGCCUCCUGmUmU
253	129	AGGAGGCCCGUGAGCGAUGmUmU	2160	CAUCGCUCACGGGCCUCCUmUmU
254	130	GGAGGCCCGUGAGCGAUGGmUmU	2161	CCAUCGCUCACGGGCCUCCmUmU
255	131	GAGGCCCGUGAGCGAUGGAmUmU	2162	UCCAUCGCUCACGGGCCUCmUmU
256	132	AGGCCCGUGAGCGAUGGAAmUmU	2163	UUCCAUCGCUCACGGGCCUmUmU
257	133	GGCCCGUGAGCGAUGGAACmUmU	2164	GUUCCAUCGCUCACGGGCCmUmU
258	134	GCCCGUGAGCGAUGGAACUmUmU	2165	AGUUCCAUCGCUCACGGGCmUmU
259	135	CCCGUGAGCGAUGGAACUUmUmU	2166	AAGUUCCAUCGCUCACGGGmUmU
260	136	CCGUGAGCGAUGGAACUUCmUmU	2167	GAAGUUCCAUCGCUCACGGmUmU
261	137	CGUGAGCGAUGGAACUUCGmUmU	2168	CGAAGUUCCAUCGCUCACGmUmU
262	138	GUGAGCGAUGGAACUUCGAmUmU	2169	UCGAAGUUCCAUCGCUCACmUmU
263	139	UGAGCGAUGGAACUUCGACmUmU	2170	GUCGAAGUUCCAUCGCUCAmUmU
264	140	GAGCGAUGGAACUUCGACUmUmU	2171	AGUCGAAGUUCCAUCGCUCmUmU
265	141	AGCGAUGGAACUUCGACUUmUmU	2172	AAGUCGAAGUUCCAUCGCUmUmU
266	142	GCGAUGGAACUUCGACUUUmUmU	2173	AAAGUCGAAGUUCCAUCGCmUmU
267	143	CGAUGGAACUUCGACUUUGmUmU	2174	CAAAGUCGAAGUUCCAUCGmUmU
268	144	GAUGGAACUUCGACUUUGUmUmU	2175	ACAAAGUCGAAGUUCCAUCmUmU
269	145	AUGGAACUUCGACUUUGUCmUmU	2176	GACAAAGUCGAAGUUCCAUmUmU
270	146	UGGAACUUCGACUUUGUCAmUmU	2177	UGACAAAGUCGAAGUUCCAmUmU
271	147	GGAACUUCGACUUUGUCACmUmU	2178	GUGACAAAGUCGAAGUUCCmUmU
272	148	GAACUUCGACUUUGUCACCmUmU	2179	GGUGACAAAGUCGAAGUUCmUmU
273	149	AACUUCGACUUUGUCACCGmUmU	2180	CGGUGACAAAGUCGAAGUUmUmU
274	150	ACUUCGACUUUGUCACCGAmUmU	2181	UCGGUGACAAAGUCGAAGUmUmU
275	151	CUUCGACUUUGUCACCGAGmUmU	2182	CUCGGUGACAAAGUCGAAGmUmU
276	152	UUCGACUUUGUCACCGAGAmUmU	2183	UCUCGGUGACAAAGUCGAAmUmU
277	153	UCGACUUUGUCACCGAGACmUmU	2184	GUCUCGGUGACAAAGUCGAmUmU
278	154	CGACUUUGUCACCGAGACAmUmU	2185	UGUCUCGGUGACAAAGUCGmUmU
279	155	GACUUUGUCACCGAGACACmUmU	2186	GUGUCUCGGUGACAAAGUCmUmU
280	156	ACUUUGUCACCGAGACACCmUmU	2187	GGUGUCUCGGUGACAAAGUmUmU
281	157	CUUUGUCACCGAGACACCAmUmU	2188	UGGUGUCUCGGUGACAAAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
282	158	UUUGUCACCGAGACACCACmUmU	2189	GUGGUGUCUCGGUGACAAAmUmU
283	159	UUGUCACCGAGACACCACUmUmU	2190	AGUGGUGUCUCGGUGACAAmUmU
284	160	UGUCACCGAGACACCACUGmUmU	2191	CAGUGGUGUCUCGGUGACAmUmU
285	161	GUCACCGAGACACCACUGGmUmU	2192	CCAGUGGUGUCUCGGUGACmUmU
286	162	UCACCGAGACACCACUGGAmUmU	2193	UCCAGUGGUGUCUCGGUGAmUmU
287	163	CACCGAGACACCACUGGAGmUmU	2194	CUCCAGUGGUGUCUCGGUGmUmU
288	164	ACCGAGACACCACUGGAGGmUmU	2195	CCUCCAGUGGUGUCUCGGUmUmU
289	165	CCGAGACACCACUGGAGGGmUmU	2196	CCCUCCAGUGGUGUCUCGGmUmU
290	166	CGAGACACCACUGGAGGGUmUmU	2197	ACCCUCCAGUGGUGUCUCGmUmU
291	167	GAGACACCACUGGAGGGUGmUmU	2198	CACCCUCCAGUGGUGUCUCmUmU
292	168	AGACACCACUGGAGGGUGAmUmU	2199	UCACCCUCCAGUGGUGUCUmUmU
293	169	GACACCACUGGAGGGUGACmUmU	2200	GUCACCCUCCAGUGGUGUCmUmU
294	170	ACACCACUGGAGGGUGACUmUmU	2201	AGUCACCCUCCAGUGGUGUmUmU
295	171	CACCACUGGAGGGUGACUUmUmU	2202	AAGUCACCCUCCAGUGGUGmUmU
296	172	ACCACUGGAGGGUGACUUCmUmU	2203	GAAGUCACCCUCCAGUGGUmUmU
297	173	CCACUGGAGGGUGACUUCGmUmU	2204	CGAAGUCACCCUCCAGUGGmUmU
298	174	CACUGGAGGGUGACUUCGCmUmU	2205	GCGAAGUCACCCUCCAGUGmUmU
299	175	ACUGGAGGGUGACUUCGCCmUmU	2206	GGCGAAGUCACCCUCCAGUmUmU
300	176	CUGGAGGGUGACUUCGCCUmUmU	2207	AGGCGAAGUCACCCUCCAGmUmU
301	177	UGGAGGGUGACUUCGCCUGmUmU	2208	CAGGCGAAGUCACCCUCCAmUmU
302	178	GGAGGGUGACUUCGCCUGGmUmU	2209	CCAGGCGAAGUCACCCUCCmUmU
303	179	GAGGGUGACUUCGCCUGGGmUmU	2210	CCCAGGCGAAGUCACCCUCmUmU
304	180	AGGGUGACUUCGCCUGGGAmUmU	2211	UCCCAGGCGAAGUCACCCUmUmU
305	181	GGGUGACUUCGCCUGGGAGmUmU	2212	CUCCCAGGCGAAGUCACCCmUmU
306	182	GGUGACUUCGCCUGGGAGCmUmU	2213	GCUCCCAGGCGAAGUCACCmUmU
307	183	GUGACUUCGCCUGGGAGCGmUmU	2214	CGCUCCCAGGCGAAGUCACmUmU
308	184	UGACUUCGCCUGGGAGCGUmUmU	2215	ACGCUCCCAGGCGAAGUCAmUmU
309	185	GACUUCGCCUGGGAGCGUGmUmU	2216	CACGCUCCCAGGCGAAGUCmUmU
310	186	ACUUCGCCUGGGAGCGUGUmUmU	2217	ACACGCUCCCAGGCGAAGUmUmU
311	187	CUUCGCCUGGGAGCGUGUGmUmU	2218	CACACGCUCCCAGGCGAAGmUmU
312	188	UUCGCCUGGGAGCGUGUGCmUmU	2219	GCACACGCUCCCAGGCGAAmUmU
313	189	UCGCCUGGGAGCGUGUGCGmUmU	2220	CGCACACGCUCCCAGGCGAmUmU
314	190	CGCCUGGGAGCGUGUGCGGmUmU	2221	CCGCACACGCUCCCAGGCGmUmU
315	191	GCCUGGGAGCGUGUGCGGGmUmU	2222	CCCGCACACGCUCCCAGGCmUmU
316	192	CCUGGGAGCGUGUGCGGGGmUmU	2223	CCCCGCACACGCUCCCAGGmUmU
317	193	CUGGGAGCGUGUGCGGGGCmUmU	2224	GCCCCGCACACGCUCCCAGmUmU
318	194	UGGGAGCGUGUGCGGGGCCmUmU	2225	GGCCCCGCACACGCUCCCAmUmU
319	195	GGGAGCGUGUGCGGGGCCUmUmU	2226	AGGCCCCGCACACGCUCCCmUmU
320	196	GGAGCGUGUGCGGGGCCUUmUmU	2227	AAGGCCCCGCACACGCUCCmUmU
321	197	GAGCGUGUGCGGGGCCUUGmUmU	2228	CAAGGCCCCGCACACGCUCmUmU
322	198	AGCGUGUGCGGGGCCUUGGmUmU	2229	CCAAGGCCCCGCACACGCUmUmU
323	199	GCGUGUGCGGGGCCUUGGCmUmU	2230	GCCAAGGCCCCGCACACGCmUmU
324	200	CGUGUGCGGGGCCUUGGCCmUmU	2231	GGCCAAGGCCCCGCACACGmUmU
325	201	GUGUGCGGGGCCUUGGCCUmUmU	2232	AGGCCAAGGCCCCGCACACmUmU
326	202	UGUGCGGGGCCUUGGCCUGmUmU	2233	CAGGCCAAGGCCCCGCACAmUmU
327	203	GUGCGGGGCCUUGGCCUGCmUmU	2234	GCAGGCCAAGGCCCCGCACmUmU
328	204	UGCGGGGCCUUGGCCUGCCmUmU	2235	GGCAGGCCAAGGCCCCGCAmUmU
329	205	GCGGGGCCUUGGCCUGCCCmUmU	2236	GGGCAGGCCAAGGCCCCGCmUmU
330	206	CGGGGCCUUGGCCUGCCCAmUmU	2237	UGGGCAGGCCAAGGCCCCGmUmU
331	207	GGGGCCUUGGCCUGCCCAAmUmU	2238	UUGGGCAGGCCAAGGCCCCmUmU
332	208	GGGCCUUGGCCUGCCCAAGmUmU	2239	CUUGGGCAGGCCAAGGCCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
333	209	GGCCUUGGCCUGCCCAAGCmUmU	2240	GCUUGGGCAGGCCAAGGCCmUmU
334	210	GCCUUGGCCUGCCCAAGCUmUmU	2241	AGCUUGGGCAGGCCAAGGCmUmU
335	211	CCUUGGCCUGCCCAAGCUCmUmU	2242	GAGCUUGGGCAGGCCAAGGmUmU
336	212	CUUGGCCUGCCCAAGCUCUmUmU	2243	AGAGCUUGGGCAGGCCAAGmUmU
337	213	UUGGCCUGCCCAAGCUCUAmUmU	2244	UAGAGCUUGGGCAGGCCAAmUmU
338	214	UGGCCUGCCCAAGCUCUACmUmU	2245	GUAGAGCUUGGGCAGGCCAmUmU
339	215	GGCCUGCCCAAGCUCUACCmUmU	2246	GGUAGAGCUUGGGCAGGCCmUmU
340	216	GCCUGCCCAAGCUCUACCUmUmU	2247	AGGUAGAGCUUGGGCAGGCmUmU
341	217	CCUGCCCAAGCUCUACCUUmUmU	2248	AAGGUAGAGCUUGGGCAGGmUmU
342	218	CUGCCCAAGCUCUACCUUCmUmU	2249	GAAGGUAGAGCUUGGGCAGmUmU
343	219	UGCCCAAGCUCUACCUUCCmUmU	2250	GGAAGGUAGAGCUUGGGCAmUmU
344	220	GCCCAAGCUCUACCUUCCCmUmU	2251	GGGAAGGUAGAGCUUGGGCmUmU
345	221	CCCAAGCUCUACCUUCCCAmUmU	2252	UGGGAAGGUAGAGCUUGGGmUmU
346	222	CCAAGCUCUACCUUCCCACmUmU	2253	GUGGGAAGGUAGAGCUUGGmUmU
347	223	CAAGCUCUACCUUCCCACGmUmU	2254	CGUGGGAAGGUAGAGCUUGmUmU
348	224	AAGCUCUACCUUCCCACGGmUmU	2255	CCGUGGGAAGGUAGAGCUUmUmU
349	225	AGCUCUACCUUCCCACGGGmUmU	2256	CCCGUGGGAAGGUAGAGCUmUmU
350	226	GCUCUACCUUCCCACGGGGmUmU	2257	CCCCGUGGGAAGGUAGAGCmUmU
351	227	CUCUACCUUCCCACGGGGCmUmU	2258	GCCCCGUGGGAAGGUAGAGmUmU
352	228	UCUACCUUCCCACGGGGCCmUmU	2259	GGCCCCGUGGGAAGGUAGAmUmU
353	229	CUACCUUCCCACGGGGCCCmUmU	2260	GGGCCCCGUGGGAAGGUAGmUmU
354	230	UACCUUCCCACGGGGCCCCmUmU	2261	GGGGCCCCGUGGGAAGGUAmUmU
355	231	ACCUUCCCACGGGGCCCCGmUmU	2262	CGGGGCCCCGUGGGAAGGUmUmU
356	232	CCUUCCCACGGGGCCCCGGmUmU	2263	CCGGGGCCCCGUGGGAAGGmUmU
357	233	CUUCCCACGGGGCCCCGGCmUmU	2264	GCCGGGGCCCCGUGGGAAGmUmU
358	234	UUCCCACGGGGCCCCGGCGmUmU	2265	CGCCGGGGCCCCGUGGGAAmUmU
359	235	UCCCACGGGGCCCCGGCGAmUmU	2266	UCGCCGGGGCCCCGUGGGAmUmU
360	236	CCCACGGGGCCCCGGCGAGmUmU	2267	CUCGCCGGGGCCCCGUGGGmUmU
361	237	CCACGGGGCCCCGGCGAGGmUmU	2268	CCUCGCCGGGGCCCCGUGGmUmU
362	238	CACGGGGCCCCGGCGAGGCmUmU	2269	GCCUCGCCGGGGCCCCGUGmUmU
363	239	ACGGGGCCCCGGCGAGGCCmUmU	2270	GGCCUCGCCGGGGCCCCGUmUmU
364	240	CGGGGCCCCGGCGAGGCCGmUmU	2271	CGGCCUCGCCGGGGCCCCGmUmU
365	241	GGGGCCCCGGCGAGGCCGGmUmU	2272	CCGGCCUCGCCGGGGCCCCmUmU
366	242	GGGCCCCGGCGAGGCCGGGmUmU	2273	CCCGGCCUCGCCGGGGCCCmUmU
367	243	GGCCCCGGCGAGGCCGGGAmUmU	2274	UCCCGGCCUCGCCGGGGCCmUmU
368	244	GCCCCGGCGAGGCCGGGAUmUmU	2275	AUCCCGGCCUCGCCGGGGCmUmU
369	245	CCCCGGCGAGGCCGGGAUGmUmU	2276	CAUCCCGGCCUCGCCGGGGmUmU
370	246	CCCGGCGAGGCCGGGAUGAmUmU	2277	UCAUCCCGGCCUCGCCGGGmUmU
371	247	CCGGCGAGGCCGGGAUGAGmUmU	2278	CUCAUCCCGGCCUCGCCGGmUmU
372	248	CGGCGAGGCCGGGAUGAGUmUmU	2279	ACUCAUCCCGGCCUCGCCGmUmU
373	249	GGCGAGGCCGGGAUGAGUUmUmU	2280	AACUCAUCCCGGCCUCGCCmUmU
374	250	GCGAGGCCGGGAUGAGUUGmUmU	2281	CAACUCAUCCCGGCCUCGCmUmU
375	251	CGAGGCCGGGAUGAGUUGGmUmU	2282	CCAACUCAUCCCGGCCUCGmUmU
376	252	GAGGCCGGGAUGAGUUGGGmUmU	2283	CCCAACUCAUCCCGGCCUCmUmU
377	253	AGGCCGGGAUGAGUUGGGAmUmU	2284	UCCCAACUCAUCCCGGCCUmUmU
378	254	GGCCGGGAUGAGUUGGGAGmUmU	2285	CUCCCAACUCAUCCCGGCCmUmU
379	255	GCCGGGAUGAGUUGGGAGGmUmU	2286	CCUCCCAACUCAUCCCGGCmUmU
380	256	CCGGGAUGAGUUGGGAGGAmUmU	2287	UCCUCCCAACUCAUCCCGGmUmU
381	257	CGGGAUGAGUUGGGAGGAGmUmU	2288	CUCCUCCCAACUCAUCCCGmUmU
382	258	GGGAUGAGUUGGGAGGAGGmUmU	2289	CCUCCUCCCAACUCAUCCCmUmU
383	259	GGAUGAGUUGGGAGGAGGCmUmU	2290	GCCUCCUCCCAACUCAUCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
384	260	GAUGAGUUGGGAGGAGGCAmUmU	2291	UGCCUCCUCCCAACUCAUCmUmU
385	261	AUGAGUUGGGAGGAGGCAGmUmU	2292	CUGCCUCCUCCCAACUCAUmUmU
386	262	UGAGUUGGGAGGAGGCAGGmUmU	2293	CCUGCCUCCUCCCAACUCAmUmU
387	263	GAGUUGGGAGGAGGCAGGCmUmU	2294	GCCUGCCUCCUCCCAACUCmUmU
388	264	AGUUGGGAGGAGGCAGGCGmUmU	2295	CGCCUGCCUCCUCCCAACUmUmU
389	265	GUUGGGAGGAGGCAGGCGGmUmU	2296	CCGCCUGCCUCCUCCCAACmUmU
390	266	UUGGGAGGAGGCAGGCGGCmUmU	2297	GCCGCCUGCCUCCUCCCAAmUmU
391	267	UGGGAGGAGGCAGGCGGCCmUmU	2298	GGCCGCCUGCCUCCUCCCAmUmU
392	268	GGGAGGAGGCAGGCGGCCUmUmU	2299	AGGCCGCCUGCCUCCUCCCmUmU
393	269	GGAGGAGGCAGGCGGCCUGmUmU	2300	CAGGCCGCCUGCCUCCUCCmUmU
394	270	GAGGAGGCAGGCGGCCUGGmUmU	2301	CCAGGCCGCCUGCCUCCUCmUmU
395	271	AGGAGGCAGGCGGCCUGGCmUmU	2302	GCCAGGCCGCCUGCCUCCUmUmU
396	272	GGAGGCAGGCGGCCUGGCAmUmU	2303	UGCCAGGCCGCCUGCCUCCmUmU
397	273	GAGGCAGGCGGCCUGGCACmUmU	2304	GUGCCAGGCCGCCUGCCUCmUmU
398	274	AGGCAGGCGGCCUGGCACCmUmU	2305	GGUGCCAGGCCGCCUGCCUmUmU
399	275	GGCAGGCGGCCUGGCACCUmUmU	2306	AGGUGCCAGGCCGCCUGCCmUmU
400	276	GCAGGCGGCCUGGCACCUCmUmU	2307	GAGGUGCCAGGCCGCCUGCmUmU
401	277	CAGGCGGCCUGGCACCUCAmUmU	2308	UGAGGUGCCAGGCCGCCUGmUmU
402	278	AGGCGGCCUGGCACCUCACmUmU	2309	GUGAGGUGCCAGGCCGCCUmUmU
403	279	GGCGGCCUGGCACCUCACCmUmU	2310	GGUGAGGUGCCAGGCCGCCmUmU
404	280	GCGGCCUGGCACCUCACCUmUmU	2311	AGGUGAGGUGCCAGGCCGCmUmU
405	281	CGGCCUGGCACCUCACCUGmUmU	2312	CAGGUGAGGUGCCAGGCCGmUmU
406	282	GGCCUGGCACCUCACCUGCmUmU	2313	GCAGGUGAGGUGCCAGGCCmUmU
407	283	GCCUGGCACCUCACCUGCUmUmU	2314	AGCAGGUGAGGUGCCAGGCmUmU
408	284	CCUGGCACCUCACCUGCUCmUmU	2315	GAGCAGGUGAGGUGCCAGGmUmU
409	285	CUGGCACCUCACCUGCUCUmUmU	2316	AGAGCAGGUGAGGUGCCAGmUmU
410	286	UGGCACCUCACCUGCUCUGmUmU	2317	CAGAGCAGGUGAGGUGCCAmUmU
411	287	GGCACCUCACCUGCUCUGCmUmU	2318	GCAGAGCAGGUGAGGUGCCmUmU
412	288	GCACCUCACCUGCUCUGCUmUmU	2319	AGCAGAGCAGGUGAGGUGCmUmU
413	289	CACCUCACCUGCUCUGCUGmUmU	2320	CAGCAGAGCAGGUGAGGUGmUmU
414	290	ACCUCACCUGCUCUGCUGCmUmU	2321	GCAGCAGAGCAGGUGAGGUmUmU
415	291	CCUCACCUGCUCUGCUGCAmUmU	2322	UGCAGCAGAGCAGGUGAGGmUmU
416	292	CUCACCUGCUCUGCUGCAGmUmU	2323	CUGCAGCAGAGCAGGUGAGmUmU
417	293	UCACCUGCUCUGCUGCAGGmUmU	2324	CCUGCAGCAGAGCAGGUGAmUmU
418	294	CACCUGCUCUGCUGCAGGGmUmU	2325	CCCUGCAGCAGAGCAGGUGmUmU
419	295	ACCUGCUCUGCUGCAGGGGmUmU	2326	CCCCUGCAGCAGAGCAGGUmUmU
420	296	CCUGCUCUGCUGCAGGGGAmUmU	2327	UCCCCUGCAGCAGAGCAGGmUmU
421	297	CUGCUCUGCUGCAGGGGACmUmU	2328	GUCCCCUGCAGCAGAGCAGmUmU
422	298	UGCUCUGCUGCAGGGGACAmUmU	2329	UGUCCCCUGCAGCAGAGCAmUmU
423	299	GCUCUGCUGCAGGGGACAGmUmU	2330	CUGUCCCCUGCAGCAGAGCmUmU
424	300	CUCUGCUGCAGGGGACAGCmUmU	2331	GCUGUCCCCUGCAGCAGAGmUmU
425	301	UCUGCUGCAGGGGACAGCAmUmU	2332	UGCUGUCCCCUGCAGCAGAmUmU
426	302	CUGCUGCAGGGGACAGCAGmUmU	2333	CUGCUGUCCCCUGCAGCAGmUmU
427	303	UGCUGCAGGGGACAGCAGAmUmU	2334	UCUGCUGUCCCCUGCAGCAmUmU
428	304	GCUGCAGGGGACAGCAGAGmUmU	2335	CUCUGCUGUCCCCUGCAGCmUmU
429	305	CUGCAGGGGACAGCAGAGGmUmU	2336	CCUCUGCUGUCCCCUGCAGmUmU
430	306	UGCAGGGGACAGCAGAGGAmUmU	2337	UCCUCUGCUGUCCCCUGCAmUmU
431	307	GCAGGGGACAGCAGAGGAAmUmU	2338	UUCCUCUGCUGUCCCCUGCmUmU
432	308	CAGGGGACAGCAGAGGAAGmUmU	2339	CUUCCUCUGCUGUCCCCUGmUmU
433	309	AGGGGACAGCAGAGGAAGAmUmU	2340	UCUUCCUCUGCUGUCCCCUmUmU
434	310	GGGGACAGCAGAGGAAGACmUmU	2341	GUCUUCCUCUGCUGUCCCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
435	311	GGGACAGCAGAGGAAGACCmUmU	2342	GGUCUUCCUCUGCUGUCCCmUmU
436	312	GGACAGCAGAGGAAGACCAmUmU	2343	UGGUCUUCCUCUGCUGUCCmUmU
437	313	GACAGCAGAGGAAGACCAUmUmU	2344	AUGGUCUUCCUCUGCUGUCmUmU
438	314	ACAGCAGAGGAAGACCAUGmUmU	2345	CAUGGUCUUCCUCUGCUGUmUmU
439	315	CAGCAGAGGAAGACCAUGUmUmU	2346	ACAUGGUCUUCCUCUGCUGmUmU
440	316	AGCAGAGGAAGACCAUGUGmUmU	2347	CACAUGGUCUUCCUCUGCUmUmU
441	317	GCAGAGGAAGACCAUGUGGmUmU	2348	CCACAUGGUCUUCCUCUGCmUmU
442	318	CAGAGGAAGACCAUGUGGAmUmU	2349	UCCACAUGGUCUUCCUCUGmUmU
443	319	AGAGGAAGACCAUGUGGACmUmU	2350	GUCCACAUGGUCUUCCUCUmUmU
444	320	GAGGAAGACCAUGUGGACCmUmU	2351	GGUCCACAUGGUCUUCCUCmUmU
445	321	AGGAAGACCAUGUGGACCUmUmU	2352	AGGUCCACAUGGUCUUCCUmUmU
446	322	GGAAGACCAUGUGGACCUGmUmU	2353	CAGGUCCACAUGGUCUUCCmUmU
447	323	GAAGACCAUGUGGACCUGUmUmU	2354	ACAGGUCCACAUGGUCUUCmUmU
448	324	AAGACCAUGUGGACCUGUCmUmU	2355	GACAGGUCCACAUGGUCUUmUmU
449	325	AGACCAUGUGGACCUGUCAmUmU	2356	UGACAGGUCCACAUGGUCUmUmU
450	326	GACCAUGUGGACCUGUCACmUmU	2357	GUGACAGGUCCACAUGGUCmUmU
451	327	ACCAUGUGGACCUGUCACUmUmU	2358	AGUGACAGGUCCACAUGGUmUmU
452	328	CCAUGUGGACCUGUCACUGmUmU	2359	CAGUGACAGGUCCACAUGGmUmU
453	329	CAUGUGGACCUGUCACUGUmUmU	2360	ACAGUGACAGGUCCACAUGmUmU
454	330	AUGUGGACCUGUCACUGUCmUmU	2361	GACAGUGACAGGUCCACAUmUmU
455	331	UGUGGACCUGUCACUGUCUmUmU	2362	AGACAGUGACAGGUCCACAmUmU
456	332	GUGGACCUGUCACUGUCUUmUmU	2363	AAGACAGUGACAGGUCCACmUmU
457	333	UGGACCUGUCACUGUCUUGmUmU	2364	CAAGACAGUGACAGGUCCAmUmU
458	334	GGACCUGUCACUGUCUUGUmUmU	2365	ACAAGACAGUGACAGGUCCmUmU
459	335	GACCUGUCACUGUCUUGUAmUmU	2366	UACAAGACAGUGACAGGUCmUmU
460	336	ACCUGUCACUGUCUUGUACmUmU	2367	GUACAAGACAGUGACAGGUmUmU
461	337	CCUGUCACUGUCUUGUACCmUmU	2368	GGUACAAGACAGUGACAGGmUmU
462	338	CUGUCACUGUCUUGUACCCmUmU	2369	GGGUACAAGACAGUGACAGmUmU
463	339	UGUCACUGUCUUGUACCCUmUmU	2370	AGGGUACAAGACAGUGACAmUmU
464	340	GUCACUGUCUUGUACCCUUmUmU	2371	AAGGGUACAAGACAGUGACmUmU
465	341	UCACUGUCUUGUACCCUUGmUmU	2372	CAAGGGUACAAGACAGUGAmUmU
466	342	CACUGUCUUGUACCCUUGUmUmU	2373	ACAAGGGUACAAGACAGUGmUmU
467	343	ACUGUCUUGUACCCUUGUGmUmU	2374	CACAAGGGUACAAGACAGUmUmU
468	344	CUGUCUUGUACCCUUGUGCmUmU	2375	GCACAAGGGUACAAGACAGmUmU
469	345	UGUCUUGUACCCUUGUGCCmUmU	2376	GGCACAAGGGUACAAGACAmUmU
470	346	GUCUUGUACCCUUGUGCCUmUmU	2377	AGGCACAAGGGUACAAGACmUmU
471	347	UCUUGUACCCUUGUGCCUCmUmU	2378	GAGGCACAAGGGUACAAGAmUmU
472	348	CUUGUACCCUUGUGCCUCGmUmU	2379	CGAGGCACAAGGGUACAAGmUmU
473	349	UUGUACCCUUGUGCCUCGCmUmU	2380	GCGAGGCACAAGGGUACAAmUmU
474	350	UGUACCCUUGUGCCUCGCUmUmU	2381	AGCGAGGCACAAGGGUACAmUmU
475	351	GUACCCUUGUGCCUCGCUCmUmU	2382	GAGCGAGGCACAAGGGUACmUmU
476	352	UACCCUUGUGCCUCGCUCAmUmU	2383	UGAGCGAGGCACAAGGGUAmUmU
477	353	ACCCUUGUGCCUCGCUCAGmUmU	2384	CUGAGCGAGGCACAAGGGUmUmU
478	354	CCCUUGUGCCUCGCUCAGGmUmU	2385	CCUGAGCGAGGCACAAGGGmUmU
479	355	CCUUGUGCCUCGCUCAGGGmUmU	2386	CCCUGAGCGAGGCACAAGGmUmU
480	356	CUUGUGCCUCGCUCAGGGGmUmU	2387	CCCCUGAGCGAGGCACAAGmUmU
481	357	UUGUGCCUCGCUCAGGGGAmUmU	2388	UCCCCUGAGCGAGGCACAAmUmU
482	358	UGUGCCUCGCUCAGGGGAGmUmU	2389	CUCCCCUGAGCGAGGCACAmUmU
483	359	GUGCCUCGCUCAGGGGAGCmUmU	2390	GCUCCCCUGAGCGAGGCACmUmU
484	360	UGCCUCGCUCAGGGGAGCAmUmU	2391	UGCUCCCCUGAGCGAGGCAmUmU
485	361	GCCUCGCUCAGGGGAGCAGmUmU	2392	CUGCUCCCCUGAGCGAGGCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
486	362	CCUCGCUCAGGGGAGCAGGmUmU	2393	CCUGCUCCCCUGAGCGAGGmUmU
487	363	CUCGCUCAGGGGAGCAGGCmUmU	2394	GCCUGCUCCCCUGAGCGAGmUmU
488	364	UCGCUCAGGGGAGCAGGCUmUmU	2395	AGCCUGCUCCCCUGAGCGAmUmU
489	365	CGCUCAGGGGAGCAGGCUGmUmU	2396	CAGCCUGCUCCCCUGAGCGmUmU
490	366	GCUCAGGGGAGCAGGCUGAmUmU	2397	UCAGCCUGCUCCCCUGAGCmUmU
491	367	CUCAGGGGAGCAGGCUGAAmUmU	2398	UUCAGCCUGCUCCCCUGAGmUmU
492	368	UCAGGGGAGCAGGCUGAAGmUmU	2399	CUUCAGCCUGCUCCCCUGAmUmU
493	369	CAGGGGAGCAGGCUGAAGGmUmU	2400	CCUUCAGCCUGCUCCCCUGmUmU
494	370	AGGGGAGCAGGCUGAAGGGmUmU	2401	CCCUUCAGCCUGCUCCCCUmUmU
495	371	GGGGAGCAGGCUGAAGGGUmUmU	2402	ACCCUUCAGCCUGCUCCCCmUmU
496	372	GGGAGCAGGCUGAAGGGUCmUmU	2403	GACCCUUCAGCCUGCUCCCmUmU
497	373	GGAGCAGGCUGAAGGGUCCmUmU	2404	GGACCCUUCAGCCUGCUCCmUmU
498	374	GAGCAGGCUGAAGGGUCCCmUmU	2405	GGGACCCUUCAGCCUGCUCmUmU
499	375	AGCAGGCUGAAGGGUCCCCmUmU	2406	GGGGACCCUUCAGCCUGCUmUmU
500	376	GCAGGCUGAAGGGUCCCCAmUmU	2407	UGGGGACCCUUCAGCCUGCmUmU
501	377	CAGGCUGAAGGGUCCCCAGmUmU	2408	CUGGGGACCCUUCAGCCUGmUmU
502	378	AGGCUGAAGGGUCCCCAGGmUmU	2409	CCUGGGGACCCUUCAGCCUmUmU
503	379	GGCUGAAGGGUCCCCAGGUmUmU	2410	ACCUGGGGACCCUUCAGCCmUmU
504	380	GCUGAAGGGUCCCCAGGUGmUmU	2411	CACCUGGGGACCCUUCAGCmUmU
505	381	CUGAAGGGUCCCCAGGUGGmUmU	2412	CCACCUGGGGACCCUUCAGmUmU
506	382	UGAAGGGUCCCCAGGUGGAmUmU	2413	UCCACCUGGGGACCCUUCAmUmU
507	383	GAAGGGUCCCCAGGUGGACmUmU	2414	GUCCACCUGGGGACCCUUCmUmU
508	384	AAGGGUCCCCAGGUGGACCmUmU	2415	GGUCCACCUGGGGACCCUUmUmU
509	385	AGGGUCCCCAGGUGGACCUmUmU	2416	AGGUCCACCUGGGGACCCUmUmU
510	386	GGGUCCCCAGGUGGACCUGmUmU	2417	CAGGUCCACCUGGGGACCCmUmU
511	387	GGUCCCCAGGUGGACCUGGmUmU	2418	CCAGGUCCACCUGGGGACCmUmU
512	388	GUCCCCAGGUGGACCUGGAmUmU	2419	UCCAGGUCCACCUGGGGACmUmU
513	389	UCCCCAGGUGGACCUGGAGmUmU	2420	CUCCAGGUCCACCUGGGGAmUmU
514	390	CCCCAGGUGGACCUGGAGAmUmU	2421	UCUCCAGGUCCACCUGGGGmUmU
515	391	CCCAGGUGGACCUGGAGACmUmU	2422	GUCUCCAGGUCCACCUGGGmUmU
516	392	CCAGGUGGACCUGGAGACUmUmU	2423	AGUCUCCAGGUCCACCUGGmUmU
517	393	CAGGUGGACCUGGAGACUCmUmU	2424	GAGUCUCCAGGUCCACCUGmUmU
518	394	AGGUGGACCUGGAGACUCUmUmU	2425	AGAGUCUCCAGGUCCACCUmUmU
519	395	GGUGGACCUGGAGACUCUCmUmU	2426	GAGAGUCUCCAGGUCCACCmUmU
520	396	GUGGACCUGGAGACUCUCAmUmU	2427	UGAGAGUCUCCAGGUCCACmUmU
521	397	UGGACCUGGAGACUCUCAGmUmU	2428	CUGAGAGUCUCCAGGUCCAmUmU
522	398	GGACCUGGAGACUCUCAGGmUmU	2429	CCUGAGAGUCUCCAGGUCCmUmU
523	399	GACCUGGAGACUCUCAGGGmUmU	2430	CCCUGAGAGUCUCCAGGUCmUmU
524	400	ACCUGGAGACUCUCAGGGUmUmU	2431	ACCCUGAGAGUCUCCAGGUmUmU
525	401	CCUGGAGACUCUCAGGGUCmUmU	2432	GACCCUGAGAGUCUCCAGGmUmU
526	402	CUGGAGACUCUCAGGGUCGmUmU	2433	CGACCCUGAGAGUCUCCAGmUmU
527	403	UGGAGACUCUCAGGGUCGAmUmU	2434	UCGACCCUGAGAGUCUCCAmUmU
528	404	GGAGACUCUCAGGGUCGAAmUmU	2435	UUCGACCCUGAGAGUCUCCmUmU
529	405	GAGACUCUCAGGGUCGAAAmUmU	2436	UUUCGACCCUGAGAGUCUCmUmU
530	406	AGACUCUCAGGGUCGAAAAmUmU	2437	UUUUCGACCCUGAGAGUCUmUmU
531	407	GACUCUCAGGGUCGAAAACmUmU	2438	GUUUUCGACCCUGAGAGUCmUmU
532	408	ACUCUCAGGGUCGAAAACGmUmU	2439	CGUUUUCGACCCUGAGAGUmUmU
533	409	CUCUCAGGGUCGAAAACGGmUmU	2440	CCGUUUUCGACCCUGAGAGmUmU
534	410	UCUCAGGGUCGAAAACGGCmUmU	2441	GCCGUUUUCGACCCUGAGAmUmU
535	411	CUCAGGGUCGAAAACGGCGmUmU	2442	CGCCGUUUUCGACCCUGAGmUmU
536	412	UCAGGGUCGAAAACGGCGGmUmU	2443	CCGCCGUUUUCGACCCUGAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
537	413	CAGGGUCGAAAACGGCGGCmUmU	2444	GCCGCCGUUUUCGACCCUGmUmU
538	414	AGGGUCGAAAACGGCGGCAmUmU	2445	UGCCGCCGUUUUCGACCCUmUmU
539	415	GGGUCGAAAACGGCGGCAGmUmU	2446	CUGCCGCCGUUUUCGACCCmUmU
540	416	GGUCGAAAACGGCGGCAGAmUmU	2447	UCUGCCGCCGUUUUCGACCmUmU
541	417	GUCGAAAACGGCGGCAGACmUmU	2448	GUCUGCCGCCGUUUUCGACmUmU
542	418	UCGAAAACGGCGGCAGACCmUmU	2449	GGUCUGCCGCCGUUUUCGAmUmU
543	419	CGAAAACGGCGGCAGACCAmUmU	2450	UGGUCUGCCGCCGUUUUCGmUmU
544	420	GAAAACGGCGGCAGACCAGmUmU	2451	CUGGUCUGCCGCCGUUUUCmUmU
545	421	AAAACGGCGGCAGACCAGCmUmU	2452	GCUGGUCUGCCGCCGUUUUmUmU
546	422	AAACGGCGGCAGACCAGCAmUmU	2453	UGCUGGUCUGCCGCCGUUUmUmU
547	423	AACGGCGGCAGACCAGCAUmUmU	2454	AUGCUGGUCUGCCGCCGUUmUmU
548	424	ACGGCGGCAGACCAGCAUGmUmU	2455	CAUGCUGGUCUGCCGCCGUmUmU
549	425	CGGCGGCAGACCAGCAUGAmUmU	2456	UCAUGCUGGUCUGCCGCCGmUmU
550	426	GGCGGCAGACCAGCAUGACmUmU	2457	GUCAUGCUGGUCUGCCGCCmUmU
551	427	GCGGCAGACCAGCAUGACAmUmU	2458	UGUCAUGCUGGUCUGCCGCmUmU
552	428	CGGCAGACCAGCAUGACAGmUmU	2459	CUGUCAUGCUGGUCUGCCGmUmU
553	429	GGCAGACCAGCAUGACAGAmUmU	2460	UCUGUCAUGCUGGUCUGCCmUmU
554	430	GCAGACCAGCAUGACAGAUmUmU	2461	AUCUGUCAUGCUGGUCUGCmUmU
555	431	CAGACCAGCAUGACAGAUUmUmU	2462	AAUCUGUCAUGCUGGUCUGmUmU
556	432	AGACCAGCAUGACAGAUUUmUmU	2463	AAAUCUGUCAUGCUGGUCUmUmU
557	433	GACCAGCAUGACAGAUUUCmUmU	2464	GAAAUCUGUCAUGCUGGUCmUmU
558	434	ACCAGCAUGACAGAUUUCUmUmU	2465	AGAAAUCUGUCAUGCUGGUmUmU
559	435	CCAGCAUGACAGAUUUCUAmUmU	2466	UAGAAAUCUGUCAUGCUGGmUmU
560	436	CAGCAUGACAGAUUUCUACmUmU	2467	GUAGAAAUCUGUCAUGCUGmUmU
561	437	AGCAUGACAGAUUUCUACCmUmU	2468	GGUAGAAAUCUGUCAUGCUmUmU
562	438	GCAUGACAGAUUUCUACCAmUmU	2469	UGGUAGAAAUCUGUCAUGCmUmU
563	439	CAUGACAGAUUUCUACCACmUmU	2470	GUGGUAGAAAUCUGUCAUGmUmU
564	440	AUGACAGAUUUCUACCACUmUmU	2471	AGUGGUAGAAAUCUGUCAUmUmU
565	441	UGACAGAUUUCUACCACUCmUmU	2472	GAGUGGUAGAAAUCUGUCAmUmU
566	442	GACAGAUUUCUACCACUCCmUmU	2473	GGAGUGGUAGAAAUCUGUCmUmU
567	443	ACAGAUUUCUACCACUCCAmUmU	2474	UGGAGUGGUAGAAAUCUGUmUmU
568	444	CAGAUUUCUACCACUCCAAmUmU	2475	UUGGAGUGGUAGAAAUCUGmUmU
569	445	AGAUUUCUACCACUCCAAAmUmU	2476	UUUGGAGUGGUAGAAAUCUmUmU
570	446	GAUUUCUACCACUCCAAACmUmU	2477	GUUUGGAGUGGUAGAAAUCmUmU
571	447	AUUUCUACCACUCCAAACGmUmU	2478	CGUUUGGAGUGGUAGAAAUmUmU
572	448	UUUCUACCACUCCAAACGCmUmU	2479	GCGUUUGGAGUGGUAGAAAmUmU
573	449	UUCUACCACUCCAAACGCCmUmU	2480	GGCGUUUGGAGUGGUAGAAmUmU
574	450	UCUACCACUCCAAACGCCGmUmU	2481	CGGCGUUUGGAGUGGUAGAmUmU
575	451	CUACCACUCCAAACGCCGGmUmU	2482	CCGGCGUUUGGAGUGGUAGmUmU
576	452	UACCACUCCAAACGCCGGCmUmU	2483	GCCGGCGUUUGGAGUGGUAmUmU
577	453	ACCACUCCAAACGCCGGCUmUmU	2484	AGCCGGCGUUUGGAGUGGUmUmU
578	454	CCACUCCAAACGCCGGCUGmUmU	2485	CAGCCGGCGUUUGGAGUGGmUmU
579	455	CACUCCAAACGCCGGCUGAmUmU	2486	UCAGCCGGCGUUUGGAGUGmUmU
580	456	ACUCCAAACGCCGGCUGAUmUmU	2487	AUCAGCCGGCGUUUGGAGUmUmU
581	457	CUCCAAACGCCGGCUGAUCmUmU	2488	GAUCAGCCGGCGUUUGGAGmUmU
582	458	UCCAAACGCCGGCUGAUCUmUmU	2489	AGAUCAGCCGGCGUUUGGAmUmU
583	459	CCAAACGCCGGCUGAUCUUmUmU	2490	AAGAUCAGCCGGCGUUUGGmUmU
584	460	CAAACGCCGGCUGAUCUUCmUmU	2491	GAAGAUCAGCCGGCGUUUGmUmU
585	461	AAACGCCGGCUGAUCUUCUmUmU	2492	AGAAGAUCAGCCGGCGUUUmUmU
586	462	AACGCCGGCUGAUCUUCUCmUmU	2493	GAGAAGAUCAGCCGGCGUUmUmU
587	463	ACGCCGGCUGAUCUUCUCCmUmU	2494	GGAGAAGAUCAGCCGGCGUmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
588	464	CGCCGGCUGAUCUUCUCCAmUmU	2495	UGGAGAAGAUCAGCCGGCGmUmU
589	465	GCCGGCUGAUCUUCUCCAAmUmU	2496	UUGGAGAAGAUCAGCCGGCmUmU
590	466	CCGGCUGAUCUUCUCCAAGmUmU	2497	CUUGGAGAAGAUCAGCCGGmUmU
591	467	CGGCUGAUCUUCUCCAAGAmUmU	2498	UCUUGGAGAAGAUCAGCCGmUmU
592	468	GGCUGAUCUUCUCCAAGAGmUmU	2499	CUCUUGGAGAAGAUCAGCCmUmU
593	469	GCUGAUCUUCUCCAAGAGGmUmU	2500	CCUCUUGGAGAAGAUCAGCmUmU
594	470	CUGAUCUUCUCCAAGAGGAmUmU	2501	UCCUCUUGGAGAAGAUCAGmUmU
595	471	UGAUCUUCUCCAAGAGGAAmUmU	2502	UUCCUCUUGGAGAAGAUCAmUmU
596	472	GAUCUUCUCCAAGAGGAAGmUmU	2503	CUUCCUCUUGGAGAAGAUCmUmU
597	473	AUCUUCUCCAAGAGGAAGCmUmU	2504	GCUUCCUCUUGGAGAAGAUmUmU
598	474	UCUUCUCCAAGAGGAAGCCmUmU	2505	GGCUUCCUCUUGGAGAAGAmUmU
599	475	CUUCUCCAAGAGGAAGCCCmUmU	2506	GGGCUUCCUCUUGGAGAAGmUmU
600	476	UUCUCCAAGAGGAAGCCCUmUmU	2507	AGGGCUUCCUCUUGGAGAAmUmU
601	477	UCUCCAAGAGGAAGCCCUAmUmU	2508	UAGGGCUUCCUCUUGGAGAmUmU
602	478	CUCCAAGAGGAAGCCCUAAmUmU	2509	UUAGGGCUUCCUCUUGGAGmUmU
603	479	UCCAAGAGGAAGCCCUAAUmUmU	2510	AUUAGGGCUUCCUCUUGGAmUmU
604	480	CCAAGAGGAAGCCCUAAUCmUmU	2511	GAUUAGGGCUUCCUCUUGGmUmU
605	481	CAAGAGGAAGCCCUAAUCCmUmU	2512	GGAUUAGGGCUUCCUCUUGmUmU
606	482	AAGAGGAAGCCCUAAUCCGmUmU	2513	CGGAUUAGGGCUUCCUCUUmUmU
607	483	AGAGGAAGCCCUAAUCCGCmUmU	2514	GCGGAUUAGGGCUUCCUCUmUmU
608	484	GAGGAAGCCCUAAUCCGCCmUmU	2515	GGCGGAUUAGGGCUUCCUCmUmU
609	485	AGGAAGCCCUAAUCCGCCCmUmU	2516	GGGCGGAUUAGGGCUUCCUmUmU
610	486	GGAAGCCCUAAUCCGCCCAmUmU	2517	UGGGCGGAUUAGGGCUUCCmUmU
611	487	GAAGCCCUAAUCCGCCCACmUmU	2518	GUGGGCGGAUUAGGGCUUCmUmU
612	488	AAGCCCUAAUCCGCCCACAmUmU	2519	UGUGGGCGGAUUAGGGCUUmUmU
613	489	AGCCCUAAUCCGCCCACAGmUmU	2520	CUGUGGGCGGAUUAGGGCUmUmU
614	490	GCCCUAAUCCGCCCACAGGmUmU	2521	CCUGUGGGCGGAUUAGGGCmUmU
615	491	CCCUAAUCCGCCCACAGGAmUmU	2522	UCCUGUGGGCGGAUUAGGGmUmU
616	492	CCUAAUCCGCCCACAGGAAmUmU	2523	UUCCUGUGGGCGGAUUAGGmUmU
617	493	CUAAUCCGCCCACAGGAAGmUmU	2524	CUUCCUGUGGGCGGAUUAGmUmU
618	494	UAAUCCGCCCACAGGAAGCmUmU	2525	GCUUCCUGUGGGCGGAUUAmUmU
619	495	AAUCCGCCCACAGGAAGCCmUmU	2526	GGCUUCCUGUGGGCGGAUUmUmU
620	496	AUCCGCCCACAGGAAGCCUmUmU	2527	AGGCUUCCUGUGGGCGGAUmUmU
621	497	UCCGCCCACAGGAAGCCUGmUmU	2528	CAGGCUUCCUGUGGGCGGAmUmU
622	498	CCGCCCACAGGAAGCCUGCmUmU	2529	GCAGGCUUCCUGUGGGCGGmUmU
623	499	CGCCCACAGGAAGCCUGCAmUmU	2530	UGCAGGCUUCCUGUGGGCGmUmU
624	500	GCCCACAGGAAGCCUGCAGmUmU	2531	CUGCAGGCUUCCUGUGGGCmUmU
625	501	CCCACAGGAAGCCUGCAGUmUmU	2532	ACUGCAGGCUUCCUGUGGGmUmU
626	502	CCACAGGAAGCCUGCAGUCmUmU	2533	GACUGCAGGCUUCCUGUGGmUmU
627	503	CACAGGAAGCCUGCAGUCCmUmU	2534	GGACUGCAGGCUUCCUGUGmUmU
628	504	ACAGGAAGCCUGCAGUCCUmUmU	2535	AGGACUGCAGGCUUCCUGUmUmU
629	505	CAGGAAGCCUGCAGUCCUGmUmU	2536	CAGGACUGCAGGCUUCCUGmUmU
630	506	AGGAAGCCUGCAGUCCUGGmUmU	2537	CCAGGACUGCAGGCUUCCUmUmU
631	507	GGAAGCCUGCAGUCCUGGAmUmU	2538	UCCAGGACUGCAGGCUUCCmUmU
632	508	GAAGCCUGCAGUCCUGGAAmUmU	2539	UUCCAGGACUGCAGGCUUCmUmU
633	509	AAGCCUGCAGUCCUGGAAGmUmU	2540	CUUCCAGGACUGCAGGCUUmUmU
634	510	AGCCUGCAGUCCUGGAAGCmUmU	2541	GCUUCCAGGACUGCAGGCUmUmU
635	511	GCCUGCAGUCCUGGAAGCGmUmU	2542	CGCUUCCAGGACUGCAGGCmUmU
636	512	CCUGCAGUCCUGGAAGCGCmUmU	2543	GCGCUUCCAGGACUGCAGGmUmU
637	513	CUGCAGUCCUGGAAGCGCGmUmU	2544	CGCGCUUCCAGGACUGCAGmUmU
638	514	UGCAGUCCUGGAAGCGCGAmUmU	2545	UCGCGCUUCCAGGACUGCAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
639	515	GCAGUCCUGGAAGCGCGAGmUmU	2546	CUCGCGCUUCCAGGACUGCmUmU
640	516	CAGUCCUGGAAGCGCGAGGmUmU	2547	CCUCGCGCUUCCAGGACUGmUmU
641	517	AGUCCUGGAAGCGCGAGGGmUmU	2548	CCCUCGCGCUUCCAGGACUmUmU
642	518	GUCCUGGAAGCGCGAGGGCmUmU	2549	GCCCUCGCGCUUCCAGGACmUmU
643	519	UCCUGGAAGCGCGAGGGCCmUmU	2550	GGCCCUCGCGCUUCCAGGAmUmU
644	520	CCUGGAAGCGCGAGGGCCUmUmU	2551	AGGCCCUCGCGCUUCCAGGmUmU
645	521	CUGGAAGCGCGAGGGCCUCmUmU	2552	GAGGCCCUCGCGCUUCCAGmUmU
646	522	UGGAAGCGCGAGGGCCUCAmUmU	2553	UGAGGCCCUCGCGCUUCCAmUmU
647	523	GGAAGCGCGAGGGCCUCAAmUmU	2554	UUGAGGCCCUCGCGCUUCCmUmU
648	524	GAAGCGCGAGGGCCUCAAAmUmU	2555	UUUGAGGCCCUCGCGCUUCmUmU
649	525	AAGCGCGAGGGCCUCAAAGmUmU	2556	CUUUGAGGCCCUCGCGCUUmUmU
650	526	AGCGCGAGGGCCUCAAAGGmUmU	2557	CCUUUGAGGCCCUCGCGCUmUmU
651	527	GCGCGAGGGCCUCAAAGGCmUmU	2558	GCCUUUGAGGCCCUCGCGCmUmU
652	528	CGCGAGGGCCUCAAAGGCCmUmU	2559	GGCCUUUGAGGCCCUCGCGmUmU
653	529	GCGAGGGCCUCAAAGGCCCmUmU	2560	GGGCCUUUGAGGCCCUCGCmUmU
654	530	CGAGGGCCUCAAAGGCCCGmUmU	2561	CGGGCCUUUGAGGCCCUCGmUmU
655	531	GAGGGCCUCAAAGGCCCGCmUmU	2562	GCGGGCCUUUGAGGCCCUCmUmU
656	532	AGGGCCUCAAAGGCCCGCUmUmU	2563	AGCGGGCCUUUGAGGCCCUmUmU
657	533	GGGCCUCAAAGGCCCGCUCmUmU	2564	GAGCGGGCCUUUGAGGCCCmUmU
658	534	GGCCUCAAAGGCCCGCUCUmUmU	2565	AGAGCGGGCCUUUGAGGCCmUmU
659	535	GCCUCAAAGGCCCGCUCUAmUmU	2566	UAGAGCGGGCCUUUGAGGCmUmU
660	536	CCUCAAAGGCCCGCUCUACmUmU	2567	GUAGAGCGGGCCUUUGAGGmUmU
661	537	CUCAAAGGCCCGCUCUACAmUmU	2568	UGUAGAGCGGGCCUUUGAGmUmU
662	538	UCAAAGGCCCGCUCUACAUmUmU	2569	AUGUAGAGCGGGCCUUUGAmUmU
663	539	CAAAGGCCCGCUCUACAUCmUmU	2570	GAUGUAGAGCGGGCCUUUGmUmU
664	540	AAAGGCCCGCUCUACAUCUmUmU	2571	AGAUGUAGAGCGGGCCUUUmUmU
665	541	AAGGCCCGCUCUACAUCUUmUmU	2572	AAGAUGUAGAGCGGGCCUUmUmU
666	542	AGGCCCGCUCUACAUCUUCmUmU	2573	GAAGAUGUAGAGCGGGCCUmUmU
667	543	GGCCCGCUCUACAUCUUCUmUmU	2574	AGAAGAUGUAGAGCGGGCCmUmU
668	544	GCCCGCUCUACAUCUUCUGmUmU	2575	CAGAAGAUGUAGAGCGGGCmUmU
669	545	CCCGCUCUACAUCUUCUGCmUmU	2576	GCAGAAGAUGUAGAGCGGGmUmU
670	546	CCGCUCUACAUCUUCUGCCmUmU	2577	GGCAGAAGAUGUAGAGCGGmUmU
671	547	CGCUCUACAUCUUCUGCCUmUmU	2578	AGGCAGAAGAUGUAGAGCGmUmU
672	548	GCUCUACAUCUUCUGCCUUmUmU	2579	AAGGCAGAAGAUGUAGAGCmUmU
673	549	CUCUACAUCUUCUGCCUUAmUmU	2580	UAAGGCAGAAGAUGUAGAGmUmU
674	550	UCUACAUCUUCUGCCUUAGmUmU	2581	CUAAGGCAGAAGAUGUAGAmUmU
675	551	CUACAUCUUCUGCCUUAGUmUmU	2582	ACUAAGGCAGAAGAUGUAGmUmU
676	552	UACAUCUUCUGCCUUAGUCmUmU	2583	GACUAAGGCAGAAGAUGUAmUmU
677	553	ACAUCUUCUGCCUUAGUCUmUmU	2584	AGACUAAGGCAGAAGAUGUmUmU
678	554	CAUCUUCUGCCUUAGUCUCmUmU	2585	GAGACUAAGGCAGAAGAUGmUmU
679	555	AUCUUCUGCCUUAGUCUCAmUmU	2586	UGAGACUAAGGCAGAAGAUmUmU
680	556	UCUUCUGCCUUAGUCUCAGmUmU	2587	CUGAGACUAAGGCAGAAGAmUmU
681	557	CUUCUGCCUUAGUCUCAGUmUmU	2588	ACUGAGACUAAGGCAGAAGmUmU
682	558	UUCUGCCUUAGUCUCAGUUmUmU	2589	AACUGAGACUAAGGCAGAAmUmU
683	559	UCUGCCUUAGUCUCAGUUUmUmU	2590	AAACUGAGACUAAGGCAGAmUmU
684	560	CUGCCUUAGUCUCAGUUUGmUmU	2591	CAAACUGAGACUAAGGCAGmUmU
685	561	UGCCUUAGUCUCAGUUUGUmUmU	2592	ACAAACUGAGACUAAGGCAmUmU
686	562	GCCUUAGUCUCAGUUUGUGmUmU	2593	CACAAACUGAGACUAAGGCmUmU
687	563	CCUUAGUCUCAGUUUGUGUmUmU	2594	ACACAAACUGAGACUAAGGmUmU
688	564	CUUAGUCUCAGUUUGUGUGmUmU	2595	CACACAAACUGAGACUAAGmUmU
689	565	UUAGUCUCAGUUUGUGUGUmUmU	2596	ACACACAAACUGAGACUAAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
690	566	UAGUCUCAGUUUGUGUGUCmUmU	2597	GACACACAAACUGAGACUAmUmU
691	567	AGUCUCAGUUUGUGUGUCUmUmU	2598	AGACACACAAACUGAGACUmUmU
692	568	GUCUCAGUUUGUGUGUCUUmUmU	2599	AAGACACACAAACUGAGACmUmU
693	569	UCUCAGUUUGUGUGUCUUAmUmU	2600	UAAGACACACAAACUGAGAmUmU
694	570	CUCAGUUUGUGUGUCUUAAmUmU	2601	UUAAGACACACAAACUGAGmUmU
695	571	UCAGUUUGUGUGUCUUAAUmUmU	2602	AUUAAGACACACAAACUGAmUmU
696	572	CAGUUUGUGUGUCUUAAUUmUmU	2603	AAUUAAGACACACAAACUGmUmU
697	573	AGUUUGUGUGUCUUAAUUAmUmU	2604	UAAUUAAGACACACAAACUmUmU
698	574	GUUUGUGUGUCUUAAUUAUmUmU	2605	AUAAUUAAGACACACAAACmUmU
699	575	UUUGUGUGUCUUAAUUAUUmUmU	2606	AAUAAUUAAGACACACAAAmUmU
700	576	UUGUGUGUCUUAAUUAUUAmUmU	2607	UAAUAAUUAAGACACACAAmUmU
701	577	UGUGUGUCUUAAUUAUUAUmUmU	2608	AUAAUAAUUAAGACACACAmUmU
702	578	GUGUGUCUUAAUUAUUAUUmUmU	2609	AAUAAUAAUUAAGACACACmUmU
703	579	UGUGUCUUAAUUAUUAUUUmUmU	2610	AAAUAAUAAUUAAGACACAmUmU
704	580	GUGUCUUAAUUAUUAUUUGmUmU	2611	CAAAUAAUAAUUAAGACACmUmU
705	581	UGUCUUAAUUAUUAUUUGUmUmU	2612	ACAAAUAAUAAUUAAGACAmUmU
706	582	GUCUUAAUUAUUAUUUGUGmUmU	2613	CACAAAUAAUAAUUAAGACmUmU
707	583	UCUUAAUUAUUAUUUGUGUmUmU	2614	ACACAAAUAAUAAUUAAGAmUmU
708	584	CUUAAUUAUUAUUUGUGUUmUmU	2615	AACACAAAUAAUAAUUAAGmUmU
709	585	UUAAUUAUUAUUUGUGUUUmUmU	2616	AAACACAAAUAAUAAUUAAmUmU
710	586	UAAUUAUUAUUUGUGUUUUmUmU	2617	AAAACACAAAUAAUAAUUAmUmU
711	587	AAUUAUUAUUUGUGUUUUAmUmU	2618	UAAAACACAAAUAAUAAUUmUmU
712	588	AUUAUUAUUUGUGUUUUAAmUmU	2619	UUAAAACACAAAUAAUAAUmUmU
713	589	UUAUUAUUUGUGUUUUAAUmUmU	2620	AUUAAAACACAAAUAAUAAmUmU
714	590	UAUUAUUUGUGUUUUAAUUmUmU	2621	AAUUAAAACACAAAUAAUAmUmU
715	591	AUUAUUUGUGUUUUAAUUUmUmU	2622	AAAUUAAAACACAAAUAAUmUmU
716	592	UUAUUUGUGUUUUAAUUUAmUmU	2623	UAAAUUAAAACACAAAUAAmUmU
717	593	UAUUUGUGUUUUAAUUUAAmUmU	2624	UUAAAUUAAAACACAAAUAmUmU
718	594	AUUUGUGUUUUAAUUUAAAmUmU	2625	UUUAAAUUAAAACACAAAUmUmU
719	595	UUUGUGUUUUAAUUUAAACmUmU	2626	GUUUAAAUUAAAACACAAAmUmU
720	596	UUGUGUUUUAAUUUAAACAmUmU	2627	UGUUUAAAUUAAAACACAAmUmU
721	597	UGUGUUUUAAUUUAAACACmUmU	2628	GUGUUUAAAUUAAAACACAmUmU
722	598	GUGUUUUAAUUUAAACACCmUmU	2629	GGUGUUUAAAUUAAAACACmUmU
723	599	UGUUUUAAUUUAAACACCUmUmU	2630	AGGUGUUUAAAUUAAAACAmUmU
724	600	GUUUUAAUUUAAACACCUCmUmU	2631	GAGGUGUUUAAAUUAAAACmUmU
725	601	UUUUAAUUUAAACACCUCCmUmU	2632	GGAGGUGUUUAAAUUAAAAmUmU
726	602	UUUAAUUUAAACACCUCCUmUmU	2633	AGGAGGUGUUUAAAUUAAAmUmU
727	603	UUAAUUUAAACACCUCCUCmUmU	2634	GAGGAGGUGUUUAAAUUAAmUmU
728	604	UAAUUUAAACACCUCCUCAmUmU	2635	UGAGGAGGUGUUUAAAUUAmUmU
729	605	AAUUUAAACACCUCCUCAUmUmU	2636	AUGAGGAGGUGUUUAAAUUmUmU
730	606	AUUUAAACACCUCCUCAUGmUmU	2637	CAUGAGGAGGUGUUUAAAUmUmU
731	607	UUUAAACACCUCCUCAUGUmUmU	2638	ACAUGAGGAGGUGUUUAAAmUmU
732	608	UUAAACACCUCCUCAUGUAmUmU	2639	UACAUGAGGAGGUGUUUAAmUmU
733	609	UAAACACCUCCUCAUGUACmUmU	2640	GUACAUGAGGAGGUGUUUAmUmU
734	610	AAACACCUCCUCAUGUACAmUmU	2641	UGUACAUGAGGAGGUGUUUmUmU
735	611	AACACCUCCUCAUGUACAUmUmU	2642	AUGUACAUGAGGAGGUGUUmUmU
736	612	ACACCUCCUCAUGUACAUAmUmU	2643	UAUGUACAUGAGGAGGUGUmUmU
737	613	CACCUCCUCAUGUACAUACmUmU	2644	GUAUGUACAUGAGGAGGUGmUmU
738	614	ACCUCCUCAUGUACAUACCmUmU	2645	GGUAUGUACAUGAGGAGGUmUmU
739	615	CCUCCUCAUGUACAUACCCmUmU	2646	GGGUAUGUACAUGAGGAGGmUmU
740	616	CUCCUCAUGUACAUACCCUmUmU	2647	AGGGUAUGUACAUGAGGAGmUmU

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741	617	UCCUCAUGUACAUACCCUGmUmU	2648	CAGGGUAUGUACAUGAGGAmUmU
742	618	CCUCAUGUACAUACCCUGGmUmU	2649	CCAGGGUAUGUACAUGAGGmUmU
743	619	CUCAUGUACAUACCCUGGCmUmU	2650	GCCAGGGUAUGUACAUGAGmUmU
744	620	UCAUGUACAUACCCUGGCCmUmU	2651	GGCCAGGGUAUGUACAUGAmUmU
745	621	CAUGUACAUACCCUGGCCGmUmU	2652	CGGCCAGGGUAUGUACAUGmUmU
746	622	AUGUACAUACCCUGGCCGCmUmU	2653	GCGGCCAGGGUAUGUACAUmUmU
747	623	UGUACAUACCCUGGCCGCCmUmU	2654	GGCGGCCAGGGUAUGUACAmUmU
748	624	GUACAUACCCUGGCCGCCCmUmU	2655	GGGCGGCCAGGGUAUGUACmUmU
749	625	UACAUACCCUGGCCGCCCCmUmU	2656	GGGGCGGCCAGGGUAUGUAmUmU
750	626	ACAUACCCUGGCCGCCCCCmUmU	2657	GGGGGCGGCCAGGGUAUGUmUmU
751	627	CAUACCCUGGCCGCCCCCUmUmU	2658	AGGGGGCGGCCAGGGUAUGmUmU
752	628	AUACCCUGGCCGCCCCCUGmUmU	2659	CAGGGGGCGGCCAGGGUAUmUmU
753	629	UACCCUGGCCGCCCCCUGCmUmU	2660	GCAGGGGGCGGCCAGGGUAmUmU
754	630	ACCCUGGCCGCCCCCUGCCmUmU	2661	GGCAGGGGGCGGCCAGGGUmUmU
755	631	CCCUGGCCGCCCCCUGCCCmUmU	2662	GGGCAGGGGGCGGCCAGGGmUmU
756	632	CCUGGCCGCCCCCUGCCCCmUmU	2663	GGGGCAGGGGGCGGCCAGGmUmU
757	633	CUGGCCGCCCCCUGCCCCCmUmU	2664	GGGGGCAGGGGGCGGCCAGmUmU
758	634	UGGCCGCCCCCUGCCCCCCmUmU	2665	GGGGGGCAGGGGGCGGCCAmUmU
759	635	GGCCGCCCCCUGCCCCCCAmUmU	2666	UGGGGGGCAGGGGGCGGCCmUmU
760	636	GCCGCCCCCUGCCCCCCAGmUmU	2667	CUGGGGGGCAGGGGGCGGCmUmU
761	637	CCGCCCCCUGCCCCCCAGCmUmU	2668	GCUGGGGGGCAGGGGGCGGmUmU
762	638	CGCCCCCUGCCCCCCAGCCmUmU	2669	GGCUGGGGGGCAGGGGGCGmUmU
763	639	GCCCCCUGCCCCCCAGCCUmUmU	2670	AGGCUGGGGGGCAGGGGGCmUmU
764	640	CCCCCUGCCCCCCAGCCUCmUmU	2671	GAGGCUGGGGGGCAGGGGGmUmU
765	641	CCCCUGCCCCCCAGCCUCUmUmU	2672	AGAGGCUGGGGGGCAGGGGmUmU
766	642	CCCUGCCCCCCAGCCUCUGmUmU	2673	CAGAGGCUGGGGGGCAGGGmUmU
767	643	CCUGCCCCCCAGCCUCUGGmUmU	2674	CCAGAGGCUGGGGGGCAGGmUmU
768	644	CUGCCCCCCAGCCUCUGGCmUmU	2675	GCCAGAGGCUGGGGGGCAGmUmU
769	645	UGCCCCCCAGCCUCUGGCAmUmU	2676	UGCCAGAGGCUGGGGGGCAmUmU
770	646	GCCCCCCAGCCUCUGGCAUmUmU	2677	AUGCCAGAGGCUGGGGGGCmUmU
771	647	CCCCCCAGCCUCUGGCAUUmUmU	2678	AAUGCCAGAGGCUGGGGGGmUmU
772	648	CCCCCAGCCUCUGGCAUUAmUmU	2679	UAAUGCCAGAGGCUGGGGGmUmU
773	649	CCCCAGCCUCUGGCAUUAGmUmU	2680	CUAAUGCCAGAGGCUGGGGmUmU
774	650	CCCAGCCUCUGGCAUUAGAmUmU	2681	UCUAAUGCCAGAGGCUGGGmUmU
775	651	CCAGCCUCUGGCAUUAGAAmUmU	2682	UUCUAAUGCCAGAGGCUGGmUmU
776	652	CAGCCUCUGGCAUUAGAAUmUmU	2683	AUUCUAAUGCCAGAGGCUGmUmU
777	653	AGCCUCUGGCAUUAGAAUUmUmU	2684	AAUUCUAAUGCCAGAGGCUmUmU
778	654	GCCUCUGGCAUUAGAAUUAmUmU	2685	UAAUUCUAAUGCCAGAGGCmUmU
779	655	CCUCUGGCAUUAGAAUUAUmUmU	2686	AUAAUUCUAAUGCCAGAGGmUmU
780	656	CUCUGGCAUUAGAAUUAUUmUmU	2687	AAUAAUUCUAAUGCCAGAGmUmU
781	657	UCUGGCAUUAGAAUUAUUUmUmU	2688	AAAUAAUUCUAAUGCCAGAmUmU
782	658	CUGGCAUUAGAAUUAUUUAmUmU	2689	UAAAUAAUUCUAAUGCCAGmUmU
783	659	UGGCAUUAGAAUUAUUUAAmUmU	2690	UUAAAUAAUUCUAAUGCCAmUmU
784	660	GGCAUUAGAAUUAUUUAAAmUmU	2691	UUUAAAUAAUUCUAAUGCCmUmU
785	661	GCAUUAGAAUUAUUUAAACmUmU	2692	GUUUAAAUAAUUCUAAUGCmUmU
786	662	CAUUAGAAUUAUUUAAACAmUmU	2693	UGUUUAAAUAAUUCUAAUGmUmU
787	663	AUUAGAAUUAUUUAAACAAmUmU	2694	UUGUUUAAAUAAUUCUAAUmUmU
788	664	UUAGAAUUAUUUAAACAAAmUmU	2695	UUUGUUUAAAUAAUUCUAAmUmU
789	665	UAGAAUUAUUUAAACAAAAmUmU	2696	UUUUGUUUAAAUAAUUCUAmUmU
790	666	AGAAUUAUUUAAACAAAAAmUmU	2697	UUUUUGUUUAAAUAAUUCUmUmU
791	667	GAAUUAUUUAAACAAAAACmUmU	2698	GUUUUUGUUUAAAUAAUUCmUmU

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792	668	AAUUAUUUAAACAAAAACUmUmU	2699	AGUUUUUGUUUAAAUAAUUmUmU
793	669	AUUAUUUAAACAAAAACUAmUmU	2700	UAGUUUUUGUUUAAAUAAUmUmU
794	670	UUAUUUAAACAAAAACUAGmUmU	2701	CUAGUUUUUGUUUAAAUAAmUmU
795	671	UAUUUAAACAAAAACUAGGmUmU	2702	CCUAGUUUUUGUUUAAAUAmUmU
796	672	AUUUAAACAAAAACUAGGCmUmU	2703	GCCUAGUUUUUGUUUAAAUmUmU
797	673	UUUAAACAAAAACUAGGCGmUmU	2704	CGCCUAGUUUUUGUUUAAAmUmU
798	674	UUAAACAAAAACUAGGCGGmUmU	2705	CCGCCUAGUUUUUGUUUAAmUmU
799	675	UAAACAAAAACUAGGCGGUmUmU	2706	ACCGCCUAGUUUUUGUUUAmUmU
800	676	AAACAAAAACUAGGCGGUUmUmU	2707	AACCGCCUAGUUUUUGUUUmUmU
801	677	AACAAAAACUAGGCGGUUGmUmU	2708	CAACCGCCUAGUUUUUGUUmUmU
802	678	ACAAAAACUAGGCGGUUGAmUmU	2709	UCAACCGCCUAGUUUUUGUmUmU
803	679	CAAAAACUAGGCGGUUGAAmUmU	2710	UUCAACCGCCUAGUUUUUGmUmU
804	680	AAAAACUAGGCGGUUGAAUmUmU	2711	AUUCAACCGCCUAGUUUUUmUmU
805	681	AAAACUAGGCGGUUGAAUGmUmU	2712	CAUUCAACCGCCUAGUUUUmUmU
806	682	AAACUAGGCGGUUGAAUGAmUmU	2713	UCAUUCAACCGCCUAGUUUmUmU
807	683	AACUAGGCGGUUGAAUGAGmUmU	2714	CUCAUUCAACCGCCUAGUUmUmU
808	684	ACUAGGCGGUUGAAUGAGAmUmU	2715	UCUCAUUCAACCGCCUAGUmUmU
809	685	CUAGGCGGUUGAAUGAGAGmUmU	2716	CUCUCAUUCAACCGCCUAGmUmU
810	686	UAGGCGGUUGAAUGAGAGGmUmU	2717	CCUCUCAUUCAACCGCCUAmUmU
811	687	AGGCGGUUGAAUGAGAGGUmUmU	2718	ACCUCUCAUUCAACCGCCUmUmU
812	688	GGCGGUUGAAUGAGAGGUUmUmU	2719	AACCUCUCAUUCAACCGCCmUmU
813	689	GCGGUUGAAUGAGAGGUUCmUmU	2720	GAACCUCUCAUUCAACCGCmUmU
814	690	CGGUUGAAUGAGAGGUUCCmUmU	2721	GGAACCUCUCAUUCAACCGmUmU
815	691	GGUUGAAUGAGAGGUUCCUmUmU	2722	AGGAACCUCUCAUUCAACCmUmU
816	692	GUUGAAUGAGAGGUUCCUAmUmU	2723	UAGGAACCUCUCAUUCAACmUmU
817	693	UUGAAUGAGAGGUUCCUAAmUmU	2724	UUAGGAACCUCUCAUUCAAmUmU
818	694	UGAAUGAGAGGUUCCUAAGmUmU	2725	CUUAGGAACCUCUCAUUCAmUmU
819	695	GAAUGAGAGGUUCCUAAGAmUmU	2726	UCUUAGGAACCUCUCAUUCmUmU
820	696	AAUGAGAGGUUCCUAAGAGmUmU	2727	CUCUUAGGAACCUCUCAUUmUmU
821	697	AUGAGAGGUUCCUAAGAGUmUmU	2728	ACUCUUAGGAACCUCUCAUmUmU
822	698	UGAGAGGUUCCUAAGAGUGmUmU	2729	CACUCUUAGGAACCUCUCAmUmU
823	699	GAGAGGUUCCUAAGAGUGCmUmU	2730	GCACUCUUAGGAACCUCUCmUmU
824	700	AGAGGUUCCUAAGAGUGCUmUmU	2731	AGCACUCUUAGGAACCUCUmUmU
825	701	GAGGUUCCUAAGAGUGCUGmUmU	2732	CAGCACUCUUAGGAACCUCmUmU
826	702	AGGUUCCUAAGAGUGCUGGmUmU	2733	CCAGCACUCUUAGGAACCUmUmU
827	703	GGUUCCUAAGAGUGCUGGGmUmU	2734	CCCAGCACUCUUAGGAACCmUmU
828	704	GUUCCUAAGAGUGCUGGGCmUmU	2735	GCCCAGCACUCUUAGGAACmUmU
829	705	UUCCUAAGAGUGCUGGGCAmUmU	2736	UGCCCAGCACUCUUAGGAAmUmU
831	706	CCUAAGAGUGCUGGGCAUUmUmU	2737	AAUGCCCAGCACUCUUAGGmUmU
832	707	CUAAGAGUGCUGGGCAUUUmUmU	2738	AAAUGCCCAGCACUCUUAGmUmU
833	708	UAAGAGUGCUGGGCAUUUUmUmU	2739	AAAAUGCCCAGCACUCUUAmUmU
834	709	AAGAGUGCUGGGCAUUUUUmUmU	2740	AAAAAUGCCCAGCACUCUUmUmU
835	710	AGAGUGCUGGGCAUUUUUAmUmU	2741	UAAAAAUGCCCAGCACUCUmUmU
836	711	GAGUGCUGGGCAUUUUUAUmUmU	2742	AUAAAAAUGCCCAGCACUCmUmU
837	712	AGUGCUGGGCAUUUUUAUUmUmU	2743	AAUAAAAAUGCCCAGCACUmUmU
838	713	GUGCUGGGCAUUUUUAUUUmUmU	2744	AAAUAAAAAUGCCCAGCACmUmU
839	714	UGCUGGGCAUUUUUAUUUUmUmU	2745	AAAAUAAAAAUGCCCAGCAmUmU
840	715	GCUGGGCAUUUUUAUUUUAmUmU	2746	UAAAAUAAAAAUGCCCAGCmUmU
841	716	CUGGGCAUUUUUAUUUUAUmUmU	2747	AUAAAAUAAAAAUGCCCAGmUmU
842	717	UGGGCAUUUUUAUUUUAUGmUmU	2748	CAUAAAAUAAAAAUGCCCAmUmU
843	718	GGGCAUUUUUAUUUUAUGAmUmU	2749	UCAUAAAAUAAAAAUGCCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
844	719	GGCAUUUUUAUUUUAUGAAmUmU	2750	UUCAUAAAAUAAAAAUGCCmUmU
845	720	GCAUUUUUAUUUUAUGAAAmUmU	2751	UUUCAUAAAAUAAAAAUGCmUmU
846	721	CAUUUUUAUUUUAUGAAAUmUmU	2752	AUUUCAUAAAAUAAAAAUGmUmU
847	722	AUUUUUAUUUUAUGAAAUAmUmU	2753	UAUUUCAUAAAAUAAAAAUmUmU
848	723	UUUUUAUUUUAUGAAAUACmUmU	2754	GUAUUUCAUAAAAUAAAAAmUmU
849	724	UUUUAUUUUAUGAAAUACUmUmU	2755	AGUAUUUCAUAAAAUAAAAmUmU
850	725	UUUAUUUUAUGAAAUACUAmUmU	2756	UAGUAUUUCAUAAAAUAAAmUmU
851	726	UUAUUUUAUGAAAUACUAUmUmU	2757	AUAGUAUUUCAUAAAAUAAmUmU
852	727	UAUUUUAUGAAAUACUAUUmUmU	2758	AAUAGUAUUUCAUAAAAUAmUmU
853	728	AUUUUAUGAAAUACUAUUUmUmU	2759	AAAUAGUAUUUCAUAAAAUmUmU
854	729	UUUUAUGAAAUACUAUUUAmUmU	2760	UAAAUAGUAUUUCAUAAAAmUmU
855	730	UUUAUGAAAUACUAUUUAAmUmU	2761	UUAAAUAGUAUUUCAUAAAmUmU
856	731	UUAUGAAAUACUAUUUAAAmUmU	2762	UUUAAAUAGUAUUUCAUAAmUmU
857	732	UAUGAAAUACUAUUUAAAGmUmU	2763	CUUUAAAUAGUAUUUCAUAmUmU
858	733	AUGAAAUACUAUUUAAAGCmUmU	2764	GCUUUAAAUAGUAUUUCAUmUmU
859	734	UGAAAUACUAUUUAAAGCCmUmU	2765	GGCUUUAAAUAGUAUUUCAmUmU
860	735	GAAAUACUAUUUAAAGCCUmUmU	2766	AGGCUUUAAAUAGUAUUUCmUmU
861	736	AAAUACUAUUUAAAGCCUCmUmU	2767	GAGGCUUUAAAUAGUAUUUmUmU
862	737	AAUACUAUUUAAAGCCUCCmUmU	2768	GGAGGCUUUAAAUAGUAUUmUmU
863	738	AUACUAUUUAAAGCCUCCUmUmU	2769	AGGAGGCUUUAAAUAGUAUmUmU
864	739	UACUAUUUAAAGCCUCCUCmUmU	2770	GAGGAGGCUUUAAAUAGUAmUmU
865	740	ACUAUUUAAAGCCUCCUCAmUmU	2771	UGAGGAGGCUUUAAAUAGUmUmU
866	741	CUAUUUAAAGCCUCCUCAUmUmU	2772	AUGAGGAGGCUUUAAAUAGmUmU
867	742	UAUUUAAAGCCUCCUCAUCmUmU	2773	GAUGAGGAGGCUUUAAAUAmUmU
868	743	AUUUAAAGCCUCCUCAUCCmUmU	2774	GGAUGAGGAGGCUUUAAAUmUmU
869	744	UUUAAAGCCUCCUCAUCCCmUmU	2775	GGGAUGAGGAGGCUUUAAAmUmU
870	745	UUAAAGCCUCCUCAUCCCGmUmU	2776	CGGGAUGAGGAGGCUUUAAmUmU
871	746	UAAAGCCUCCUCAUCCCGUmUmU	2777	ACGGGAUGAGGAGGCUUUAmUmU
872	747	AAAGCCUCCUCAUCCCGUGmUmU	2778	CACGGGAUGAGGAGGCUUUmUmU
873	748	AAGCCUCCUCAUCCCGUGUmUmU	2779	ACACGGGAUGAGGAGGCUUmUmU
874	749	AGCCUCCUCAUCCCGUGUUmUmU	2780	AACACGGGAUGAGGAGGCUmUmU
875	750	GCCUCCUCAUCCCGUGUUCmUmU	2781	GAACACGGGAUGAGGAGGCmUmU
876	751	CCUCCUCAUCCCGUGUUCUmUmU	2782	AGAACACGGGAUGAGGAGGmUmU
877	752	CUCCUCAUCCCGUGUUCUCmUmU	2783	GAGAACACGGGAUGAGGAGmUmU
878	753	UCCUCAUCCCGUGUUCUCCmUmU	2784	GGAGAACACGGGAUGAGGAmUmU
879	754	CCUCAUCCCGUGUUCUCCUmUmU	2785	AGGAGAACACGGGAUGAGGmUmU
880	755	CUCAUCCCGUGUUCUCCUUmUmU	2786	AAGGAGAACACGGGAUGAGmUmU
881	756	UCAUCCCGUGUUCUCCUUUmUmU	2787	AAAGGAGAACACGGGAUGAmUmU
882	757	CAUCCCGUGUUCUCCUUUUmUmU	2788	AAAAGGAGAACACGGGAUGmUmU
883	758	AUCCCGUGUUCUCCUUUUCmUmU	2789	GAAAAGGAGAACACGGGAUmUmU
884	759	UCCCGUGUUCUCCUUUUCCmUmU	2790	GGAAAAGGAGAACACGGGAmUmU
885	760	CCCGUGUUCUCCUUUUCCUmUmU	2791	AGGAAAAGGAGAACACGGGmUmU
886	761	CCGUGUUCUCCUUUUCCUCmUmU	2792	GAGGAAAAGGAGAACACGGmUmU
887	762	CGUGUUCUCCUUUUCCUCUmUmU	2793	AGAGGAAAAGGAGAACACGmUmU
888	763	GUGUUCUCCUUUUCCUCUCmUmU	2794	GAGAGGAAAAGGAGAACACmUmU
889	764	UGUUCUCCUUUUCCUCUCUmUmU	2795	AGAGAGGAAAAGGAGAACAmUmU
890	765	GUUCUCCUUUUCCUCUCUCmUmU	2796	GAGAGAGGAAAAGGAGAACmUmU
891	766	UUCUCCUUUUCCUCUCUCCmUmU	2797	GGAGAGAGGAAAAGGAGAAmUmU
892	767	UCUCCUUUUCCUCUCUCCCmUmU	2798	GGGAGAGAGGAAAAGGAGAmUmU
893	768	CUCCUUUUCCUCUCUCCCGmUmU	2799	CGGGAGAGAGGAAAAGGAGmUmU
894	769	UCCUUUUCCUCUCUCCCGGmUmU	2800	CCGGGAGAGAGGAAAAGGAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
895	770	CCUUUUCCUCUCUCCCGGAmUmU	2801	UCCGGGAGAGAGGAAAAGGmUmU
896	771	CUUUUCCUCUCUCCCGGAGmUmU	2802	CUCCGGGAGAGAGGAAAAGmUmU
897	772	UUUUCCUCUCUCCCGGAGGmUmU	2803	CCUCCGGGAGAGAGGAAAAmUmU
898	773	UUUCCUCUCUCCCGGAGGUmUmU	2804	ACCUCCGGGAGAGAGGAAAmUmU
899	774	UUCCUCUCUCCCGGAGGUUmUmU	2805	AACCUCCGGGAGAGAGGAAmUmU
900	775	UCCUCUCUCCCGGAGGUUGmUmU	2806	CAACCUCCGGGAGAGAGGAmUmU
901	776	CCUCUCUCCCGGAGGUUGGmUmU	2807	CCAACCUCCGGGAGAGAGGmUmU
902	777	CUCUCUCCCGGAGGUUGGGmUmU	2808	CCCAACCUCCGGGAGAGAGmUmU
903	778	UCUCUCCCGGAGGUUGGGUmUmU	2809	ACCCAACCUCCGGGAGAGAmUmU
904	779	CUCUCCCGGAGGUUGGGUGmUmU	2810	CACCCAACCUCCGGGAGAGmUmU
905	780	UCUCCCGGAGGUUGGGUGGmUmU	2811	CCACCCAACCUCCGGGAGAmUmU
906	781	CUCCCGGAGGUUGGGUGGGmUmU	2812	CCCACCCAACCUCCGGGAGmUmU
907	782	UCCCGGAGGUUGGGUGGGCmUmU	2813	GCCCACCCAACCUCCGGGAmUmU
908	783	CCCGGAGGUUGGGUGGGCCmUmU	2814	GGCCCACCCAACCUCCGGGmUmU
909	784	CCGGAGGUUGGGUGGGCCGmUmU	2815	CGGCCCACCCAACCUCCGGmUmU
910	785	CGGAGGUUGGGUGGGCCGGmUmU	2816	CCGGCCCACCCAACCUCCGmUmU
911	786	GGAGGUUGGGUGGGCCGGCmUmU	2817	GCCGGCCCACCCAACCUCCmUmU
912	787	GAGGUUGGGUGGGCCGGCUmUmU	2818	AGCCGGCCCACCCAACCUCmUmU
913	788	AGGUUGGGUGGGCCGGCUUmUmU	2819	AAGCCGGCCCACCCAACCUmUmU
914	789	GGUUGGGUGGGCCGGCUUCmUmU	2820	GAAGCCGGCCCACCCAACCmUmU
915	790	GUUGGGUGGGCCGGCUUCAmUmU	2821	UGAAGCCGGCCCACCCAACmUmU
916	791	UUGGGUGGGCCGGCUUCAUmUmU	2822	AUGAAGCCGGCCCACCCAAmUmU
917	792	UGGGUGGGCCGGCUUCAUGmUmU	2823	CAUGAAGCCGGCCCACCCAmUmU
918	793	GGGUGGGCCGGCUUCAUGCmUmU	2824	GCAUGAAGCCGGCCCACCCmUmU
919	794	GGUGGGCCGGCUUCAUGCCmUmU	2825	GGCAUGAAGCCGGCCCACCmUmU
920	795	GUGGGCCGGCUUCAUGCCAmUmU	2826	UGGCAUGAAGCCGGCCCACmUmU
921	796	UGGGCCGGCUUCAUGCCAGmUmU	2827	CUGGCAUGAAGCCGGCCCAmUmU
922	797	GGGCCGGCUUCAUGCCAGCmUmU	2828	GCUGGCAUGAAGCCGGCCCmUmU
923	798	GGCCGGCUUCAUGCCAGCUmUmU	2829	AGCUGGCAUGAAGCCGGCCmUmU
924	799	GCCGGCUUCAUGCCAGCUAmUmU	2830	UAGCUGGCAUGAAGCCGGCmUmU
925	800	CCGGCUUCAUGCCAGCUACmUmU	2831	GUAGCUGGCAUGAAGCCGGmUmU
926	801	CGGCUUCAUGCCAGCUACUmUmU	2832	AGUAGCUGGCAUGAAGCCGmUmU
927	802	GGCUUCAUGCCAGCUACUUmUmU	2833	AAGUAGCUGGCAUGAAGCCmUmU
928	803	GCUUCAUGCCAGCUACUUCmUmU	2834	GAAGUAGCUGGCAUGAAGCmUmU
929	804	CUUCAUGCCAGCUACUUCCmUmU	2835	GGAAGUAGCUGGCAUGAAGmUmU
930	805	UUCAUGCCAGCUACUUCCUmUmU	2836	AGGAAGUAGCUGGCAUGAAmUmU
931	806	UCAUGCCAGCUACUUCCUCmUmU	2837	GAGGAAGUAGCUGGCAUGAmUmU
932	807	CAUGCCAGCUACUUCCUCCmUmU	2838	GGAGGAAGUAGCUGGCAUGmUmU
933	808	AUGCCAGCUACUUCCUCCUmUmU	2839	AGGAGGAAGUAGCUGGCAUmUmU
934	809	UGCCAGCUACUUCCUCCUCmUmU	2840	GAGGAGGAAGUAGCUGGCAmUmU
935	810	GCCAGCUACUUCCUCCUCCmUmU	2841	GGAGGAGGAAGUAGCUGGCmUmU
936	811	CCAGCUACUUCCUCCUCCCmUmU	2842	GGGAGGAGGAAGUAGCUGGmUmU
937	812	CAGCUACUUCCUCCUCCCCmUmU	2843	GGGGAGGAGGAAGUAGCUGmUmU
938	813	AGCUACUUCCUCCUCCCCAmUmU	2844	UGGGGAGGAGGAAGUAGCUmUmU
939	814	GCUACUUCCUCCUCCCCACmUmU	2845	GUGGGGAGGAGGAAGUAGCmUmU
940	815	CUACUUCCUCCUCCCCACUmUmU	2846	AGUGGGGAGGAGGAAGUAGmUmU
941	816	UACUUCCUCCUCCCCACUUmUmU	2847	AAGUGGGGAGGAGGAAGUAmUmU
942	817	ACUUCCUCCUCCCCACUUGmUmU	2848	CAAGUGGGGAGGAGGAAGUmUmU
943	818	CUUCCUCCUCCCCACUUGUmUmU	2849	ACAAGUGGGGAGGAGGAAGmUmU
944	819	UUCCUCCUCCCCACUUGUCmUmU	2850	GACAAGUGGGGAGGAGGAAmUmU
945	820	UCCUCCUCCCCACUUGUCCmUmU	2851	GGACAAGUGGGGAGGAGGAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
946	821	CCUCCUCCCCACUUGUCCGmUmU	2852	CGGACAAGUGGGGAGGAGGmUmU
947	822	CUCCUCCCCACUUGUCCGCmUmU	2853	GCGGACAAGUGGGGAGGAGmUmU
948	823	UCCUCCCCACUUGUCCGCUmUmU	2854	AGCGGACAAGUGGGGAGGAmUmU
949	824	CCUCCCCACUUGUCCGCUGmUmU	2855	CAGCGGACAAGUGGGGAGGmUmU
950	825	CUCCCCACUUGUCCGCUGGmUmU	2856	CCAGCGGACAAGUGGGGAGmUmU
951	826	UCCCCACUUGUCCGCUGGGmUmU	2857	CCCAGCGGACAAGUGGGGAmUmU
952	827	CCCCACUUGUCCGCUGGGUmUmU	2858	ACCCAGCGGACAAGUGGGGmUmU
953	828	CCCACUUGUCCGCUGGGUGmUmU	2859	CACCCAGCGGACAAGUGGGmUmU
954	829	CCACUUGUCCGCUGGGUGGmUmU	2860	CCACCCAGCGGACAAGUGGmUmU
955	830	CACUUGUCCGCUGGGUGGUmUmU	2861	ACCACCCAGCGGACAAGUGmUmU
956	831	ACUUGUCCGCUGGGUGGUAmUmU	2862	UACCACCCAGCGGACAAGUmUmU
957	832	CUUGUCCGCUGGGUGGUACmUmU	2863	GUACCACCCAGCGGACAAGmUmU
958	833	UUGUCCGCUGGGUGGUACCmUmU	2864	GGUACCACCCAGCGGACAAmUmU
959	834	UGUCCGCUGGGUGGUACCCmUmU	2865	GGGUACCACCCAGCGGACAmUmU
960	835	GUCCGCUGGGUGGUACCCUmUmU	2866	AGGGUACCACCCAGCGGACmUmU
961	836	UCCGCUGGGUGGUACCCUCmUmU	2867	GAGGGUACCACCCAGCGGAmUmU
962	837	CCGCUGGGUGGUACCCUCUmUmU	2868	AGAGGGUACCACCCAGCGGmUmU
963	838	CGCUGGGUGGUACCCUCUGmUmU	2869	CAGAGGGUACCACCCAGCGmUmU
964	839	GCUGGGUGGUACCCUCUGGmUmU	2870	CCAGAGGGUACCACCCAGCmUmU
965	840	CUGGGUGGUACCCUCUGGAmUmU	2871	UCCAGAGGGUACCACCCAGmUmU
966	841	UGGGUGGUACCCUCUGGAGmUmU	2872	CUCCAGAGGGUACCACCCAmUmU
967	842	GGGUGGUACCCUCUGGAGGmUmU	2873	CCUCCAGAGGGUACCACCCmUmU
968	843	GGUGGUACCCUCUGGAGGGmUmU	2874	CCCUCCAGAGGGUACCACCmUmU
969	844	GUGGUACCCUCUGGAGGGGmUmU	2875	CCCCUCCAGAGGGUACCACmUmU
970	845	UGGUACCCUCUGGAGGGGUmUmU	2876	ACCCCUCCAGAGGGUACCAmUmU
971	846	GGUACCCUCUGGAGGGGUGmUmU	2877	CACCCCUCCAGAGGGUACCmUmU
972	847	GUACCCUCUGGAGGGGUGUmUmU	2878	ACACCCCUCCAGAGGGUACmUmU
973	848	UACCCUCUGGAGGGGUGUGmUmU	2879	CACACCCCUCCAGAGGGUAmUmU
974	849	ACCCUCUGGAGGGGUGUGGmUmU	2880	CCACACCCCUCCAGAGGGUmUmU
975	850	CCCUCUGGAGGGGUGUGGCmUmU	2881	GCCACACCCCUCCAGAGGGmUmU
976	851	CCUCUGGAGGGGUGUGGCUmUmU	2882	AGCCACACCCCUCCAGAGGmUmU
977	852	CUCUGGAGGGGUGUGGCUCmUmU	2883	GAGCCACACCCCUCCAGAGmUmU
978	853	UCUGGAGGGGUGUGGCUCCmUmU	2884	GGAGCCACACCCCUCCAGAmUmU
979	854	CUGGAGGGGUGUGGCUCCUmUmU	2885	AGGAGCCACACCCCUCCAGmUmU
980	855	UGGAGGGGUGUGGCUCCUUmUmU	2886	AAGGAGCCACACCCCUCCAmUmU
981	856	GGAGGGGUGUGGCUCCUUCmUmU	2887	GAAGGAGCCACACCCCUCCmUmU
982	857	GAGGGGUGUGGCUCCUUCCmUmU	2888	GGAAGGAGCCACACCCCUCmUmU
983	858	AGGGGUGUGGCUCCUUCCCmUmU	2889	GGGAAGGAGCCACACCCCUmUmU
984	859	GGGGUGUGGCUCCUUCCCAmUmU	2890	UGGGAAGGAGCCACACCCCmUmU
985	860	GGGUGUGGCUCCUUCCCAUmUmU	2891	AUGGGAAGGAGCCACACCCmUmU
986	861	GGUGUGGCUCCUUCCCAUCmUmU	2892	GAUGGGAAGGAGCCACACCmUmU
987	862	GUGUGGCUCCUUCCCAUCGmUmU	2893	CGAUGGGAAGGAGCCACACmUmU
988	863	UGUGGCUCCUUCCCAUCGCmUmU	2894	GCGAUGGGAAGGAGCCACAmUmU
989	864	GUGGCUCCUUCCCAUCGCUmUmU	2895	AGCGAUGGGAAGGAGCCACmUmU
990	865	UGGCUCCUUCCCAUCGCUGmUmU	2896	CAGCGAUGGGAAGGAGCCAmUmU
991	866	GGCUCCUUCCCAUCGCUGUmUmU	2897	ACAGCGAUGGGAAGGAGCCmUmU
992	867	GCUCCUUCCCAUCGCUGUCmUmU	2898	GACAGCGAUGGGAAGGAGCmUmU
993	868	CUCCUUCCCAUCGCUGUCAmUmU	2899	UGACAGCGAUGGGAAGGAGmUmU
994	869	UCCUUCCCAUCGCUGUCACmUmU	2900	GUGACAGCGAUGGGAAGGAmUmU
995	870	CCUUCCCAUCGCUGUCACAmUmU	2901	UGUGACAGCGAUGGGAAGGmUmU
996	871	CUUCCCAUCGCUGUCACAGmUmU	2902	CUGUGACAGCGAUGGGAAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
997	872	UUCCCAUCGCUGUCACAGGmUmU	2903	CCUGUGACAGCGAUGGGAAmUmU
998	873	UCCCAUCGCUGUCACAGGCmUmU	2904	GCCUGUGACAGCGAUGGGAmUmU
999	874	CCCAUCGCUGUCACAGGCGmUmU	2905	CGCCUGUGACAGCGAUGGGmUmU
1000	875	CCAUCGCUGUCACAGGCGGmUmU	2906	CCGCCUGUGACAGCGAUGGmUmU
1001	876	CAUCGCUGUCACAGGCGGUmUmU	2907	ACCGCCUGUGACAGCGAUGmUmU
1002	877	AUCGCUGUCACAGGCGGUUmUmU	2908	AACCGCCUGUGACAGCGAUmUmU
1003	878	UCGCUGUCACAGGCGGUUAmUmU	2909	UAACCGCCUGUGACAGCGAmUmU
1004	879	CGCUGUCACAGGCGGUUAUmUmU	2910	AUAACCGCCUGUGACAGCGmUmU
1005	880	GCUGUCACAGGCGGUUAUGmUmU	2911	CAUAACCGCCUGUGACAGCmUmU
1006	881	CUGUCACAGGCGGUUAUGAmUmU	2912	UCAUAACCGCCUGUGACAGmUmU
1007	882	UGUCACAGGCGGUUAUGAAmUmU	2913	UUCAUAACCGCCUGUGACAmUmU
1008	883	GUCACAGGCGGUUAUGAAAmUmU	2914	UUUCAUAACCGCCUGUGACmUmU
1009	884	UCACAGGCGGUUAUGAAAUmUmU	2915	AUUUCAUAACCGCCUGUGAmUmU
1010	885	CACAGGCGGUUAUGAAAUUmUmU	2916	AAUUUCAUAACCGCCUGUGmUmU
1011	886	ACAGGCGGUUAUGAAAUUCmUmU	2917	GAAUUUCAUAACCGCCUGUmUmU
1012	887	CAGGCGGUUAUGAAAUUCAmUmU	2918	UGAAUUUCAUAACCGCCUGmUmU
1013	888	AGGCGGUUAUGAAAUUCACmUmU	2919	GUGAAUUUCAUAACCGCCUmUmU
1014	889	GGCGGUUAUGAAAUUCACCmUmU	2920	GGUGAAUUUCAUAACCGCCmUmU
1015	890	GCGGUUAUGAAAUUCACCCmUmU	2921	GGGUGAAUUUCAUAACCGCmUmU
1016	891	CGGUUAUGAAAUUCACCCCmUmU	2922	GGGGUGAAUUUCAUAACCGmUmU
1017	892	GGUUAUGAAAUUCACCCCCmUmU	2923	GGGGGUGAAUUUCAUAACCmUmU
1018	893	GUUAUGAAAUUCACCCCCUmUmU	2924	AGGGGGUGAAUUUCAUAACmUmU
1019	894	UUAUGAAAUUCACCCCCUUmUmU	2925	AAGGGGGUGAAUUUCAUAAmUmU
1020	895	UAUGAAAUUCACCCCCUUUmUmU	2926	AAAGGGGGUGAAUUUCAUAmUmU
1021	896	AUGAAAUUCACCCCCUUUCmUmU	2927	GAAAGGGGGUGAAUUUCAUmUmU
1022	897	UGAAAUUCACCCCCUUUCCmUmU	2928	GGAAAGGGGGUGAAUUUCAmUmU
1023	898	GAAAUUCACCCCCUUUCCUmUmU	2929	AGGAAAGGGGGUGAAUUUCmUmU
1024	899	AAAUUCACCCCCUUUCCUGmUmU	2930	CAGGAAAGGGGGUGAAUUUmUmU
1025	900	AAUUCACCCCCUUUCCUGGmUmU	2931	CCAGGAAAGGGGGUGAAUUmUmU
1026	901	AUUCACCCCCUUUCCUGGAmUmU	2932	UCCAGGAAAGGGGGUGAAUmUmU
1027	902	UUCACCCCCUUUCCUGGACmUmU	2933	GUCCAGGAAAGGGGGUGAAmUmU
1028	903	UCACCCCCUUUCCUGGACAmUmU	2934	UGUCCAGGAAAGGGGGUGAmUmU
1029	904	CACCCCCUUUCCUGGACACmUmU	2935	GUGUCCAGGAAAGGGGGUGmUmU
1030	905	ACCCCCUUUCCUGGACACUmUmU	2936	AGUGUCCAGGAAAGGGGGUmUmU
1031	906	CCCCCUUUCCUGGACACUCmUmU	2937	GAGUGUCCAGGAAAGGGGGmUmU
1032	907	CCCCUUUCCUGGACACUCAmUmU	2938	UGAGUGUCCAGGAAAGGGGmUmU
1033	908	CCCUUUCCUGGACACUCAGmUmU	2939	CUGAGUGUCCAGGAAAGGGmUmU
1034	909	CCUUUCCUGGACACUCAGAmUmU	2940	UCUGAGUGUCCAGGAAAGGmUmU
1035	910	CUUUCCUGGACACUCAGACmUmU	2941	GUCUGAGUGUCCAGGAAAGmUmU
1036	911	UUUCCUGGACACUCAGACCmUmU	2942	GGUCUGAGUGUCCAGGAAAmUmU
1037	912	UUCCUGGACACUCAGACCUmUmU	2943	AGGUCUGAGUGUCCAGGAAmUmU
1038	913	UCCUGGACACUCAGACCUGmUmU	2944	CAGGUCUGAGUGUCCAGGAmUmU
1039	914	CCUGGACACUCAGACCUGAmUmU	2945	UCAGGUCUGAGUGUCCAGGmUmU
1040	915	CUGGACACUCAGACCUGAAmUmU	2946	UUCAGGUCUGAGUGUCCAGmUmU
1041	916	UGGACACUCAGACCUGAAUmUmU	2947	AUUCAGGUCUGAGUGUCCAmUmU
1042	917	GGACACUCAGACCUGAAUUmUmU	2948	AAUUCAGGUCUGAGUGUCCmUmU
1043	918	GACACUCAGACCUGAAUUCmUmU	2949	GAAUUCAGGUCUGAGUGUCmUmU
1044	919	ACACUCAGACCUGAAUUCUmUmU	2950	AGAAUUCAGGUCUGAGUGUmUmU
1045	920	CACUCAGACCUGAAUUCUUmUmU	2951	AAGAAUUCAGGUCUGAGUGmUmU
1046	921	ACUCAGACCUGAAUUCUUUmUmU	2952	AAAGAAUUCAGGUCUGAGUmUmU
1047	922	CUCAGACCUGAAUUCUUUUmUmU	2953	AAAAGAAUUCAGGUCUGAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1048	923	UCAGACCUGAAUUCUUUUUmUmU	2954	AAAAAGAAUUCAGGUCUGAmUmU
1049	924	CAGACCUGAAUUCUUUUUCmUmU	2955	GAAAAAGAAUUCAGGUCUGmUmU
1050	925	AGACCUGAAUUCUUUUUCAmUmU	2956	UGAAAAAGAAUUCAGGUCUmUmU
1051	926	GACCUGAAUUCUUUUUCAUmUmU	2957	AUGAAAAAGAAUUCAGGUCmUmU
1052	927	ACCUGAAUUCUUUUUCAUUmUmU	2958	AAUGAAAAAGAAUUCAGGUmUmU
1053	928	CCUGAAUUCUUUUUCAUUUmUmU	2959	AAAUGAAAAAGAAUUCAGGmUmU
1054	929	CUGAAUUCUUUUUCAUUUGmUmU	2960	CAAAUGAAAAAGAAUUCAGmUmU
1055	930	UGAAUUCUUUUUCAUUUGAmUmU	2961	UCAAAUGAAAAAGAAUUCAmUmU
1056	931	GAAUUCUUUUUCAUUUGAGmUmU	2962	CUCAAAUGAAAAAGAAUUCmUmU
1057	932	AAUUCUUUUUCAUUUGAGAmUmU	2963	UCUCAAAUGAAAAAGAAUUmUmU
1058	933	AUUCUUUUUCAUUUGAGAAmUmU	2964	UUCUCAAAUGAAAAAGAAUmUmU
1059	934	UUCUUUUUCAUUUGAGAAGmUmU	2965	CUUCUCAAAUGAAAAAGAAmUmU
1060	935	UCUUUUUCAUUUGAGAAGUmUmU	2966	ACUUCUCAAAUGAAAAAGAmUmU
1061	936	CUUUUUCAUUUGAGAAGUAmUmU	2967	UACUUCUCAAAUGAAAAAGmUmU
1062	937	UUUUUCAUUUGAGAAGUAAmUmU	2968	UUACUUCUCAAAUGAAAAAmUmU
1063	938	UUUUCAUUUGAGAAGUAAAmUmU	2969	UUUACUUCUCAAAUGAAAAmUmU
1064	939	UUUCAUUUGAGAAGUAAACmUmU	2970	GUUUACUUCUCAAAUGAAAmUmU
1065	940	UUCAUUUGAGAAGUAAACAmUmU	2971	UGUUUACUUCUCAAAUGAAmUmU
1066	941	UCAUUUGAGAAGUAAACAGmUmU	2972	CUGUUUACUUCUCAAAUGAmUmU
1067	942	CAUUUGAGAAGUAAACAGAmUmU	2973	UCUGUUUACUUCUCAAAUGmUmU
1068	943	AUUUGAGAAGUAAACAGAUmUmU	2974	AUCUGUUUACUUCUCAAAUmUmU
1069	944	UUUGAGAAGUAAACAGAUGmUmU	2975	CAUCUGUUUACUUCUCAAAmUmU
1070	945	UUGAGAAGUAAACAGAUGGmUmU	2976	CCAUCUGUUUACUUCUCAAmUmU
1071	946	UGAGAAGUAAACAGAUGGCmUmU	2977	GCCAUCUGUUUACUUCUCAmUmU
1072	947	GAGAAGUAAACAGAUGGCAmUmU	2978	UGCCAUCUGUUUACUUCUCmUmU
1073	948	AGAAGUAAACAGAUGGCACmUmU	2979	GUGCCAUCUGUUUACUUCUmUmU
1074	949	GAAGUAAACAGAUGGCACUmUmU	2980	AGUGCCAUCUGUUUACUUCmUmU
1075	950	AAGUAAACAGAUGGCACUUmUmU	2981	AAGUGCCAUCUGUUUACUUmUmU
1076	951	AGUAAACAGAUGGCACUUUmUmU	2982	AAAGUGCCAUCUGUUUACUmUmU
1077	952	GUAAACAGAUGGCACUUUGmUmU	2983	CAAAGUGCCAUCUGUUUACmUmU
1078	953	UAAACAGAUGGCACUUUGAmUmU	2984	UCAAAGUGCCAUCUGUUUAmUmU
1079	954	AAACAGAUGGCACUUUGAAmUmU	2985	UUCAAAGUGCCAUCUGUUUmUmU
1080	955	AACAGAUGGCACUUUGAAGmUmU	2986	CUUCAAAGUGCCAUCUGUUmUmU
1081	956	ACAGAUGGCACUUUGAAGGmUmU	2987	CCUUCAAAGUGCCAUCUGUmUmU
1082	957	CAGAUGGCACUUUGAAGGGmUmU	2988	CCCUUCAAAGUGCCAUCUGmUmU
1083	958	AGAUGGCACUUUGAAGGGGmUmU	2989	CCCCUUCAAAGUGCCAUCUmUmU
1084	959	GAUGGCACUUUGAAGGGGCmUmU	2990	GCCCCUUCAAAGUGCCAUCmUmU
1085	960	AUGGCACUUUGAAGGGGCCmUmU	2991	GGCCCCUUCAAAGUGCCAUmUmU
1086	961	UGGCACUUUGAAGGGGCCUmUmU	2992	AGGCCCCUUCAAAGUGCCAmUmU
1087	962	GGCACUUUGAAGGGGCCUCmUmU	2993	GAGGCCCCUUCAAAGUGCCmUmU
1088	963	GCACUUUGAAGGGGCCUCAmUmU	2994	UGAGGCCCCUUCAAAGUGCmUmU
1089	964	CACUUUGAAGGGGCCUCACmUmU	2995	GUGAGGCCCCUUCAAAGUGmUmU
1090	965	ACUUUGAAGGGGCCUCACCmUmU	2996	GGUGAGGCCCCUUCAAAGUmUmU
1091	966	CUUUGAAGGGGCCUCACCGmUmU	2997	CGGUGAGGCCCCUUCAAAGmUmU
1092	967	UUUGAAGGGGCCUCACCGAmUmU	2998	UCGGUGAGGCCCCUUCAAAmUmU
1093	968	UUGAAGGGGCCUCACCGAGmUmU	2999	CUCGGUGAGGCCCCUUCAAmUmU
1094	969	UGAAGGGGCCUCACCGAGUmUmU	3000	ACUCGGUGAGGCCCCUUCAmUmU
1095	970	GAAGGGGCCUCACCGAGUGmUmU	3001	CACUCGGUGAGGCCCCUUCmUmU
1096	971	AAGGGGCCUCACCGAGUGGmUmU	3002	CCACUCGGUGAGGCCCCUUmUmU
1097	972	AGGGGCCUCACCGAGUGGGmUmU	3003	CCCACUCGGUGAGGCCCCUmUmU
1098	973	GGGGCCUCACCGAGUGGGGmUmU	3004	CCCCACUCGGUGAGGCCCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1099	974	GGGCCUCACCGAGUGGGGGmUmU	3005	CCCCCACUCGGUGAGGCCCmUmU
1100	975	GGCCUCACCGAGUGGGGGCmUmU	3006	GCCCCCACUCGGUGAGGCCmUmU
1101	976	GCCUCACCGAGUGGGGGCAmUmU	3007	UGCCCCCACUCGGUGAGGCmUmU
1102	977	CCUCACCGAGUGGGGGCAUmUmU	3008	AUGCCCCCACUCGGUGAGGmUmU
1103	978	CUCACCGAGUGGGGGCAUCmUmU	3009	GAUGCCCCCACUCGGUGAGmUmU
1104	979	UCACCGAGUGGGGGCAUCAmUmU	3010	UGAUGCCCCCACUCGGUGAmUmU
1105	980	CACCGAGUGGGGGCAUCAUmUmU	3011	AUGAUGCCCCCACUCGGUGmUmU
1106	981	ACCGAGUGGGGGCAUCAUCmUmU	3012	GAUGAUGCCCCCACUCGGUmUmU
1107	982	CCGAGUGGGGGCAUCAUCAmUmU	3013	UGAUGAUGCCCCCACUCGGmUmU
1108	983	CGAGUGGGGGCAUCAUCAAmUmU	3014	UUGAUGAUGCCCCCACUCGmUmU
1109	984	GAGUGGGGGCAUCAUCAAAmUmU	3015	UUUGAUGAUGCCCCCACUCmUmU
1110	985	AGUGGGGGCAUCAUCAAAAmUmU	3016	UUUUGAUGAUGCCCCCACUmUmU
1111	986	GUGGGGGCAUCAUCAAAAAmUmU	3017	UUUUUGAUGAUGCCCCCACmUmU
1112	987	UGGGGGCAUCAUCAAAAACmUmU	3018	GUUUUUGAUGAUGCCCCCAmUmU
1113	988	GGGGGCAUCAUCAAAAACUmUmU	3019	AGUUUUUGAUGAUGCCCCCmUmU
1114	989	GGGGCAUCAUCAAAAACUUmUmU	3020	AAGUUUUUGAUGAUGCCCCmUmU
1115	990	GGGCAUCAUCAAAAACUUUmUmU	3021	AAAGUUUUUGAUGAUGCCCmUmU
1116	991	GGCAUCAUCAAAAACUUUGmUmU	3022	CAAAGUUUUUGAUGAUGCCmUmU
1117	992	GCAUCAUCAAAAACUUUGGmUmU	3023	CCAAAGUUUUUGAUGAUGCmUmU
1118	993	CAUCAUCAAAAACUUUGGAmUmU	3024	UCCAAAGUUUUUGAUGAUGmUmU
1119	994	AUCAUCAAAAACUUUGGAGmUmU	3025	CUCCAAAGUUUUUGAUGAUmUmU
1120	995	UCAUCAAAAACUUUGGAGUmUmU	3026	ACUCCAAAGUUUUUGAUGAmUmU
1121	996	CAUCAAAAACUUUGGAGUCmUmU	3027	GACUCCAAAGUUUUUGAUGmUmU
1122	997	AUCAAAAACUUUGGAGUCCmUmU	3028	GGACUCCAAAGUUUUUGAUmUmU
1123	998	UCAAAAACUUUGGAGUCCCmUmU	3029	GGGACUCCAAAGUUUUUGAmUmU
1124	999	CAAAAACUUUGGAGUCCCCmUmU	3030	GGGGACUCCAAAGUUUUUGmUmU
1125	1000	AAAAACUUUGGAGUCCCCUmUmU	3031	AGGGGACUCCAAAGUUUUUmUmU
1126	1001	AAAACUUUGGAGUCCCCUCmUmU	3032	GAGGGGACUCCAAAGUUUUmUmU
1127	1002	AAACUUUGGAGUCCCCUCAmUmU	3033	UGAGGGGACUCCAAAGUUUmUmU
1128	1003	AACUUUGGAGUCCCCUCACmUmU	3034	GUGAGGGGACUCCAAAGUUmUmU
1129	1004	ACUUUGGAGUCCCCUCACCmUmU	3035	GGUGAGGGGACUCCAAAGUmUmU
1130	1005	CUUUGGAGUCCCCUCACCUmUmU	3036	AGGUGAGGGGACUCCAAAGmUmU
1131	1006	UUUGGAGUCCCCUCACCUCmUmU	3037	GAGGUGAGGGGACUCCAAAmUmU
1132	1007	UUGGAGUCCCCUCACCUCCmUmU	3038	GGAGGUGAGGGGACUCCAAmUmU
1133	1008	UGGAGUCCCCUCACCUCCUmUmU	3039	AGGAGGUGAGGGGACUCCAmUmU
1134	1009	GGAGUCCCCUCACCUCCUCmUmU	3040	GAGGAGGUGAGGGGACUCCmUmU
1135	1010	GAGUCCCCUCACCUCCUCUmUmU	3041	AGAGGAGGUGAGGGGACUCmUmU
1136	1011	AGUCCCCUCACCUCCUCUAmUmU	3042	UAGAGGAGGUGAGGGGACUmUmU
1137	1012	GUCCCCUCACCUCCUCUAAmUmU	3043	UUAGAGGAGGUGAGGGGACmUmU
1138	1013	UCCCCUCACCUCCUCUAAGmUmU	3044	CUUAGAGGAGGUGAGGGGAmUmU
1139	1014	CCCCUCACCUCCUCUAAGGmUmU	3045	CCUUAGAGGAGGUGAGGGGmUmU
1140	1015	CCCUCACCUCCUCUAAGGUmUmU	3046	ACCUUAGAGGAGGUGAGGGmUmU
1141	1016	CCUCACCUCCUCUAAGGUUmUmU	3047	AACCUUAGAGGAGGUGAGGmUmU
1142	1017	CUCACCUCCUCUAAGGUUGmUmU	3048	CAACCUUAGAGGAGGUGAGmUmU
1143	1018	UCACCUCCUCUAAGGUUGGmUmU	3049	CCAACCUUAGAGGAGGUGAmUmU
1144	1019	CACCUCCUCUAAGGUUGGGmUmU	3050	CCCAACCUUAGAGGAGGUGmUmU
1145	1020	ACCUCCUCUAAGGUUGGGCmUmU	3051	GCCCAACCUUAGAGGAGGUmUmU
1146	1021	CCUCCUCUAAGGUUGGGCAmUmU	3052	UGCCCAACCUUAGAGGAGGmUmU
1147	1022	CUCCUCUAAGGUUGGGCAGmUmU	3053	CUGCCCAACCUUAGAGGAGmUmU
1148	1023	UCCUCUAAGGUUGGGCAGGmUmU	3054	CCUGCCCAACCUUAGAGGAmUmU
1149	1024	CCUCUAAGGUUGGGCAGGGmUmU	3055	CCCUGCCCAACCUUAGAGGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1150	1025	CUCUAAGGUUGGGCAGGGUmUmU	3056	ACCCUGCCCAACCUUAGAGmUmU
1151	1026	UCUAAGGUUGGGCAGGGUGmUmU	3057	CACCCUGCCCAACCUUAGAmUmU
1152	1027	CUAAGGUUGGGCAGGGUGAmUmU	3058	UCACCCUGCCCAACCUUAGmUmU
1153	1028	UAAGGUUGGGCAGGGUGACmUmU	3059	GUCACCCUGCCCAACCUUAmUmU
1154	1029	AAGGUUGGGCAGGGUGACCmUmU	3060	GGUCACCCUGCCCAACCUUmUmU
1155	1030	AGGUUGGGCAGGGUGACCCmUmU	3061	GGGUCACCCUGCCCAACCUmUmU
1156	1031	GGUUGGGCAGGGUGACCCUmUmU	3062	AGGGUCACCCUGCCCAACCmUmU
1157	1032	GUUGGGCAGGGUGACCCUGmUmU	3063	CAGGGUCACCCUGCCCAACmUmU
1158	1033	UUGGGCAGGGUGACCCUGAmUmU	3064	UCAGGGUCACCCUGCCCAAmUmU
1159	1034	UGGGCAGGGUGACCCUGAAmUmU	3065	UUCAGGGUCACCCUGCCCAmUmU
1160	1035	GGGCAGGGUGACCCUGAAGmUmU	3066	CUUCAGGGUCACCCUGCCCmUmU
1161	1036	GGCAGGGUGACCCUGAAGUmUmU	3067	ACUUCAGGGUCACCCUGCCmUmU
1162	1037	GCAGGGUGACCCUGAAGUGmUmU	3068	CACUUCAGGGUCACCCUGCmUmU
1163	1038	CAGGGUGACCCUGAAGUGAmUmU	3069	UCACUUCAGGGUCACCCUGmUmU
1164	1039	AGGGUGACCCUGAAGUGAGmUmU	3070	CUCACUUCAGGGUCACCCUmUmU
1165	1040	GGGUGACCCUGAAGUGAGCmUmU	3071	GCUCACUUCAGGGUCACCCmUmU
1166	1041	GGUGACCCUGAAGUGAGCAmUmU	3072	UGCUCACUUCAGGGUCACCmUmU
1167	1042	GUGACCCUGAAGUGAGCACmUmU	3073	GUGCUCACUUCAGGGUCACmUmU
1168	1043	UGACCCUGAAGUGAGCACAmUmU	3074	UGUGCUCACUUCAGGGUCAmUmU
1169	1044	GACCCUGAAGUGAGCACAGmUmU	3075	CUGUGCUCACUUCAGGGUCmUmU
1170	1045	ACCCUGAAGUGAGCACAGCmUmU	3076	GCUGUGCUCACUUCAGGGUmUmU
1171	1046	CCCUGAAGUGAGCACAGCCmUmU	3077	GGCUGUGCUCACUUCAGGGmUmU
1172	1047	CCUGAAGUGAGCACAGCCUmUmU	3078	AGGCUGUGCUCACUUCAGGmUmU
1173	1048	CUGAAGUGAGCACAGCCUAmUmU	3079	UAGGCUGUGCUCACUUCAGmUmU
1174	1049	UGAAGUGAGCACAGCCUAGmUmU	3080	CUAGGCUGUGCUCACUUCAmUmU
1175	1050	GAAGUGAGCACAGCCUAGGmUmU	3081	CCUAGGCUGUGCUCACUUCmUmU
1176	1051	AAGUGAGCACAGCCUAGGGmUmU	3082	CCCUAGGCUGUGCUCACUUmUmU
1177	1052	AGUGAGCACAGCCUAGGGCmUmU	3083	GCCCUAGGCUGUGCUCACUmUmU
1178	1053	GUGAGCACAGCCUAGGGCUmUmU	3084	AGCCCUAGGCUGUGCUCACmUmU
1179	1054	UGAGCACAGCCUAGGGCUGmUmU	3085	CAGCCCUAGGCUGUGCUCAmUmU
1180	1055	GAGCACAGCCUAGGGCUGAmUmU	3086	UCAGCCCUAGGCUGUGCUCmUmU
1181	1056	AGCACAGCCUAGGGCUGAGmUmU	3087	CUCAGCCCUAGGCUGUGCUmUmU
1182	1057	GCACAGCCUAGGGCUGAGCmUmU	3088	GCUCAGCCCUAGGCUGUGCmUmU
1183	1058	CACAGCCUAGGGCUGAGCUmUmU	3089	AGCUCAGCCCUAGGCUGUGmUmU
1184	1059	ACAGCCUAGGGCUGAGCUGmUmU	3090	CAGCUCAGCCCUAGGCUGUmUmU
1185	1060	CAGCCUAGGGCUGAGCUGGmUmU	3091	CCAGCUCAGCCCUAGGCUGmUmU
1186	1061	AGCCUAGGGCUGAGCUGGGmUmU	3092	CCCAGCUCAGCCCUAGGCUmUmU
1187	1062	GCCUAGGGCUGAGCUGGGGmUmU	3093	CCCCAGCUCAGCCCUAGGCmUmU
1188	1063	CCUAGGGCUGAGCUGGGGAmUmU	3094	UCCCCAGCUCAGCCCUAGGmUmU
1189	1064	CUAGGGCUGAGCUGGGGACmUmU	3095	GUCCCCAGCUCAGCCCUAGmUmU
1190	1065	UAGGGCUGAGCUGGGGACCmUmU	3096	GGUCCCCAGCUCAGCCCUAmUmU
1191	1066	AGGGCUGAGCUGGGGACCUmUmU	3097	AGGUCCCCAGCUCAGCCCUmUmU
1192	1067	GGGCUGAGCUGGGGACCUGmUmU	3098	CAGGUCCCCAGCUCAGCCCmUmU
1193	1068	GGCUGAGCUGGGGACCUGGmUmU	3099	CCAGGUCCCCAGCUCAGCCmUmU
1194	1069	GCUGAGCUGGGGACCUGGUmUmU	3100	ACCAGGUCCCCAGCUCAGCmUmU
1195	1070	CUGAGCUGGGGACCUGGUAmUmU	3101	UACCAGGUCCCCAGCUCAGmUmU
1196	1071	UGAGCUGGGGACCUGGUACmUmU	3102	GUACCAGGUCCCCAGCUCAmUmU
1197	1072	GAGCUGGGGACCUGGUACCmUmU	3103	GGUACCAGGUCCCCAGCUCmUmU
1198	1073	AGCUGGGGACCUGGUACCCmUmU	3104	GGGUACCAGGUCCCCAGCUmUmU
1199	1074	GCUGGGGACCUGGUACCCUmUmU	3105	AGGGUACCAGGUCCCCAGCmUmU
1200	1075	CUGGGGACCUGGUACCCUCmUmU	3106	GAGGGUACCAGGUCCCCAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1201	1076	UGGGGACCUGGUACCCUCCmUmU	3107	GGAGGGUACCAGGUCCCCAmUmU
1202	1077	GGGGACCUGGUACCCUCCUmUmU	3108	AGGAGGGUACCAGGUCCCCmUmU
1203	1078	GGGACCUGGUACCCUCCUGmUmU	3109	CAGGAGGGUACCAGGUCCCmUmU
1204	1079	GGACCUGGUACCCUCCUGGmUmU	3110	CCAGGAGGGUACCAGGUCCmUmU
1205	1080	GACCUGGUACCCUCCUGGCmUmU	3111	GCCAGGAGGGUACCAGGUCmUmU
1206	1081	ACCUGGUACCCUCCUGGCUmUmU	3112	AGCCAGGAGGGUACCAGGUmUmU
1207	1082	CCUGGUACCCUCCUGGCUCmUmU	3113	GAGCCAGGAGGGUACCAGGmUmU
1208	1083	CUGGUACCCUCCUGGCUCUmUmU	3114	AGAGCCAGGAGGGUACCAGmUmU
1209	1084	UGGUACCCUCCUGGCUCUUmUmU	3115	AAGAGCCAGGAGGGUACCAmUmU
1210	1085	GGUACCCUCCUGGCUCUUGmUmU	3116	CAAGAGCCAGGAGGGUACCmUmU
1211	1086	GUACCCUCCUGGCUCUUGAmUmU	3117	UCAAGAGCCAGGAGGGUACmUmU
1212	1087	UACCCUCCUGGCUCUUGAUmUmU	3118	AUCAAGAGCCAGGAGGGUAmUmU
1213	1088	ACCCUCCUGGCUCUUGAUAmUmU	3119	UAUCAAGAGCCAGGAGGGUmUmU
1214	1089	CCCUCCUGGCUCUUGAUACmUmU	3120	GUAUCAAGAGCCAGGAGGGmUmU
1215	1090	CCUCCUGGCUCUUGAUACCmUmU	3121	GGUAUCAAGAGCCAGGAGGmUmU
1216	1091	CUCCUGGCUCUUGAUACCCmUmU	3122	GGGUAUCAAGAGCCAGGAGmUmU
1217	1092	UCCUGGCUCUUGAUACCCCmUmU	3123	GGGGUAUCAAGAGCCAGGAmUmU
1218	1093	CCUGGCUCUUGAUACCCCCmUmU	3124	GGGGGUAUCAAGAGCCAGGmUmU
1219	1094	CUGGCUCUUGAUACCCCCCmUmU	3125	GGGGGGUAUCAAGAGCCAGmUmU
1220	1095	UGGCUCUUGAUACCCCCCUmUmU	3126	AGGGGGGUAUCAAGAGCCAmUmU
1221	1096	GGCUCUUGAUACCCCCCUCmUmU	3127	GAGGGGGGUAUCAAGAGCCmUmU
1222	1097	GCUCUUGAUACCCCCCUCUmUmU	3128	AGAGGGGGGUAUCAAGAGCmUmU
1223	1098	CUCUUGAUACCCCCCUCUGmUmU	3129	CAGAGGGGGGUAUCAAGAGmUmU
1224	1099	UCUUGAUACCCCCCUCUGUmUmU	3130	ACAGAGGGGGGUAUCAAGAmUmU
1225	1100	CUUGAUACCCCCCUCUGUCmUmU	3131	GACAGAGGGGGGUAUCAAGmUmU
1226	1101	UUGAUACCCCCCUCUGUCUmUmU	3132	AGACAGAGGGGGGUAUCAAmUmU
1227	1102	UGAUACCCCCCUCUGUCUUmUmU	3133	AAGACAGAGGGGGGUAUCAmUmU
1228	1103	GAUACCCCCCUCUGUCUUGmUmU	3134	CAAGACAGAGGGGGGUAUCmUmU
1229	1104	AUACCCCCCUCUGUCUUGUmUmU	3135	ACAAGACAGAGGGGGGUAUmUmU
1230	1105	UACCCCCCUCUGUCUUGUGmUmU	3136	CACAAGACAGAGGGGGGUAmUmU
1231	1106	ACCCCCCUCUGUCUUGUGAmUmU	3137	UCACAAGACAGAGGGGGGUmUmU
1232	1107	CCCCCCUCUGUCUUGUGAAmUmU	3138	UUCACAAGACAGAGGGGGGmUmU
1233	1108	CCCCCUCUGUCUUGUGAAGmUmU	3139	CUUCACAAGACAGAGGGGGmUmU
1234	1109	CCCCUCUGUCUUGUGAAGGmUmU	3140	CCUUCACAAGACAGAGGGGmUmU
1235	1110	CCCUCUGUCUUGUGAAGGCmUmU	3141	GCCUUCACAAGACAGAGGGmUmU
1236	1111	CCUCUGUCUUGUGAAGGCAmUmU	3142	UGCCUUCACAAGACAGAGGmUmU
1237	1112	CUCUGUCUUGUGAAGGCAGmUmU	3143	CUGCCUUCACAAGACAGAGmUmU
1238	1113	UCUGUCUUGUGAAGGCAGGmUmU	3144	CCUGCCUUCACAAGACAGAmUmU
1239	1114	CUGUCUUGUGAAGGCAGGGmUmU	3145	CCCUGCCUUCACAAGACAGmUmU
1240	1115	UGUCUUGUGAAGGCAGGGGmUmU	3146	CCCCUGCCUUCACAAGACAmUmU
1241	1116	GUCUUGUGAAGGCAGGGGGmUmU	3147	CCCCCUGCCUUCACAAGACmUmU
1242	1117	UCUUGUGAAGGCAGGGGGAmUmU	3148	UCCCCCUGCCUUCACAAGAmUmU
1243	1118	CUUGUGAAGGCAGGGGGAAmUmU	3149	UUCCCCCUGCCUUCACAAGmUmU
1244	1119	UUGUGAAGGCAGGGGGAAGmUmU	3150	CUUCCCCCUGCCUUCACAAmUmU
1245	1120	UGUGAAGGCAGGGGGAAGGmUmU	3151	CCUUCCCCCUGCCUUCACAmUmU
1246	1121	GUGAAGGCAGGGGGAAGGUmUmU	3152	ACCUUCCCCCUGCCUUCACmUmU
1247	1122	UGAAGGCAGGGGGAAGGUGmUmU	3153	CACCUUCCCCCUGCCUUCAmUmU
1248	1123	GAAGGCAGGGGGAAGGUGGmUmU	3154	CCACCUUCCCCCUGCCUUCmUmU
1249	1124	AAGGCAGGGGGAAGGUGGGmUmU	3155	CCCACCUUCCCCCUGCCUUmUmU
1250	1125	AGGCAGGGGGAAGGUGGGGmUmU	3156	CCCCACCUUCCCCCUGCCUmUmU
1251	1126	GGCAGGGGGAAGGUGGGGUmUmU	3157	ACCCCACCUUCCCCCUGCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1252	1127	GCAGGGGGAAGGUGGGGUCmUmU	3158	GACCCCACCUUCCCCCUGCmUmU
1253	1128	CAGGGGGAAGGUGGGGUCCmUmU	3159	GGACCCCACCUUCCCCCUGmUmU
1254	1129	AGGGGGAAGGUGGGGUCCUmUmU	3160	AGGACCCCACCUUCCCCCUmUmU
1255	1130	GGGGGAAGGUGGGGUCCUGmUmU	3161	CAGGACCCCACCUUCCCCCmUmU
1256	1131	GGGGAAGGUGGGGUCCUGGmUmU	3162	CCAGGACCCCACCUUCCCCmUmU
1257	1132	GGGAAGGUGGGGUCCUGGAmUmU	3163	UCCAGGACCCCACCUUCCCmUmU
1258	1133	GGAAGGUGGGGUCCUGGAGmUmU	3164	CUCCAGGACCCCACCUUCCmUmU
1259	1134	GAAGGUGGGGUCCUGGAGCmUmU	3165	GCUCCAGGACCCCACCUUCmUmU
1260	1135	AAGGUGGGGUCCUGGAGCAmUmU	3166	UGCUCCAGGACCCCACCUUmUmU
1261	1136	AGGUGGGGUCCUGGAGCAGmUmU	3167	CUGCUCCAGGACCCCACCUmUmU
1262	1137	GGUGGGGUCCUGGAGCAGAmUmU	3168	UCUGCUCCAGGACCCCACCmUmU
1263	1138	GUGGGGUCCUGGAGCAGACmUmU	3169	GUCUGCUCCAGGACCCCACmUmU
1264	1139	UGGGGUCCUGGAGCAGACCmUmU	3170	GGUCUGCUCCAGGACCCCAmUmU
1265	1140	GGGGUCCUGGAGCAGACCAmUmU	3171	UGGUCUGCUCCAGGACCCCmUmU
1266	1141	GGGUCCUGGAGCAGACCACmUmU	3172	GUGGUCUGCUCCAGGACCCmUmU
1267	1142	GGUCCUGGAGCAGACCACCmUmU	3173	GGUGGUCUGCUCCAGGACCmUmU
1268	1143	GUCCUGGAGCAGACCACCCmUmU	3174	GGGUGGUCUGCUCCAGGACmUmU
1269	1144	UCCUGGAGCAGACCACCCCmUmU	3175	GGGGUGGUCUGCUCCAGGAmUmU
1270	1145	CCUGGAGCAGACCACCCCGmUmU	3176	CGGGGUGGUCUGCUCCAGGmUmU
1271	1146	CUGGAGCAGACCACCCCGCmUmU	3177	GCGGGGUGGUCUGCUCCAGmUmU
1272	1147	UGGAGCAGACCACCCCGCCmUmU	3178	GGCGGGGUGGUCUGCUCCAmUmU
1273	1148	GGAGCAGACCACCCCGCCUmUmU	3179	AGGCGGGGUGGUCUGCUCCmUmU
1274	1149	GAGCAGACCACCCCGCCUGmUmU	3180	CAGGCGGGGUGGUCUGCUCmUmU
1275	1150	AGCAGACCACCCCGCCUGCmUmU	3181	GCAGGCGGGGUGGUCUGCUmUmU
1276	1151	GCAGACCACCCCGCCUGCCmUmU	3182	GGCAGGCGGGGUGGUCUGCmUmU
1277	1152	CAGACCACCCCGCCUGCCCmUmU	3183	GGGCAGGCGGGGUGGUCUGmUmU
1278	1153	AGACCACCCCGCCUGCCCUmUmU	3184	AGGGCAGGCGGGGUGGUCUmUmU
1279	1154	GACCACCCCGCCUGCCCUCmUmU	3185	GAGGGCAGGCGGGGUGGUCmUmU
1280	1155	ACCACCCCGCCUGCCCUCAmUmU	3186	UGAGGGCAGGCGGGGUGGUmUmU
1281	1156	CCACCCCGCCUGCCCUCAUmUmU	3187	AUGAGGGCAGGCGGGGUGGmUmU
1282	1157	CACCCCGCCUGCCCUCAUGmUmU	3188	CAUGAGGGCAGGCGGGGUGmUmU
1283	1158	ACCCCGCCUGCCCUCAUGGmUmU	3189	CCAUGAGGGCAGGCGGGGUmUmU
1284	1159	CCCCGCCUGCCCUCAUGGCmUmU	3190	GCCAUGAGGGCAGGCGGGGmUmU
1285	1160	CCCGCCUGCCCUCAUGGCCmUmU	3191	GGCCAUGAGGGCAGGCGGGmUmU
1286	1161	CCGCCUGCCCUCAUGGCCCmUmU	3192	GGGCCAUGAGGGCAGGCGGmUmU
1287	1162	CGCCUGCCCUCAUGGCCCCmUmU	3193	GGGGCCAUGAGGGCAGGCGmUmU
1288	1163	GCCUGCCCUCAUGGCCCCUmUmU	3194	AGGGGCCAUGAGGGCAGGCmUmU
1289	1164	CCUGCCCUCAUGGCCCCUCmUmU	3195	GAGGGGCCAUGAGGGCAGGmUmU
1290	1165	CUGCCCUCAUGGCCCCUCUmUmU	3196	AGAGGGGCCAUGAGGGCAGmUmU
1291	1166	UGCCCUCAUGGCCCCUCUGmUmU	3197	CAGAGGGGCCAUGAGGGCAmUmU
1292	1167	GCCCUCAUGGCCCCUCUGAmUmU	3198	UCAGAGGGGCCAUGAGGGCmUmU
1293	1168	CCCUCAUGGCCCCUCUGACmUmU	3199	GUCAGAGGGGCCAUGAGGGmUmU
1294	1169	CCUCAUGGCCCCUCUGACCmUmU	3200	GGUCAGAGGGGCCAUGAGGmUmU
1295	1170	CUCAUGGCCCCUCUGACCUmUmU	3201	AGGUCAGAGGGGCCAUGAGmUmU
1296	1171	UCAUGGCCCCUCUGACCUGmUmU	3202	CAGGUCAGAGGGGCCAUGAmUmU
1297	1172	CAUGGCCCCUCUGACCUGCmUmU	3203	GCAGGUCAGAGGGGCCAUGmUmU
1298	1173	AUGGCCCCUCUGACCUGCAmUmU	3204	UGCAGGUCAGAGGGGCCAUmUmU
1299	1174	UGGCCCCUCUGACCUGCACmUmU	3205	GUGCAGGUCAGAGGGGCCAmUmU
1300	1175	GGCCCCUCUGACCUGCACUmUmU	3206	AGUGCAGGUCAGAGGGGCCmUmU
1301	1176	GCCCCUCUGACCUGCACUGmUmU	3207	CAGUGCAGGUCAGAGGGGCmUmU
1302	1177	CCCCUCUGACCUGCACUGGmUmU	3208	CCAGUGCAGGUCAGAGGGGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1303	1178	CCCUCUGACCUGCACUGGGmUmU	3209	CCCAGUGCAGGUCAGAGGGmUmU
1304	1179	CCUCUGACCUGCACUGGGGmUmU	3210	CCCCAGUGCAGGUCAGAGGmUmU
1305	1180	CUCUGACCUGCACUGGGGAmUmU	3211	UCCCCAGUGCAGGUCAGAGmUmU
1306	1181	UCUGACCUGCACUGGGGAGmUmU	3212	CUCCCCAGUGCAGGUCAGAmUmU
1307	1182	CUGACCUGCACUGGGGAGCmUmU	3213	GCUCCCCAGUGCAGGUCAGmUmU
1308	1183	UGACCUGCACUGGGGAGCCmUmU	3214	GGCUCCCCAGUGCAGGUCAmUmU
1309	1184	GACCUGCACUGGGGAGCCCmUmU	3215	GGGCUCCCCAGUGCAGGUCmUmU
1310	1185	ACCUGCACUGGGGAGCCCGmUmU	3216	CGGGCUCCCCAGUGCAGGUmUmU
1311	1186	CCUGCACUGGGGAGCCCGUmUmU	3217	ACGGGCUCCCCAGUGCAGGmUmU
1312	1187	CUGCACUGGGGAGCCCGUCmUmU	3218	GACGGGCUCCCCAGUGCAGmUmU
1313	1188	UGCACUGGGGAGCCCGUCUmUmU	3219	AGACGGGCUCCCCAGUGCAmUmU
1314	1189	GCACUGGGGAGCCCGUCUCmUmU	3220	GAGACGGGCUCCCCAGUGCmUmU
1315	1190	CACUGGGGAGCCCGUCUCAmUmU	3221	UGAGACGGGCUCCCCAGUGmUmU
1316	1191	ACUGGGGAGCCCGUCUCAGmUmU	3222	CUGAGACGGGCUCCCCAGUmUmU
1317	1192	CUGGGGAGCCCGUCUCAGUmUmU	3223	ACUGAGACGGGCUCCCCAGmUmU
1318	1193	UGGGGAGCCCGUCUCAGUGmUmU	3224	CACUGAGACGGGCUCCCCAmUmU
1319	1194	GGGGAGCCCGUCUCAGUGUmUmU	3225	ACACUGAGACGGGCUCCCCmUmU
1320	1195	GGGAGCCCGUCUCAGUGUUmUmU	3226	AACACUGAGACGGGCUCCCmUmU
1321	1196	GGAGCCCGUCUCAGUGUUGmUmU	3227	CAACACUGAGACGGGCUCCmUmU
1322	1197	GAGCCCGUCUCAGUGUUGAmUmU	3228	UCAACACUGAGACGGGCUCmUmU
1323	1198	AGCCCGUCUCAGUGUUGAGmUmU	3229	CUCAACACUGAGACGGGCUmUmU
1324	1199	GCCCGUCUCAGUGUUGAGCmUmU	3230	GCUCAACACUGAGACGGGCmUmU
1325	1200	CCCGUCUCAGUGUUGAGCCmUmU	3231	GGCUCAACACUGAGACGGGmUmU
1326	1201	CCGUCUCAGUGUUGAGCCUmUmU	3232	AGGCUCAACACUGAGACGGmUmU
1327	1202	CGUCUCAGUGUUGAGCCUUmUmU	3233	AAGGCUCAACACUGAGACGmUmU
1328	1203	GUCUCAGUGUUGAGCCUUUmUmU	3234	AAAGGCUCAACACUGAGACmUmU
1329	1204	UCUCAGUGUUGAGCCUUUUmUmU	3235	AAAAGGCUCAACACUGAGAmUmU
1330	1205	CUCAGUGUUGAGCCUUUUCmUmU	3236	GAAAAGGCUCAACACUGAGmUmU
1331	1206	UCAGUGUUGAGCCUUUUCCmUmU	3237	GGAAAAGGCUCAACACUGAmUmU
1332	1207	CAGUGUUGAGCCUUUUCCCmUmU	3238	GGGAAAAGGCUCAACACUGmUmU
1333	1208	AGUGUUGAGCCUUUUCCCUmUmU	3239	AGGGAAAAGGCUCAACACUmUmU
1334	1209	GUGUUGAGCCUUUUCCCUCmUmU	3240	GAGGGAAAAGGCUCAACACmUmU
1335	1210	UGUUGAGCCUUUUCCCUCUmUmU	3241	AGAGGGAAAAGGCUCAACAmUmU
1336	1211	GUUGAGCCUUUUCCCUCUUmUmU	3242	AAGAGGGAAAAGGCUCAACmUmU
1337	1212	UUGAGCCUUUUCCCUCUUUmUmU	3243	AAAGAGGGAAAAGGCUCAAmUmU
1338	1213	UGAGCCUUUUCCCUCUUUGmUmU	3244	CAAAGAGGGAAAAGGCUCAmUmU
1339	1214	GAGCCUUUUCCCUCUUUGGmUmU	3245	CCAAAGAGGGAAAAGGCUCmUmU
1340	1215	AGCCUUUUCCCUCUUUGGCmUmU	3246	GCCAAAGAGGGAAAAGGCUmUmU
1341	1216	GCCUUUUCCCUCUUUGGCUmUmU	3247	AGCCAAAGAGGGAAAAGGCmUmU
1342	1217	CCUUUUCCCUCUUUGGCUCmUmU	3248	GAGCCAAAGAGGGAAAAGGmUmU
1343	1218	CUUUUCCCUCUUUGGCUCCmUmU	3249	GGAGCCAAAGAGGGAAAAGmUmU
1344	1219	UUUUCCCUCUUUGGCUCCCmUmU	3250	GGGAGCCAAAGAGGGAAAAmUmU
1345	1220	UUUCCCUCUUUGGCUCCCCmUmU	3251	GGGGAGCCAAAGAGGGAAAmUmU
1346	1221	UUCCCUCUUUGGCUCCCCUmUmU	3252	AGGGGAGCCAAAGAGGGAAmUmU
1347	1222	UCCCUCUUUGGCUCCCCUGmUmU	3253	CAGGGGAGCCAAAGAGGGAmUmU
1348	1223	CCCUCUUUGGCUCCCCUGUmUmU	3254	ACAGGGGAGCCAAAGAGGGmUmU
1349	1224	CCUCUUUGGCUCCCCUGUAmUmU	3255	UACAGGGGAGCCAAAGAGGmUmU
1350	1225	CUCUUUGGCUCCCCUGUACmUmU	3256	GUACAGGGGAGCCAAAGAGmUmU
1351	1226	UCUUUGGCUCCCCUGUACCmUmU	3257	GGUACAGGGGAGCCAAAGAmUmU
1352	1227	CUUUGGCUCCCCUGUACCUmUmU	3258	AGGUACAGGGGAGCCAAAGmUmU
1353	1228	UUUGGCUCCCCUGUACCUUmUmU	3259	AAGGUACAGGGGAGCCAAAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1354	1229	UUGGCUCCCCUGUACCUUUmUmU	3260	AAAGGUACAGGGGAGCCAAmUmU
1355	1230	UGGCUCCCCUGUACCUUUUmUmU	3261	AAAAGGUACAGGGGAGCCAmUmU
1356	1231	GGCUCCCCUGUACCUUUUGmUmU	3262	CAAAAGGUACAGGGGAGCCmUmU
1357	1232	GCUCCCCUGUACCUUUUGAmUmU	3263	UCAAAAGGUACAGGGGAGCmUmU
1358	1233	CUCCCCUGUACCUUUUGAGmUmU	3264	CUCAAAAGGUACAGGGGAGmUmU
1359	1234	UCCCCUGUACCUUUUGAGGmUmU	3265	CCUCAAAAGGUACAGGGGAmUmU
1360	1235	CCCCUGUACCUUUUGAGGAmUmU	3266	UCCUCAAAAGGUACAGGGGmUmU
1361	1236	CCCUGUACCUUUUGAGGAGmUmU	3267	CUCCUCAAAAGGUACAGGGmUmU
1362	1237	CCUGUACCUUUUGAGGAGCmUmU	3268	GCUCCUCAAAAGGUACAGGmUmU
1363	1238	CUGUACCUUUUGAGGAGCCmUmU	3269	GGCUCCUCAAAAGGUACAGmUmU
1364	1239	UGUACCUUUUGAGGAGCCCmUmU	3270	GGGCUCCUCAAAAGGUACAmUmU
1365	1240	GUACCUUUUGAGGAGCCCCmUmU	3271	GGGGCUCCUCAAAAGGUACmUmU
1366	1241	UACCUUUUGAGGAGCCCCAmUmU	3272	UGGGGCUCCUCAAAAGGUAmUmU
1367	1242	ACCUUUUGAGGAGCCCCAGmUmU	3273	CUGGGGCUCCUCAAAAGGUmUmU
1368	1243	CCUUUUGAGGAGCCCCAGCmUmU	3274	GCUGGGGCUCCUCAAAAGGmUmU
1369	1244	CUUUUGAGGAGCCCCAGCUmUmU	3275	AGCUGGGGCUCCUCAAAAGmUmU
1370	1245	UUUUGAGGAGCCCCAGCUAmUmU	3276	UAGCUGGGGCUCCUCAAAAmUmU
1371	1246	UUUGAGGAGCCCCAGCUACmUmU	3277	GUAGCUGGGGCUCCUCAAAmUmU
1372	1247	UUGAGGAGCCCCAGCUACCmUmU	3278	GGUAGCUGGGGCUCCUCAAmUmU
1373	1248	UGAGGAGCCCCAGCUACCCmUmU	3279	GGGUAGCUGGGGCUCCUCAmUmU
1374	1249	GAGGAGCCCCAGCUACCCUmUmU	3280	AGGGUAGCUGGGGCUCCUCmUmU
1375	1250	AGGAGCCCCAGCUACCCUUmUmU	3281	AAGGGUAGCUGGGGCUCCUmUmU
1376	1251	GGAGCCCCAGCUACCCUUCmUmU	3282	GAAGGGUAGCUGGGGCUCCmUmU
1377	1252	GAGCCCCAGCUACCCUUCUmUmU	3283	AGAAGGGUAGCUGGGGCUCmUmU
1378	1253	AGCCCCAGCUACCCUUCUUmUmU	3284	AAGAAGGGUAGCUGGGGCUmUmU
1379	1254	GCCCCAGCUACCCUUCUUCmUmU	3285	GAAGAAGGGUAGCUGGGGCmUmU
1380	1255	CCCCAGCUACCCUUCUUCUmUmU	3286	AGAAGAAGGGUAGCUGGGGmUmU
1381	1256	CCCAGCUACCCUUCUUCUCmUmU	3287	GAGAAGAAGGGUAGCUGGGmUmU
1382	1257	CCAGCUACCCUUCUUCUCCmUmU	3288	GGAGAAGAAGGGUAGCUGGmUmU
1383	1258	CAGCUACCCUUCUUCUCCAmUmU	3289	UGGAGAAGAAGGGUAGCUGmUmU
1384	1259	AGCUACCCUUCUUCUCCAGmUmU	3290	CUGGAGAAGAAGGGUAGCUmUmU
1385	1260	GCUACCCUUCUUCUCCAGCmUmU	3291	GCUGGAGAAGAAGGGUAGCmUmU
1386	1261	CUACCCUUCUUCUCCAGCUmUmU	3292	AGCUGGAGAAGAAGGGUAGmUmU
1387	1262	UACCCUUCUUCUCCAGCUGmUmU	3293	CAGCUGGAGAAGAAGGGUAmUmU
1388	1263	ACCCUUCUUCUCCAGCUGGmUmU	3294	CCAGCUGGAGAAGAAGGGUmUmU
1389	1264	CCCUUCUUCUCCAGCUGGGmUmU	3295	CCCAGCUGGAGAAGAAGGGmUmU
1390	1265	CCUUCUUCUCCAGCUGGGCmUmU	3296	GCCCAGCUGGAGAAGAAGGmUmU
1391	1266	CUUCUUCUCCAGCUGGGCUmUmU	3297	AGCCCAGCUGGAGAAGAAGmUmU
1392	1267	UUCUUCUCCAGCUGGGCUCmUmU	3298	GAGCCCAGCUGGAGAAGAAmUmU
1393	1268	UCUUCUCCAGCUGGGCUCUmUmU	3299	AGAGCCCAGCUGGAGAAGAmUmU
1394	1269	CUUCUCCAGCUGGGCUCUGmUmU	3300	CAGAGCCCAGCUGGAGAAGmUmU
1395	1270	UUCUCCAGCUGGGCUCUGCmUmU	3301	GCAGAGCCCAGCUGGAGAAmUmU
1396	1271	UCUCCAGCUGGGCUCUGCAmUmU	3302	UGCAGAGCCCAGCUGGAGAmUmU
1397	1272	CUCCAGCUGGGCUCUGCAAmUmU	3303	UUGCAGAGCCCAGCUGGAGmUmU
1398	1273	UCCAGCUGGGCUCUGCAAUmUmU	3304	AUUGCAGAGCCCAGCUGGAmUmU
1399	1274	CCAGCUGGGCUCUGCAAUUmUmU	3305	AAUUGCAGAGCCCAGCUGGmUmU
1400	1275	CAGCUGGGCUCUGCAAUUCmUmU	3306	GAAUUGCAGAGCCCAGCUGmUmU
1401	1276	AGCUGGGCUCUGCAAUUCCmUmU	3307	GGAAUUGCAGAGCCCAGCUmUmU
1402	1277	GCUGGGCUCUGCAAUUCCCmUmU	3308	GGGAAUUGCAGAGCCCAGCmUmU
1403	1278	CUGGGCUCUGCAAUUCCCCmUmU	3309	GGGGAAUUGCAGAGCCCAGmUmU
1404	1279	UGGGCUCUGCAAUUCCCCUmUmU	3310	AGGGGAAUUGCAGAGCCCAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1405	1280	GGGCUCUGCAAUUCCCCUCmUmU	3311	GAGGGGAAUUGCAGAGCCCmUmU
1406	1281	GGCUCUGCAAUUCCCCUCUmUmU	3312	AGAGGGGAAUUGCAGAGCCmUmU
1407	1282	GCUCUGCAAUUCCCCUCUGmUmU	3313	CAGAGGGGAAUUGCAGAGCmUmU
1408	1283	CUCUGCAAUUCCCCUCUGCmUmU	3314	GCAGAGGGGAAUUGCAGAGmUmU
1409	1284	UCUGCAAUUCCCCUCUGCUmUmU	3315	AGCAGAGGGGAAUUGCAGAmUmU
1410	1285	CUGCAAUUCCCCUCUGCUGmUmU	3316	CAGCAGAGGGGAAUUGCAGmUmU
1411	1286	UGCAAUUCCCCUCUGCUGCmUmU	3317	GCAGCAGAGGGGAAUUGCAmUmU
1412	1287	GCAAUUCCCCUCUGCUGCUmUmU	3318	AGCAGCAGAGGGGAAUUGCmUmU
1413	1288	CAAUUCCCCUCUGCUGCUGmUmU	3319	CAGCAGCAGAGGGGAAUUGmUmU
1414	1289	AAUUCCCCUCUGCUGCUGUmUmU	3320	ACAGCAGCAGAGGGGAAUUmUmU
1415	1290	AUUCCCCUCUGCUGCUGUCmUmU	3321	GACAGCAGCAGAGGGGAAUmUmU
1416	1291	UUCCCCUCUGCUGCUGUCCmUmU	3322	GGACAGCAGCAGAGGGGAAmUmU
1417	1292	UCCCCUCUGCUGCUGUCCCmUmU	3323	GGGACAGCAGCAGAGGGGAmUmU
1418	1293	CCCCUCUGCUGCUGUCCCUmUmU	3324	AGGGACAGCAGCAGAGGGGmUmU
1419	1294	CCCUCUGCUGCUGUCCCUCmUmU	3325	GAGGGACAGCAGCAGAGGGmUmU
1420	1295	CCUCUGCUGCUGUCCCUCCmUmU	3326	GGAGGGACAGCAGCAGAGGmUmU
1421	1296	CUCUGCUGCUGUCCCUCCCmUmU	3327	GGGAGGGACAGCAGCAGAGmUmU
1422	1297	UCUGCUGCUGUCCCUCCCCmUmU	3328	GGGGAGGGACAGCAGCAGAmUmU
1423	1298	CUGCUGCUGUCCCUCCCCCmUmU	3329	GGGGGAGGGACAGCAGCAGmUmU
1424	1299	UGCUGCUGUCCCUCCCCCUmUmU	3330	AGGGGGAGGGACAGCAGCAmUmU
1425	1300	GCUGCUGUCCCUCCCCCUUmUmU	3331	AAGGGGGAGGGACAGCAGCmUmU
1426	1301	CUGCUGUCCCUCCCCCUUGmUmU	3332	CAAGGGGGAGGGACAGCAGmUmU
1427	1302	UGCUGUCCCUCCCCCUUGUmUmU	3333	ACAAGGGGGAGGGACAGCAmUmU
1428	1303	GCUGUCCCUCCCCCUUGUCmUmU	3334	GACAAGGGGGAGGGACAGCmUmU
1429	1304	CUGUCCCUCCCCCUUGUCCmUmU	3335	GGACAAGGGGGAGGGACAGmUmU
1430	1305	UGUCCCUCCCCCUUGUCCUmUmU	3336	AGGACAAGGGGGAGGGACAmUmU
1431	1306	GUCCCUCCCCCUUGUCCUUmUmU	3337	AAGGACAAGGGGGAGGGACmUmU
1432	1307	UCCCUCCCCCUUGUCCUUUmUmU	3338	AAAGGACAAGGGGGAGGGAmUmU
1433	1308	CCCUCCCCCUUGUCCUUUCmUmU	3339	GAAAGGACAAGGGGGAGGGmUmU
1434	1309	CCUCCCCCUUGUCCUUUCCmUmU	3340	GGAAAGGACAAGGGGGAGGmUmU
1435	1310	CUCCCCCUUGUCCUUUCCCmUmU	3341	GGGAAAGGACAAGGGGGAGmUmU
1436	1311	UCCCCCUUGUCCUUUCCCUmUmU	3342	AGGGAAAGGACAAGGGGGAmUmU
1437	1312	CCCCCUUGUCCUUUCCCUUmUmU	3343	AAGGGAAAGGACAAGGGGGmUmU
1438	1313	CCCCUUGUCCUUUCCCUUCmUmU	3344	GAAGGGAAAGGACAAGGGGmUmU
1439	1314	CCCUUGUCCUUUCCCUUCAmUmU	3345	UGAAGGGAAAGGACAAGGGmUmU
1440	1315	CCUUGUCCUUUCCCUUCAGmUmU	3346	CUGAAGGGAAAGGACAAGGmUmU
1441	1316	CUUGUCCUUUCCCUUCAGUmUmU	3347	ACUGAAGGGAAAGGACAAGmUmU
1442	1317	UUGUCCUUUCCCUUCAGUAmUmU	3348	UACUGAAGGGAAAGGACAAmUmU
1443	1318	UGUCCUUUCCCUUCAGUACmUmU	3349	GUACUGAAGGGAAAGGACAmUmU
1444	1319	GUCCUUUCCCUUCAGUACCmUmU	3350	GGUACUGAAGGGAAAGGACmUmU
1445	1320	UCCUUUCCCUUCAGUACCCmUmU	3351	GGGUACUGAAGGGAAAGGAmUmU
1446	1321	CCUUUCCCUUCAGUACCCUmUmU	3352	AGGGUACUGAAGGGAAAGGmUmU
1447	1322	CUUUCCCUUCAGUACCCUCmUmU	3353	GAGGGUACUGAAGGGAAAGmUmU
1448	1323	UUUCCCUUCAGUACCCUCUmUmU	3354	AGAGGGUACUGAAGGGAAAmUmU
1449	1324	UUCCCUUCAGUACCCUCUCmUmU	3355	GAGAGGGUACUGAAGGGAAmUmU
1450	1325	UCCCUUCAGUACCCUCUCAmUmU	3356	UGAGAGGGUACUGAAGGGAmUmU
1451	1326	CCCUUCAGUACCCUCUCAGmUmU	3357	CUGAGAGGGUACUGAAGGGmUmU
1452	1327	CCUUCAGUACCCUCUCAGCmUmU	3358	GCUGAGAGGGUACUGAAGGmUmU
1453	1328	CUUCAGUACCCUCUCAGCUmUmU	3359	AGCUGAGAGGGUACUGAAGmUmU
1454	1329	UUCAGUACCCUCUCAGCUCmUmU	3360	GAGCUGAGAGGGUACUGAAmUmU
1455	1330	UCAGUACCCUCUCAGCUCCmUmU	3361	GGAGCUGAGAGGGUACUGAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1456	1331	CAGUACCCUCUCAGCUCCAmUmU	3362	UGGAGCUGAGAGGGUACUGmUmU
1457	1332	AGUACCCUCUCAGCUCCAGmUmU	3363	CUGGAGCUGAGAGGGUACUmUmU
1458	1333	GUACCCUCUCAGCUCCAGGmUmU	3364	CCUGGAGCUGAGAGGGUACmUmU
1459	1334	UACCCUCUCAGCUCCAGGUmUmU	3365	ACCUGGAGCUGAGAGGGUAmUmU
1460	1335	ACCCUCUCAGCUCCAGGUGmUmU	3366	CACCUGGAGCUGAGAGGGUmUmU
1461	1336	CCCUCUCAGCUCCAGGUGGmUmU	3367	CCACCUGGAGCUGAGAGGGmUmU
1462	1337	CCUCUCAGCUCCAGGUGGCmUmU	3368	GCCACCUGGAGCUGAGAGGmUmU
1463	1338	CUCUCAGCUCCAGGUGGCUmUmU	3369	AGCCACCUGGAGCUGAGAGmUmU
1464	1339	UCUCAGCUCCAGGUGGCUCmUmU	3370	GAGCCACCUGGAGCUGAGAmUmU
1465	1340	CUCAGCUCCAGGUGGCUCUmUmU	3371	AGAGCCACCUGGAGCUGAGmUmU
1466	1341	UCAGCUCCAGGUGGCUCUGmUmU	3372	CAGAGCCACCUGGAGCUGAmUmU
1467	1342	CAGCUCCAGGUGGCUCUGAmUmU	3373	UCAGAGCCACCUGGAGCUGmUmU
1468	1343	AGCUCCAGGUGGCUCUGAGmUmU	3374	CUCAGAGCCACCUGGAGCUmUmU
1469	1344	GCUCCAGGUGGCUCUGAGGmUmU	3375	CCUCAGAGCCACCUGGAGCmUmU
1470	1345	CUCCAGGUGGCUCUGAGGUmUmU	3376	ACCUCAGAGCCACCUGGAGmUmU
1471	1346	UCCAGGUGGCUCUGAGGUGmUmU	3377	CACCUCAGAGCCACCUGGAmUmU
1472	1347	CCAGGUGGCUCUGAGGUGCmUmU	3378	GCACCUCAGAGCCACCUGGmUmU
1473	1348	CAGGUGGCUCUGAGGUGCCmUmU	3379	GGCACCUCAGAGCCACCUGmUmU
1474	1349	AGGUGGCUCUGAGGUGCCUmUmU	3380	AGGCACCUCAGAGCCACCUmUmU
1475	1350	GGUGGCUCUGAGGUGCCUGmUmU	3381	CAGGCACCUCAGAGCCACCmUmU
1476	1351	GUGGCUCUGAGGUGCCUGUmUmU	3382	ACAGGCACCUCAGAGCCACmUmU
1477	1352	UGGCUCUGAGGUGCCUGUCmUmU	3383	GACAGGCACCUCAGAGCCAmUmU
1478	1353	GGCUCUGAGGUGCCUGUCCmUmU	3384	GGACAGGCACCUCAGAGCCmUmU
1479	1354	GCUCUGAGGUGCCUGUCCCmUmU	3385	GGGACAGGCACCUCAGAGCmUmU
1480	1355	CUCUGAGGUGCCUGUCCCAmUmU	3386	UGGGACAGGCACCUCAGAGmUmU
1481	1356	UCUGAGGUGCCUGUCCCACmUmU	3387	GUGGGACAGGCACCUCAGAmUmU
1482	1357	CUGAGGUGCCUGUCCCACCmUmU	3388	GGUGGGACAGGCACCUCAGmUmU
1483	1358	UGAGGUGCCUGUCCCACCCmUmU	3389	GGGUGGGACAGGCACCUCAmUmU
1484	1359	GAGGUGCCUGUCCCACCCCmUmU	3390	GGGGUGGGACAGGCACCUCmUmU
1485	1360	AGGUGCCUGUCCCACCCCCmUmU	3391	GGGGGUGGGACAGGCACCUmUmU
1486	1361	GGUGCCUGUCCCACCCCCAmUmU	3392	UGGGGGUGGGACAGGCACCmUmU
1487	1362	GUGCCUGUCCCACCCCCACmUmU	3393	GUGGGGGUGGGACAGGCACmUmU
1488	1363	UGCCUGUCCCACCCCCACCmUmU	3394	GGUGGGGGUGGGACAGGCAmUmU
1489	1364	GCCUGUCCCACCCCCACCCmUmU	3395	GGGUGGGGGUGGGACAGGCmUmU
1490	1365	CCUGUCCCACCCCCACCCCmUmU	3396	GGGGUGGGGGUGGGACAGGmUmU
1491	1366	CUGUCCCACCCCCACCCCCmUmU	3397	GGGGGUGGGGGUGGGACAGmUmU
1492	1367	UGUCCCACCCCCACCCCCAmUmU	3398	UGGGGGUGGGGGUGGGACAmUmU
1493	1368	GUCCCACCCCCACCCCCAGmUmU	3399	CUGGGGGUGGGGGUGGGACmUmU
1494	1369	UCCCACCCCCACCCCCAGCmUmU	3400	GCUGGGGGUGGGGGUGGGAmUmU
1495	1370	CCCACCCCCACCCCCAGCUmUmU	3401	AGCUGGGGGUGGGGGUGGGmUmU
1496	1371	CCACCCCCACCCCCAGCUCmUmU	3402	GAGCUGGGGGUGGGGGUGGmUmU
1497	1372	CACCCCCACCCCCAGCUCAmUmU	3403	UGAGCUGGGGGUGGGGGUGmUmU
1498	1373	ACCCCCACCCCCAGCUCAAmUmU	3404	UUGAGCUGGGGGUGGGGGUmUmU
1499	1374	CCCCCACCCCCAGCUCAAUmUmU	3405	AUUGAGCUGGGGGUGGGGGmUmU
1500	1375	CCCCACCCCCAGCUCAAUGmUmU	3406	CAUUGAGCUGGGGGUGGGGmUmU
1501	1376	CCCACCCCCAGCUCAAUGGmUmU	3407	CCAUUGAGCUGGGGGUGGGmUmU
1502	1377	CCACCCCCAGCUCAAUGGAmUmU	3408	UCCAUUGAGCUGGGGGUGGmUmU
1503	1378	CACCCCCAGCUCAAUGGACmUmU	3409	GUCCAUUGAGCUGGGGGUGmUmU
1504	1379	ACCCCCAGCUCAAUGGACUmUmU	3410	AGUCCAUUGAGCUGGGGGUmUmU
1505	1380	CCCCCAGCUCAAUGGACUGmUmU	3411	CAGUCCAUUGAGCUGGGGGmUmU
1506	1381	CCCCAGCUCAAUGGACUGGmUmU	3412	CCAGUCCAUUGAGCUGGGGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1507	1382	CCCAGCUCAAUGGACUGGAmUmU	3413	UCCAGUCCAUUGAGCUGGGmUmU
1508	1383	CCAGCUCAAUGGACUGGAAmUmU	3414	UUCCAGUCCAUUGAGCUGGmUmU
1509	1384	CAGCUCAAUGGACUGGAAGmUmU	3415	CUUCCAGUCCAUUGAGCUGmUmU
1510	1385	AGCUCAAUGGACUGGAAGGmUmU	3416	CCUUCCAGUCCAUUGAGCUmUmU
1511	1386	GCUCAAUGGACUGGAAGGGmUmU	3417	CCCUUCCAGUCCAUUGAGCmUmU
1512	1387	CUCAAUGGACUGGAAGGGGmUmU	3418	CCCCUUCCAGUCCAUUGAGmUmU
1513	1388	UCAAUGGACUGGAAGGGGAmUmU	3419	UCCCCUUCCAGUCCAUUGAmUmU
1514	1389	CAAUGGACUGGAAGGGGAAmUmU	3420	UUCCCCUUCCAGUCCAUUGmUmU
1515	1390	AAUGGACUGGAAGGGGAAGmUmU	3421	CUUCCCCUUCCAGUCCAUUmUmU
1516	1391	AUGGACUGGAAGGGGAAGGmUmU	3422	CCUUCCCCUUCCAGUCCAUmUmU
1517	1392	UGGACUGGAAGGGGAAGGGmUmU	3423	CCCUUCCCCUUCCAGUCCAmUmU
1518	1393	GGACUGGAAGGGGAAGGGAmUmU	3424	UCCCUUCCCCUUCCAGUCCmUmU
1519	1394	GACUGGAAGGGGAAGGGACmUmU	3425	GUCCCUUCCCCUUCCAGUCmUmU
1520	1395	ACUGGAAGGGGAAGGGACAmUmU	3426	UGUCCCUUCCCCUUCCAGUmUmU
1521	1396	CUGGAAGGGGAAGGGACACmUmU	3427	GUGUCCCUUCCCCUUCCAGmUmU
1522	1397	UGGAAGGGGAAGGGACACAmUmU	3428	UGUGUCCCUUCCCCUUCCAmUmU
1523	1398	GGAAGGGGAAGGGACACACmUmU	3429	GUGUGUCCCUUCCCCUUCCmUmU
1524	1399	GAAGGGGAAGGGACACACAmUmU	3430	UGUGUGUCCCUUCCCCUUCmUmU
1525	1400	AAGGGGAAGGGACACACAAmUmU	3431	UUGUGUGUCCCUUCCCCUUmUmU
1526	1401	AGGGGAAGGGACACACAAGmUmU	3432	CUUGUGUGUCCCUUCCCCUmUmU
1527	1402	GGGGAAGGGACACACAAGAmUmU	3433	UCUUGUGUGUCCCUUCCCCmUmU
1528	1403	GGGAAGGGACACACAAGAAmUmU	3434	UUCUUGUGUGUCCCUUCCCmUmU
1529	1404	GGAAGGGACACACAAGAAGmUmU	3435	CUUCUUGUGUGUCCCUUCCmUmU
1530	1405	GAAGGGACACACAAGAAGAmUmU	3436	UCUUCUUGUGUGUCCCUUCmUmU
1531	1406	AAGGGACACACAAGAAGAAmUmU	3437	UUCUUCUUGUGUGUCCCUUmUmU
1532	1407	AGGGACACACAAGAAGAAGmUmU	3438	CUUCUUCUUGUGUGUCCCUmUmU
1533	1408	GGGACACACAAGAAGAAGGmUmU	3439	CCUUCUUCUUGUGUGUCCCmUmU
1534	1409	GGACACACAAGAAGAAGGGmUmU	3440	CCCUUCUUCUUGUGUGUCCmUmU
1535	1410	GACACACAAGAAGAAGGGCmUmU	3441	GCCCUUCUUCUUGUGUGUCmUmU
1536	1411	ACACACAAGAAGAAGGGCAmUmU	3442	UGCCCUUCUUCUUGUGUGUmUmU
1537	1412	CACACAAGAAGAAGGGCACmUmU	3443	GUGCCCUUCUUCUUGUGUGmUmU
1538	1413	ACACAAGAAGAAGGGCACCmUmU	3444	GGUGCCCUUCUUCUUGUGUmUmU
1539	1414	CACAAGAAGAAGGGCACCCmUmU	3445	GGGUGCCCUUCUUCUUGUGmUmU
1540	1415	ACAAGAAGAAGGGCACCCUmUmU	3446	AGGGUGCCCUUCUUCUUGUmUmU
1541	1416	CAAGAAGAAGGGCACCCUAmUmU	3447	UAGGGUGCCCUUCUUCUUGmUmU
1542	1417	AAGAAGAAGGGCACCCUAGmUmU	3448	CUAGGGUGCCCUUCUUCUUmUmU
1543	1418	AGAAGAAGGGCACCCUAGUmUmU	3449	ACUAGGGUGCCCUUCUUCUmUmU
1544	1419	GAAGAAGGGCACCCUAGUUmUmU	3450	AACUAGGGUGCCCUUCUUCmUmU
1545	1420	AAGAAGGGCACCCUAGUUCmUmU	3451	GAACUAGGGUGCCCUUCUUmUmU
1546	1421	AGAAGGGCACCCUAGUUCUmUmU	3452	AGAACUAGGGUGCCCUUCUmUmU
1547	1422	GAAGGGCACCCUAGUUCUAmUmU	3453	UAGAACUAGGGUGCCCUUCmUmU
1548	1423	AAGGGCACCCUAGUUCUACmUmU	3454	GUAGAACUAGGGUGCCCUUmUmU
1549	1424	AGGGCACCCUAGUUCUACCmUmU	3455	GGUAGAACUAGGGUGCCCUmUmU
1550	1425	GGGCACCCUAGUUCUACCUmUmU	3456	AGGUAGAACUAGGGUGCCCmUmU
1551	1426	GGCACCCUAGUUCUACCUCmUmU	3457	GAGGUAGAACUAGGGUGCCmUmU
1552	1427	GCACCCUAGUUCUACCUCAmUmU	3458	UGAGGUAGAACUAGGGUGCmUmU
1553	1428	CACCCUAGUUCUACCUCAGmUmU	3459	CUGAGGUAGAACUAGGGUGmUmU
1554	1429	ACCCUAGUUCUACCUCAGGmUmU	3460	CCUGAGGUAGAACUAGGGUmUmU
1555	1430	CCCUAGUUCUACCUCAGGCmUmU	3461	GCCUGAGGUAGAACUAGGGmUmU
1556	1431	CCUAGUUCUACCUCAGGCAmUmU	3462	UGCCUGAGGUAGAACUAGGmUmU
1557	1432	CUAGUUCUACCUCAGGCAGmUmU	3463	CUGCCUGAGGUAGAACUAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1558	1433	UAGUUCUACCUCAGGCAGCmUmU	3464	GCUGCCUGAGGUAGAACUAmUmU
1559	1434	AGUUCUACCUCAGGCAGCUmUmU	3465	AGCUGCCUGAGGUAGAACUmUmU
1560	1435	GUUCUACCUCAGGCAGCUCmUmU	3466	GAGCUGCCUGAGGUAGAACmUmU
1561	1436	UUCUACCUCAGGCAGCUCAmUmU	3467	UGAGCUGCCUGAGGUAGAAmUmU
1562	1437	UCUACCUCAGGCAGCUCAAmUmU	3468	UUGAGCUGCCUGAGGUAGAmUmU
1563	1438	CUACCUCAGGCAGCUCAAGmUmU	3469	CUUGAGCUGCCUGAGGUAGmUmU
1564	1439	UACCUCAGGCAGCUCAAGCmUmU	3470	GCUUGAGCUGCCUGAGGUAmUmU
1565	1440	ACCUCAGGCAGCUCAAGCAmUmU	3471	UGCUUGAGCUGCCUGAGGUmUmU
1566	1441	CCUCAGGCAGCUCAAGCAGmUmU	3472	CUGCUUGAGCUGCCUGAGGmUmU
1567	1442	CUCAGGCAGCUCAAGCAGCmUmU	3473	GCUGCUUGAGCUGCCUGAGmUmU
1568	1443	UCAGGCAGCUCAAGCAGCGmUmU	3474	CGCUGCUUGAGCUGCCUGAmUmU
1569	1444	CAGGCAGCUCAAGCAGCGAmUmU	3475	UCGCUGCUUGAGCUGCCUGmUmU
1570	1445	AGGCAGCUCAAGCAGCGACmUmU	3476	GUCGCUGCUUGAGCUGCCUmUmU
1571	1446	GGCAGCUCAAGCAGCGACCmUmU	3477	GGUCGCUGCUUGAGCUGCCmUmU
1572	1447	GCAGCUCAAGCAGCGACCGmUmU	3478	CGGUCGCUGCUUGAGCUGCmUmU
1573	1448	CAGCUCAAGCAGCGACCGCmUmU	3479	GCGGUCGCUGCUUGAGCUGmUmU
1574	1449	AGCUCAAGCAGCGACCGCCmUmU	3480	GGCGGUCGCUGCUUGAGCUmUmU
1575	1450	GCUCAAGCAGCGACCGCCCmUmU	3481	GGGCGGUCGCUGCUUGAGCmUmU
1576	1451	CUCAAGCAGCGACCGCCCCmUmU	3482	GGGGCGGUCGCUGCUUGAGmUmU
1577	1452	UCAAGCAGCGACCGCCCCCmUmU	3483	GGGGGCGGUCGCUGCUUGAmUmU
1578	1453	CAAGCAGCGACCGCCCCCUmUmU	3484	AGGGGGCGGUCGCUGCUUGmUmU
1579	1454	AAGCAGCGACCGCCCCCUCmUmU	3485	GAGGGGGCGGUCGCUGCUUmUmU
1580	1455	AGCAGCGACCGCCCCCUCCmUmU	3486	GGAGGGGGCGGUCGCUGCUmUmU
1581	1456	GCAGCGACCGCCCCCUCCUmUmU	3487	AGGAGGGGGCGGUCGCUGCmUmU
1582	1457	CAGCGACCGCCCCCUCCUCmUmU	3488	GAGGAGGGGGCGGUCGCUGmUmU
1583	1458	AGCGACCGCCCCCUCCUCUmUmU	3489	AGAGGAGGGGGCGGUCGCUmUmU
1584	1459	GCGACCGCCCCCUCCUCUAmUmU	3490	UAGAGGAGGGGGCGGUCGCmUmU
1585	1460	CGACCGCCCCCUCCUCUAGmUmU	3491	CUAGAGGAGGGGGCGGUCGmUmU
1586	1461	GACCGCCCCCUCCUCUAGCmUmU	3492	GCUAGAGGAGGGGGCGGUCmUmU
1587	1462	ACCGCCCCCUCCUCUAGCUmUmU	3493	AGCUAGAGGAGGGGGCGGUmUmU
1588	1463	CCGCCCCCUCCUCUAGCUGmUmU	3494	CAGCUAGAGGAGGGGGCGGmUmU
1589	1464	CGCCCCCUCCUCUAGCUGUmUmU	3495	ACAGCUAGAGGAGGGGGCGmUmU
1590	1465	GCCCCCUCCUCUAGCUGUGmUmU	3496	CACAGCUAGAGGAGGGGGCmUmU
1591	1466	CCCCCUCCUCUAGCUGUGGmUmU	3497	CCACAGCUAGAGGAGGGGGmUmU
1592	1467	CCCCUCCUCUAGCUGUGGGmUmU	3498	CCCACAGCUAGAGGAGGGGmUmU
1593	1468	CCCUCCUCUAGCUGUGGGGmUmU	3499	CCCCACAGCUAGAGGAGGGmUmU
1594	1469	CCUCCUCUAGCUGUGGGGGmUmU	3500	CCCCCACAGCUAGAGGAGGmUmU
1595	1470	CUCCUCUAGCUGUGGGGGUmUmU	3501	ACCCCCACAGCUAGAGGAGmUmU
1596	1471	UCCUCUAGCUGUGGGGGUGmUmU	3502	CACCCCCACAGCUAGAGGAmUmU
1597	1472	CCUCUAGCUGUGGGGGUGAmUmU	3503	UCACCCCCACAGCUAGAGGmUmU
1598	1473	CUCUAGCUGUGGGGGUGAGmUmU	3504	CUCACCCCCACAGCUAGAGmUmU
1599	1474	UCUAGCUGUGGGGGUGAGGmUmU	3505	CCUCACCCCCACAGCUAGAmUmU
1600	1475	CUAGCUGUGGGGGUGAGGGmUmU	3506	CCCUCACCCCCACAGCUAGmUmU
1601	1476	UAGCUGUGGGGGUGAGGGUmUmU	3507	ACCCUCACCCCCACAGCUAmUmU
1602	1477	AGCUGUGGGGGUGAGGGUCmUmU	3508	GACCCUCACCCCCACAGCUmUmU
1603	1478	GCUGUGGGGGUGAGGGUCCmUmU	3509	GGACCCUCACCCCCACAGCmUmU
1604	1479	CUGUGGGGGUGAGGGUCCCmUmU	3510	GGGACCCUCACCCCCACAGmUmU
1605	1480	UGUGGGGGUGAGGGUCCCAmUmU	3511	UGGGACCCUCACCCCCACAmUmU
1606	1481	GUGGGGGUGAGGGUCCCAUmUmU	3512	AUGGGACCCUCACCCCCACmUmU
1607	1482	UGGGGGUGAGGGUCCCAUGmUmU	3513	CAUGGGACCCUCACCCCCAmUmU
1608	1483	GGGGGUGAGGGUCCCAUGUmUmU	3514	ACAUGGGACCCUCACCCCCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1609	1484	GGGGUGAGGGUCCCAUGUGmUmU	3515	CACAUGGGACCCUCACCCCmUmU
1610	1485	GGGUGAGGGUCCCAUGUGGmUmU	3516	CCACAUGGGACCCUCACCCmUmU
1611	1486	GGUGAGGGUCCCAUGUGGUmUmU	3517	ACCACAUGGGACCCUCACCmUmU
1612	1487	GUGAGGGUCCCAUGUGGUGmUmU	3518	CACCACAUGGGACCCUCACmUmU
1613	1488	UGAGGGUCCCAUGUGGUGGmUmU	3519	CCACCACAUGGGACCCUCAmUmU
1614	1489	GAGGGUCCCAUGUGGUGGCmUmU	3520	GCCACCACAUGGGACCCUCmUmU
1615	1490	AGGGUCCCAUGUGGUGGCAmUmU	3521	UGCCACCACAUGGGACCCUmUmU
1616	1491	GGGUCCCAUGUGGUGGCACmUmU	3522	GUGCCACCACAUGGGACCCmUmU
1617	1492	GGUCCCAUGUGGUGGCACAmUmU	3523	UGUGCCACCACAUGGGACCmUmU
1618	1493	GUCCCAUGUGGUGGCACAGmUmU	3524	CUGUGCCACCACAUGGGACmUmU
1619	1494	UCCCAUGUGGUGGCACAGGmUmU	3525	CCUGUGCCACCACAUGGGAmUmU
1620	1495	CCCAUGUGGUGGCACAGGCmUmU	3526	GCCUGUGCCACCACAUGGGmUmU
1621	1496	CCAUGUGGUGGCACAGGCCmUmU	3527	GGCCUGUGCCACCACAUGGmUmU
1622	1497	CAUGUGGUGGCACAGGCCCmUmU	3528	GGGCCUGUGCCACCACAUGmUmU
1623	1498	AUGUGGUGGCACAGGCCCCmUmU	3529	GGGGCCUGUGCCACCACAUmUmU
1624	1499	UGUGGUGGCACAGGCCCCCmUmU	3530	GGGGGCCUGUGCCACCACAmUmU
1625	1500	GUGGUGGCACAGGCCCCCUmUmU	3531	AGGGGGCCUGUGCCACCACmUmU
1626	1501	UGGUGGCACAGGCCCCCUUmUmU	3532	AAGGGGGCCUGUGCCACCAmUmU
1627	1502	GGUGGCACAGGCCCCCUUGmUmU	3533	CAAGGGGGCCUGUGCCACCmUmU
1628	1503	GUGGCACAGGCCCCCUUGAmUmU	3534	UCAAGGGGGCCUGUGCCACmUmU
1629	1504	UGGCACAGGCCCCCUUGAGmUmU	3535	CUCAAGGGGGCCUGUGCCAmUmU
1630	1505	GGCACAGGCCCCCUUGAGUmUmU	3536	ACUCAAGGGGGCCUGUGCCmUmU
1631	1506	GCACAGGCCCCCUUGAGUGmUmU	3537	CACUCAAGGGGGCCUGUGCmUmU
1632	1507	CACAGGCCCCCUUGAGUGGmUmU	3538	CCACUCAAGGGGGCCUGUGmUmU
1633	1508	ACAGGCCCCCUUGAGUGGGmUmU	3539	CCCACUCAAGGGGGCCUGUmUmU
1634	1509	CAGGCCCCCUUGAGUGGGGmUmU	3540	CCCCACUCAAGGGGGCCUGmUmU
1635	1510	AGGCCCCCUUGAGUGGGGUmUmU	3541	ACCCCACUCAAGGGGGCCUmUmU
1636	1511	GGCCCCCUUGAGUGGGGUUmUmU	3542	AACCCCACUCAAGGGGGCCmUmU
1637	1512	GCCCCCUUGAGUGGGGUUAmUmU	3543	UAACCCCACUCAAGGGGGCmUmU
1638	1513	CCCCCUUGAGUGGGGUUAUmUmU	3544	AUAACCCCACUCAAGGGGGmUmU
1639	1514	CCCCUUGAGUGGGGUUAUCmUmU	3545	GAUAACCCCACUCAAGGGGmUmU
1640	1515	CCCUUGAGUGGGGUUAUCUmUmU	3546	AGAUAACCCCACUCAAGGGmUmU
1641	1516	CCUUGAGUGGGGUUAUCUCmUmU	3547	GAGAUAACCCCACUCAAGGmUmU
1642	1517	CUUGAGUGGGGUUAUCUCUmUmU	3548	AGAGAUAACCCCACUCAAGmUmU
1643	1518	UUGAGUGGGGUUAUCUCUGmUmU	3549	CAGAGAUAACCCCACUCAAmUmU
1644	1519	UGAGUGGGGUUAUCUCUGUmUmU	3550	ACAGAGAUAACCCCACUCAmUmU
1645	1520	GAGUGGGGUUAUCUCUGUGmUmU	3551	CACAGAGAUAACCCCACUCmUmU
1646	1521	AGUGGGGUUAUCUCUGUGUmUmU	3552	ACACAGAGAUAACCCCACUmUmU
1647	1522	GUGGGGUUAUCUCUGUGUUmUmU	3553	AACACAGAGAUAACCCCACmUmU
1648	1523	UGGGGUUAUCUCUGUGUUAmUmU	3554	UAACACAGAGAUAACCCCAmUmU
1649	1524	GGGGUUAUCUCUGUGUUAGmUmU	3555	CUAACACAGAGAUAACCCCmUmU
1650	1525	GGGUUAUCUCUGUGUUAGGmUmU	3556	CCUAACACAGAGAUAACCCmUmU
1651	1526	GGUUAUCUCUGUGUUAGGGmUmU	3557	CCCUAACACAGAGAUAACCmUmU
1652	1527	GUUAUCUCUGUGUUAGGGGmUmU	3558	CCCCUAACACAGAGAUAACmUmU
1653	1528	UUAUCUCUGUGUUAGGGGUmUmU	3559	ACCCCUAACACAGAGAUAAmUmU
1654	1529	UAUCUCUGUGUUAGGGGUAmUmU	3560	UACCCCUAACACAGAGAUAmUmU
1655	1530	AUCUCUGUGUUAGGGGUAUmUmU	3561	AUACCCCUAACACAGAGAUmUmU
1656	1531	UCUCUGUGUUAGGGGUAUAmUmU	3562	UAUACCCCUAACACAGAGAmUmU
1657	1532	CUCUGUGUUAGGGGUAUAUmUmU	3563	AUAUACCCCUAACACAGAGmUmU
1658	1533	UCUGUGUUAGGGGUAUAUGmUmU	3564	CAUAUACCCCUAACACAGAmUmU
1659	1534	CUGUGUUAGGGGUAUAUGAmUmU	3565	UCAUAUACCCCUAACACAGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1660	1535	UGUGUUAGGGGUAUAUGAUmUmU	3566	AUCAUAUACCCCUAACACAmUmU
1661	1536	GUGUUAGGGGUAUAUGAUGmUmU	3567	CAUCAUAUACCCCUAACACmUmU
1662	1537	UGUUAGGGGUAUAUGAUGGmUmU	3568	CCAUCAUAUACCCCUAACAmUmU
1663	1538	GUUAGGGGUAUAUGAUGGGmUmU	3569	CCCAUCAUAUACCCCUAACmUmU
1664	1539	UUAGGGGUAUAUGAUGGGGmUmU	3570	CCCCAUCAUAUACCCCUAAmUmU
1665	1540	UAGGGGUAUAUGAUGGGGGmUmU	3571	CCCCCAUCAUAUACCCCUAmUmU
1666	1541	AGGGGUAUAUGAUGGGGGAmUmU	3572	UCCCCCAUCAUAUACCCCUmUmU
1667	1542	GGGGUAUAUGAUGGGGGAGmUmU	3573	CUCCCCCAUCAUAUACCCCmUmU
1668	1543	GGGUAUAUGAUGGGGGAGUmUmU	3574	ACUCCCCCAUCAUAUACCCmUmU
1669	1544	GGUAUAUGAUGGGGGAGUAmUmU	3575	UACUCCCCCAUCAUAUACCmUmU
1670	1545	GUAUAUGAUGGGGGAGUAGmUmU	3576	CUACUCCCCCAUCAUAUACmUmU
1671	1546	UAUAUGAUGGGGGAGUAGAmUmU	3577	UCUACUCCCCCAUCAUAUAmUmU
1672	1547	AUAUGAUGGGGGAGUAGAUmUmU	3578	AUCUACUCCCCCAUCAUAUmUmU
1673	1548	UAUGAUGGGGGAGUAGAUCmUmU	3579	GAUCUACUCCCCCAUCAUAmUmU
1674	1549	AUGAUGGGGGAGUAGAUCUmUmU	3580	AGAUCUACUCCCCCAUCAUmUmU
1675	1550	UGAUGGGGGAGUAGAUCUUmUmU	3581	AAGAUCUACUCCCCCAUCAmUmU
1676	1551	GAUGGGGGAGUAGAUCUUUmUmU	3582	AAAGAUCUACUCCCCCAUCmUmU
1677	1552	AUGGGGGAGUAGAUCUUUCmUmU	3583	GAAAGAUCUACUCCCCCAUmUmU
1678	1553	UGGGGGAGUAGAUCUUUCUmUmU	3584	AGAAAGAUCUACUCCCCCAmUmU
1679	1554	GGGGGAGUAGAUCUUUCUAmUmU	3585	UAGAAAGAUCUACUCCCCCmUmU
1680	1555	GGGGAGUAGAUCUUUCUAGmUmU	3586	CUAGAAAGAUCUACUCCCCmUmU
1681	1556	GGGAGUAGAUCUUUCUAGGmUmU	3587	CCUAGAAAGAUCUACUCCCmUmU
1682	1557	GGAGUAGAUCUUUCUAGGAmUmU	3588	UCCUAGAAAGAUCUACUCCmUmU
1683	1558	GAGUAGAUCUUUCUAGGAGmUmU	3589	CUCCUAGAAAGAUCUACUCmUmU
1684	1559	AGUAGAUCUUUCUAGGAGGmUmU	3590	CCUCCUAGAAAGAUCUACUmUmU
1685	1560	GUAGAUCUUUCUAGGAGGGmUmU	3591	CCCUCCUAGAAAGAUCUACmUmU
1686	1561	UAGAUCUUUCUAGGAGGGAmUmU	3592	UCCCUCCUAGAAAGAUCUAmUmU
1687	1562	AGAUCUUUCUAGGAGGGAGmUmU	3593	CUCCCUCCUAGAAAGAUCUmUmU
1688	1563	GAUCUUUCUAGGAGGGAGAmUmU	3594	UCUCCCUCCUAGAAAGAUCmUmU
1689	1564	AUCUUUCUAGGAGGGAGACmUmU	3595	GUCUCCCUCCUAGAAAGAUmUmU
1690	1565	UCUUUCUAGGAGGGAGACAmUmU	3596	UGUCUCCCUCCUAGAAAGAmUmU
1691	1566	CUUUCUAGGAGGGAGACACmUmU	3597	GUGUCUCCCUCCUAGAAAGmUmU
1692	1567	UUUCUAGGAGGGAGACACUmUmU	3598	AGUGUCUCCCUCCUAGAAAmUmU
1693	1568	UUCUAGGAGGGAGACACUGmUmU	3599	CAGUGUCUCCCUCCUAGAAmUmU
1694	1569	UCUAGGAGGGAGACACUGGmUmU	3600	CCAGUGUCUCCCUCCUAGAmUmU
1695	1570	CUAGGAGGGAGACACUGGCmUmU	3601	GCCAGUGUCUCCCUCCUAGmUmU
1696	1571	UAGGAGGGAGACACUGGCCmUmU	3602	GGCCAGUGUCUCCCUCCUAmUmU
1697	1572	AGGAGGGAGACACUGGCCCmUmU	3603	GGGCCAGUGUCUCCCUCCUmUmU
1698	1573	GGAGGGAGACACUGGCCCCmUmU	3604	GGGGCCAGUGUCUCCCUCCmUmU
1699	1574	GAGGGAGACACUGGCCCCUmUmU	3605	AGGGGCCAGUGUCUCCCUCmUmU
1700	1575	AGGGAGACACUGGCCCCUCmUmU	3606	GAGGGGCCAGUGUCUCCCUmUmU
1701	1576	GGGAGACACUGGCCCCUCAmUmU	3607	UGAGGGGCCAGUGUCUCCCmUmU
1702	1577	GGAGACACUGGCCCCUCAAmUmU	3608	UUGAGGGGCCAGUGUCUCCmUmU
1703	1578	GAGACACUGGCCCCUCAAAmUmU	3609	UUUGAGGGGCCAGUGUCUCmUmU
1704	1579	AGACACUGGCCCCUCAAAUmUmU	3610	AUUUGAGGGGCCAGUGUCUmUmU
1705	1580	GACACUGGCCCCUCAAAUCmUmU	3611	GAUUUGAGGGGCCAGUGUCmUmU
1706	1581	ACACUGGCCCCUCAAAUCGmUmU	3612	CGAUUUGAGGGGCCAGUGUmUmU
1707	1582	CACUGGCCCCUCAAAUCGUmUmU	3613	ACGAUUUGAGGGGCCAGUGmUmU
1708	1583	ACUGGCCCCUCAAAUCGUCmUmU	3614	GACGAUUUGAGGGGCCAGUmUmU
1709	1584	CUGGCCCCUCAAAUCGUCCmUmU	3615	GGACGAUUUGAGGGGCCAGmUmU
1710	1585	UGGCCCCUCAAAUCGUCCAmUmU	3616	UGGACGAUUUGAGGGGCCAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1711	1586	GGCCCCUCAAAUCGUCCAGmUmU	3617	CUGGACGAUUUGAGGGGCCmUmU
1712	1587	GCCCCUCAAAUCGUCCAGCmUmU	3618	GCUGGACGAUUUGAGGGGCmUmU
1713	1588	CCCCUCAAAUCGUCCAGCGmUmU	3619	CGCUGGACGAUUUGAGGGGmUmU
1714	1589	CCCUCAAAUCGUCCAGCGAmUmU	3620	UCGCUGGACGAUUUGAGGGmUmU
1715	1590	CCUCAAAUCGUCCAGCGACmUmU	3621	GUCGCUGGACGAUUUGAGGmUmU
1716	1591	CUCAAAUCGUCCAGCGACCmUmU	3622	GGUCGCUGGACGAUUUGAGmUmU
1717	1592	UCAAAUCGUCCAGCGACCUmUmU	3623	AGGUCGCUGGACGAUUUGAmUmU
1718	1593	CAAAUCGUCCAGCGACCUUmUmU	3624	AAGGUCGCUGGACGAUUUGmUmU
1719	1594	AAAUCGUCCAGCGACCUUCmUmU	3625	GAAGGUCGCUGGACGAUUUmUmU
1720	1595	AAUCGUCCAGCGACCUUCCmUmU	3626	GGAAGGUCGCUGGACGAUUmUmU
1721	1596	AUCGUCCAGCGACCUUCCUmUmU	3627	AGGAAGGUCGCUGGACGAUmUmU
1722	1597	UCGUCCAGCGACCUUCCUCmUmU	3628	GAGGAAGGUCGCUGGACGAmUmU
1723	1598	CGUCCAGCGACCUUCCUCAmUmU	3629	UGAGGAAGGUCGCUGGACGmUmU
1724	1599	GUCCAGCGACCUUCCUCAUmUmU	3630	AUGAGGAAGGUCGCUGGACmUmU
1725	1600	UCCAGCGACCUUCCUCAUCmUmU	3631	GAUGAGGAAGGUCGCUGGAmUmU
1726	1601	CCAGCGACCUUCCUCAUCCmUmU	3632	GGAUGAGGAAGGUCGCUGGmUmU
1727	1602	CAGCGACCUUCCUCAUCCAmUmU	3633	UGGAUGAGGAAGGUCGCUGmUmU
1728	1603	AGCGACCUUCCUCAUCCACmUmU	3634	GUGGAUGAGGAAGGUCGCUmUmU
1729	1604	GCGACCUUCCUCAUCCACCmUmU	3635	GGUGGAUGAGGAAGGUCGCmUmU
1730	1605	CGACCUUCCUCAUCCACCCmUmU	3636	GGGUGGAUGAGGAAGGUCGmUmU
1731	1606	GACCUUCCUCAUCCACCCCmUmU	3637	GGGGUGGAUGAGGAAGGUCmUmU
1732	1607	ACCUUCCUCAUCCACCCCAmUmU	3638	UGGGGUGGAUGAGGAAGGUmUmU
1733	1608	CCUUCCUCAUCCACCCCAUmUmU	3639	AUGGGGUGGAUGAGGAAGGmUmU
1734	1609	CUUCCUCAUCCACCCCAUCmUmU	3640	GAUGGGGUGGAUGAGGAAGmUmU
1735	1610	UUCCUCAUCCACCCCAUCCmUmU	3641	GGAUGGGGUGGAUGAGGAAmUmU
1736	1611	UCCUCAUCCACCCCAUCCCmUmU	3642	GGGAUGGGGUGGAUGAGGAmUmU
1737	1612	CCUCAUCCACCCCAUCCCUmUmU	3643	AGGGAUGGGGUGGAUGAGGmUmU
1738	1613	CUCAUCCACCCCAUCCCUCmUmU	3644	GAGGGAUGGGGUGGAUGAGmUmU
1739	1614	UCAUCCACCCCAUCCCUCCmUmU	3645	GGAGGGAUGGGGUGGAUGAmUmU
1740	1615	CAUCCACCCCAUCCCUCCCmUmU	3646	GGGAGGGAUGGGGUGGAUGmUmU
1741	1616	AUCCACCCCAUCCCUCCCCmUmU	3647	GGGGAGGGAUGGGGUGGAUmUmU
1742	1617	UCCACCCCAUCCCUCCCCAmUmU	3648	UGGGGAGGGAUGGGGUGGAmUmU
1743	1618	CCACCCCAUCCCUCCCCAGmUmU	3649	CUGGGGAGGGAUGGGGUGGmUmU
1744	1619	CACCCCAUCCCUCCCCAGUmUmU	3650	ACUGGGGAGGGAUGGGGUGmUmU
1745	1620	ACCCCAUCCCUCCCCAGUUmUmU	3651	AACUGGGGAGGGAUGGGGUmUmU
1746	1621	CCCCAUCCCUCCCCAGUUCmUmU	3652	GAACUGGGGAGGGAUGGGGmUmU
1747	1622	CCCAUCCCUCCCCAGUUCAmUmU	3653	UGAACUGGGGAGGGAUGGGmUmU
1748	1623	CCAUCCCUCCCCAGUUCAUmUmU	3654	AUGAACUGGGGAGGGAUGGmUmU
1749	1624	CAUCCCUCCCCAGUUCAUUmUmU	3655	AAUGAACUGGGGAGGGAUGmUmU
1750	1625	AUCCCUCCCCAGUUCAUUGmUmU	3656	CAAUGAACUGGGGAGGGAUmUmU
1751	1626	UCCCUCCCCAGUUCAUUGCmUmU	3657	GCAAUGAACUGGGGAGGGAmUmU
1752	1627	CCCUCCCCAGUUCAUUGCAmUmU	3658	UGCAAUGAACUGGGGAGGGmUmU
1753	1628	CCUCCCCAGUUCAUUGCACmUmU	3659	GUGCAAUGAACUGGGGAGGmUmU
1754	1629	CUCCCCAGUUCAUUGCACUmUmU	3660	AGUGCAAUGAACUGGGGAGmUmU
1755	1630	UCCCCAGUUCAUUGCACUUmUmU	3661	AAGUGCAAUGAACUGGGGAmUmU
1756	1631	CCCCAGUUCAUUGCACUUUmUmU	3662	AAAGUGCAAUGAACUGGGGmUmU
1757	1632	CCCAGUUCAUUGCACUUUGmUmU	3663	CAAAGUGCAAUGAACUGGGmUmU
1758	1633	CCAGUUCAUUGCACUUUGAmUmU	3664	UCAAAGUGCAAUGAACUGGmUmU
1759	1634	CAGUUCAUUGCACUUUGAUmUmU	3665	AUCAAAGUGCAAUGAACUGmUmU
1760	1635	AGUUCAUUGCACUUUGAUUmUmU	3666	AAUCAAAGUGCAAUGAACUmUmU
1761	1636	GUUCAUUGCACUUUGAUUAmUmU	3667	UAAUCAAAGUGCAAUGAACmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1762	1637	UUCAUUGCACUUUGAUUAGmUmU	3668	CUAAUCAAAGUGCAAUGAAmUmU
1763	1638	UCAUUGCACUUUGAUUAGCmUmU	3669	GCUAAUCAAAGUGCAAUGAmUmU
1764	1639	CAUUGCACUUUGAUUAGCAmUmU	3670	UGCUAAUCAAAGUGCAAUGmUmU
1765	1640	AUUGCACUUUGAUUAGCAGmUmU	3671	CUGCUAAUCAAAGUGCAAUmUmU
1766	1641	UUGCACUUUGAUUAGCAGCmUmU	3672	GCUGCUAAUCAAAGUGCAAmUmU
1767	1642	UGCACUUUGAUUAGCAGCGmUmU	3673	CGCUGCUAAUCAAAGUGCAmUmU
1768	1643	GCACUUUGAUUAGCAGCGGmUmU	3674	CCGCUGCUAAUCAAAGUGCmUmU
1769	1644	CACUUUGAUUAGCAGCGGAmUmU	3675	UCCGCUGCUAAUCAAAGUGmUmU
1770	1645	ACUUUGAUUAGCAGCGGAAmUmU	3676	UUCCGCUGCUAAUCAAAGUmUmU
1771	1646	CUUUGAUUAGCAGCGGAACmUmU	3677	GUUCCGCUGCUAAUCAAAGmUmU
1772	1647	UUUGAUUAGCAGCGGAACAmUmU	3678	UGUUCCGCUGCUAAUCAAAmUmU
1773	1648	UUGAUUAGCAGCGGAACAAmUmU	3679	UUGUUCCGCUGCUAAUCAAmUmU
1774	1649	UGAUUAGCAGCGGAACAAGmUmU	3680	CUUGUUCCGCUGCUAAUCAmUmU
1775	1650	GAUUAGCAGCGGAACAAGGmUmU	3681	CCUUGUUCCGCUGCUAAUCmUmU
1776	1651	AUUAGCAGCGGAACAAGGAmUmU	3682	UCCUUGUUCCGCUGCUAAUmUmU
1777	1652	UUAGCAGCGGAACAAGGAGmUmU	3683	CUCCUUGUUCCGCUGCUAAmUmU
1778	1653	UAGCAGCGGAACAAGGAGUmUmU	3684	ACUCCUUGUUCCGCUGCUAmUmU
1779	1654	AGCAGCGGAACAAGGAGUCmUmU	3685	GACUCCUUGUUCCGCUGCUmUmU
1780	1655	GCAGCGGAACAAGGAGUCAmUmU	3686	UGACUCCUUGUUCCGCUGCmUmU
1781	1656	CAGCGGAACAAGGAGUCAGmUmU	3687	CUGACUCCUUGUUCCGCUGmUmU
1782	1657	AGCGGAACAAGGAGUCAGAmUmU	3688	UCUGACUCCUUGUUCCGCUmUmU
1783	1658	GCGGAACAAGGAGUCAGACmUmU	3689	GUCUGACUCCUUGUUCCGCmUmU
1784	1659	CGGAACAAGGAGUCAGACAmUmU	3690	UGUCUGACUCCUUGUUCCGmUmU
1785	1660	GGAACAAGGAGUCAGACAUmUmU	3691	AUGUCUGACUCCUUGUUCCmUmU
1786	1661	GAACAAGGAGUCAGACAUUmUmU	3692	AAUGUCUGACUCCUUGUUCmUmU
1787	1662	AACAAGGAGUCAGACAUUUmUmU	3693	AAAUGUCUGACUCCUUGUUmUmU
1788	1663	ACAAGGAGUCAGACAUUUUmUmU	3694	AAAAUGUCUGACUCCUUGUmUmU
1789	1664	CAAGGAGUCAGACAUUUUAmUmU	3695	UAAAAUGUCUGACUCCUUGmUmU
1790	1665	AAGGAGUCAGACAUUUUAAmUmU	3696	UUAAAAUGUCUGACUCCUUmUmU
1791	1666	AGGAGUCAGACAUUUUAAGmUmU	3697	CUUAAAAUGUCUGACUCCUmUmU
1792	1667	GGAGUCAGACAUUUUAAGAmUmU	3698	UCUUAAAAUGUCUGACUCCmUmU
1793	1668	GAGUCAGACAUUUUAAGAUmUmU	3699	AUCUUAAAAUGUCUGACUCmUmU
1794	1669	AGUCAGACAUUUUAAGAUGmUmU	3700	CAUCUUAAAAUGUCUGACUmUmU
1795	1670	GUCAGACAUUUUAAGAUGGmUmU	3701	CCAUCUUAAAAUGUCUGACmUmU
1796	1671	UCAGACAUUUUAAGAUGGUmUmU	3702	ACCAUCUUAAAAUGUCUGAmUmU
1797	1672	CAGACAUUUUAAGAUGGUGmUmU	3703	CACCAUCUUAAAAUGUCUGmUmU
1798	1673	AGACAUUUUAAGAUGGUGGmUmU	3704	CCACCAUCUUAAAAUGUCUmUmU
1799	1674	GACAUUUUAAGAUGGUGGCmUmU	3705	GCCACCAUCUUAAAAUGUCmUmU
1800	1675	ACAUUUUAAGAUGGUGGCAmUmU	3706	UGCCACCAUCUUAAAAUGUmUmU
1801	1676	CAUUUUAAGAUGGUGGCAGmUmU	3707	CUGCCACCAUCUUAAAAUGmUmU
1802	1677	AUUUUAAGAUGGUGGCAGUmUmU	3708	ACUGCCACCAUCUUAAAAUmUmU
1803	1678	UUUUAAGAUGGUGGCAGUAmUmU	3709	UACUGCCACCAUCUUAAAAmUmU
1804	1679	UUUAAGAUGGUGGCAGUAGmUmU	3710	CUACUGCCACCAUCUUAAAmUmU
1805	1680	UUAAGAUGGUGGCAGUAGAmUmU	3711	UCUACUGCCACCAUCUUAAmUmU
1806	1681	UAAGAUGGUGGCAGUAGAGmUmU	3712	CUCUACUGCCACCAUCUUAmUmU
1807	1682	AAGAUGGUGGCAGUAGAGGmUmU	3713	CCUCUACUGCCACCAUCUUmUmU
1808	1683	AGAUGGUGGCAGUAGAGGCmUmU	3714	GCCUCUACUGCCACCAUCUmUmU
1809	1684	GAUGGUGGCAGUAGAGGCUmUmU	3715	AGCCUCUACUGCCACCAUCmUmU
1810	1685	AUGGUGGCAGUAGAGGCUAmUmU	3716	UAGCCUCUACUGCCACCAUmUmU
1811	1686	UGGUGGCAGUAGAGGCUAUmUmU	3717	AUAGCCUCUACUGCCACCAmUmU
1812	1687	GGUGGCAGUAGAGGCUAUGmUmU	3718	CAUAGCCUCUACUGCCACCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1813	1688	GUGGCAGUAGAGGCUAUGGmUmU	3719	CCAUAGCCUCUACUGCCACmUmU
1814	1689	UGGCAGUAGAGGCUAUGGAmUmU	3720	UCCAUAGCCUCUACUGCCAmUmU
1815	1690	GGCAGUAGAGGCUAUGGACmUmU	3721	GUCCAUAGCCUCUACUGCCmUmU
1816	1691	GCAGUAGAGGCUAUGGACAmUmU	3722	UGUCCAUAGCCUCUACUGCmUmU
1817	1692	CAGUAGAGGCUAUGGACAGmUmU	3723	CUGUCCAUAGCCUCUACUGmUmU
1818	1693	AGUAGAGGCUAUGGACAGGmUmU	3724	CCUGUCCAUAGCCUCUACUmUmU
1819	1694	GUAGAGGCUAUGGACAGGGmUmU	3725	CCCUGUCCAUAGCCUCUACmUmU
1820	1695	UAGAGGCUAUGGACAGGGCmUmU	3726	GCCCUGUCCAUAGCCUCUAmUmU
1821	1696	AGAGGCUAUGGACAGGGCAmUmU	3727	UGCCCUGUCCAUAGCCUCUmUmU
1822	1697	GAGGCUAUGGACAGGGCAUmUmU	3728	AUGCCCUGUCCAUAGCCUCmUmU
1823	1698	AGGCUAUGGACAGGGCAUGmUmU	3729	CAUGCCCUGUCCAUAGCCUmUmU
1824	1699	GGCUAUGGACAGGGCAUGCmUmU	3730	GCAUGCCCUGUCCAUAGCCmUmU
1825	1700	GCUAUGGACAGGGCAUGCCmUmU	3731	GGCAUGCCCUGUCCAUAGCmUmU
1826	1701	CUAUGGACAGGGCAUGCCAmUmU	3732	UGGCAUGCCCUGUCCAUAGmUmU
1827	1702	UAUGGACAGGGCAUGCCACmUmU	3733	GUGGCAUGCCCUGUCCAUAmUmU
1828	1703	AUGGACAGGGCAUGCCACGmUmU	3734	CGUGGCAUGCCCUGUCCAUmUmU
1829	1704	UGGACAGGGCAUGCCACGUmUmU	3735	ACGUGGCAUGCCCUGUCCAmUmU
1830	1705	GGACAGGGCAUGCCACGUGmUmU	3736	CACGUGGCAUGCCCUGUCCmUmU
1831	1706	GACAGGGCAUGCCACGUGGmUmU	3737	CCACGUGGCAUGCCCUGUCmUmU
1832	1707	ACAGGGCAUGCCACGUGGGmUmU	3738	CCCACGUGGCAUGCCCUGUmUmU
1833	1708	CAGGGCAUGCCACGUGGGCmUmU	3739	GCCCACGUGGCAUGCCCUGmUmU
1834	1709	AGGGCAUGCCACGUGGGCUmUmU	3740	AGCCCACGUGGCAUGCCCUmUmU
1835	1710	GGGCAUGCCACGUGGGCUCmUmU	3741	GAGCCCACGUGGCAUGCCCmUmU
1836	1711	GGCAUGCCACGUGGGCUCAmUmU	3742	UGAGCCCACGUGGCAUGCCmUmU
1837	1712	GCAUGCCACGUGGGCUCAUmUmU	3743	AUGAGCCCACGUGGCAUGCmUmU
1838	1713	CAUGCCACGUGGGCUCAUAmUmU	3744	UAUGAGCCCACGUGGCAUGmUmU
1839	1714	AUGCCACGUGGGCUCAUAUmUmU	3745	AUAUGAGCCCACGUGGCAUmUmU
1840	1715	UGCCACGUGGGCUCAUAUGmUmU	3746	CAUAUGAGCCCACGUGGCAmUmU
1841	1716	GCCACGUGGGCUCAUAUGGmUmU	3747	CCAUAUGAGCCCACGUGGCmUmU
1842	1717	CCACGUGGGCUCAUAUGGGmUmU	3748	CCCAUAUGAGCCCACGUGGmUmU
1843	1718	CACGUGGGCUCAUAUGGGGmUmU	3749	CCCCAUAUGAGCCCACGUGmUmU
1844	1719	ACGUGGGCUCAUAUGGGGCmUmU	3750	GCCCCAUAUGAGCCCACGUmUmU
1845	1720	CGUGGGCUCAUAUGGGGCUmUmU	3751	AGCCCCAUAUGAGCCCACGmUmU
1846	1721	GUGGGCUCAUAUGGGGCUGmUmU	3752	CAGCCCCAUAUGAGCCCACmUmU
1847	1722	UGGGCUCAUAUGGGGCUGGmUmU	3753	CCAGCCCCAUAUGAGCCCAmUmU
1848	1723	GGGCUCAUAUGGGGCUGGGmUmU	3754	CCCAGCCCCAUAUGAGCCCmUmU
1849	1724	GGCUCAUAUGGGGCUGGGAmUmU	3755	UCCCAGCCCCAUAUGAGCCmUmU
1850	1725	GCUCAUAUGGGGCUGGGAGmUmU	3756	CUCCCAGCCCCAUAUGAGCmUmU
1851	1726	CUCAUAUGGGGCUGGGAGUmUmU	3757	ACUCCCAGCCCCAUAUGAGmUmU
1852	1727	UCAUAUGGGGCUGGGAGUAmUmU	3758	UACUCCCAGCCCCAUAUGAmUmU
1853	1728	CAUAUGGGGCUGGGAGUAGmUmU	3759	CUACUCCCAGCCCCAUAUGmUmU
1854	1729	AUAUGGGGCUGGGAGUAGUmUmU	3760	ACUACUCCCAGCCCCAUAUmUmU
1855	1730	UAUGGGGCUGGGAGUAGUUmUmU	3761	AACUACUCCCAGCCCCAUAmUmU
1856	1731	AUGGGGCUGGGAGUAGUUGmUmU	3762	CAACUACUCCCAGCCCCAUmUmU
1857	1732	UGGGGCUGGGAGUAGUUGUmUmU	3763	ACAACUACUCCCAGCCCCAmUmU
1858	1733	GGGGCUGGGAGUAGUUGUCmUmU	3764	GACAACUACUCCCAGCCCCmUmU
1859	1734	GGGCUGGGAGUAGUUGUCUmUmU	3765	AGACAACUACUCCCAGCCCmUmU
1860	1735	GGCUGGGAGUAGUUGUCUUmUmU	3766	AAGACAACUACUCCCAGCCmUmU
1861	1736	GCUGGGAGUAGUUGUCUUUmUmU	3767	AAAGACAACUACUCCCAGCmUmU
1862	1737	CUGGGAGUAGUUGUCUUUCmUmU	3768	GAAAGACAACUACUCCCAGmUmU
1863	1738	UGGGAGUAGUUGUCUUUCCmUmU	3769	GGAAAGACAACUACUCCCAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1864	1739	GGGAGUAGUUGUCUUUCCUmUmU	3770	AGGAAAGACAACUACUCCCmUmU
1865	1740	GGAGUAGUUGUCUUUCCUGmUmU	3771	CAGGAAAGACAACUACUCCmUmU
1866	1741	GAGUAGUUGUCUUUCCUGGmUmU	3772	CCAGGAAAGACAACUACUCmUmU
1867	1742	AGUAGUUGUCUUUCCUGGCmUmU	3773	GCCAGGAAAGACAACUACUmUmU
1868	1743	GUAGUUGUCUUUCCUGGCAmUmU	3774	UGCCAGGAAAGACAACUACmUmU
1869	1744	UAGUUGUCUUUCCUGGCACmUmU	3775	GUGCCAGGAAAGACAACUAmUmU
1870	1745	AGUUGUCUUUCCUGGCACUmUmU	3776	AGUGCCAGGAAAGACAACUmUmU
1871	1746	GUUGUCUUUCCUGGCACUAmUmU	3777	UAGUGCCAGGAAAGACAACmUmU
1872	1747	UUGUCUUUCCUGGCACUAAmUmU	3778	UUAGUGCCAGGAAAGACAAmUmU
1873	1748	UGUCUUUCCUGGCACUAACmUmU	3779	GUUAGUGCCAGGAAAGACAmUmU
1874	1749	GUCUUUCCUGGCACUAACGmUmU	3780	CGUUAGUGCCAGGAAAGACmUmU
1875	1750	UCUUUCCUGGCACUAACGUmUmU	3781	ACGUUAGUGCCAGGAAAGAmUmU
1876	1751	CUUUCCUGGCACUAACGUUmUmU	3782	AACGUUAGUGCCAGGAAAGmUmU
1877	1752	UUUCCUGGCACUAACGUUGmUmU	3783	CAACGUUAGUGCCAGGAAAmUmU
1878	1753	UUCCUGGCACUAACGUUGAmUmU	3784	UCAACGUUAGUGCCAGGAAmUmU
1879	1754	UCCUGGCACUAACGUUGAGmUmU	3785	CUCAACGUUAGUGCCAGGAmUmU
1880	1755	CCUGGCACUAACGUUGAGCmUmU	3786	GCUCAACGUUAGUGCCAGGmUmU
1881	1756	CUGGCACUAACGUUGAGCCmUmU	3787	GGCUCAACGUUAGUGCCAGmUmU
1882	1757	UGGCACUAACGUUGAGCCCmUmU	3788	GGGCUCAACGUUAGUGCCAmUmU
1883	1758	GGCACUAACGUUGAGCCCCmUmU	3789	GGGGCUCAACGUUAGUGCCmUmU
1884	1759	GCACUAACGUUGAGCCCCUmUmU	3790	AGGGGCUCAACGUUAGUGCmUmU
1885	1760	CACUAACGUUGAGCCCCUGmUmU	3791	CAGGGGCUCAACGUUAGUGmUmU
1886	1761	ACUAACGUUGAGCCCCUGGmUmU	3792	CCAGGGGCUCAACGUUAGUmUmU
1887	1762	CUAACGUUGAGCCCCUGGAmUmU	3793	UCCAGGGGCUCAACGUUAGmUmU
1888	1763	UAACGUUGAGCCCCUGGAGmUmU	3794	CUCCAGGGGCUCAACGUUAmUmU
1889	1764	AACGUUGAGCCCCUGGAGGmUmU	3795	CCUCCAGGGGCUCAACGUUmUmU
1890	1765	ACGUUGAGCCCCUGGAGGCmUmU	3796	GCCUCCAGGGGCUCAACGUmUmU
1891	1766	CGUUGAGCCCCUGGAGGCAmUmU	3797	UGCCUCCAGGGGCUCAACGmUmU
1892	1767	GUUGAGCCCCUGGAGGCACmUmU	3798	GUGCCUCCAGGGGCUCAACmUmU
1893	1768	UUGAGCCCCUGGAGGCACUmUmU	3799	AGUGCCUCCAGGGGCUCAAmUmU
1894	1769	UGAGCCCCUGGAGGCACUGmUmU	3800	CAGUGCCUCCAGGGGCUCAmUmU
1895	1770	GAGCCCCUGGAGGCACUGAmUmU	3801	UCAGUGCCUCCAGGGGCUCmUmU
1896	1771	AGCCCCUGGAGGCACUGAAmUmU	3802	UUCAGUGCCUCCAGGGGCUmUmU
1897	1772	GCCCCUGGAGGCACUGAAGmUmU	3803	CUUCAGUGCCUCCAGGGGCmUmU
1898	1773	CCCCUGGAGGCACUGAAGUmUmU	3804	ACUUCAGUGCCUCCAGGGGmUmU
1899	1774	CCCUGGAGGCACUGAAGUGmUmU	3805	CACUUCAGUGCCUCCAGGGmUmU
1900	1775	CCUGGAGGCACUGAAGUGCmUmU	3806	GCACUUCAGUGCCUCCAGGmUmU
1901	1776	CUGGAGGCACUGAAGUGCUmUmU	3807	AGCACUUCAGUGCCUCCAGmUmU
1902	1777	UGGAGGCACUGAAGUGCUUmUmU	3808	AAGCACUUCAGUGCCUCCAmUmU
1903	1778	GGAGGCACUGAAGUGCUUAmUmU	3809	UAAGCACUUCAGUGCCUCCmUmU
1904	1779	GAGGCACUGAAGUGCUUAGmUmU	3810	CUAAGCACUUCAGUGCCUCmUmU
1905	1780	AGGCACUGAAGUGCUUAGUmUmU	3811	ACUAAGCACUUCAGUGCCUmUmU
1906	1781	GGCACUGAAGUGCUUAGUGmUmU	3812	CACUAAGCACUUCAGUGCCmUmU
1907	1782	GCACUGAAGUGCUUAGUGUmUmU	3813	ACACUAAGCACUUCAGUGCmUmU
1908	1783	CACUGAAGUGCUUAGUGUAmUmU	3814	UACACUAAGCACUUCAGUGmUmU
1909	1784	ACUGAAGUGCUUAGUGUACmUmU	3815	GUACACUAAGCACUUCAGUmUmU
1910	1785	CUGAAGUGCUUAGUGUACUmUmU	3816	AGUACACUAAGCACUUCAGmUmU
1911	1786	UGAAGUGCUUAGUGUACUUmUmU	3817	AAGUACACUAAGCACUUCAmUmU
1912	1787	GAAGUGCUUAGUGUACUUGmUmU	3818	CAAGUACACUAAGCACUUCmUmU
1913	1788	AAGUGCUUAGUGUACUUGGmUmU	3819	CCAAGUACACUAAGCACUUmUmU
1914	1789	AGUGCUUAGUGUACUUGGAmUmU	3820	UCCAAGUACACUAAGCACUmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1915	1790	GUGCUUAGUGUACUUGGAGmUmU	3821	CUCCAAGUACACUAAGCACmUmU
1916	1791	UGCUUAGUGUACUUGGAGUmUmU	3822	ACUCCAAGUACACUAAGCAmUmU
1917	1792	GCUUAGUGUACUUGGAGUAmUmU	3823	UACUCCAAGUACACUAAGCmUmU
1918	1793	CUUAGUGUACUUGGAGUAUmUmU	3824	AUACUCCAAGUACACUAAGmUmU
1919	1794	UUAGUGUACUUGGAGUAUUmUmU	3825	AAUACUCCAAGUACACUAAmUmU
1920	1795	UAGUGUACUUGGAGUAUUGmUmU	3826	CAAUACUCCAAGUACACUAmUmU
1921	1796	AGUGUACUUGGAGUAUUGGmUmU	3827	CCAAUACUCCAAGUACACUmUmU
1922	1797	GUGUACUUGGAGUAUUGGGmUmU	3828	CCCAAUACUCCAAGUACACmUmU
1923	1798	UGUACUUGGAGUAUUGGGGmUmU	3829	CCCCAAUACUCCAAGUACAmUmU
1924	1799	GUACUUGGAGUAUUGGGGUmUmU	3830	ACCCCAAUACUCCAAGUACmUmU
1925	1800	UACUUGGAGUAUUGGGGUCmUmU	3831	GACCCCAAUACUCCAAGUAmUmU
1926	1801	ACUUGGAGUAUUGGGGUCUmUmU	3832	AGACCCCAAUACUCCAAGUmUmU
1927	1802	CUUGGAGUAUUGGGGUCUGmUmU	3833	CAGACCCCAAUACUCCAAGmUmU
1928	1803	UUGGAGUAUUGGGGUCUGAmUmU	3834	UCAGACCCCAAUACUCCAAmUmU
1929	1804	UGGAGUAUUGGGGUCUGACmUmU	3835	GUCAGACCCCAAUACUCCAmUmU
1930	1805	GGAGUAUUGGGGUCUGACCmUmU	3836	GGUCAGACCCCAAUACUCCmUmU
1931	1806	GAGUAUUGGGGUCUGACCCmUmU	3837	GGGUCAGACCCCAAUACUCmUmU
1932	1807	AGUAUUGGGGUCUGACCCCmUmU	3838	GGGGUCAGACCCCAAUACUmUmU
1933	1808	GUAUUGGGGUCUGACCCCAmUmU	3839	UGGGGUCAGACCCCAAUACmUmU
1934	1809	UAUUGGGGUCUGACCCCAAmUmU	3840	UUGGGGUCAGACCCCAAUAmUmU
1935	1810	AUUGGGGUCUGACCCCAAAmUmU	3841	UUUGGGGUCAGACCCCAAUmUmU
1936	1811	UUGGGGUCUGACCCCAAACmUmU	3842	GUUUGGGGUCAGACCCCAAmUmU
1937	1812	UGGGGUCUGACCCCAAACAmUmU	3843	UGUUUGGGGUCAGACCCCAmUmU
1938	1813	GGGGUCUGACCCCAAACACmUmU	3844	GUGUUUGGGGUCAGACCCCmUmU
1939	1814	GGGUCUGACCCCAAACACCmUmU	3845	GGUGUUUGGGGUCAGACCCmUmU
1940	1815	GGUCUGACCCCAAACACCUmUmU	3846	AGGUGUUUGGGGUCAGACCmUmU
1941	1816	GUCUGACCCCAAACACCUUmUmU	3847	AAGGUGUUUGGGGUCAGACmUmU
1942	1817	UCUGACCCCAAACACCUUCmUmU	3848	GAAGGUGUUUGGGGUCAGAmUmU
1943	1818	CUGACCCCAAACACCUUCCmUmU	3849	GGAAGGUGUUUGGGGUCAGmUmU
1944	1819	UGACCCCAAACACCUUCCAmUmU	3850	UGGAAGGUGUUUGGGGUCAmUmU
1945	1820	GACCCCAAACACCUUCCAGmUmU	3851	CUGGAAGGUGUUUGGGGUCmUmU
1946	1821	ACCCCAAACACCUUCCAGCmUmU	3852	GCUGGAAGGUGUUUGGGGUmUmU
1947	1822	CCCCAAACACCUUCCAGCUmUmU	3853	AGCUGGAAGGUGUUUGGGGmUmU
1948	1823	CCCAAACACCUUCCAGCUCmUmU	3854	GAGCUGGAAGGUGUUUGGGmUmU
1949	1824	CCAAACACCUUCCAGCUCCmUmU	3855	GGAGCUGGAAGGUGUUUGGmUmU
1950	1825	CAAACACCUUCCAGCUCCUmUmU	3856	AGGAGCUGGAAGGUGUUUGmUmU
1951	1826	AAACACCUUCCAGCUCCUGmUmU	3857	CAGGAGCUGGAAGGUGUUUmUmU
1952	1827	AACACCUUCCAGCUCCUGUmUmU	3858	ACAGGAGCUGGAAGGUGUUmUmU
1953	1828	ACACCUUCCAGCUCCUGUAmUmU	3859	UACAGGAGCUGGAAGGUGUmUmU
1954	1829	CACCUUCCAGCUCCUGUAAmUmU	3860	UUACAGGAGCUGGAAGGUGmUmU
1955	1830	ACCUUCCAGCUCCUGUAACmUmU	3861	GUUACAGGAGCUGGAAGGUmUmU
1956	1831	CCUUCCAGCUCCUGUAACAmUmU	3862	UGUUACAGGAGCUGGAAGGmUmU
1957	1832	CUUCCAGCUCCUGUAACAUmUmU	3863	AUGUUACAGGAGCUGGAAGmUmU
1958	1833	UUCCAGCUCCUGUAACAUAmUmU	3864	UAUGUUACAGGAGCUGGAAmUmU
1959	1834	UCCAGCUCCUGUAACAUACmUmU	3865	GUAUGUUACAGGAGCUGGAmUmU
1960	1835	CCAGCUCCUGUAACAUACUmUmU	3866	AGUAUGUUACAGGAGCUGGmUmU
1961	1836	CAGCUCCUGUAACAUACUGmUmU	3867	CAGUAUGUUACAGGAGCUGmUmU
1962	1837	AGCUCCUGUAACAUACUGGmUmU	3868	CCAGUAUGUUACAGGAGCUmUmU
1963	1838	GCUCCUGUAACAUACUGGCmUmU	3869	GCCAGUAUGUUACAGGAGCmUmU
1964	1839	CUCCUGUAACAUACUGGCCmUmU	3870	GGCCAGUAUGUUACAGGAGmUmU
1965	1840	UCCUGUAACAUACUGGCCUmUmU	3871	AGGCCAGUAUGUUACAGGAmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
1966	1841	CCUGUAACAUACUGGCCUGmUmU	3872	CAGGCCAGUAUGUUACAGGmUmU
1967	1842	CUGUAACAUACUGGCCUGGmUmU	3873	CCAGGCCAGUAUGUUACAGmUmU
1968	1843	UGUAACAUACUGGCCUGGAmUmU	3874	UCCAGGCCAGUAUGUUACAmUmU
1969	1844	GUAACAUACUGGCCUGGACmUmU	3875	GUCCAGGCCAGUAUGUUACmUmU
1970	1845	UAACAUACUGGCCUGGACUmUmU	3876	AGUCCAGGCCAGUAUGUUAmUmU
1971	1846	AACAUACUGGCCUGGACUGmUmU	3877	CAGUCCAGGCCAGUAUGUUmUmU
1972	1847	ACAUACUGGCCUGGACUGUmUmU	3878	ACAGUCCAGGCCAGUAUGUmUmU
1973	1848	CAUACUGGCCUGGACUGUUmUmU	3879	AACAGUCCAGGCCAGUAUGmUmU
1974	1849	AUACUGGCCUGGACUGUUUmUmU	3880	AAACAGUCCAGGCCAGUAUmUmU
1975	1850	UACUGGCCUGGACUGUUUUmUmU	3881	AAAACAGUCCAGGCCAGUAmUmU
1976	1851	ACUGGCCUGGACUGUUUUCmUmU	3882	GAAAACAGUCCAGGCCAGUmUmU
1977	1852	CUGGCCUGGACUGUUUUCUmUmU	3883	AGAAAACAGUCCAGGCCAGmUmU
1978	1853	UGGCCUGGACUGUUUUCUCmUmU	3884	GAGAAAACAGUCCAGGCCAmUmU
1979	1854	GGCCUGGACUGUUUUCUCUmUmU	3885	AGAGAAAACAGUCCAGGCCmUmU
1980	1855	GCCUGGACUGUUUUCUCUCmUmU	3886	GAGAGAAAACAGUCCAGGCmUmU
1981	1856	CCUGGACUGUUUUCUCUCGmUmU	3887	CGAGAGAAAACAGUCCAGGmUmU
1982	1857	CUGGACUGUUUUCUCUCGGmUmU	3888	CCGAGAGAAAACAGUCCAGmUmU
1983	1858	UGGACUGUUUUCUCUCGGCmUmU	3889	GCCGAGAGAAAACAGUCCAmUmU
1984	1859	GGACUGUUUUCUCUCGGCUmUmU	3890	AGCCGAGAGAAAACAGUCCmUmU
1985	1860	GACUGUUUUCUCUCGGCUCmUmU	3891	GAGCCGAGAGAAAACAGUCmUmU
1986	1861	ACUGUUUUCUCUCGGCUCCmUmU	3892	GGAGCCGAGAGAAAACAGUmUmU
1987	1862	CUGUUUUCUCUCGGCUCCCmUmU	3893	GGGAGCCGAGAGAAAACAGmUmU
1988	1863	UGUUUUCUCUCGGCUCCCCmUmU	3894	GGGGAGCCGAGAGAAAACAmUmU
1989	1864	GUUUUCUCUCGGCUCCCCAmUmU	3895	UGGGGAGCCGAGAGAAAACmUmU
1990	1865	UUUUCUCUCGGCUCCCCAUmUmU	3896	AUGGGGAGCCGAGAGAAAAmUmU
1991	1866	UUUCUCUCGGCUCCCCAUGmUmU	3897	CAUGGGGAGCCGAGAGAAAmUmU
1992	1867	UUCUCUCGGCUCCCCAUGUmUmU	3898	ACAUGGGGAGCCGAGAGAAmUmU
1993	1868	UCUCUCGGCUCCCCAUGUGmUmU	3899	CACAUGGGGAGCCGAGAGAmUmU
1994	1869	CUCUCGGCUCCCCAUGUGUmUmU	3900	ACACAUGGGGAGCCGAGAGmUmU
1995	1870	UCUCGGCUCCCCAUGUGUCmUmU	3901	GACACAUGGGGAGCCGAGAmUmU
1996	1871	CUCGGCUCCCCAUGUGUCCmUmU	3902	GGACACAUGGGGAGCCGAGmUmU
1997	1872	UCGGCUCCCCAUGUGUCCUmUmU	3903	AGGACACAUGGGGAGCCGAmUmU
1998	1873	CGGCUCCCCAUGUGUCCUGmUmU	3904	CAGGACACAUGGGGAGCCGmUmU
1999	1874	GGCUCCCCAUGUGUCCUGGmUmU	3905	CCAGGACACAUGGGGAGCCmUmU
2000	1875	GCUCCCCAUGUGUCCUGGUmUmU	3906	ACCAGGACACAUGGGGAGCmUmU
2001	1876	CUCCCCAUGUGUCCUGGUUmUmU	3907	AACCAGGACACAUGGGGAGmUmU
2002	1877	UCCCCAUGUGUCCUGGUUCmUmU	3908	GAACCAGGACACAUGGGGAmUmU
2003	1878	CCCCAUGUGUCCUGGUUCCmUmU	3909	GGAACCAGGACACAUGGGGmUmU
2004	1879	CCCAUGUGUCCUGGUUCCCmUmU	3910	GGGAACCAGGACACAUGGGmUmU
2005	1880	CCAUGUGUCCUGGUUCCCGmUmU	3911	CGGGAACCAGGACACAUGGmUmU
2006	1881	CAUGUGUCCUGGUUCCCGUmUmU	3912	ACGGGAACCAGGACACAUGmUmU
2007	1882	AUGUGUCCUGGUUCCCGUUmUmU	3913	AACGGGAACCAGGACACAUmUmU
2008	1883	UGUGUCCUGGUUCCCGUUUmUmU	3914	AAACGGGAACCAGGACACAmUmU
2009	1884	GUGUCCUGGUUCCCGUUUCmUmU	3915	GAAACGGGAACCAGGACACmUmU
2010	1885	UGUCCUGGUUCCCGUUUCUmUmU	3916	AGAAACGGGAACCAGGACAmUmU
2011	1886	GUCCUGGUUCCCGUUUCUCmUmU	3917	GAGAAACGGGAACCAGGACmUmU
2012	1887	UCCUGGUUCCCGUUUCUCCmUmU	3918	GGAGAAACGGGAACCAGGAmUmU
2013	1888	CCUGGUUCCCGUUUCUCCAmUmU	3919	UGGAGAAACGGGAACCAGGmUmU
2014	1889	CUGGUUCCCGUUUCUCCACmUmU	3920	GUGGAGAAACGGGAACCAGmUmU
2015	1890	UGGUUCCCGUUUCUCCACCmUmU	3921	GGUGGAGAAACGGGAACCAmUmU
2016	1891	GGUUCCCGUUUCUCCACCUmUmU	3922	AGGUGGAGAAACGGGAACCmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
2017	1892	GUUCCCGUUUCUCCACCUAmUmU	3923	UAGGUGGAGAAACGGGAACmUmU
2018	1893	UUCCCGUUUCUCCACCUAGmUmU	3924	CUAGGUGGAGAAACGGGAAmUmU
2019	1894	UCCCGUUUCUCCACCUAGAmUmU	3925	UCUAGGUGGAGAAACGGGAmUmU
2020	1895	CCCGUUUCUCCACCUAGACmUmU	3926	GUCUAGGUGGAGAAACGGGmUmU
2021	1896	CCGUUUCUCCACCUAGACUmUmU	3927	AGUCUAGGUGGAGAAACGGmUmU
2022	1897	CGUUUCUCCACCUAGACUGmUmU	3928	CAGUCUAGGUGGAGAAACGmUmU
2023	1898	GUUUCUCCACCUAGACUGUmUmU	3929	ACAGUCUAGGUGGAGAAACmUmU
2024	1899	UUUCUCCACCUAGACUGUAmUmU	3930	UACAGUCUAGGUGGAGAAAmUmU
2025	1900	UUCUCCACCUAGACUGUAAmUmU	3931	UUACAGUCUAGGUGGAGAAmUmU
2026	1901	UCUCCACCUAGACUGUAAAmUmU	3932	UUUACAGUCUAGGUGGAGAmUmU
2027	1902	CUCCACCUAGACUGUAAACmUmU	3933	GUUUACAGUCUAGGUGGAGmUmU
2028	1903	UCCACCUAGACUGUAAACCmUmU	3934	GGUUUACAGUCUAGGUGGAmUmU
2029	1904	CCACCUAGACUGUAAACCUmUmU	3935	AGGUUUACAGUCUAGGUGGmUmU
2030	1905	CACCUAGACUGUAAACCUCmUmU	3936	GAGGUUUACAGUCUAGGUGmUmU
2031	1906	ACCUAGACUGUAAACCUCUmUmU	3937	AGAGGUUUACAGUCUAGGUmUmU
2032	1907	CCUAGACUGUAAACCUCUCmUmU	3938	GAGAGGUUUACAGUCUAGGmUmU
2033	1908	CUAGACUGUAAACCUCUCGmUmU	3939	CGAGAGGUUUACAGUCUAGmUmU
2034	1909	UAGACUGUAAACCUCUCGAmUmU	3940	UCGAGAGGUUUACAGUCUAmUmU
2035	1910	AGACUGUAAACCUCUCGAGmUmU	3941	CUCGAGAGGUUUACAGUCUmUmU
2036	1911	GACUGUAAACCUCUCGAGGmUmU	3942	CCUCGAGAGGUUUACAGUCmUmU
2037	1912	ACUGUAAACCUCUCGAGGGmUmU	3943	CCCUCGAGAGGUUUACAGUmUmU
2038	1913	CUGUAAACCUCUCGAGGGCmUmU	3944	GCCCUCGAGAGGUUUACAGmUmU
2039	1914	UGUAAACCUCUCGAGGGCAmUmU	3945	UGCCCUCGAGAGGUUUACAmUmU
2040	1915	GUAAACCUCUCGAGGGCAGmUmU	3946	CUGCCCUCGAGAGGUUUACmUmU
2041	1916	UAAACCUCUCGAGGGCAGGmUmU	3947	CCUGCCCUCGAGAGGUUUAmUmU
2042	1917	AAACCUCUCGAGGGCAGGGmUmU	3948	CCCUGCCCUCGAGAGGUUUmUmU
2043	1918	AACCUCUCGAGGGCAGGGAmUmU	3949	UCCCUGCCCUCGAGAGGUUmUmU
2044	1919	ACCUCUCGAGGGCAGGGACmUmU	3950	GUCCCUGCCCUCGAGAGGUmUmU
2045	1920	CCUCUCGAGGGCAGGGACCmUmU	3951	GGUCCCUGCCCUCGAGAGGmUmU
2046	1921	CUCUCGAGGGCAGGGACCAmUmU	3952	UGGUCCCUGCCCUCGAGAGmUmU
2047	1922	UCUCGAGGGCAGGGACCACmUmU	3953	GUGGUCCCUGCCCUCGAGAmUmU
2048	1923	CUCGAGGGCAGGGACCACAmUmU	3954	UGUGGUCCCUGCCCUCGAGmUmU
2049	1924	UCGAGGGCAGGGACCACACmUmU	3955	GUGUGGUCCCUGCCCUCGAmUmU
2050	1925	CGAGGGCAGGGACCACACCmUmU	3956	GGUGUGGUCCCUGCCCUCGmUmU
2051	1926	GAGGGCAGGGACCACACCCmUmU	3957	GGGUGUGGUCCCUGCCCUCmUmU
2052	1927	AGGGCAGGGACCACACCCUmUmU	3958	AGGGUGUGGUCCCUGCCCUmUmU
2053	1928	GGGCAGGGACCACACCCUGmUmU	3959	CAGGGUGUGGUCCCUGCCCmUmU
2054	1929	GGCAGGGACCACACCCUGUmUmU	3960	ACAGGGUGUGGUCCCUGCCmUmU
2055	1930	GCAGGGACCACACCCUGUAmUmU	3961	UACAGGGUGUGGUCCCUGCmUmU
2056	1931	CAGGGACCACACCCUGUACmUmU	3962	GUACAGGGUGUGGUCCCUGmUmU
2057	1932	AGGGACCACACCCUGUACUmUmU	3963	AGUACAGGGUGUGGUCCCUmUmU
2058	1933	GGGACCACACCCUGUACUGmUmU	3964	CAGUACAGGGUGUGGUCCCmUmU
2059	1934	GGACCACACCCUGUACUGUmUmU	3965	ACAGUACAGGGUGUGGUCCmUmU
2060	1935	GACCACACCCUGUACUGUUmUmU	3966	AACAGUACAGGGUGUGGUCmUmU
2061	1936	ACCACACCCUGUACUGUUCmUmU	3967	GAACAGUACAGGGUGUGGUmUmU
2062	1937	CCACACCCUGUACUGUUCUmUmU	3968	AGAACAGUACAGGGUGUGGmUmU
2063	1938	CACACCCUGUACUGUUCUGmUmU	3969	CAGAACAGUACAGGGUGUGmUmU
2064	1939	ACACCCUGUACUGUUCUGUmUmU	3970	ACAGAACAGUACAGGGUGUmUmU
2065	1940	CACCCUGUACUGUUCUGUGmUmU	3971	CACAGAACAGUACAGGGUGmUmU
2066	1941	ACCCUGUACUGUUCUGUGUmUmU	3972	ACACAGAACAGUACAGGGUmUmU
2067	1942	CCCUGUACUGUUCUGUGUCmUmU	3973	GACACAGAACAGUACAGGGmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
2068	1943	CCUGUACUGUUCUGUGUCUmUmU	3974	AGACACAGAACAGUACAGGmUmU
2069	1944	CUGUACUGUUCUGUGUCUUmUmU	3975	AAGACACAGAACAGUACAGmUmU
2070	1945	UGUACUGUUCUGUGUCUUUmUmU	3976	AAAGACACAGAACAGUACAmUmU
2071	1946	GUACUGUUCUGUGUCUUUCmUmU	3977	GAAAGACACAGAACAGUACmUmU
2072	1947	UACUGUUCUGUGUCUUUCAmUmU	3978	UGAAAGACACAGAACAGUAmUmU
2073	1948	ACUGUUCUGUGUCUUUCACmUmU	3979	GUGAAAGACACAGAACAGUmUmU
2074	1949	CUGUUCUGUGUCUUUCACAmUmU	3980	UGUGAAAGACACAGAACAGmUmU
2075	1950	UGUUCUGUGUCUUUCACAGmUmU	3981	CUGUGAAAGACACAGAACAmUmU
2076	1951	GUUCUGUGUCUUUCACAGCmUmU	3982	GCUGUGAAAGACACAGAACmUmU
2077	1952	UUCUGUGUCUUUCACAGCUmUmU	3983	AGCUGUGAAAGACACAGAAmUmU
2078	1953	UCUGUGUCUUUCACAGCUCmUmU	3984	GAGCUGUGAAAGACACAGAmUmU
2079	1954	CUGUGUCUUUCACAGCUCCmUmU	3985	GGAGCUGUGAAAGACACAGmUmU
2080	1955	UGUGUCUUUCACAGCUCCUmUmU	3986	AGGAGCUGUGAAAGACACAmUmU
2081	1956	GUGUCUUUCACAGCUCCUCmUmU	3987	GAGGAGCUGUGAAAGACACmUmU
2082	1957	UGUCUUUCACAGCUCCUCCmUmU	3988	GGAGGAGCUGUGAAAGACAmUmU
2083	1958	GUCUUUCACAGCUCCUCCCmUmU	3989	GGGAGGAGCUGUGAAAGACmUmU
2084	1959	UCUUUCACAGCUCCUCCCAmUmU	3990	UGGGAGGAGCUGUGAAAGAmUmU
2085	1960	CUUUCACAGCUCCUCCCACmUmU	3991	GUGGGAGGAGCUGUGAAAGmUmU
2086	1961	UUUCACAGCUCCUCCCACAmUmU	3992	UGUGGGAGGAGCUGUGAAAmUmU
2087	1962	UUCACAGCUCCUCCCACAAmUmU	3993	UUGUGGGAGGAGCUGUGAAmUmU
2088	1963	UCACAGCUCCUCCCACAAUmUmU	3994	AUUGUGGGAGGAGCUGUGAmUmU
2089	1964	CACAGCUCCUCCCACAAUGmUmU	3995	CAUUGUGGGAGGAGCUGUGmUmU
2090	1965	ACAGCUCCUCCCACAAUGCmUmU	3996	GCAUUGUGGGAGGAGCUGUmUmU
2091	1966	CAGCUCCUCCCACAAUGCUmUmU	3997	AGCAUUGUGGGAGGAGCUGmUmU
2092	1967	AGCUCCUCCCACAAUGCUGmUmU	3998	CAGCAUUGUGGGAGGAGCUmUmU
2093	1968	GCUCCUCCCACAAUGCUGAmUmU	3999	UCAGCAUUGUGGGAGGAGCmUmU
2094	1969	CUCCUCCCACAAUGCUGAAmUmU	4000	UUCAGCAUUGUGGGAGGAGmUmU
2095	1970	UCCUCCCACAAUGCUGAAUmUmU	4001	AUUCAGCAUUGUGGGAGGAmUmU
2096	1971	CCUCCCACAAUGCUGAAUAmUmU	4002	UAUUCAGCAUUGUGGGAGGmUmU
2097	1972	CUCCCACAAUGCUGAAUAUmUmU	4003	AUAUUCAGCAUUGUGGGAGmUmU
2098	1973	UCCCACAAUGCUGAAUAUAmUmU	4004	UAUAUUCAGCAUUGUGGGAmUmU
2099	1974	CCCACAAUGCUGAAUAUACmUmU	4005	GUAUAUUCAGCAUUGUGGGmUmU
2100	1975	CCACAAUGCUGAAUAUACAmUmU	4006	UGUAUAUUCAGCAUUGUGGmUmU
2101	1976	CACAAUGCUGAAUAUACAGmUmU	4007	CUGUAUAUUCAGCAUUGUGmUmU
2102	1977	ACAAUGCUGAAUAUACAGCmUmU	4008	GCUGUAUAUUCAGCAUUGUmUmU
2103	1978	CAAUGCUGAAUAUACAGCAmUmU	4009	UGCUGUAUAUUCAGCAUUGmUmU
2104	1979	AAUGCUGAAUAUACAGCAGmUmU	4010	CUGCUGUAUAUUCAGCAUUmUmU
2105	1980	AUGCUGAAUAUACAGCAGGmUmU	4011	CCUGCUGUAUAUUCAGCAUmUmU
2106	1981	UGCUGAAUAUACAGCAGGUmUmU	4012	ACCUGCUGUAUAUUCAGCAmUmU
2107	1982	GCUGAAUAUACAGCAGGUGmUmU	4013	CACCUGCUGUAUAUUCAGCmUmU
2108	1983	CUGAAUAUACAGCAGGUGCmUmU	4014	GCACCUGCUGUAUAUUCAGmUmU
2109	1984	UGAAUAUACAGCAGGUGCUmUmU	4015	AGCACCUGCUGUAUAUUCAmUmU
2110	1985	GAAUAUACAGCAGGUGCUCmUmU	4016	GAGCACCUGCUGUAUAUUCmUmU
2111	1986	AAUAUACAGCAGGUGCUCAmUmU	4017	UGAGCACCUGCUGUAUAUUmUmU
2112	1987	AUAUACAGCAGGUGCUCAAmUmU	4018	UUGAGCACCUGCUGUAUAUmUmU
2113	1988	UAUACAGCAGGUGCUCAAUmUmU	4019	AUUGAGCACCUGCUGUAUAmUmU
2114	1989	AUACAGCAGGUGCUCAAUAmUmU	4020	UAUUGAGCACCUGCUGUAUmUmU
2115	1990	UACAGCAGGUGCUCAAUAAmUmU	4021	UUAUUGAGCACCUGCUGUAmUmU
2116	1991	ACAGCAGGUGCUCAAUAAAmUmU	4022	UUUAUUGAGCACCUGCUGUmUmU
2117	1992	CAGCAGGUGCUCAAUAAAUmUmU	4023	AUUUAUUGAGCACCUGCUGmUmU
2118	1993	AGCAGGUGCUCAAUAAAUGmUmU	4024	CAUUUAUUGAGCACCUGCUmUmU

Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:2 to 2032	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:2033 to 4063
2119	1994	GCAGGUGCUCAAUAAAUGAmUmU	4025	UCAUUUAUUGAGCACCUGCmUmU
2120	1995	CAGGUGCUCAAUAAAUGAUmUmU	4026	AUCAUUUAUUGAGCACCUGmUmU
2121	1996	AGGUGCUCAAUAAAUGAUUmUmU	4027	AAUCAUUUAUUGAGCACCUmUmU
2122	1997	GGUGCUCAAUAAAUGAUUCmUmU	4028	GAAUCAUUUAUUGAGCACCmUmU
2123	1998	GUGCUCAAUAAAUGAUUCUmUmU	4029	AGAAUCAUUUAUUGAGCACmUmU
2124	1999	UGCUCAAUAAAUGAUUCUUmUmU	4030	AAGAAUCAUUUAUUGAGCAmUmU
2125	2000	GCUCAAUAAAUGAUUCUUAmUmU	4031	UAAGAAUCAUUUAUUGAGCmUmU
2126	2001	CUCAAUAAAUGAUUCUUAGmUmU	4032	CUAAGAAUCAUUUAUUGAGmUmU
2127	2002	UCAAUAAAUGAUUCUUAGUmUmU	4033	ACUAAGAAUCAUUUAUUGAmUmU
2128	2003	CAAUAAAUGAUUCUUAGUGmUmU	4034	CACUAAGAAUCAUUUAUUGmUmU
2129	2004	AAUAAAUGAUUCUUAGUGAmUmU	4035	UCACUAAGAAUCAUUUAUUmUmU
2130	2005	AUAAAUGAUUCUUAGUGACmUmU	4036	GUCACUAAGAAUCAUUUAUmUmU
2131	2006	UAAAUGAUUCUUAGUGACUmUmU	4037	AGUCACUAAGAAUCAUUUAmUmU
2132	2007	AAAUGAUUCUUAGUGACUUmUmU	4038	AAGUCACUAAGAAUCAUUUmUmU
2133	2008	AAUGAUUCUUAGUGACUUUmUmU	4039	AAAGUCACUAAGAAUCAUUmUmU
2134	2009	AUGAUUCUUAGUGACUUUAmUmU	4040	UAAAGUCACUAAGAAUCAUmUmU
2135	2010	UGAUUCUUAGUGACUUUACmUmU	4041	GUAAAGUCACUAAGAAUCAmUmU
2136	2011	GAUUCUUAGUGACUUUACUmUmU	4042	AGUAAAGUCACUAAGAAUCmUmU
2137	2012	AUUCUUAGUGACUUUACUUmUmU	4043	AAGUAAAGUCACUAAGAAUmUmU
2138	2013	UUCUUAGUGACUUUACUUGmUmU	4044	CAAGUAAAGUCACUAAGAAmUmU
2139	2014	UCUUAGUGACUUUACUUGUmUmU	4045	ACAAGUAAAGUCACUAAGAmUmU
2140	2015	CUUAGUGACUUUACUUGUAmUmU	4046	UACAAGUAAAGUCACUAAGmUmU
2141	2016	UUAGUGACUUUACUUGUAAmUmU	4047	UUACAAGUAAAGUCACUAAmUmU
2142	2017	UAGUGACUUUACUUGUAAAmUmU	4048	UUUACAAGUAAAGUCACUAmUmU
2143	2018	AGUGACUUUACUUGUAAAAmUmU	4049	UUUUACAAGUAAAGUCACUmUmU
2144	2019	GUGACUUUACUUGUAAAAAmUmU	4050	UUUUUACAAGUAAAGUCACmUmU
2145	2020	UGACUUUACUUGUAAAAAAmUmU	4051	UUUUUUACAAGUAAAGUCAmUmU
2146	2021	GACUUUACUUGUAAAAAAAmUmU	4052	UUUUUUUACAAGUAAAGUCmUmU
2147	2022	ACUUUACUUGUAAAAAAAAmUmU	4053	UUUUUUUUACAAGUAAAGUmUmU
2148	2023	CUUUACUUGUAAAAAAAAAmUmU	4054	UUUUUUUUUACAAGUAAAGmUmU
2149	2024	UUUACUUGUAAAAAAAAAAmUmU	4055	UUUUUUUUUUACAAGUAAAmUmU
2150	2025	UUACUUGUAAAAAAAAAAAmUmU	4056	UUUUUUUUUUUACAAGUAAmUmU
2151	2026	UACUUGUAAAAAAAAAAAAmUmU	4057	UUUUUUUUUUUUACAAGUAmUmU
2152	2027	ACUUGUAAAAAAAAAAAAAmUmU	4058	UUUUUUUUUUUUUACAAGUmUmU
2153	2028	CUUGUAAAAAAAAAAAAAAmUmU	4059	UUUUUUUUUUUUUUACAAGmUmU
2154	2029	UUGUAAAAAAAAAAAAAAAmUmU	4060	UUUUUUUUUUUUUUUACAAmUmU
2155	2030	UGUAAAAAAAAAAAAAAAAmUmU	4061	UUUUUUUUUUUUUUUUACAmUmU
2156	2031	GUAAAAAAAAAAAAAAAAAmUmU	4062	UUUUUUUUUUUUUUUUUACmUmU
2157	2032	UAAAAAAAAAAAAAAAAAAmUmU	4063	UUUUUUUUUUUUUUUUUUAmUmU

[0058] Key for Table 1: Upper case A, G, C and U referred to for ribo-A, ribo-G, ribo-C and ribo-U respectively. The lower case letters a, g, c, t represent 2'-deoxy-A, 2'-deoxy-G, 2'-deoxy-C and thymidine respectively. mU is 2'-methoxy-U.

Table 2: RNAi molecule sequences for p21

ID	Ref Pos	SEQ ID NO	SENSE STRAND (5'-->3') SEQ ID NOS:4064 to 4091	SEQ ID NO	ANTISENSE STRAND (5'-->3') SEQ ID NOS:4092 to 4119
1	2085	4064	CUUAGUGACUUUACUUGUAmUmU	4092	UACAAGUAAAGUCACUAAGmUmU
2	500	4065	CAGACCAGCAUGACAGAUUmUmU	4093	AAUCUGUCAUGCUGGUCUGmUmU
3	540	4066	UGAUCUUCUCCAAGAGGAAmUmU	4094	UUCCUCUUGGAGAAGAUCAmUmU
4	1706	4067	GUUCAUUGCACUUUGAUUAmUmU	4095	UAAUCAAAGUGCAAUGAACmUmU
5	1709	4068	CAUUGCACUUUGAUUAGCAmUmU	4096	UGCUAAUCAAAGUGCAAUGmUmU
6	210	4069	AGCGAUGGAACUUCGACUUmUmU	4097	AAGUCGAAGUUCCAUCGCUmUmU
7	211	4070	GCGAUGGAACUUCGACUUUmUmU	4098	AAAGUCGAAGUUCCAUCGCmUmU
8	1473	4071	GGGAAGGGACACACAAGAAmUmU	4099	UUCUUGUGUGUCCCUUCCCmUmU
9	1507	4072	UCUACCUCAGGCAGCUCAAmUmU	4100	UUGAGCUGCCUGAGGUAGAmUmU
10	2067	4073	GGUGCUCAAUAAAUGAUUCmUmU	4101	GAAUCAUUUAUUGAGCACCmUmU
11	1063	4074	CAUCAUCAAAAACUUUGGAmUmU	4102	UCCAAAGUUUUUGAUGAUGmUmU
12	1735	4075	AAGGAGUCAGACAUUUUAAmUmU	4103	UUAAAAUGUCUGACUCCUUmUmU
13	783	4076	GUGCUGGGCAUUUUUAUUUmUmU	4104	AAAUAAAAAUGCCCAGCACmUmU
14	869	4077	GCCGGCUUCAUGCCAGCUAmUmU	4105	UAGCUGGCAUGAAGCCGGCmUmU
15	1060	4078	GGGCAUCAUCAAAAACUUUmUmU	4106	AAAGUUUUUGAUGAUGCCCmUmU
16	1492	4079	GAAGGGCACCCUAGUUCUAmUmU	4107	UAGAACUAGGGUGCCCUUCmUmU
17	1704	4080	CAGUUCAUUGCACUUUGAUmUmU	4108	AUCAAAGUGCAAUGAACUGmUmU
18	1733	4081	ACAAGGAGUCAGACAUUUUmUmU	4109	AAAAUGUCUGACUCCUUGUmUmU
19	1847	4082	UGGAGGCACUGAAGUGCUUmUmU	4110	AAGCACUUCAGUGCCUCCAmUmU
20	2000	4083	GCAGGGACCACACCCUGUAmUmU	4111	UACAGGGUGUGGUCCCUGCmUmU
21	2014	4084	CUGUACUGUUCUGUGUCUUmUmU	4112	AAGACACAGAACAGUACAGmUmU
22	677	4085	UUAAACACCUCCUCAUGUAmUmU	4113	UACAUGAGGAGGUGUUUAAmUmU
23	475	4086	AGACUCUCAGGGUCGAAAAmUmU	4114	UUUUCGACCCUGAGAGUCUmUmU
24	508	4087	CAUGACAGAUUUCUACCACmUmU	4115	GUGGUAGAAAUCUGUCAUGmUmU
25	514	4088	AGAUUUCUACCACUCCAAAmUmU	4116	UUUGGAGUGGUAGAAAUCUmUmU
26	549	4089	CCAAGAGGAAGCCCUAAUCmUmU	4117	GAUUAGGGCUUCCUCUUGGmUmU
27	382	4090	GACAGCAGAGGAAGACCAUmUmU	4118	AUGGUCUUCCUCUGCUGUCmUmU
28	2042	4091	CUCCCACAAUGCUGAAUAUmUmU	4119	AUAUUCAGCAUUGUGGGAGmUmU

[0059] Key for Table 2: Upper case A, G, C and U referred to for ribo-A, ribo-G, ribo-C and ribo-U respectively. The lower case letters a, g, c, t represent 2'-deoxy-A, 2'-deoxy-G, 2'-deoxy-C and thymidine respectively. mU is 2'-methoxy-U.

[0060] For example, a siRNA of this invention may have an antisense strand which is SEQ ID NO:4103, and a sense strand which is SEQ ID NO:4075, or chemically modified strands thereof.

[0061] For example, a siRNA of this invention may have an antisense strand which is SEQ ID NO:4119, and a sense strand which is SEQ ID NO:4091, or chemically modified strands thereof.

[0062] Chemical modifications may comprise a 2'-OMe substituent group on any nucleotide in any position in a strand, as well as other modifications known in the art.

[0063] Methods for modulating p21 and treating malignant tumor

[0064] Embodiments of this invention can provide RNAi molecules that can be used to down regulate or inhibit the expression of p21 and/or p21 proteins.

[0065] In some embodiments, a RNAi molecule of this invention can be used to down regulate or inhibit the expression of CDKN1A and/or p21 proteins arising from CDKN1A haplotype polymorphisms that may be associated with a disease or condition such as malignant tumor.

[0066] Monitoring of p21 protein or mRNA levels can be used to characterize gene silencing, and to determine the efficacy of compounds and compositions of this invention.

[0067] The RNAi molecules of this disclosure can be used individually, or in combination with other siRNAs for modulating the expression of one or more genes.

[0068] The RNAi molecules of this disclosure can be used individually, or in combination, or in conjunction with other known drugs for preventing or treating diseases, or ameliorating symptoms of conditions or disorders associated with p21, including malignant tumor.

[0069] The RNAi molecules of this invention can be used to modulate or inhibit the expression of p21 in a sequence-specific manner.

[0070] The RNAi molecules of this disclosure can include a guide strand for which a series of contiguous nucleotides are at least partially complementary to a p21 mRNA.

[0071] In certain aspects, malignant tumor may be treated by RNA interference using a RNAi molecule of this invention.

[0072] Treatment of malignant tumor may be characterized in suitable cell-based models, as well as ex vivo or in vivo animal models.

[0073] Treatment of malignant tumor may be characterized by determining the level of p21 mRNA or the level of p21 protein in cells of affected tissue.

[0074] Treatment of malignant tumor may be characterized by non-invasive medical scanning of an affected organ or tissue.

[0075] Embodiments of this invention may include methods for preventing, treating, or ameliorating the symptoms of a p21 associated disease or condition in a subject in need thereof.

[0076] In some embodiments, methods for preventing, treating, or ameliorating the symptoms of malignant tumor in a subject can include administering to the subject a RNAi molecule of this invention to modulate the expression of a CDKN1A gene (p21) in the subject or organism.

[0077] In some embodiments, this invention contemplates methods for down regulating the expression of a CDKN1A gene (p21) in a cell or organism, by contacting the cell or organism with a RNAi molecule of this invention.

[0078] RNA Interference

[0079] RNA interference (RNAi) refers to sequence-specific post-transcriptional gene silencing in animals mediated by short interfering RNAs (siRNAs). See, e.g., Zamore et al., Cell, 2000, Vol. 101, pp. 25-33; Fire et al., Nature, 1998, Vol. 391, pp. 806811; Sharp, Genes & Development, 1999, Vol. 13, pp. 139-141.

[0080] An RNAi response in cells can be triggered by a double stranded RNA (dsRNA), although the mechanism is not yet fully understood. Certain dsRNAs in cells can undergo the action of Dicer enzyme, a ribonuclease III enzyme. See, e.g., Zamore et al., Cell, 2000, Vol. 101, pp. 25-33; Hammond et al., Nature, 2000, Vol. 404, pp. 293-296. Dicer can process the dsRNA into shorter pieces of dsRNA, which are siRNAs.

[0081] In general, siRNAs can be from about 21 to about 23 nucleotides in length and include a base pair duplex region about 19 nucleotides in length.

[0082] RNAi involves an endonuclease complex known as the RNA induced silencing complex (RISC). An siRNA has an antisense or guide strand which enters the RISC complex and mediates cleavage of a single stranded RNA target having a sequence complementary to the antisense strand of the siRNA duplex. The other strand of the siRNA is the passenger strand. Cleavage of the target RNA takes place in the middle of the region complementary to the antisense strand of the siRNA duplex See, e.g., Elbashir et al., Genes & Development, 2001, Vol. 15, pp. 188-200.

[0083] As used herein, the term "sense strand" refers to a nucleotide sequence of a siRNA molecule that is partially or fully complementary to at least a portion of a corresponding antisense strand of the siRNA molecule. The sense strand of a siRNA molecule can include a nucleic acid sequence having homology with a target nucleic acid sequence.

[0084] As used herein, the term "antisense strand" refers to a nucleotide sequence of a siRNA molecule that is partially or fully complementary to at least a portion of a target nucleic acid sequence. The antisense strand of a siRNA molecule can include a nucleic acid sequence that is complementary to at least a portion of a corresponding sense strand of the siRNA molecule.

[0085] RNAi molecules can down regulate or knock down gene expression by mediating RNA interference in a sequence-specific manner. See, e.g., Zamore et al., Cell, 2000, Vol. 101, pp. 25-33; Elbashir et al., Nature, 2001, Vol. 411, pp. 494-498; Kreutzer et al., WO2000/044895; Zernicka-Goetz et al., WO2001/36646; Fire et al., WO1999/032619; Plaetinck et al., WO2000/01846; Mello et al., WO2001/029058.

[0086] As used herein, the terms "inhibit," "down-regulate," or "reduce" with respect to gene expression means that the expression of the gene, or the level of mRNA molecules encoding one or more proteins, or the activity of one or more of the encoded proteins is reduced below that observed in the absence of a RNAi molecule or siRNA of this invention. For example, the level of expression, level of mRNA, or level of encoded protein activity may be reduced by at least 1%, or at least 10%, or at least 20%, or at least 50%, or at least 90%, or more from that observed in the absence of a RNAi molecule or siRNA of this invention.

[0087] RNAi molecules can also be used to knock down viral gene expression, and therefore affect viral replication.

[0088] RNAi molecules can be made from separate polynucleotide strands: a sense strand or passenger strand, and an antisense strand or guide strand. The guide and passenger strands are at least partially complementary. The guide strand and passenger strand can form a duplex region having from about 15 to about 49 base pairs.

[0089] In some embodiments, the duplex region of a siRNA can have 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, or 49 base pairs.

[0090] In certain embodiments, a RNAi molecule can be active in a RISC complex, with a length of duplex region active for RISC.

[0091] In additional embodiments, a RNAi molecule can be active as a Dicer substrate, to be converted to a RNAi molecule that can be active in a RISC complex.

[0092] In some aspects, a RNAi molecule can have complementary guide and passenger sequence portions at opposing ends of a long molecule, so that the molecule can form a duplex region with the complementary sequence portions, and the strands are linked at one end of the duplex region by either nucleotide or non-nucleotide linkers. For example, a hairpin arrangement, or a stem and loop arrangement. The linker interactions with the strands can be covalent bonds or non-covalent interactions.

[0093] A RNAi molecule of this disclosure may include a nucleotide, non-nucleotide, or mixed nucleotide/non-nucleotide linker that joins the sense region of the

nucleic acid to the antisense region of the nucleic acid. A nucleotide linker can be a linker of ≧2 nucleotides in length, for example about 3, 4, 5, 6, 7, 8, 9, or 10 nucleotides in length. The nucleotide linker can be a nucleic acid aptamer. By "aptamer" or "nucleic acid aptamer" as used herein refers to a nucleic acid molecule that binds specifically to a target molecule wherein the nucleic acid molecule has sequence that includes a sequence recognized by the target molecule in its natural setting. Alternately, an aptamer can be a nucleic acid molecule that binds to a target molecule, where the target molecule does not naturally bind to a nucleic acid. For example, the aptamer can be used to bind to a ligand-binding domain of a protein, thereby preventing interaction of the naturally occurring ligand with the protein. See, e.g., Gold et al., Annu Rev Biochem, 1995, Vol. 64, pp. 763-797; Brody et al., J. Biotechnol., 2000, Vol. 74, pp. 5-13; Hermann et al., Science, 2000, Vol. 287, pp. 820-825.

[0094] Examples of a non-nucleotide linker include an abasic nucleotide, polyether, polyamine, polyamide, peptide, carbohydrate, lipid, polyhydrocarbon, or other polymeric compounds, for example polyethylene glycols such as those having from 2 to 100 ethylene glycol units. Some examples are described in Seela et al., Nucleic Acids Research, 1987, Vol. 15, pp. 3113-3129; Cload et al., J. Am. Chem. Soc., 1991, Vol. 113, pp. 6324-6326; Jaeschke et al., Tetrahedron Lett., 1993, Vol. 34, pp. 301; Arnold et al., WO1989/002439; Usman et al., WO1995/006731; Dudycz et al., WO1995/011910, and Ferentz et al., J. Am. Chem. Soc., 1991, Vol. 113, pp. 4000-4002.

[0095] A RNAi molecule can have one or more overhangs from the duplex region. The overhangs, which are non-base-paired, single strand regions, can be from one to eight nucleotides in length, or longer. An overhang can be a 3′-end overhang, wherein the 3′-end of a strand has a single strand region of from one to eight nucleotides. An overhang can be a 5′-end overhang, wherein the 5′-end of a strand has a single strand region of from one to eight nucleotides.

[0096] The overhangs of a RNAi molecule can have the same length, or can be different lengths.

[0097] A RNAi molecule can have one or more blunt ends, in which the duplex region ends with no overhang, and the strands are base paired to the end of the duplex region.

[0098] A RNAi molecule of this disclosure can have one or more blunt ends, or can have one or more overhangs, or can have a combination of a blunt end and an overhang end.

[0099] A 5′-end of a strand of a RNAi molecule may be in a blunt end, or can be in an overhang. A 3′-end of a strand of a RNAi molecule may be in a blunt end, or can be in an overhang.

[00100] A 5′-end of a strand of a RNAi molecule may be in a blunt end, while the 3′-end is in an overhang. A 3′-end of a strand of a RNAi molecule may be in a blunt end, while the 5′-end is in an overhang.

[00101] In some embodiments, both ends of a RNAi molecule are blunt ends.

[00102] In additional embodiments, both ends of a RNAi molecule have an overhang.

[00103] The overhangs at the 5′- and 3′-ends may be of different lengths.

[00104] In certain embodiments, a RNAi molecule may have a blunt end where the 5′-end of the antisense strand and the 3′-end of the sense strand do not have any overhanging nucleotides.

[00105] In further embodiments, a RNAi molecule may have a blunt end where the 3′-end of the antisense strand and the 5′-end of the sense strand do not have any overhanging nucleotides.

[00106] A RNAi molecule may have mismatches in base pairing in the duplex region.

[00107] Any nucleotide in an overhang of a RNAi molecule can be a deoxyribonucleotide, or a ribonucleotide.

[00108] One or more deoxyribonucleotides may be at the 5′-end, where the 3′-end of the other strand of the RNAi molecule may not have an overhang, or may not have a deoxyribonucleotide overhang.

[00109] One or more deoxyribonucleotides may be at the 3′-end, where the 5′-end of the other strand of the RNAi molecule may not have an overhang, or may not have a deoxyribonucleotide overhang.

[00110] In some embodiments, one or more, or all of the overhang nucleotides of a RNAi molecule may be 2′-deoxyribonucleotides.

[00111] Dicer Substrate RNAi Molecules

[00112] In some aspects, a RNAi molecule can be of a length suitable as a Dicer substrate, which can be processed to produce a RISC active RNAi molecule. See, e.g., Rossi et al., US2005/0244858.

[00113] A double stranded RNA (dsRNA) that is a Dicer substrate can be of a length sufficient such that it is processed by Dicer to produce an active RNAi molecule, and may further include one or more of the following properties: (i) the Dicer substrate dsRNA can be asymmetric, for example, having a 3′ overhang on the antisense strand, and (ii) the Dicer substrate dsRNA can have a modified 3′ end on the sense strand to direct orientation of Dicer binding and processing of the dsRNA to an active RNAi molecule.

[00114] In certain embodiments, the longest strand in a Dicer substrate dsRNA may be 24-30 nucleotides in length.

[00115] A Dicer substrate dsRNA can be symmetric or asymmetric.

[00116] In some embodiments, a Dicer substrate dsRNA can have a sense strand of 22-28 nucleotides and an antisense strand of 24-30 nucleotides.

[00117] In certain embodiments, a Dicer substrate dsRNA may have an overhang on the 3′ end of the antisense strand.

[00118] In further embodiments, a Dicer substrate dsRNA may have a sense strand 25 nucleotides in length, and an antisense strand 27 nucleotides in length, with a 2 base

3′-overhang. The overhang may be 1, 2 or 3 nucleotides in length. The sense strand may also have a 5′ phosphate.

[00119] An asymmetric Dicer substrate dsRNA may have two deoxyribonucleotides at the 3′-end of the sense strand in place of two of the ribonucleotides.

[00120] The sense strand of a Dicer substrate dsRNA may be from about 22 to about 30, or from about 22 to about 28; or from about 24 to about 30; or from about 25 to about 30; or from about 26 to about 30; or from about 26 and 29; or from about 27 to about 28 nucleotides in length.

[00121] The sense strand of a Dicer substrate dsRNA may be 22, 23, 24, 25, 26, 27, 28, 29 or 30 nucleotides in length.

[00122] In certain embodiments, a Dicer substrate dsRNA may have sense and antisense strands that are at least about 25 nucleotides in length, and no longer than about 30 nucleotides in length.

[00123] In certain embodiments, a Dicer substrate dsRNA may have sense and antisense strands that are 26 to 29 nucleotides in length.

[00124] In certain embodiments, a Dicer substrate dsRNA may have sense and antisense strands that are 27 nucleotides in length.

[00125] The sense and antisense strands of a Dicer substrate dsRNA may be the same length as in being blunt ended, or different lengths as in having overhangs, or may have a blunt end and an overhang.

[00126] A Dicer substrate dsRNA may have a duplex region of 19, 20, 21, 22, 23, 24, 25, 26 or 27 nucleotides in length.

[00127] The antisense strand of a Dicer substrate dsRNA may have any sequence that anneals to at least a portion of the sequence of the sense strand under biological conditions, such as within the cytoplasm of a eukaryotic cell.

[00128] A Dicer substrate with a sense and an antisense strand can be linked by a third structure, such as a linker group or a linker oligonucleotide. The linker connects the two strands of the dsRNA, for example, so that a hairpin is formed upon annealing.

[00129] The sense and antisense strands of a Dicer substrate are in general complementary, but may have mismatches in base pairing.

[00130] In some embodiments, a Dicer substrate dsRNA can be asymmetric such that the sense strand has 22-28 nucleotides and the antisense strand has 24-30 nucleotides.

[00131] A region of one of the strands, particularly the antisense strand, of the Dicer substrate dsRNA may have a sequence length of at least 19 nucleotides, wherein these nucleotides are in the 21-nucleotide region adjacent to the 3′ end of the antisense strand and are sufficiently complementary to a nucleotide sequence of the RNA produced from the target gene.

[00132] An antisense strand of a Dicer substrate dsRNA can have from 1 to 9 ribonucleotides on the 5′-end, to give a length of 22-28 nucleotides. When the antisense strand has a length of 21 nucleotides, then 1-7 ribonucleotides, or 2-5 ribonucleotides, or 4 ribonucleotides may be added on the 3′-end. The added ribonucleotides may have any sequence.

[00133] A sense strand of a Dicer substrate dsRNA may have 24-30 nucleotides. The sense strand may be substantially complementary with the antisense strand to anneal to the antisense strand under biological conditions.

[00134] Methods of use of RNAi molecules

[00135] The nucleic acid molecules and RNAi molecules of this invention may be delivered to a cell or tissue by direct application of the molecules, or with the molecules combined with a carrier or a diluent.

[00136] The nucleic acid molecules and RNAi molecules of this invention can be delivered or administered to a cell, tissue, organ, or subject by direct application of the molecules with a carrier or diluent, or any other delivery vehicle that acts to assist,

promote or facilitate entry into a cell, for example, viral sequences, viral material, or lipid or liposome formulations.

[00137] The nucleic acid molecules and RNAi molecules of this invention can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through direct dermal application, transdermal application, or injection.

[00138] Delivery systems may include, for example, aqueous and nonaqueous gels, creams, emulsions, microemulsions, liposomes, ointments, aqueous and nonaqueous solutions, lotions, aerosols, hydrocarbon bases and powders, and can contain excipients such as solubilizers and permeation enhancers.

[00139] Compositions and methods of this disclosure can include an expression vector that includes a nucleic acid sequence encoding at least one RNAi molecule of this invention in a manner that allows expression of the nucleic acid molecule.

[00140] The nucleic acid molecules and RNAi molecules of this invention can be expressed from transcription units inserted into DNA or RNA vectors. Recombinant vectors can be DNA plasmids or viral vectors. Viral vectors can be used that provide for transient expression of nucleic acid molecules.

[00141] For example, the vector may contain sequences encoding both strands of a RNAi molecule of a duplex, or a single nucleic acid molecule that is self-complementary and thus forms a RNAi molecule. An expression vector may include a nucleic acid sequence encoding two or more nucleic acid molecules.

[00142] A nucleic acid molecule may be expressed within cells from eukaryotic promoters. Those skilled in the art realize that any nucleic acid can be expressed in eukaryotic cells from the appropriate DNA/RNA vector.

[00143] In some aspects, a viral construct can be used to introduce an expression construct into a cell, for transcription of a dsRNA construct encoded by the expression construct.

[00144] Lipid formulations can be administered to animals by intravenous, intramuscular, or intraperitoneal injection, or orally or by inhalation or other methods as are known in the art.

[00145] Pharmaceutically acceptable formulations for administering oligonucleotides are known and can be used.

[00146] EXAMPLES

[00147] **Example 1:** In vitro knockdown using p21 siRNAs.

[00148] Fig. 2 shows p21 siRNAs tested for ability to down regulate p21 mRNA in A549 cells. A549 cells were plated at 2000/well, 24 hours before transfection. Cells were then transfected with p21 siRNAs at 0.1, 1, and 10 nM concentrations for 24 hours. The fold change of p21 expression level was measured using qRT-PCR (n=3). All of the p21 siRNAs in Fig. 2 achieved significant knockdown of p21 mRNA in A549 cells.

[00149] **Example 2:** Protocol for in vitro knockdown.

[00150] One day before the transfection, plate the cells in a 96-well plate at 2 x 103 cells per well with 100 µl of DMEM (HyClone Cat. # SH30243.01) containing 10% FBS and culture in a 37°C incubator containing a humidified atmosphere of 5% CO2 in air. Before transfection, change medium to 90 µl of Opti-MEM I Reduced Serum Medium (Life Technologies Cat. # 31985-070) containing 2% FBS. Mix 0.2 µl of Lipofectamine RNAiMax (Life Technologies Cat. # 13778-100) with 4.8 µl of Opti-MEM I for 5 minutes at room temperature. Mix 1 µl of siRNA with 4 µl of Opti-MEM I and combine with the LF2000 solution and then mix gently, without vortex. Wait for 5 minutes at room temperature. Incubate the mixture for 10 minutes at room temperature to allow the RNA-RNAiMax complexes to form. Add the 10 µl of RNA-RNAiMax complexes to a well and shake the plate gently by hand. Incubate the cells in a 37°C incubator containing a humidified atmosphere of 5% CO2 in air for 2 hours. Change medium to fresh -MEM I Reduced Serum Medium (Life Technologies Cat. # 31985-070) containing 2% FBS. 24 hours after transfection, wash the cells with ice-cold PBS once. Lyse the cells with 50 µl of Cell-to-Ct Lysis Buffer (Life Technologies Cat. # 4391851 C) for 5-30 minutes at room temperature. Add 5 µl of Stop Solution and incubate for 2

minutes at room temperature. Measure mRNA level by RT-qPCR with TAQMAN immediately. Alternatively, the samples can be frozen at -80 °C and assayed at a later time.

[00151] The positive control for the screening measurement was a molecule having the sense and antisense strand pair of SEQ ID NO:4120 and 4121 (Ref. Pos. 830) (Ambion, Austin).

[00152] SEQ ID NO:4120

[00153] Sense: TCCTAAGAGTGCTGGGCATmUmU

[00154] SEQ ID NO:4121

[00155] Antisense: AUGCCCAGCACUCUUAGGAmUmU.

[00156] **Example 3**. siRNAs of this invention targeted to p21 were found to be active for gene silencing in vitro. The dose–dependent activities of p21 siRNAs for gene knockdown were found to exhibit an IC50 below about 3 picomolar (pM), and as low as 1 pM.

[00157] In vitro transfection was performed in an A549 cell line to determine siRNA knockdown efficacy. Dose dependent knockdown for p21 mRNA was observed with siRNAs of Table 1, as shown in Table 3.

Table 3: Dose dependent knockdown for p21 mRNA in an A549 cell line

P21 siRNA structure	IC50 (pM)
1735 (SEQ ID NOs:4075 and 4103)	0.3
2042 (SEQ ID NOs:4091 and 4119)	10

[00158] As shown in Table 3, the activities of p21 siRNAs of Table 1 were in the range 0.3-10 pM, which is suitable for many uses, including as a drug agent to be used in vivo.

[00159] The embodiments described herein are not limiting and one skilled in the art can readily appreciate that specific combinations of the modifications described herein

can be tested without undue experimentation toward identifying nucleic acid molecules with improved RNAi activity.

[00160] All publications, patents and literature specifically mentioned herein are incorporated by reference in their entirety for all purposes.

[00161] It is understood that this invention is not limited to the particular methodology, protocols, materials, and reagents described, as these may vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to limit the scope of the present invention. It will be readily apparent to one skilled in the art that varying substitutions and modifications can be made to the description disclosed herein without departing from the scope and spirit of the description, and that those embodiments are within the scope of this description and the appended claims.

[00162] It must be noted that as used herein and in the appended claims, the singular forms "a", "an", and "the" include plural reference unless the context clearly dictates otherwise. As well, the terms "a" (or "an"), "one or more" and "at least one" can be used interchangeably herein. It is also to be noted that the terms “comprises,” "comprising", “containing,” "including", and "having" can be used interchangeably, and shall be read expansively and without limitation.

[00163] Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. For Markush groups, those skilled in the art will recognize that this description includes the individual members, as well as subgroups of the members of the Markush group.

[00164] Without further elaboration, it is believed that one skilled in the art can, based on the above description, utilize the present invention to its fullest extent. The following specific embodiments are, therefore, to be construed as merely illustrative, and not limitative of the remainder of the disclosure in any way whatsoever.

[00165] All of the features disclosed in this specification may be combined in any combination. Each feature disclosed in this specification may be replaced by an alternative feature serving the same, equivalent, or similar purpose.

WHAT IS CLAIMED IS:

1. A nucleic acid molecule, wherein:

a) the molecule has a polynucleotide sense strand and a polynucleotide antisense strand;

b) each strand of the molecule is from 15 to 30 nucleotides in length;

c) a contiguous region of from 15 to 30 nucleotides of the antisense strand is complementary to a sequence of an mRNA encoding p21;

d) at least a portion of the sense strand is complementary to at least a portion of the antisense strand, and the molecule has a duplex region of from 15 to 30 nucleotides in length.

2. The nucleic acid molecule of claim 1, wherein the antisense strand is SEQ ID NO:4103 and the sense strand is SEQ ID NO:4075, or chemically modified strands thereof.

3. The nucleic acid molecule of claim 1, wherein the antisense strand is SEQ ID NO:4119 and the sense strand is SEQ ID NO:4091, or chemically modified strands thereof.

4. The nucleic acid molecule of claim 1, wherein the contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21 is located in the duplex region of the molecule.

5. The nucleic acid molecule of claim 1, wherein the contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21 is selected from a sequence of human p21 mRNA in SEQ ID NO:1.

6. The nucleic acid molecule of claim 1, wherein the contiguous region of from 15 to 30 nucleotides of the antisense strand that is complementary to a sequence of an mRNA encoding p21 is selected from a sequence of human p21, wherein the sequence of human p21 is selected from the group of positions 1 to 125 of SEQ ID NO:1, positions 126 to 620 of SEQ ID NO:1, positions 621 to 2175 of SEQ ID NO:1.

7. The nucleic acid molecule of claim 1, wherein the antisense strand contains a sequence selected from SEQ ID NOs:2033 to 4063.

8. The nucleic acid molecule of claim 1, wherein the antisense strand contains a sequence selected from SEQ ID NOs:4092 to 4119.

9. The nucleic acid molecule of claim 1, wherein the molecule is composed of an sense and antisense strand pair selected from the group of SEQ ID NO:4066 and 4094, SEQ ID NO:4067 and 4095, SEQ ID NO:4068 and 4096, SEQ ID NO:4073 and 4101, SEQ ID NO:4075 and 4103, SEQ ID NO:4080 and 4108, SEQ ID NO:4084 and 4112, SEQ ID NO:4085 and 4113, SEQ ID NO:4088 and 4116, and SEQ ID NO:4091 and 4119.

10. The nucleic acid molecule of claim 1, wherein each strand of the molecule is from 18 to 22 nucleotides in length.

11. The nucleic acid molecule of claim 1, wherein the duplex region is 19 nucleotides in length.

12. The nucleic acid molecule of claim 1, wherein the polynucleotide sense strand and the polynucleotide antisense strand are connected as a single strand, and form a duplex region connected at one end by a loop.

13. The nucleic acid molecule of claim 1, wherein the molecule has a blunt end.

14. The nucleic acid molecule of claim 1, wherein the molecule has one or more 3' overhangs.

15. The nucleic acid molecule of claim 1, wherein the molecule is an RNAi molecule active for gene silencing.

16. The nucleic acid molecule of claim 1, wherein the molecule is a molecule active for gene silencing selected from a siRNA, a micro-RNA, a shRNA, a dsRNA, a DNA-directed RNA (ddRNA), a Piwi-interacting RNA (piRNA), and a repeat associated siRNA (rasiRNA).

17. The nucleic acid molecule of claim 1, wherein the molecule is active for inhibiting expression of p21.

18. The nucleic acid molecule of claim 1, wherein the molecule has an IC50 for knockdown of p21 of less than 100 pM.

19. A composition comprising one or more nucleic acid molecules of any one of claims 1-18 and a pharmaceutically acceptable carrier.

20. The composition of claim 19, wherein the carrier is a lipid molecule or liposome.

21. A method for treating a disease associated with p21 expression, comprising administering to a subject in need a composition of claim 19.

22. The method of claim 21, wherein the disease is malignant tumor that is presented in a disease selected from the group consisting of cancers associated with p21 expression, sarcomas, fibrosarcoma, malignant fibrous histiocytoma, liposarcoma, rhabdomyosarcoma, leiomyosarcoma, angiosarcoma, Kaposi's sarcoma, lymphangiosarcoma, synovial sarcoma, chondrosarcoma, osteosarcoma, carcinomas, brain tumor, head and neck cancer, breast cancer, lung cancer, esophageal cancer, stomach cancer, duodenal cancer, colorectal cancer, colon cancer, liver cancer, pancreatic cancer, gallbladder cancer, bile duct cancer, kidney cancer, urethral cancer, bladder cancer, prostate cancer, testicular cancer, penile cancer, uterine cancer, ovarian cancer, skin cancer, bone cancer, leukemia, malignant lymphoma, epithelial malignant tumors, and non-epithelial malignant tumors.

SEQ ID NO:1

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AAAAA

FIG. 1

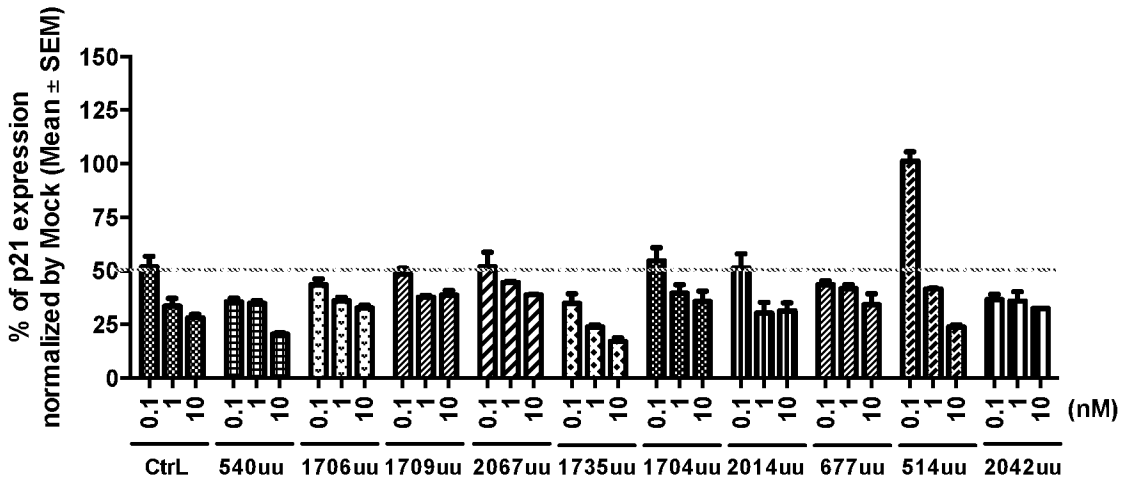
% of p21 expression
normalized by Mock (Mean ± SEM)
150
125
100
75
50
25
0
0.1
1
10
(nM)
CtrL
540uu
1706uu
1709uu
2067uu
1735uu
1704uu
2014uu
677uu
514uu
2042uu

FIG. 2