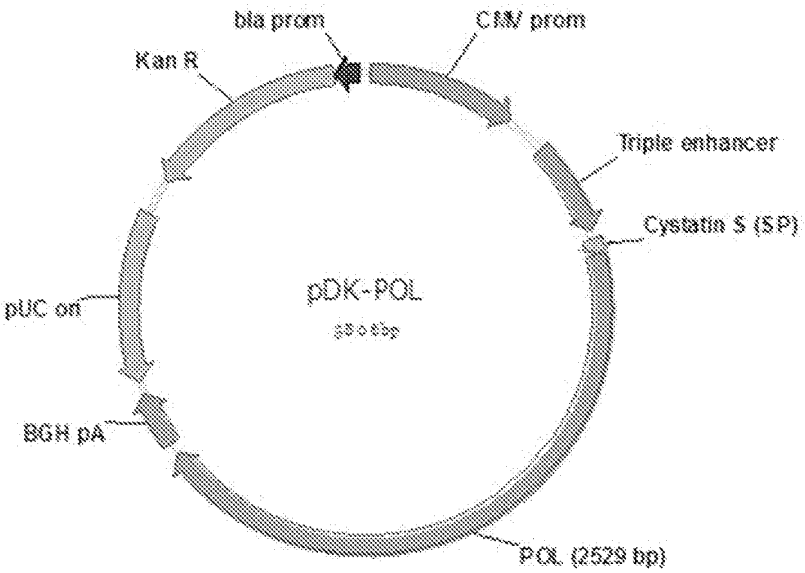

bla prom
CMV prom
Kan R
Triple enhancer
Cystatin S (SP)
pDK-POL
pUC ori
BGH pA
POL (2529 bp)

FIG. 1A

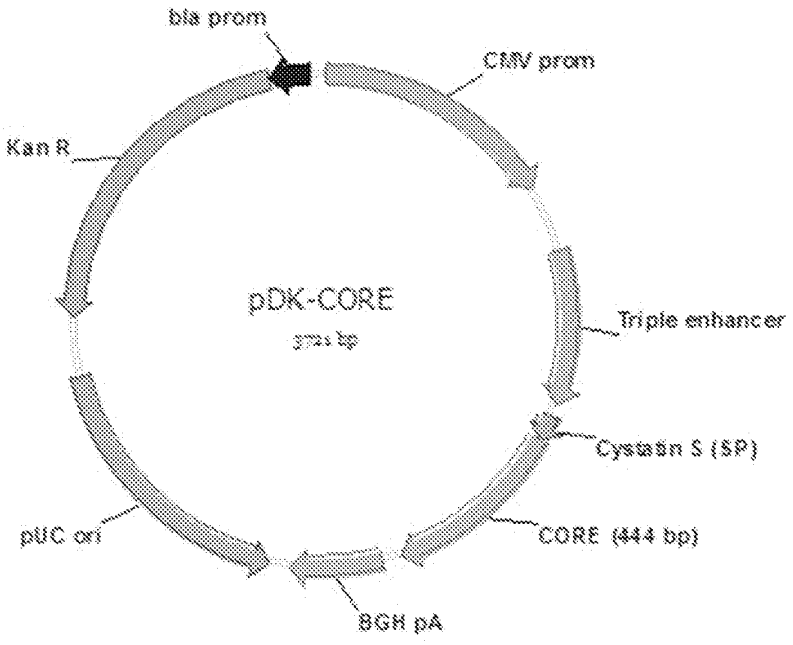

bla prom
CMV prom
Kan R
pDK-CORE
Triple enhancer
Cystatin S (SP)
pUC ori
CORE (444 bp)
BGH pA

FIG. 1B

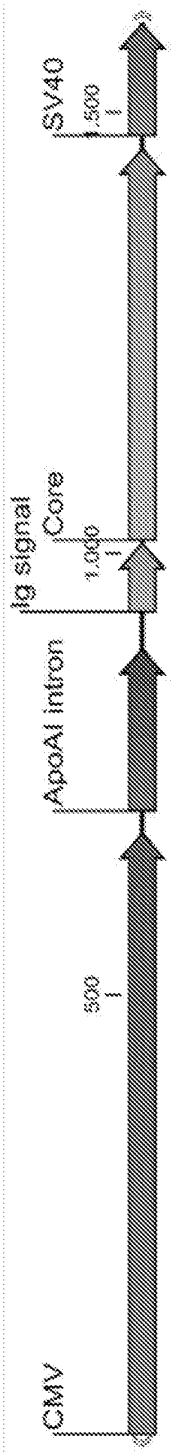

CMV
SV40
Ig signal
Core
ApoAI intron

FIG. 2A

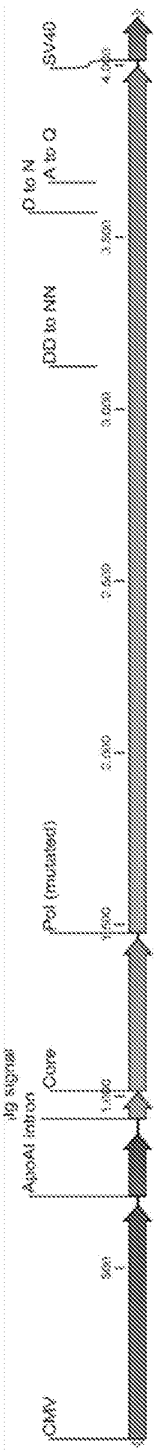

CMV
Ig signal
ApoAI intron
Core
Pol (mutated)
SV40

FIG. 2B

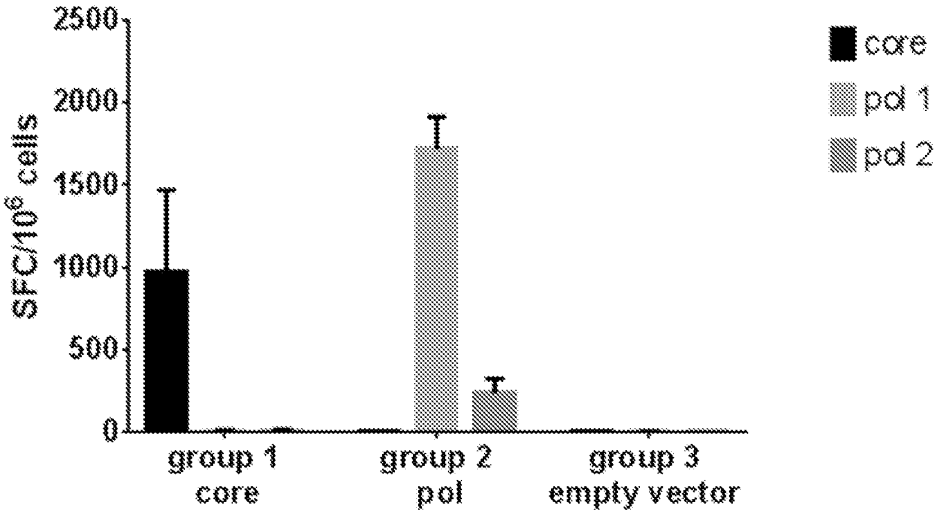

2500
2000
1500
1000
500
0
SFC/10^6 cells
core
pol 1
pol 2
group 1
core
group 2
pol
group 3
empty vector

FIG. 3

Table 2. Core sequences of dsRNAs targeting HBV gene from US20130005793

SEQ ID NO	sense strand sequence (5'-3')	SEQ ID NO	antisense strand sequence (5'-3')
1	CAAGGUAUGUUGCCCGUUU	157	AAACGGGCAACAUACCUUG
2	CUGUAGGCAUAAAUUGGUA	158	TACCAAUUUAUGCCUACAG
3	UCUGCGGCGUUUUAUCAUA	159	UAUGAUAAAACGCCGCAGA
3	UCUGCGGCGUUUUAUCAUA	160	TAUGAUAAAACGCCGCAGA
4	ACCUCUGCCUAAUCAUCUC	161	GAGAUGAUUAGGCAGAGGU
5	UUUACUAGUGCCAUUUGUA	162	TACAAAUGGCACUAGUAAA
6	ACCUCUGCCUAAUCAUCUA	163	TAGAUGAUUAGGCAGAGGU
7	CUGUAGGCAUAAAUUGGUC	164	GACCAAUUUAUGCCUACAG
8	UGUCUGCGGCGUUUUAUCA	165	UGAUAAAACGCCGCAGACA
8	UGUCUGCGGCGUUUUAUCA	166	TGAUAAAACGCCGCAGACA
9	UACUAGUGCCAUUUGUUCA	167	UGAACAAAUGGCACUAGUA
9	UACUAGUGCCAUUUGUUCA	168	TGAACAAAUGGCACUAGUA
10	CAACUUUUUCACCUCUGCA	169	TGCAGAGGUGAAAAAGUUG
11	CCAUUUGUUCAGUGGUUCG	170	CGAACCACUGAACAAAUGG
12	CCAAGUGUUUGCUGACGCA	171	UGCGUCAGCAAACACUUGG
12	CCAAGUGUUUGCUGACGCA	172	TGCGUCAGCAAACACUUGG
13	CCAUUUGUUCAGUGGUUCA	173	TGAACCACUGAACAAAUGG
14	UUUACUAGUGCCAUUUGUU	174	AACAAAUGGCACUAGUAAA
15	CACCUCUGCCUAAUCAUCA	175	TGAUGAUUAGGCAGAGGUG
16	CUGGCUCAGUUUACUAGUG	176	CACUAGUAAACUGAGCCAG
17	CAAGGUAUGUUGCCCGUUA	177	TAACGGGCAACAUACCUUG
18	CUGGCUCAGUUUACUAGUA	178	TACUAGUAAACUGAGCCAG
19	GAGGCUGUAGGCAUAAAUU	179	AAUUUAUGCCUACAGCCUC
20	CAGUUUACUAGUGCCAUUU	180	AAAUGGCACUAGUAAACUG
21	AGGUAUGUUGCCCGUUUGU	181	ACAAACGGGCAACAUACCU
22	UAUGUUGCCCGUUUGUCCA	182	UGGACAAACGGGCAACAUA
23	GAGGCUGUAGGCAUAAAUA	183	TAUUUAUGCCUACAGCCUC
24	GUCUGCGGCGUUUUAUCAU	184	AUGAUAAAACGCCGCAGAC
25	CAACUUUUUCACCUCUGCC	185	GGCAGAGGUGAAAAAGUUG
26	CCGUGUGCACUUCGCUUCA	186	UGAAGCGAAGUGCACACGG
26	CCGUGUGCACUUCGCUUCA	187	TGAAGCGAAGUGCACACGG
27	UCAAGGUAUGUUGCCCGUA	188	TACGGGCAACAUACCUUGA
28	CAGUUUACUAGUGCCAUUA	189	TAAUGGCACUAGUAAACUG
29	UGGUGGACUUCUCUCAAUU	190	AAUUGAGAGAAGUCCACCA
30	AGGUAUGUUGCCCGUUUGA	191	TCAAACGGGCAACAUACCU
31	CUGCUCGUGUUACAGGCGG	192	CCGCCUGUAACACGAGCAG
32	UAUGUUGCCCGUUUGUCCU	193	AGGACAAACGGGCAACAUA
33	UCAAGGUAUGUUGCCCGUU	194	AACGGGCAACAUACCUUGA
34	UCUUAUCAACACUUCCGGA	195	UCCGGAAGUGUUGAUAAGA
34	UCUUAUCAACACUUCCGGA	196	TCCGGAAGUGUUGAUAAGA

FIG. 4

35	CACCUCUGCCUAAUCAUCU	197	AGAUGAUUAGGCAGAGGUG
36	AUAAGAGGACUCUUGGACU	198	AGUCCAAGAGUCCUCUUAU
37	GUCUGCGGCGUUUUAUCAA	199	TUGAUAAAACGCCGCAGAC
38	GGCGCUGAAUCCCGCGGAC	200	GUCCGCGGGAUUCAGCGCC
39	CGCGUCGCAGAAGAUCUCA	201	UGAGAUCUUCUGCGACGCG
40	AAUGUCAACGACCGACCUU	202	AAGGUCGGUCGUUGACAUU
41	GCUCAGUUUACUAGUGCCA	203	UGGCACUAGUAAACUGAGC
42	UGGUGGACUUCUCUCAAUA	204	TAUUGAGAGAAGUCCACCA
43	AUCGCCGCGUCGCAGAAGA	205	UCUUCUGCGACGCGGCGAU
44	GCCAUUUGUUCAGUGGUUC	206	GAACCACUGAACAAAUGGC
45	CGAUCCAUACUGCGGAACU	207	AGUUCCGCAGUAUGGAUCG
46	UCACCUCUGCCUAAUCAUC	208	GAUGAUUAGGCAGAGGUGA
47	GUGGACUUCUCUCAAUUUU	209	AAAAUUGAGAGAAGUCCAC
48	GGGUCACCAUAUUCUUGGG	210	CCCAAGAAUAUGGUGACCC
49	GCCGCGUCGCAGAAGAUCU	211	AGAUCUUCUGCGACGCGGC
50	UCAAUCGCCGCGUCGCAGA	212	UCUGCGACGCGGCGAUUGA
51	UGGAUGUGUCUGCGGCGUU	213	AACGCCGCAGACACAUCCA
52	UACUGUUCAAGCCUCCAAG	214	CUUGGAGGCUUGAACAGUA
53	GUUUACUAGUGCCAUUUGU	215	ACAAAUGGCACUAGUAAAC
54	ACUAGUGCCAUUUGUUCAG	216	CUGAACAAAUGGCACUAGU
55	CCGCGUCGCAGAAGAUCUC	217	GAGAUCUUCUGCGACGCGG
56	UAUCUUAUCAACACUUCCG	218	CGGAAGUGUUGAUAAGAUA
57	GGCCAAAAUUCGCAGUCCC	219	GGGACUGCGAAUUUUGGCC
58	UUCACCUCUGCCUAAUCAU	220	AUGAUUAGGCAGAGGUGAA
59	CUCAGUUUACUAGUGCCAU	221	AUGGCACUAGUAAACUGAG
60	UGUUGCCCGUUUGUCCUCU	222	AGAGGACAAACGGGCAACA
61	UAGUGCCAUUUGUUCAGUG	223	CACUGAACAAAUGGCACUA
62	AGGCUGUAGGCAUAAAUUG	224	CAAUUUAUGCCUACAGCCU
63	AUGUGUCUGCGGCGUUUUA	225	UAAAACGCCGCAGACACAU
63	AUGUGUCUGCGGCGUUUUA	226	TAAAACGCCGCAGACACAU
64	ACUUCGCUUCACCUCUGCA	227	UGCAGAGGUGAAGCGAAGU
65	CGUGUGCACUUCGCUUCAC	228	GUGAAGCGAAGUGCACACG
66	GUGGUGGACUUCUCUCAAU	229	AUUGAGAGAAGUCCACCAC
67	UGUGUCUGCGGCGUUUUAU	230	AUAAAACGCCGCAGACACA
68	AAGGUAUGUUGCCCGUUUG	231	CAAACGGGCAACAUACCUU
69	UCAACGACCGACCUUGAGG	232	CCUCAAGGUCGGUCGUUGA
70	CAUAAGAGGACUCUUGGAC	233	GUCCAAGAGUCCUCUUAUG
71	GUCAACGACCGACCUUGAG	234	CUCAAGGUCGGUCGUUGAC
72	AUAUUCUUGGGAACAAGAG	235	CUCUUGUUCCCAAGAAUAU
73	UGCUCGUGUUACAGGCGGG	236	CCCGCCUGUAACACGAGCA
74	CAAUCGCCGCGUCGCAGAA	237	UUCUGCGACGCGGCGAUUG
75	ACUGUUCAAGCCUCCAAGC	238	GCUUGGAGGCUUGAACAGU
76	CGCCGCGUCGCAGAAGAUC	239	GAUCUUCUGCGACGCGGCG

FIG. 4 (Continued)

77	CAUUUGUUCAGUGGUUCGU	240	ACGAACCACUGAACAAAUG
78	CGCUGAAUCCCGCGGACGA	241	UCGUCCGCGGGAUUCAGCG
79	UGGGUCACCAUAUUCUUGG	242	CCAAGAAUAUGGUGACCCA
80	UCCUCUGCCGAUCCAUACU	243	AGUAUGGAUCGGCAGAGGA
81	AUGUCAACGACCGACCUUG	244	CAAGGUCGGUCGUUGACAU
82	CCUCUGCCUAAUCAUCUCA	245	UGAGAUGAUUAGGCAGAGG
83	ACCGUGUGCACUUCGCUUC	246	GAAGCGAAGUGCACACGGU
84	UGCCGAUCCAUACUGCGGA	247	UCCGCAGUAUGGAUCGGCA
85	CAGAGUCUAGACUCGUGGU	248	ACCACGAGUCUAGACUCUG
86	CUGUUCAAGCCUCCAAGCU	249	AGCUUGGAGGCUUGAACAG
87	GGAGGCUGUAGGCAUAAAU	250	AUUUAUGCCUACAGCCUCC
88	AGGAGGCUGUAGGCAUAAA	251	UUUAUGCCUACAGCCUCCU
89	GGUGGACUUCUCUCAAUUU	252	AAAUUGAGAGAAGUCCACC
90	GCAACUUUUUCACCUCUGC	253	GCAGAGGUGAAAAAGUUGC
91	CUGCUCGUGUUACAGGCGA	254	TCGCCUGUAACACGAGCAG
92	CUAGUGCCAUUUGUUCAGU	255	ACUGAACAAAUGGCACUAG
93	CUGCCGAUCCAUACUGCGG	256	CCGCAGUAUGGAUCGGCAG
94	GUGUGCACUUCGCUUCACC	257	GGUGAAGCGAAGUGCACAC
95	GCUCGUGUUACAGGCGGGC	258	GCCCGCCUGUAACACGAGC
96	CCUAUCUUAUCAACACUUC	259	GAAGUGUUGAUAAGAUAGG
97	UCUCAAUCGCCGCGUCGCA	260	UGCGACGCGGCGAUUGAGA
98	GCCCGUCUGUGCCUUCUCA	261	UGAGAAGGCACAGACGGGC
99	CUAUCUUAUCAACACUUCC	262	GGAAGUGUUGAUAAGAUAG
100	AUGUUGCCCGUUUGUCCUC	263	GAGGACAAACGGGCAACAU
101	GUAUGUUGCCCGUUUGUCC	264	GGACAAACGGGCAACAUAC
102	CUUCGCUUCACCUCUGCAC	265	GUGCAGAGGUGAAGCGAAG
103	UGUGCACUUCGCUUCACCU	266	AGGUGAAGCGAAGUGCACA
104	GCCAAAAUUCGCAGUCCCG	267	CGGGACUGCGAAUUUUGGC
105	CCUGCUCGUGUUACAGGCG	268	CGCCUGUAACACGAGCAGG
106	UGGAGUGUGGAUUCGCACU	269	AGUGCGAAUCCACACUCCA
107	AACGACCGACCUUGAGGCA	270	UGCCUCAAGGUCGGUCGUU
108	ACAGAGUCUAGACUCGUGG	271	CCACGAGUCUAGACUCUGU
109	AAUCGCCGCGUCGCAGAAG	272	CUUCUGCGACGCGGCGAUU
110	GGUAUGUUGCCCGUUUGUC	273	GACAAACGGGCAACAUACC
111	GCCGAUCCAUACUGCGGAA	274	UUCCGCAGUAUGGAUCGGC
112	GCCCUAUCUUAUCAACACU	275	AGUGUUGAUAAGAUAGGGC
113	AGUUUACUAGUGCCAUUUG	276	CAAAUGGCACUAGUAAACU
114	UGUCAACGACCGACCUUGA	277	UCAAGGUCGGUCGUUGACA
115	ACUUCUCUCAAUUUUCUAG	278	CUAGAAAAUUGAGAGAAGU
116	GCGCGGGACGUCCUUUGUC	279	GACAAAGGACGUCCCGCGC
117	UCUAGACUCGUGGUGGACU	280	AGUCCACCACGAGUCUAGA
118	GAUCCAUACUGCGGAACUC	281	GAGUUCCGCAGUAUGGAUC
119	CUCUGCCGAUCCAUACUGC	282	GCAGUAUGGAUCGGCAGAG

FIG. 4 (Continued)

120	UCUGCCGAUCCAUACUGCG	283	CGCAGUAUGGAUCGGCAGA
121	CCUCUGCCGAUCCAUACUG	284	CAGUAUGGAUCGGCAGAGG
122	GCACCUCUCUUUACGCGGU	285	ACCGCGUAAAGAGAGGUGC
123	AAGAACUCCCUCGCCUCGC	286	GCGAGGCGAGGGAGUUCUU
124	GAACUCCCUCGCCUCGCAG	287	CUGCGAGGCGAGGGAGUUC
125	UCUCUCAAUUUUCUAGGGC	288	GCCCUAGAAAAUUGAGAGA
126	GGGCGCACCUCUCUUUACG	289	CGUAAAGAGAGGUGCGCCC
127	CCGAUCCAUACUGCGGAAC	290	GUUCCGCAGUAUGGAUCGG
128	AACUCCCUCGCCUCGCAGA	291	UCUGCGAGGCGAGGGAGUU
129	CUCCUCUGCCGAUCCAUAC	292	GUAUGGAUCGGCAGAGGAG
130	GGAGUGUGGAUUCGCACUC	293	GAGUGCGAAUCCACACUCC
131	CGGGCGCACCUCUCUUUAC	294	GUAAAGAGAGGUGCGCCCG
132	GUCUCAAUCGCCGCGUCGC	295	GCGACGCGGCGAUUGAGAC
133	AUCCAUACUGCGGAACUCC	296	GGAGUUCCGCAGUAUGGAU
134	CGCACCUCUCUUUACGCGG	297	CCGCGUAAAGAGAGGUGCG
135	CAACGACCGACCUUGAGGC	298	GCCUCAAGGUCGGUCGUUG
136	CCAUACUGCGGAACUCCUA	299	UAGGAGUUCCGCAGUAUGG
137	UGAAUCCCGCGGACGACCC	300	GGGUCGUCCGCGGGAUUCA
138	AGAACUCCCUCGCCUCGCA	301	UGCGAGGCGAGGGAGUUCU
139	GGCGCACCUCUCUUUACGC	302	GCGUAAAGAGAGGUGCGCC
140	GCGCACCUCUCUUUACGCG	303	CGCGUAAAGAGAGGUGCGC
141	GCUGAAUCCCGCGGACGAC	304	GUCGUCCGCGGGAUUCAGC
142	CACUUCGCUUCACCUCUGC	305	GCAGAGGUGAAGCGAAGUG
143	CUCAAUCGCCGCGUCGCAG	306	CUGCGACGCGGCGAUUGAG
144	UCCCGUCGGCGCUGAAUCC	307	GGAUUCAGCGCCGACGGGA
145	CUGAAUCCCGCGGACGACC	308	GGUCGUCCGCGGGAUUCAG
146	AGAGUCUAGACUCGUGGUG	309	CACCACGAGUCUAGACUCU
147	UCCAUACUGCGGAACUCCU	310	AGGAGUUCCGCAGUAUGGA
148	GCGCUGAAUCCCGCGGACG	311	CGUCCGCGGGAUUCAGCGC
149	AGUGUGGAUUCGCACUCCU	312	AGGAGUGCGAAUCCACACU
150	CCCUGCUCGUGUUACAGGC	313	GCCUGUAACACGAGCAGGG
151	GAAUCCCGCGGACGACCCG	314	CGGGUCGUCCGCGGGAUUC
152	AAGCUGUGCCUUGGGUGGC	315	GCCACCCAAGGCACAGCUU
153	GCCCUGCUCGUGUUACAGG	316	CCUGUAACACGAGCAGGGC
154	GUCCCGUCGGCGCUGAAUC	317	GAUUCAGCGCCGACGGGAC
155	AUCUUAUCAACACUUCCGG	318	CCGGAAGUGUUGAUAAGAU
156	CUUAUCAACACUUCCGGAA	319	UUCCGGAAGUGUUGAUAAG
156	CUUAUCAACACUUCCGGAA	320	TUCCGGAAGUGUUGAUAAG

FIG. 4 (Continued)

Table 3. Modified sequences of dsRNAs targeting HBV gene from US20130005793

SEQ ID NO	sense strand sequence (5'-3')	SEQ ID NO	antisense strand sequence (5'-3')
321	csAGGuAuGuuGcccGuuudTsdT	485	AAACGGGcAAcAuACCUUGdTsdT
322	CfuGfuAfgGfcAfuAfaAfuUfgGfuAf(invdT)	486	pdTAfcCfaAfuUfuAfuGfcCfuAfcAfgdTsdT
323	ucuGcGGcGuuuuAucAuAdTsdT	487	uAUGAuAAAACGCCGcAGAdTsdT
324	UfcUfgCfgGfcGfuUfuUfaUfcAfuAf(invdT)	488	pdTAfuGfaUfaAfaAfcGfcCfgCfaGfadTsdT
325	accucuGcccAAucAucucdTsdT	489	GAGAUGAUuAGGcAGAGGUdTsdT
326	UfuUfaCfuAfgUfgCfcAfuUfuGfuAf(invdT)	490	pdTAfcAfaAfuGfgCfaCfuAfgUfaAfadTsdT
327	AfcCfuCfuGfcCfuAfaUfcAfuCfuAf(invdT)	491	pdTAfgAfuGfaUfuAfgGfcAfgAfgGfudTsdT
328	cuGuAGGcAuAAAuuGGucdTsdT	492	GACcAAUUuAUGCCuAcAGdTsdT
329	ugucuGcGGcGuuuuAucAdTsdT	493	UGAuAAAACGCCGcAGAcAdTsdT
330	UfgUfcUfgCfgGfcGfuUfuUfaUfcAf(invdT)	494	pdTGfaUfaAfaAfcGfcCfgCfaGfaCfadTsdT
331	uacuAGuGccAuuuGuucAdTsdT	495	UGAAcAAAUGGcACuAGuAdTsdT
332	UfaCfuAfgUfgCfcAfuUfuGfuUfcAf(invdT)	496	pdTGfaAfcAfaAfuGfgCfaCfuAfgUfadTsdT
333	CfaAfcUfuUfuUfcAfcCfuCfuGfcAf(invdT)	497	pdTGfcAfgAfgGfuGfaAfaAfaGfuUfgdTsdT
334	ccAuuuGuucAGuGGuucGdTsdT	498	CGAACcACUGAAcAAAUGGdTsdT
335	ccAAGuGuuuGcuGAcGcAdTsdT	499	UGCGUcAGcAAAcACUUGGdTsdT
336	CfcAfaGfuGfuUfuGfcUfgAfcGfcAf(invdT)	500	pdTGfcGfuCfaGfcAfaAfcAfcUfuGfgdTsdT
337	CfcAfuUfuGfuUfcAfgUfgGfuUfcAf(invdT)	501	pdTGfaAfcCfaCfuGfaAfcAfaAfuGfgdTsdT
338	uuuAcuAGuGccAuuuGuudTsdT	502	AAcAAAUGGcACuAGuAAAdTsdT
339	CfaCfcUfcUfgCfcUfaAfuCfaUfcAf(invdT)	503	pdTGfaUfgAfuUfaGfgCfaGfaGfgUfgdTsdT
340	cuGGcucAGuuuAcuAGuGdTsdT	504	cACuAGuAAACUGAGCcAGdTsdT
341	CfaAfgGfuAfuGfuUfgCfcCfgUfuAf(invdT)	505	pdTAfaCfgGfgCfaAfcAfuAfcCfuUfgdTsdT
342	CfuGfgCfuCfaGfuUfuAfcUfaGfuAf(invdT)	506	pdTAfcUfaGfuAfaAfcUfgAfgCfcAfgdTsdT
343	gaGGcuGuAGGcAuAAAuudTsdT	507	AAUUuAUGCCuAcAGCCUCdTsdT
344	caGuuuAcuAGuGccAuuudTsdT	508	AAAUGGcACuAGuAAACUGdTsdT

FIG. 5

345	agGuAuGuuGcccGuuuGudTsdT	509	AcAAACGGGcAAcAuACCUdTsdT
346	UfaUfgUfuGfcCfcGfuUfuGfuCfcAf(invdT)	510	pdTGfgAfcAfaAfcGfgGfcAfaCfaUfadTsdT
347	GfaGfgCfuGfuAfgGfcAfuAfaAfuAf(invdT)	511	pdTAfuUfuAfuGfcCfuAfcAfgCfcUfcdTsdT
348	gucuGcGGcGuuuuAucAudTsdT	512	AUGAuAAAACGCCGcAGACdTsdT
349	caAcuuuuucAccucuGccdTsdT	513	GGcAGAGGUGAAAAAGUUGdTsdT
350	ccGuGuGcAcuucGcuucAdTsdT	514	UGAAGCGAAGUGcAcACGGdTsdT
351	CfcGfuGfuGfcAfcUfuCfgCfuUfcAf(invdT)	515	pdTGfaAfgCfgAfaGfuGfcAfcAfcGfgdTsdT
352	UfcAfaGfgUfaUfgUfuGfcCfcGfuAf(invdT)	516	pdTAfcGfgGfcAfaCfaUfaCfcUfuGfadTsdT
353	CfaGfuUfuAfcUfaGfuGfcCfaUfuAf(invdT)	517	pdTAfaUfgGfcAfcUfaGfuAfaAfcUfgdTsdT
354	ugGuGGAcuucucucAAuudTsdT	518	AAUUGAGAGAAGUCcACcAdTsdT
355	AfgGfuAfuGfuUfgCfcCfgUfuUfgAf(invdT)	519	pdTCfaAfaCfgGfgCfaAfcAfuAfcCfudTsdT
356	cuGcucGuGuuuAcAGGcGGdTsdT	520	CCGCCUGuAAcACGAGcAGdTsdT
357	uauGuuGcccGuuuGuccudTsdT	521	AGGAcAAACGGGcAAcAuAdTsdT
358	ucAAGGuAuGuuGcccGuudTsdT	522	AACGGGcAAcAuACCUUGAdTsdT
359	ucuuAucAAcAcuuccGGAdTsdT	523	UCCGGAAGUGUUGAuAAGAdTsdT
360	UfcUfuAfuCfaAfcAfcUfuCfcGfgAf(invdT)	524	pdTCfcGfgAfaGfuGfuUfgAfuAfaGfadTsdT
361	caccucuGccuAAucAucudTsdT	525	AGAUGAUuAGGcAGAGGUGdTsdT
362	auAAGAGGAcucuuGGAcudTsdT	526	AGUCcAAGAGUCCUCUuAUdTsdT
363	GfuCfuGfcGfgCfgUfuUfuAfuCfaAf(invdT)	527	pdTUfgAfuAfaAfaCfgCfcGfcAfgAfcdTsdT
364	ggcGcuGAAucccGcGGAcdTsdT	528	GUCCGCGGGAUUcAGCGCCdTsdT
365	cgcGucGcAGAAGAucucAdTsdT	529	UGAGAUCUUCUGCGACGCGdTsdT
366	aauGucAAcGAccGAccuudTsdT	530	AAGGUCGGUCGUUGAcAUUdTsdT
367	gcucAGuuuAcuAGuGccAdTsdT	531	UGGcACuAGuAAACUGAGCdTsdT
368	UfgGfuGfgAfcUfuCfuCfuCfaAfuAf(invdT)	532	pdTAfuUfgAfgAfgAfaGfuCfcAfcCfadTsdT
369	aucGccGcGucGcAGAAGAdTsdT	533	UCUUCUGCGACGCGGCGAUdTsdT
370	gccAuuuGuucAGuGGuucdTsdT	534	GAACcACUGAACAAAUGGCdTsdT
371	cgAuccAuAcuGcGGAAcudTsdT	535	AGUUCCGcAGuAUGGAUCGdTsdT
372	ucAccucuGccuAAucAucdTsdT	536	GAUGAUuAGGcAGAGGUGAdTsdT
373	guGGAcuucucucAAuuuudTsdT	537	AAAAUUGAGAGAAGUCcACdTsdT
374	ggGucAccAuAuucuuGGGdTsdT	538	CCcAAGAAuAUGGUGACCCdTsdT
375	gccGcGucGcAGAAGAucudTsdT	539	AGAUCUUCUGCGACGCGGCdTsdT
376	ucAAucGccGcGucGcAGAdTsdT	540	UCUGCGACGCGGCGAUUGAdTsdT

FIG. 5 (Continued)

377	ugGAuGuGucuGcGGcGuudTsdT	541	AACGCCGcAGAcAcAUCcAdTsdT
378	uacuGuucAAGccuccAAGdTsdT	542	CUUGGAGGCUUGAAcAGuAdTsdT
379	guuuAcuAGuGccAuuuGudTsdT	543	AcAAAUGGcACuAGuAAACdTsdT
380	acuAGuGccAuuuGuucAGdTsdT	544	CUGAAcAAAUGGcACuAGUdTsdT
381	ccGcGucGcAGAAGAucucdTsdT	545	GAGAUCUUCUGCGACGCGGdTsdT
382	uaucuuAucAAcAcuuccGdTsdT	546	CGGAAGUGUUGAuAAGAuAdTsdT
383	ggccAAAAuuuGcAGucccdTsdT	547	GGGACUGCGAAUUUUGGCCdTsdT
384	uucAccucuGccuAAucAudTsdT	548	AUGAUuAGGcAGAGGUGAAdTsdT
385	cucAGuuuAcuAGuGccAudTsdT	549	AUGGcACuAGuAAACUGAGdTsdT
386	uguuGccGuuuGucccucudTsdT	550	AGAGGAcAAACGGGcAAcAdTsdT
387	uaGuGccAuuuGuucAGuGdTsdT	551	cACUGAAcAAAUGGcACuAdTsdT
388	agGcuGuAGGcAuAAAuuGdTsdT	552	cAAUUuAUGCCuAcAGCCUdTsdT
389	auGuGucuGcGGcGuuuuAdTsdT	553	uAAAACGCCGcAGAcAcAUdTsdT
390	AfuGfuGfuCfuGfcGfgCfgUfuUfuAf(invdT)	554	pdTAfaAfaCfgCfcGfcAfgAfcAfcAfudTsdT
391	acuucGcuucAccucuGcAdTsdT	555	UGcAGAGGUGAAGCGAAGUdTsdT
392	cguGuGcAcuucGcuucAcdTsdT	556	GUGAAGCGAAGUGcAcACGdTsdT
393	guGGuGGAcuucucucAAudTsdT	557	AUUGAGAGAAGUCcACcACdTsdT
394	uguGucuGcGGcGuuuuAudTsdT	558	AuAAAACGCCGcAGAcAcAdTsdT
395	aaGGuAuGuuGcccGuuuGdTsdT	559	cAAACGGGcAAcAuACCUUdTsdT
396	ucAAcGAccGAccuuGAGGdTsdT	560	CCUcAAGGUCGGUCGUUGAdTsdT
397	cauAAGAGGAcucuuGGAcdTsdT	561	GUCcAAGAGUCCUCUuAUGdTsdT
398	gucAAcGAccGAccuuGAGdTsdT	562	CUcAAGGUCGGUCGUUGACdTsdT
399	auAuucuuGGGAAcAAGAGdTsdT	563	CUCUUGUUCCcAAGAAuAUdTsdT
400	ugcucGuGuuAcAGGcGGGdTsdT	564	CCCGCCUGuAAcACGAGcAdTsdT
401	caAucGccGcGucGcAGAAdTsdT	565	UUCUGCGACGCGGCGAUUGdTsdT
402	acuGuucAAGccuccAAGcdTsdT	566	GCUUGGAGGCUUGAAcAGUdTsdT
403	cgccGcGucGcAGAAGAucdTsdT	567	GAUCUUCUGCGACGCGGCGdTsdT
404	cauuuGuucAGuGGuucGucdTsdT	568	ACGAACcACUGAAcAAAUGdTsdT
405	cgcuGAAucccGcGGAcGAdTsdT	569	UCGUCCGCGGGAUUcAGCGdTsdT
406	ugGGucAccAuAuucuuGGdTsdT	570	CcAAGAAuAUGGUGACCcAdTsdT
407	uccucuGccGAuccAuAcudTsdT	571	AGuAUGGAUCGGcAGAGGAdTsdT
408	auGucAAcGAccGAccuuGdTsdT	572	cAAGGUCGGUCGUUGAcAUdTsdT

FIG. 5 (Continued)

409	ccucuGccuAAucAucucAdTsdT	573	UGAGAUGAUuAGGcAGAGGdTsdT
410	accGuGuGcAcuucGcuucdTsdT	574	GAAGCGAAGUGcAcACGGUdTsdT
411	ugccGAuccAuAcuGcGGAdTsdT	575	UCCGcAGuAUGGAUCGGcAdTsdT
412	caGAGucuAGAcucGuGGudTsdT	576	ACcACGAGUCuAGACUCUGdTsdT
413	cuGuucAAGccuccAAGcudTsdT	577	AGCUUGGAGGCUUGAAcAGdTsdT
414	ggAGGcuGuAGGcAuAAAudTsdT	578	AUUuAUGCCuAcAGCCUCCdTsdT
415	agGAGGcuGuAGGcAuAAAdTsdT	579	UUuAUGCCuAcAGCCUCCUdTsdT
416	gguGGAcuucucucAAuuudTsdT	580	AAAUUGAGAGAAGUCcACCdTsdT
417	gcAAcuuuuucAccucuGcdTsdT	581	GcAGAGGUGAAAAAGUUGCdTsdT
418	CfuGfcUfcGfuGfuUfaCfaGfgCfgAf(invdT)	582	pdTCfgCfcUfgUfaAfcAfcGfaGfcAfgdTsdT
419	cuAGuGccAuuuGuucAGudTsdT	583	ACUGAACAAAUGGcACuAGdTsdT
420	cuGccGAuccAuAcuGcGGdTsdT	584	CCGcAGuAUGGAUCGGcAGdTsdT
421	guGuGcAcuucGcuucAccdTsdT	585	GGUGAAGCGAAGUGcAcACdTsdT
422	gcucGuGuuAcAGGcGGGcdTsdT	586	GCCCGCCUGuAAcACGAGCdTsdT
423	ccuAucuuAucAACAcuucdTsdT	587	GAAGUGUUGAuAAGAuAGGdTsdT
424	ucucAAucGccGcGucGcAdTsdT	588	UGCGACGCGGCGAUUGAGAdTsdT
425	gccGucuGuGccuucucAdTsdT	589	UGAGAAGGcAcAGACGGGCdTsdT
426	cuAucuuAucAACAcuucdTsdT	590	GGAAGUGUUGAuAAGAuAGdTsdT
427	auGuuGcccGuuuGucccdTsdT	591	GAGGAcAAACGGGcAAcAUdTsdT
428	guAuGuuGcccGuuuGucdTsdT	592	GGAcAAACGGGcAAcAuACdTsdT
429	cuucGcuucAccucuGcAcdTsdT	593	GUGcAGAGGUGAAGCGAAGdTsdT
430	uguGcAcuucGcuucAccudTsdT	594	AGGUGAAGCGAAGUGcAcAdTsdT
431	gccAAAAuucGcAGcccGdTsdT	595	CGGGACUGCGAAUUUUGGCdTsdT
432	ccuGcucGuGuuAcAGGcGdTsdT	596	CGCCUGuAAcACGAGcAGGdTsdT
433	ugGAGuGuGGAuucGcAcudTsdT	597	AGUGCGAAUCcAcACUCcAdTsdT
434	aacGAccGAccuuGAGGcAdTsdT	598	UGCCUcAAGGUCGGUCGUUdTsdT
435	acAGAGucuAGAcucGuGGdTsdT	599	CcACGAGUCuAGACUCUGUdTsdT
436	aaucGccGcGucGcAGAAGdTsdT	600	CUUCUGCGACGCGGCGAUUdTsdT
437	gguAuGuuGcccGuuuGucdTsdT	601	GAcAAACGGGcAAcAuACCdTsdT
438	gccGAuccAuAcuGcGGAAdTsdT	602	UUCCGcAGuAUGGAUCGGCdTsdT
439	gcccuAucuuAucAACAcudTsdT	603	AGUGUUGAuAAGAuAGGGCdTsdT
440	aguuuAcuAGuGccAuuuGdTsdT	604	cAAAUGGcACuAGuAAACUdTsdT

FIG. 5 (Continued)

441	ugucAAcGAccGAccuuGAdTsdT	609	UcAAGGUCGGUCGUUGAcAdTsdT
442	acuucucucAAuuuucuAGdTsdT	606	CuAGAAAAUUGAGAGAAGUdTsdT
443	gcGcGGGAcGucccuuGucdTsdT	607	GAcAAAGGACGUCCCGCGCdTsdT
444	ucuAGAcucGuGGuGGAcudTsdT	608	AGUCcACcACGAGUCuAGAdTsdT
445	gauccAuAcuGcGGAAcucdTsdT	609	GAGUUCCGcAGuAUGGAUCdTsdT
446	cucuGccGAuccAuAcuGcdTsdT	610	GcAGuAUGGAUCGGcAGAGdTsdT
447	ucuGccGAuccAuAcuGcGdTsdT	611	CGcAGuAUGGAUCGGcAGAdTsdT
448	ccucuGccGAuccAuAcuGdTsdT	612	cAGuAUGGAUCGGcAGAGGdTsdT
449	gcAcucucuuuAcGcGGudTsdT	613	ACCGCGuAAAGAGAGGUGCdTsdT
450	aaGAAcuccccucGccucGcdTsdT	614	GCGAGGCGAGGGAGUUCUUdTsdT
451	gaAcucccucGccucGcAGdTsdT	615	CUGCGAGGCGAGGGAGUUCdTsdT
452	ucucucAAuuuucuAGGGcdTsdT	616	GCCCuAGAAAAUUGAGAGAdTsdT
453	ggGcGcAccucucuuuAcGdTsdT	617	CGuAAAGAGAGGUGCGCCCdTsdT
454	ccGAuccAuAcuGcGGAAcdTsdT	618	GUUCCGcAGuAUGGAUCGGdTsdT
455	aacucccucGccucGcAGAdTsdT	619	UCUGCGAGGCGAGGGAGUUdTsdT
456	cucucuGccGAuccAuAcdTsdT	620	GuAUGGAUCGGcAGAGGAGdTsdT
457	ggAGuGuGGAuucGcAcucdTsdT	621	GAGUGCGAAUCcAcACUCCdTsdT
458	cgGGcGcAccucucuuuAcdTsdT	622	GuAAAGAGAGGUGCGCCCGdTsdT
459	gucucAAucGccGcGucGcdTsdT	623	GCGACGCGGCGAUUGAGACdTsdT
460	auccAuAcuGcGGAAcuccdTsdT	624	GGAGUUCCGcAGuAUGGAUdTsdT
461	cgcAccucucuuuAcGcCGdTsdT	625	CCGCGuAAAGAGAGGUGCGdTsdT
462	caAcGAccGAccuuGAGGcdTsdT	626	GCCUcAAGGUCGGUCGUUGdTsdT
463	ccAuAcuGcGGAAcuccuAdTsdT	627	uAGGAGUUCCGcAGuAUGGdTsdT
464	ugAAuccGcGGAcGAcccdTsdT	628	GGGUCGUCCGCGGGAUUcAdTsdT
465	agAAcuccccucGccucGcAdTsdT	629	UGCGAGGCGAGGGAGUUCUdTsdT
466	ggcGcAccucucuuuAcGcdTsdT	630	GCGuAAAGAGAGGUGCGCCdTsdT
467	gcGcAccucucuuuAcGcGdTsdT	631	CGCGuAAAGAGAGGUGCGCdTsdT
468	gcuGAAucccGcGGAcGAcdTsdT	632	GUCGUCCGCGGGAUUcAGCdTsdT
469	cacuuCGcuucAccucuGcdTsdT	633	GcAGAGGUGAAGCGAAGUGdTsdT
470	cucAAucGccGcGucGcACdTsdT	634	CUGCGACGCGGCGAUUGAGdTsdT
471	ucccGucGGcGcuGAAucCdTsdT	635	GGAUUcAGCGCCGACGGGAdTsdT
472	cuGAAucccGcGGAcGAccdTsdT	636	GGUCGUCCGCGGGAUUcAGdTsdT

473	agAGucuAGAcucGuGGuGdTsdT	637	cACcACGAGUCuAGACUCUdTsdT
474	uccAuAcuGcGGAAcuccudTsdT	638	AGGAGUUCCGcAGuAUGGAdTsdT
475	gcGcuGAAucccGcGGAcGdTsdT	639	CGUCCGCGGGAUUcAGCGCdTsdT
476	aguGuGGAuucGcAcuccudTsdT	640	AGGAGUGCGAAUCcAcACUdTsdT
477	cccuGcucGuGuuAcAGGcdTsdT	641	GCCUGuAAcACGAGcAGGGdTsdT
478	gaAucccGcGGAcGAcccGdTsdT	642	CGGGUCGUCCGCGGGAUUCdTsdT
479	aaGcuGuGcauuGGGuGGcdTsdT	643	GCcACCcAAGGcAcAGCUUdTsdT
480	gcccuGcucGuGuuAcAGGdTsdT	644	CCUGuAAcACGAGcAGGGCdTsdT
481	gucccGucGGcGcuGAAucdTsdT	645	GAUUcAGCGCCGACGGGACdTsdT
482	aucuuAucAAcAcuucccGGdTsdT	646	CCGGAAGUGUUGAuAAGAUdTsdT
483	cuuAucAAcAcuucccGGAAdTsdT	647	UUCCGGAAGUGUUGAuAAGdTsdT

FIG. 5 (Continued)

Table 4. Core sequences of dsRNAs targeting HBV gene and their modified counterparts from US20130005793

core sequence				modified sequence			
SEQ ID No.	sense strand sequence (5'-3')	SEQ ID No.	antisense strand sequence (5'-3')	SEQ ID No.	sense strand sequence (5'-3')	SEQ ID No.	antisense strand sequence (5'-3')
1	CAAGGUAUGUUGCCCG UUU	157	AAACGGGCAACAUACCUUG	321	csAGGuAuGuuGcccGuuu dTsdT	485	AAACGGGcAAcAuACCUUGd TsdT
2	CUGUAGGCAUAAAUUG GUA	158	TACCAAUUUAUGCCUACAG	322	CfuGfuAfgGfcAfuAfaAfu UfgGfuAf(invdT)	486	pdTAfcCfaAfuUfuAfuGfcCfu Afc.AfgdTsdT
3	UCUGCGGCGUUUUAUC AUA	159	UAUGAUAAAACGCCGCAGA	323	ucuGcGGcGuuuuAucAuA dTsdT	487	uAUGAuAAAACGCCGcAGAd TsdT
3	UCUGCGGCGUUUUAUC AUA	160	TAUCAUAAAACGCCGCAGA	324	UfcUfgCfgGfcGfuUfuUfa UfcAfuAf(invdT)	488	pdTAfuGfaUfaAfaAfcGfcCfg CfaGfadTsdT
4	ACCUCUGCCUAAUCAUC UC	161	GAGAUGAUUAGGCAGAGG U	325	accucuGccuAAucAucucd TsdT	489	GAGAUGAUuAGGcAGAGGU dTsdT
5	UUUACUAGUGCCAUUU GUA	162	TACAAAUGGCACUAGUAAA	326	UfuUfaCfuAfgUfgCfcAfu UfuGfuAf(invdT)	490	pdTAfcAfaAfuGfgCfaCfuAfg UfaAfadTsdT
6	ACCUCUGCCUAAUCAUC UA	163	TAGAUGAUUAGGCAGAGGU	327	AfcCfuCfuGfcCfuAfaUfcA fuCfuAf(invdT)	491	pdTAfgAfuGfaUfuAfgGfcAfg AfgGfudTsdT
7	CUGUAGGCAUAAAUUG GUC	164	GACCAAUUUAUGCCUACAG	328	cuGuAGGcAuAAAuuGGu cdTsdT	492	GACcAAUUuAUGCCuAcAGd TsdT
8	UGUCUGCGGCGUUUUA UCA	165	UGAUAAAACGCCGCAGACA	329	ugucuGcGGcGuuuuAucA dTsdT	493	UGAuAAAACGCCGcAGAcAd TsdT
8	UGUCUGCGGCGUUUUA UCA	166	TGAUAAAACGCCGCAGACA	330	UfgUfcUfgCfgGfcGfuUfu UfaUfcAf(invdT)	494	pdTGfaUfaAfaAfcGfcCfgCfa GfaCfadTsdT
9	UACUAGUGCCAUUUGU UCA	167	UGAACAAAUGGCACUAGUA	331	uacuAGuGccAuuuGuucA dTsdT	495	UGAAcAAAUGGcACuAGuAd TsdT
9	UACUAGUGCCAUUUGU UCA	168	TGAACAAAUGGCACUAGUA	332	UfaCfuAfgUfgCfcAfuUfu GfuUfcAf(invdT)	496	pdTGfaAfcAfaAfuGfgCfaCfu AfgUfadTsdT
10	CAACUUUUUCACCUCUG CA	169	TGCAGAGGUGAAAAAGUUG	333	CfaAfcUfuUfuUfcAfcCfuC fuGfcAf(invdT)	497	pdTGfcAfgAfgGfuGfaAfaAfa GfuUfgdTsdT

FIG. 6

11	CCAUUUGUUCAGUGGU UCG	170	CGAACCACUGAACAAAUGG	334	ccAuuuGuucAGuGGuucGdTsdT	498	CGAACcACUGAACAAAUGGdTsdT
12	CCAAGUGUUUGCUGAC GCA	171	UGCGUCAGCAAACACUUGG	335	scAAGuGuuuuGcuGAcGcAdTsdT	499	UGCGUcAGcAAAcACUUGGdTsdT
12	CCAAGUGUUUGCUGAC GCA	172	TGCGUCAGCAAACACUUGG	336	CfcAfaGfuGfuUfuGfcUfgAfcGfcAf(invdT)	500	pdTGfcGfuCfaGfcAfaAfcAfcUfuGfgdTsdT
13	CCAUUUGUUCAGUGGU UCA	173	TGAACCACUGAACAAAUGG	337	CfcAfuUfuGfuUfcAfgUfgGfuUfcAf(invdT)	501	pdTGfaAfcCfaCfuGfaAfcAfaAfuGfgdTsdT
14	UUUACUAGUGCCAUUU GUU	174	AACAAAUGGCACUAGUAAA	338	uuuAcuAGuGccAuuuGuudTsdT	502	AAcAAAUGGcACuAGuAAAdTsdT
15	CACCUCUGCCUAAUCAU CA	175	TGAUGAUUAGGCAGAGGU G	339	CfaCfcUfcUfgCfcUfaAfuCfaUfcAf(invdT)	503	pdTGfaUfgAfuUfaGfgCfaGfaGfgUfgdTsdT
16	CUGGCUCAGUUUACUA GUG	176	CACUAGUAAACUGAGCCAG	340	cuGGcucAGuuuAcuAGuGdTsdT	504	CACuAGuAAACUGAGCcAGdTsdT
17	CAAGGUAUGUUGCCCG UUA	177	TAACGGGCAACAUACCUUG	341	CfaAfgGfuAfuGfuUfgCfcCfgUfuAf(invdT)	505	pdTAfaCfgGfgCfaAfcAfuAfcCfuUfgdTsdT
18	CUGGCUCAGUUUACUA GUA	178	TACUAGUAAACUGAGCCAG	342	CfuGfgCfuCfaGfuUfuAfcUfaGfuAf(invdT)	506	pdTAfcUfaGfuAfaAfcUfgAfgCfcAfgdTsdT
19	GAGGCUGUAGGCAUAA AUU	179	AAUUUAUGCCUACAGCCUC	343	gaGGcuGuAGGcAuAAAuudTsdT	507	AAUUuAUGCCuAcAGCCUCdTsdT
20	CAGUUUACUAGUGCCAU UU	180	AAAUGGCACUAGUAAACUG	344	caGuuuAcuAGuGccAuuudTsdT	508	AAAUGGcACuAGuAAACUGdTsdT
21	AGGUAUGUUGCCCGUU UGU	181	ACAAACGGGCAACAUACCU	345	agGuAuGuuGcccGuuuGudTsdT	509	AcAAACGGGcAAcAuACCUdTsdT
22	UAUGUUGCCCGUUUGU CCA	182	UGGACAAACGGGCAACAUA	346	UfaUfgUfuGfcCfcGfuUfuGfuCfcAf(invdT)	510	pdTGfgAfcAfaAfcGfgGfcAfaCfaUfadTsdT
23	GAGGCUGUAGGCAUAA AUA	183	TAUUUAUGCCUACAGCCUC	347	GfaGfgCfuGfuAfgGfcAfuAfaAfuAf(invdT)	511	pdTAfuUfuAfuGfcCfuAfcAfgCfcUfcdTsdT
24	GUCUGCGGCGUUUUAU CAU	184	AUGAUAAAACGCCGCAGAC	348	gucuGcGGcGuuuuAucAudTsdT	512	AUGAuAAAACGCCGcAGACdTsdT
25	CAACUUUUUCACCUCUG CC	185	GGCAGAGGUGAAAAAGUU G	349	caAcuuuuuuCAccucuGccdTsdT	513	GGcAGAGGUGAAAAAGUUGdTsdT

FIG. 6 (Continued)

26	CCGUGUGCACUUCGCUUCA	186	UGAAGCGAAGUGCACACGG	350	ccGuGuGcAcuucGcuucAdTsdT	514	UGAAGCGAAGUGcAcACGGdTsdT
26	CCGUGUGCACUUCGCUUCA	187	UGAAGCGAAGUGCACACGG	351	CfcGfuGfuGfcAfcUfuCfgCfuUfcAf(invdT)	515	pdTGfaAfgCfgAfaGfuGfcAfcAfcGfgdTsdT
27	UCAAGGUAUGUUGCCCGUA	188	UACGGGCAACAUACCUUGA	352	UfcAfaGfgUfaUfgUfuGfcCfcGfuAf(invdT)	516	pdTAfcGfgGfcAfaCfaUfaCfcUfuGfadTsdT
28	CAGUUUACUAGUGCCAUUA	189	UAAUGGCACUAGUAAACUG	353	CfaGfuUfuAfcUfaGfuGfcCfaUfuAf(invdT)	517	pdTAfaUfgGfcAfcUfaGfuAfaAfcUfgdTsdT
29	UGGUGGACUUCUCUCAAUU	190	AAUUGAGAGAAGUCCACCA	354	ugGuGGAcuucucucAAuudTsdT	518	AAUUGAGAGAAGUCCACCAdTsdT
30	AGGUAUGUUGCCCGUUUGA	191	UCAAACGGGCAACAUACCU	355	AfgGfuAfuGfuUfgCfcCfgUfuUfgAf(invdT)	519	pdTCfaAfaCfgGfgCfaAfcAfuAfcCfudTsdT
31	CUGCUCGUGUUACAGGCGG	192	CCGCCUGUAACACGAGCAG	356	cuGcucGuGuuAcAGGcGGdTsdT	520	CCGCCUGuAAcACGAGcAGdTsdT
32	UAUGUUGCCCGUUUGUCCU	193	AGGACAAACGGGCAACAUA	357	uauGuuGcccGuuuGucCudTsdT	521	AGGAcAAACGGGcAAcAuAdTsdT
33	UCAAGGUAUGUUGCCCGUU	194	AACGGGCAACAUACCUUGA	358	ucAAGGuAuGuuGcccGuudTsdT	522	AACGGGcAAcAuACCUUGAdTsdT
34	UCUUAUCAACACUUCCGGA	195	UCCGGAAGUGUUGAUAAGA	359	ucuuAucAAcAcuucCGGAdTsdT	523	UCCGGAAGUGUUGAuAAGAdTsdT
34	UCUUAUCAACACUUCCGGA	196	UCCGGAAGUGUUGAUAAGA	360	UfcCfuAfuCfaAfcAfcUfuCfcGfgAf(invdT)	524	pdTCfcGfgAfaGfuGfuUfgAfuAfaGfadTsdT
35	CACCUCUGCCUAAUCAUCU	197	AGAUGAUUAGGCAGAGGUG	361	cAccucuGccuAAucAucudTsdT	525	AGAUGAUuAGGcAGAGGUGdTsdT
36	AUAAGAGGACUCUUGGACU	198	AGUCCAAGAGUCCUCUNAU	362	auAAGAGGAcucuuGGAcudTsdT	526	AGUCcAAGAGUCCUCUuAUdTsdT
37	GUCUGCGGCGUUUUAUCAA	199	UUGAUAAAACGCCGCAGAC	363	GfuCfuGfcGfgCfgUfuUfuAfuCfaAf(invdT)	527	pdTUfgAfuAfaAfaCfgCfcGfcAfgAfcdTsdT
38	GGCGCUGAAUCCCGCGGAC	200	GUCCGCGGGAUUCAGCGCC	364	ggcGcuGAAuccGcGGAcdTsdT	528	GUCCGCGGGAUUcAGCGCCdTsdT
39	CGCGUCGCAGAAGAUCUCA	201	UGAGAUCUUCUGCGACGCG	365	cgcGucGcAGAAGAucucAdTsdT	529	UGAGAUCUUCUGCGACGCGdTsdT

FIG. 6 (Continued)

40	AAUGUCAACGACCGACCUU	202	AAGGUCGGUCGUUGACAUU	366	aauGucAAcGAccGAccuudTsdT	530	AAGGUCGGUCGUUGAcAUUdTsdT
41	GCUCAGUUUACUAGUGCCA	203	UGGCACUAGUAAACUGAGC	367	gcucAGuuuAcuAGuGccAdTsdT	531	UGGcACuAGuAAACUGAGCdTsdT
42	UGGUGGACUUCUCUCAAUA	204	UAUUGAGAGAAGUCCACCA	368	UfgGfuGfgAfcUfuCfuCfuCfaAfuAf[invdT]	532	pdTAfuUfgAfgAfgAfaGfuCfcAfcCfadTsdT
43	AUCGCCGCGUCGCAGAAGA	205	UCUUCUGCGACGCGGCGAU	369	aucGccGcGucGcAGAAGAdTsdT	533	UCUUCUGCGACGCGGCGAUdTsdT
44	GCCAUUUGUUCAGUGGUUC	206	GAACCACUGAACAAAUGGC	370	gccAuuuGuucAGuGGuucdTsdT	534	GAACcACUGAAcAAAUGGCdTsdT
45	CGAUCCAUACUGCGGAACU	207	AGUUCCGCAGUAUGGAUCG	371	cgAuccAuAcuGcGGAAcudTsdT	535	AGUUCCGcAGuAUGGAUCGdTsdT
46	UCACCUCUGCCUAAUCAUC	208	GAUGAUUAGGCAGAGGUGA	372	ucAccucuGccuAAucAucdTsdT	536	GAUGAUuAGGcAGAGGUGAdTsdT
47	GUGGACUUCUCUCAAUUGU	209	AAAAUUGAGAGAAGUCCAC	373	guGGAcuucucucAAuuuudTsdT	537	AAAAUUGAGAGAAGUCcACdTsdT
48	GGGUCACCAUAUUCUUGGG	210	CCCAAGAAUAUGGUGACCC	374	ggGucAccAuAuucuuGGGdTsdT	538	CCcAAGAAuAUGGUGACCCdTsdT
49	GCCGCGUCGCAGAAGAUCU	211	AGAUCUUCUGCGACGCGGC	375	gccGcGucGcAGAAGAucudTsdT	539	AGAUCUUCUGCGACGCGGCdTsdT
50	UCAAUCGCCGCGUCGCAGA	212	UCUGCGACGCGGCGAUUGA	376	ucAAucGccGcGucGcAGAdTsdT	540	UCUGCGACGCGGCGAUUGAdTsdT
51	UGGAUGUGUCUGCGGCGUU	213	AACGCCGCAGACACAUCCA	377	ugGAuGuGucuGcGGcGuudTsdT	541	AACGCCGcAGAcAcAUCcAdTsdT
52	UACUGUUCAAGCCUCCAAG	214	CUUGGAGGCUUGAACAGUA	378	uacuGuucAAGccuccAAGdTsdT	542	CUUGGAGGCUUGAACAGuAdTsdT
53	GUUUACUAGUGCCAUUUGU	215	ACAAAUGGCACUAGUAAAC	379	guuuAcuAGuGccAuuuGudTsdT	543	AcAAAUGGcACuAGuAAACdTsdT
54	ACUAGUGCCAUUUGUUCAG	216	CUGAACAAAUGGCACUAGU	380	acuAGuGccAuuuGuucAGdTsdT	544	CUGAAcAAAUGGcACuAGUdTsdT
55	CCGCGUCGCAGAAGAUCUC	217	GAGAUCUUCUGCGACGCGG	381	ccGcGucGcAGAAGAucucdTsdT	545	GAGAUCUUCUGCGACGCGGdTsdT

FIG. 6 (Continued)

56	UAUCUUAUCAACACUUC CG	218	CGGAAGUGUUGAUAAGAU A	382	uaucuuAucAAcAcuucCd TsdT	546	CGGAAGUGUUGAuAAGAuA dTsdT
57	GGCCAAAAUUCGCAGUC CC	219	GGGACUGCGAAUUUUGGCC	383	ggccAAAAuucGcAGucccd TsdT	547	GGGACUGCGAAUUUUGGCC dTsdT
58	UUCACCUCUGCCUAAUC AU	220	AUGAUUAGGCAGAGGUGA A	384	uucAccucuGccuAAucAud TsdT	548	AUGAUuAGGcAGAGGUGAA dTsdT
59	CUCAGUUUACUAGUGCC AU	221	AUGGCACUAGUAAACUGAG	385	cucAGuuuAcuAGuGccAu dTsdT	549	AUGGcACuAGuAAACUGAG dTsdT
60	UGUUGCCCGUUUGUCC UCU	222	AGAGGACAAACGGGCAACA	386	uguuGcccGuuuGucccuc ud TsdT	550	AGAGGAcAAACGGGcAACAd TsdT
61	UAGUGCCAUUUGUUCA GUG	223	CACUGAACAAAUGGCACUA	387	uaGuGccAuuuGuucAGu GdTsdT	551	cACUGAAcAAAUGGcACuAd TsdT
62	AGGCUGUAGGCAUAAA UUG	224	CAAUUUAUGCCUACAGCCU	388	agGccGuAGGcAuAAAuu GdTsdT	552	cAAUUuAUGCCuAcAGCCUd TsdT
63	AUGUGUCUGCGGCGUU UUA	225	UAAAACGCCGCAGACACAU	389	auGuGucuGcGGcGuuuu AdTsdT	553	uAAAACGCCGcAGAcAcAUd TsdT
63	AUGUGUCUGCGGCGUU UUA	226	TAAAACGCCGCAGACACAU	390	AfuGfuGfuCfuGfcGfgCfg UfuUfuAf(invdT)	554	pdTAfaAfaCfgCfcGfcAfgAfcA fcAfuGfuTsdT
64	ACUUCGCUUCACCUCUG CA	227	UGCAGAGGUGAAGCGAAGU	391	acuucGcuucAccucuGcAd TsdT	555	UGcAGAGGUGAAGCGAAGU dTsdT
65	CGUGUGCACUUCGCUUC AC	228	GUGAAGCGAAGUGCACACG	392	cguGuGcAcuucGcuucAcd TsdT	556	GUGAAGCGAAGUGcAcACG dTsdT
66	GUGGUGGACUUCUCUC AAU	229	AUUGAGAGAAGUCCACCAC	393	guGGuGGAcuucucucAAu dTsdT	557	AUUGAGAGAAGUCcACcAcd TsdT
67	UGUGUCUGCGGCGUUU UAU	230	AUAAAACGCCGCAGACACA	394	uguGucuGcGGcGuuuuAu dTsdT	558	AuAAAACGCCGcAGAcAcAdT sdT
68	AAGGUAUGUUGCCCGU UUG	231	CAAACGGGCAACAUACCUU	395	aaGGuAuGuuGcccGuuu GdTsdT	559	cAAACGGGcAAcAuACCUUd TsdT
69	UCAACGACCGACCUUGA GG	232	CCUCAAGGUCGGUCGUUGA	396	ucAAcGAccGAccuuGAGG dTsdT	560	CCUcAAGGUCGGUCGUUGA dTsdT
70	CAUAAGAGGACUCUUG GAC	233	GUCCAAGAGUCCUCUUAUG	397	cauAAGAGGAcucuuGGA cdTsdT	561	GUCcAAGAGUCCUCUuAUG dTsdT

FIG. 6 (Continued)

73	GUCAACGACCGACCUUG AG	234	CUCAAGGUCGGUCGUUGAC	398	gucAAcGAccGAccuuGAG dTsdT	562	CUcAAGGUCGGUCGUUGAC dTsdT
72	AUAUUCUUGGGAACAA GAG	235	CUCUUGUUCCCAAGAAUAU	399	auAuucuuGGGAAcAAGA GdTsdT	563	CUCUUGUUCCcAAGAAuAU dTsdT
73	UGCUCGUGUUACAGGC GGG	236	CCCGCCUGUAACACGAGCA	400	ugcucGuGuuAcAGGcGG GdTsdT	564	CCCGCCUGuAAcACGAGcAd TsdT
74	CAAUCGCCGCGUCGCAG AA	237	UUCUGCGACGCGGCGAUUG	401	caAucGccGcGucGcAGAA dTsdT	565	UUCUGCGACGCGGCGAUUG dTsdT
75	ACUGUUCAAGCCUCCAA GC	238	GCUUGGAGGCUUGAACAG U	402	acuGuucAAGccuccAAGc dTsdT	566	GCUUGGAGGCUUGAAcAGU dTsdT
76	CGCCGCGUCGCAGAAGA UC	239	GAUCUUCUGCGACGCGGCG	403	cgccGcGucGcAGAAGAuc dTsdT	567	GAUCUUCUGCGACGCGGCG dTsdT
77	CAUUUGUUCAGUGGUU CGU	240	ACGAACCACUGAACAAAUG	404	cauuuGuucAGuGGuucGu dTsdT	568	ACGAACcACUGAAcAAAUGd TsdT
78	CGCUGAAUCCCGCGGAC GA	241	UCGUCCGCGGGAUUCAGCG	405	cgcuGAAucccGcGGAcGA dTsdT	569	UCGUCCGCGGGAUUcAGCG dTsdT
79	UGGGUCACCAUAUUCU UGG	242	CCAAGAAUAUGGUGACCCA	406	ugGGucAccAuAuucuuGG dTsdT	570	CcAAGAAuAUGGUGACCcAd TsdT
80	UCCUCUGCCGAUCCAUA CU	243	AGUAUGGAUCGGCAGAGGA	407	uccucuGccGAuccAuAcud TsdT	571	AGuAUGGAUCGGcAGAGGA dTsdT
81	AUGUCAACGACCGACCU UG	244	CAAGGUCGGUCGUUGACAU	408	auGucAAcGAccGAccuuG dTsdT	572	cAAGGUCGGUCGUUGAcAU dTsdT
82	CCUCUGCCUAAUCAUCU CA	245	UGAGAUGAUUAGGCAGAG G	409	ccucuGccuAAucAucucAd TsdT	573	UGAGAUGAUuAGGcAGAGG dTsdT
83	ACCGUGUGCACUUCGCU UC	246	GAAGCGAAGUGCACACGGU	410	accGuGuGcAcuucGcuuc dTsdT	574	GAAGCGAAGUGcAcACGGU dTsdT
84	UGCCGAUCCAUACUGCG GA	247	UCCGCAGUAUGGAUCGGCA	411	ugccGAuccAuAcuGcGGA dTsdT	575	UCCGcAGuAUGGAUCGGcA dTsdT
85	CAGAGUCUAGACUCGUG GU	248	ACCACGAGUCUAGACUCUG	412	caGAGucuAGAcucGuGG udTsdT	576	ACcACGAGUCuAGACUCUGd TsdT
86	CUGUUCAAGCCUCCAAG CU	249	AGCUUGGAGGCUUGAACAG	413	cuGuucAAGccuccAAGcu dTsdT	577	AGCUUGGAGGCUUGAAcAG dTsdT

FIG. 6 (Continued)

87	GGAGGCUGUAGGCAUAAAU	250	AUUUAUGCCUACAGCCUCC	414	ggAGGcuGuAGGcAuAAAudTsdT	578	AUUuAUGCCuAcAGCCUCCdTsdT
88	AGGAGGCUGUAGGCAUAAA	251	UUUAUGCCUACAGCCUCCU	415	agGAGGcuGuAGGcAuAAAdTsdT	579	UUuAUGCCuAcAGCCUCCUdTsdT
89	GGUGGACUUCUCUCAAUUU	252	AAAUUGAGAGAAGUCCACC	416	ggusGAcuucucucAAuuudTsdT	580	AAAUUGAGAGAAGUCcACCdTsdT
90	GCAACUUUUUCACCUCUGC	253	GCAGAGGUGAAAAAGUUGC	417	gcAAcuuuuucAccucuGcdTsdT	581	GcAGAGGUGAAAAAGUUGCdTsdT
91	CUGCUCGUGUUACAGGCGA	254	TCGCCUGUAACACGAGCAG	418	CfuGfcUfcGfuGfuUfaCfaGfgC/gAt(invdT)	582	pdTCfgCfcUfgUfaAfcAfcGfaGfcAfgdTsdT
92	CUAGUGCCAUUUGUUCAGU	255	ACUGAACAAAUGGCACUAG	419	cuAGuGccAuuuGuucAGudTsdT	583	ACUGAAcAAAUGGcACuAGdTsdT
93	CUGCCGAUCCAUACUGCGG	256	CCGCAGUAUGGAUCGGCAG	420	cuGccGAuccAuAcuGcGGdTsdT	584	CCGcAGuAUGGAUCGGcAGdTsdT
94	GUGUGCACUUCGCUUCACC	257	GGUGAAGCGAAGUGCACAC	421	guGuGcAcuucGcuucAccdTsdT	585	GGUGAAGCGAAGUGCAcACdTsdT
95	GCUCGUGUUACAGGCGGGC	258	GCCCGCCUGUAACACGAGC	422	gcucGuGuuAcAGGcGGGcdTsdT	586	GCCCGCCUGUAACACGAGCdTsdT
96	CCUAUCUUAUCAACACUUC	259	GAAGUGUUGAUAAGAUAGG	423	ccuAucuuAucAAcAcuucdTsdT	587	GAAGUGUUGAuAAGAuAGGdTsdT
97	UCUCAAUCGCCGCGUCGCA	260	UGCGACGCGGCGAUUGAGA	424	ucucAAucGccGcGucGcAdTsdT	588	UGCGACGCGGCGAUUGAGAdTsdT
98	GCCCGUCUGUGCCUUCUCA	261	UGAGAAGGCACAGACGGGC	425	gcccGucuGuGccuucucAdTsdT	589	UGAGAAGGcACAGACGGGCdTsdT
99	CUAUCUUAUCAACACUUCC	262	GGAAGUGUUGAUAAGAUAG	426	cuAucuuAucAAcAcuucdTsdT	590	GGAAGUGUUGAuAAGAuAGdTsdT
100	AUGUUGCCCGUUUGUCCUC	263	GAGGACAAACGGGCAACAU	427	auGuuGcccGuuuGucCucdTsdT	591	GAGGAcAAACGGGcAAcAUdTsdT
101	GUAUGUUGCCCGUUUGUCC	264	GGACAAACGGGCAACAUAC	428	guAuGuuGcccGuuuGucCdTsdT	592	GGAcAAACGGGcAAcAuACdTsdT
102	CUUCGCUUCACCUCUGCAC	265	GUGCAGAGGUGAAGCGAAG	429	cuucGcuucAccucuGcAcdTsdT	593	GUGcAGAGGUGAAGCGAAGdTsdT

FIG. 6 (Continued)

103	UGUGCACUUCGCUUCAC CU	266	AGGUGAAGCGAAGUGCACA	430	uguGcAcuucGcuucAccud TsdT	594	AGGUGAAGCGAAGUGcAcA dTsdT
104	GCCAAAAUUCGCAGUCC CG	267	CGGGACUGCGAAUUUUGGC	431	gccAAAAuuucGcAGucccG dTsdT	595	CGGGACUGCGAAUUUUGGC dTsdT
105	CCUGCUCGUGUUACAGG CG	268	CGCCUGUAACACGAGCAGG	432	ccuGcucGuGuuAcAGGcG dTsdT	596	CGCCUGuAAcACGAGcAGGd Tsdf
106	UGGAGUGUGGAUUCGC ACU	269	AGUGCGAAUCCACACUCCA	433	ugGaAGuGuGGAuucGcAc udTsdT	597	AGUGCGAAUCCaCaCUCCAd TsdT
107	AACGACCGACCUUGAGG CA	270	UGCCUCAAGGUCGGUCGUU	434	aacGAccGAccuuGAGGcA dTsdT	598	UGCCUcAAGGUCGGUCGUU dTsdT
108	ACAGAGUCUAGACUCGU GG	271	CCACGAGUCUAGACUCUGU	435	acAGAGucuAGAcucGuG GdTsdT	599	CcACGAGUCuAGACUCUGU dTsdT
109	AAUCGCCGCGUCGCAGA AG	272	CUUCUGCGACGCGGCGAUU	436	aauCGccGcGucGcAGAAG dTsdT	600	CUUCUGCGACGCGGCGAUU dTsdT
110	GGUAUGUUGCCCGUUU GUC	273	GACAAACGGGCAACAUACC	437	gguAuGuuGcccGuuuGuc dTsdT	601	GAcAAACGGGcAAcAuACCd Tsdf
111	GCCGAUCCAUACUGCGG AA	274	UUCCGCAGUAUGGAUCGGC	438	gccGAuccAuAcuGcGGAA dTsdT	602	UUCCGcAGuAUGGAUCGGC dTsdT
112	GCCCUAUCUUAUCAACA CU	275	AGUGUUGAUAAGAUAGGG C	439	gcccuAucuuAucAAcAcuud TsdT	603	AGUGUUGAuAAGAuAGGGC dTsdT
113	AGUUUACUAGUGCCAU UUG	276	CAAAUGGCACUAGUAAACU	440	aguuuAcuAGuGccAuuuG dTsdT	604	cAAAUGGcACuAGuAAACUd TsdT
114	UGUCAACGACCGACCUU GA	277	UCAAGGUCGGUCGUUGACA	441	ugucAAcGAccGAccuuGA dTsdT	605	UcAAGGUCGGUCGUUGAcA dTsdT
115	ACUUCUCUCAAUUUUCU AG	278	CUAGAAAAUUGAGAGAAGU	442	acuucucucAAuuuucuAG dTsdT	606	CuAGAAAAUUGAGAGAAGU dTsdT
116	GCGCGGGACGUCCUUU GUC	279	GACAAAGGACGUCCCGCGC	443	gcGcGGGAcGucCuuuGuc dTsdT	607	GAcAAAGGACGUCCCGCGCd Tsdf
117	UCUAGACUCGUGGUGG ACU	280	AGUCCACCACGAGUCUAGA	444	ucuAGAcucGuGGuGGAc udTsdT	608	AGUCcACcACGAGUCuAGAd TsdT
118	GAUCCAUACUGCGGAAC UC	281	GAGUUCCGCAGUAUGGAUC	445	gauccAuAcuGcGGAAcuc dTsdT	609	GAGUUCCGcAGuAUGGAUC dTsdT

FIG. 6 (Continued)

119	CUCUGCCGAUCCAUACU GC	282	GCAGUAUGGAUCGGCAGAG	446	cucuGccGAuccAuAcuGcd TsdT	610	GcAGuAUGGAUCGGcAGAG dTsdT
120	UCUGCCGAUCCAUACUG CG	283	CGCAGUAUGGAUCGGCAGA	447	ucuGccGAuccAuAcuGcG dTsdT	611	CGcAGuAUGGAUCGGcAGA dTsdT
121	CCUCUGCCGAUCCAUAC UG	284	CAGUAUGGAUCGGCAGAGG	448	ccucuGccGAuccAuAcuGd TsdT	612	cAGuAUGGAUCGGcAGAGG dTsdT
122	GCACCUCUCUUUACGCG GU	285	ACCGCGUAAAGAGAGGUGC	449	gcAccucucuuuAcGcGGud TsdT	613	ACCGCGuAAAGAGAGGUGC dTsdT
123	AAGAACUCCCUCGCCUC GC	286	GCGAGGCGAGGGAGUUCU U	450	aaGAAcucccucGccucGcd TsdT	614	GCGAGGCGAGGGAGUUCU UdTsdT
124	GAACUCCCUCGCCUCGC AG	287	CUGCGAGGCGAGGGAGUUC	451	gaAcucccucGccucGcAGd TsdT	615	CUGCGAGGCGAGGGAGUUC dTsdT
125	UCUCUCAAUGUUCUAG GGC	288	GCCCUAGAAAAUUGAGAGA	452	ucucucAAuguucuAGGGc dTsdT	616	GCCCuAGAAAAUUGAGAGA dTsdT
126	GGGCGCACCUCUCUUUA CG	289	CGUAAAGAGAGGUGCGCCC	453	ggGcGcAccucucuuuAcGd TsdT	617	CGuAAAGAGAGGUGCGCCC dTsdT
127	CCGAUCCAUACUGCGGA AC	290	GUUCCGCAGUAUGGAUCGG	454	ccGAuccAuAcuGcGGAAc dTsdT	618	GUUCCGcAGuAUGGAUCGG dTsdT
128	AACUCCCUCGCCUCGCA GA	291	UCUGCGAGGCGAGGGAGU U	455	aacucccucGccucGcAGAd TsdT	619	UCUGCGAGGCGAGGGAGU UdTsdT
129	CUCCUCUGCCGAUCCAU AC	292	GUAUGGAUCGGCAGAGGA G	456	cuccucuGccGAuccAuAcd TsdT	620	GuAUGGAUCGGcAGAGGAG dTsdT
130	GGAGUGUGGAUUCGCA CUC	293	GAGUGCGAAUCCACACUCC	457	ggAGuGuGGAuucGcAcuc dTsdT	621	GAGUGCGAAUCCaCaCUCCd TsdT
131	CGGGCGCACCUCUCUUU AC	294	GUAAAGAGAGGUGCGCCCG	458	cgGGcGcAccucucuuuAcd TsdT	622	GuAAAGAGAGGUGCGCCCG dTsdT
132	GUCUCAAUCGCCGCGUC GC	295	GCGACGCGGCGAUUGAGAC	459	gucucAAucGccGcGucGcd TsdT	623	GCGACGCGGCGAUUGAGAC dTsdT
133	AUCCAUACUGCGGAACU CC	296	GGAGUUCCGCAGUAUGGA U	460	auccAuAcuGcGGAAcucc dTsdT	624	GGAGUUCCGcAGuAUGGAU dTsdT
134	CGCACCUCUCUUUACGC GG	297	CCGCGUAAAGAGAGGUGCG	461	cgcAccucucuuuAcGcGGd TsdT	625	CCGCGuAAAGAGAGGUGCG dTsdT

FIG. 6 (Continued)

135	CAACGACCGACCUUGAGGC	298	GCCUCAAGGUCGGUCGUUG	462	caAcGAccGAccuuGAGGcdTsdT	626	GCCUcAAGGUCGGUCGUUGdTsdT
136	CCAUACUGCGGAACUCCUA	299	UAGGAGUUCCGCAGUAUGG	463	ccAuAcuGcGGAAcuccuAdTsdT	627	uAGGAGUUCCGcAGuAUGGdTsdT
137	UGAAUCCCGCGGACGACCC	300	GGGUCGUCCGCGGGAUUCA	464	ugAAuccCGcGGAcGAccdTsdT	628	GGGUCGUCCGCGGGAUUcAdTsdT
138	AGAACUCCCUCGCCUCGCA	301	UGCGAGGCGAGGGAGUUCU	465	agAAcuccCucGccucGcAdTsdT	629	UGCGAGGCGAGGGAGUUCUdTsdT
139	GGCGCACCUCUCUUUACGC	302	GCGUAAAGAGAGGUGCGCC	466	ggcGcAccucucuuuAcGcgTsdT	630	GCGuAAAGAGAGGUGCGCCdTsdT
140	GCGCACCUCUCUUUACGCG	303	CGCGUAAAGAGAGGUGCGC	467	gcGcAccucucuuuAcGcGdTsdT	631	CGCGuAAAGAGAGGUGCGCdTsdT
141	GCUGAAUCCCGCGGACGAC	304	GUCGUCCGCGGGAUUCAGC	468	gcuGAAuccCGcGGAcGAcdTsdT	632	GUCGUCCGCGGGAUUcAGCdTsdT
142	CACUUCGCUUCACCUCUGC	305	GCAGAGGUGAAGCGAAGUG	469	cacuucGcuucAccucuGcdTsdT	633	GcAGAGGUGAAGCGAAGUGdTsdT
143	CUCAAUCGCCGCGUCGCAG	306	CUGCGACGCGGCGAUUGAG	470	cucAAucGccGcGucGcAGdTsdT	634	CUGCGACGCGGCGAUUGAGdTsdT
144	UCCCGUCGGCGCUGAAUCC	307	GGAUUCAGCGCCGACGGGA	471	ucccGucGGcGcuGAAucc dTsdT	635	GGAUUcAGCGCCGACGGGAdTsdT
145	CUGAAUCCCGCGGACGACC	308	GGUCGUCCGCGGGAUUCAG	472	cuGAAuccCGcGGAcGAccdTsdT	636	GGUCGUCCGCGGGAUUcAGdTsdT
146	AGAGUCUAGACUCGUGGUG	309	CACCACGAGUCUAGACUCU	473	agAGucuAGAcucGuGGudTsdT	637	cACcACGAGUCuAGACUCUdTsdT
147	UCCAUACUGCGGAACUCCU	310	AGGAGUUCCGCAGUAUGGA	474	uccAuAcuGcGGAAcuccu dTsdT	638	AGGAGUUCCGcAGuAUGGAdTsdT
148	GCGCUGAAUCCCGCGGACG	311	CGUCCGCGGGAUUCAGCGC	475	gcGcuGAAuccCGcGGAcGdTsdT	639	CGUCCGCGGGAUUcAGCGCdTsdT
149	AGUGUGGAUUCGCACUCCU	312	AGGAGUGCGAAUCCACACU	476	aguGuGGAuucGcAcuccu dTsdT	640	AGGAGUGCGAAUCcAcACUdTsdT
150	CCCUGCUCGUGUUACAGGC	313	GCCUGUAACACGAGCAGGG	477	ccuGcucGuGuuAcAGGc dTsdT	641	GCCUGuAAcACGAGcAGGGdTsdT

151	GAAUCCCGCGGACGACCCG	314	CGGGUCGUCCGCGGGAUUC	478	gaAuccCGcGGAcGAcccGdTsdT	642	CGGGUCGUCCGCGGGAUUCdTsdT
152	AAGCUGUGCCUUGGGUGGC	315	GCCACCCAAGGCACAGCUU	479	aaGcuGuGccuuGGGuGGcdTsdT	643	GCcACCcAAGGcAcAGCUUdTsdT
153	GCCCUGCUCGUGUUACAGG	316	CCUGUAACACGAGCAGGGC	480	gcccuGcucGuGuuAcAGGdTsdT	644	CCUGuAAcACGAGcAGGGCdTsdT
154	GUCCCGUCGGCGCUGAAUC	317	GAUUCAGCGCCGACGGGAC	481	gucccGucGGcGcuGAAucdTsdT	645	GAUUcAGCGCCGACGGGACdTsdT
155	AUCUUAUCAACACUUCCGG	318	CCGGAAGUGUUGAUAAGAU	482	aucuuAucAAcAcuuccGGdTsdT	646	CCGGAAGUGUUGAuAAGAUdTsdT
156	CUUAUCAACACUUCCGGAA	319	UUCCGGAAGUGUUGAUAAG	483	cuuAucAAcAcuuccGGAAdTsdT	647	UUCCGGAAGUGUUGAuAAGdTsdT
156	CUUAUCAACACUUCCGGAA	320	TUCCGGAAGUGUUGAUAAG	484	CfuUfaUfcAfaCfaCfuUfcCfgGfaAf(invdT)	648	pdTUfcCfgGfaAfgUfgUfuGfaUfaAfgdTsdT

FIG. 6 (Continued)

Table 5. Example 19-mer HBV cDNA target sequences for HBV dsRNA agents, taken from HBV subtype ADW2, genotype A, complete genome GenBank AM282986.1 from WO2018027106

SEQ ID No.	HBV 19-mer Target Sequences (5' → 3')	Genome Position of SEQ ID NO: 1	Region of HBV Gene Targeted
2	GTGGTGGACTTCTCTCAAT	256-274	S ORF
3	TGGTGGACTTCTCTCAATT	257-275	S ORF
4	GGACTTCTCTCAATTTTCT	261-279	S ORF
5	GCTGTAGGCATAAATTGGT	1780-1798	X ORF
6	CTGTAGGCATAAATTGGTC	1781-1799	X ORF

FIG. 7

Table 6. HBV RNAi agent antisense and sense strand core stretch sequences WO2018027106 (N = any nucleotide)

SEQ ID NO:	Antisense Sequence (5' → 3') (19-mer)	SEQ ID NO:	Sense Sequence (5' → 3') (19-mer)	Genome Position of SEQ ID NO: 1
7	AUUGAGAGAAGUCCACCAC	34	GUGGUGGACUUCUCUCAAU	256-274
8	UUUGAGAGAAGUCCACCAC	35	GUGGUGGACUUCUCUCAAA	256-274
9	AUUGAGAGAAGUCCACCAN	36	NUGGUGGACUUCUCUCAAU	256-274
10	UUUGAGAGAAGUCCACCAN	37	NUGGUGGACUUCUCUCAAA	256-274
11	NUUGAGAGAAGUCCACCAN	38	NUGGUGGACUUCUCUCAAN	256-274
12	AAUUGAGAGAAGUCCACCA	39	UGGUGGACUUCUCUCAAUU	257-275
13	UAUUGAGAGAAGUCCACCA	40	UGGUGGACUUCUCUCAAUA	257-275
14	AAUUGAGAGAAGUCCACCN	41	NGGUGGACUUCUCUCAAUU	257-275
15	UAUUGAGAGAAGUCCACCN	42	NGGUGGACUUCUCUCAAUA	257-275
16	NAUUGAGAGAAGUCCACCN	43	NGGUGGACUUCUCUCAAUN	257-275
17	AGAAAAUUGAGAGAAGUCC	44	GGACUUCUCUCAAUUUUCU	261-279
18	UGAAAAUUGAGAGAAGUCC	45	GGACUUCUCUCAAUUUUCA	261-279
19	AGAAAAUUGAGAGAAGUCN	46	NGACUUCUCUCAAUUUUCU	261-279
20	UGAAAAUUGAGAGAAGUCN	47	NGACUUCUCUCAAUUUUCA	261-279
21	NGAAAAUUGAGAGAAGUCN	48	NGACUUCUCUCAAUUUUCN	261-279
22	ACCAAUUUAUGCCUACAGC	49	GCUGUAGGCAUAAAUUGGU	1780-1798
23	UCCAAUUUAUGCCUACAGC	50	GCUGUAGGCAUAAAUUGGA	1780-1798
24	ACCAAUUUAUGCCUACAGN	51	NCUGUAGGCAUAAAUUGGU	1780-1798
25	UCCAAUUUAUGCCUACAGN	52	NCUGUAGGCAUAAAUUGGA	1780-1798
26	NCCAAUUUAUGCCUACAGN	53	NCUGUAGGCAUAAAUUGGN	1780-1798
27	GACCAAUUUAUGCCUACAG	54	CUGUAGGCAUAAAUUGGUC	1781-1799
28	AACCAAUUUAUGCCUACAG	55	CUGUAGGCAUAAAUUGGUU	1781-1799
29	UACCAAUUUAUGCCUACAG	56	CUGUAGGCAUAAAUUGGUA	1781-1799

SEQ ID NO:	Antisense Sequence (5' → 3') (19-mer)	SEQ ID NO:	Sense Sequence (5' → 3') (19-mer)	Genome Position of SEQ ID NO: 1
30	GACCAAUUUAUGCCUACAN	57	NUGUAGGCAUAAAUUGGUC	1781-1799
31	AACCAAUUUAUGCCUACAN	58	NUGUAGGCAUAAAUUGGUU	1781-1799
32	UACCAAUUUAUGCCUACAN	59	NUGUAGGCAUAAAUUGGUA	1781-1799
33	NACCAAUUUAUGCCUACAN	60	NUGUAGGCAUAAAUUGGUN	1781-1799

FIG. 8

Table 7. HBV RNAi agent antisense sequences from WO2018027106

AS Strand ID	Modified sequence (5' → 3')	SEQ ID NO.	Unmodified sequence (5' → 3')	SEQ ID NO.
AM03508-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgGfcscsusuAu	61	UACCAAUUUAUGCCUACAGGCCUUAU	149
AM04441-AS	usAfscCfaAfuUfuAfuGfcCfuAfcAfgGfcscsu	62	UACCAAUUUAUGCCUACAGGCCU	150
AM04442-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgGfcccsu	63	UACCAAUUUAUGCCUACAGGCCU	150
AM04443-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgGfsc	64	UACCAAUUUAUGCCUACAGGC	151
AM04661-AS	usGfsugaAfgCfGlaaguGfcAfcacsusu	65	UGUGAAGCGAAGUGCACACUU	152
AM04768-AS	usAfscCfaAfuUfuAfuGfcCfuAfcAfgCfcsusccgc	66	UACCAAUUUAUGCCUACAGCCUCCGC	153
AM04769-AS	vpusAfscCfaAfuUfuAfuGfcCfuAfcAfgCfcsusccgc	67	UACCAAUUUAUGCCUACAGCCUCCGC	153
AM05011-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgusu	68	UACCAAUUUAUGCCUACAGUU	154
AM05012-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfggsc	69	UACCAAUUUAUGCCUACAGGC	151
AM05013-AS	vpusAfscsCfaAfuUfuAfuGfcCfuAfcAfgGfsc	70	UACCAAUUUAUGCCUACAGGC	151
AM05014-AS	vpusAfscsCfaAfuUfuAfuGfcCfuAfcAfgusu	71	UACCAAUUUAUGCCUACAGUU	154
AM05052-AS	asUfsusGfaGfaGfaAfgUfcCfaCfcAfcGfsa	72	AUUGAGAGAAGUCCACCACGA	155
AM05053-AS	asUfsusGfaGfaGfaAfgUfcCfaCfcAfcgsa	73	AUUGAGAGAAGUCCACCACGA	155
AM05054-AS	asUfsusGfaGfaGfaAfgUfcCfaCfcAfcusu	74	AUUGAGAGAAGUCCACCACUU	156
AM05055-AS	vpusUfsusGfaGfaGfaAfgUfcCfaCfcAfcGfsa	75	UUUGAGAGAAGUCCACCACGA	157
AM05056-AS	asAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfsg	76	AAUUGAGAGAAGUCCACCACG	158
AM05057-AS	asAfsusUfgAfgAfgAfaGfuCfcAfcCfacsg	77	AAUUGAGAGAAGUCCACCACG	158
AM05058-AS	asAfsusUfgAfgAfgAfaGfuCfcAfcCfausu	78	AAUUGAGAGAAGUCCACCAUU	159
AM05060-AS	vpusAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfsg	79	UAUUGAGAGAAGUCCACCACG	160
AM05351-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgGfsu	80	UACCAAUUUAUGCCUACAGGU	161
AM05608-AS	usAfscCfaAfuUfuAfuGfcCfuAfcAfgusu	81	UACCAAUUUAUGCCUACAGUU	154
AM05609-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsc	82	UACCAAUUUAUGCCUACAGCC	162
AM05610-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgccusu	83	UACCAAUUUAUGCCUACAGCCUU	163
AM05611-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgccusc	84	UACCAAUUUAUGCCUACAGCCUC	164

AM05612-AS	usAfscscaauUfuAfuGfcCfuacagcsc	85	UACCAAUUUAUGCCUACAGCC	162
AM05613-AS	usAfscscaauUfuAfuGfcCfuacagccusu	86	UACCAAUUUAUGCCUACAGCCUU	163
AM05614-AS	usAfscscaauUfuAfuGfcCfuacagccusc	87	UACCAAUUUAUGCCUACAGCCUC	164
AM05618-AS	asUfsusggagGfaAfgUfcCfaccacusu	88	AUUGAGAGAAGUCCACCACUU	156
AM05621-AS	usUfsusGfaGfaGfaAfgUfcCfaCfcAfcusu	89	UUUGAGAGAAGUCCACCACUU	165
AM05623-AS	asUfsusGfaGfaGfaAfgUfcCfaCfcAfcggusu	90	AUUGAGAGAAGUCCACCACGGUU	166
AM05626-AS	asUfsusggagGfaAfgUfcCfaccaggusu	91	AUUGAGAGAAGUCCACCACGGUU	166
AM05628-AS	asUfsusGfaGfaGfaAfgUfcCfaCfcAfcgagsu	92	AUUGAGAGAAGUCCACCACGAGU	167
AM05631-AS	usAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfsg	93	UAUUGAGAGAAGUCCACCACG	160
AM05632-AS	usAfsusugagAfgAfaGfuCfcaccacsg	94	UAUUGAGAGAAGUCCACCACG	160
AM05633-AS	usAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfgusu	95	UAUUGAGAGAAGUCCACCACGUU	168
AM05634-AS	usAfsusugagAfgAfaGfuCfcaccacgasg	96	UAUUGAGAGAAGUCCACCACGAG	169
AM05635-AS	usAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfgasg	97	UAUUGAGAGAAGUCCACCACGAG	169
AM05637-AS	usAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfgsa	98	UAUUGAGAGAAGUCCACCACGA	170
AM05638-AS	usAfsusugagAfgAfaGfuCfcaccacgsa	99	UAUUGAGAGAAGUCCACCACGA	170
AM05747-AS	asGfsasAfaAfuugagAfgAfaGfuCfcAfsc	100	AGAAAAUUGAGAGAAGUCCAC	171
AM05849-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgusu	101	UACCAAUUUAUGCCUACAGUU	154
AM05850-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgcsc	102	UACCAAUUUAUGCCUACAGCC	162
AM05851-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgccusu	103	UACCAAUUUAUGCCUACAGCCUU	172
AM05852-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgccusu	104	UACCAAUUUAUGCCUACAGCCU	173
AM05853-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgccuuu	105	UACCAAUUUAUGCCUACAGCCUU	163
AM05854-AS	usAfscsCfaAfuuuuuGfcCfuAfcAfgccusc	106	UACCAAUUUAUGCCUACAGCCUC	164
AM05855-AS	cPrpusAfscsCfaAfuUfuAfuGfcCfuAfcAfgusu	107	UACCAAUUUAUGCCUACAGUU	154
AM05860-AS	cPrpusAfsusUfgAfgAfgAfaGfuCfcAfcCfaCfsg	108	UAUUGAGAGAAGUCCACCACG	160
AM05862-AS	usAfsusUfgAfggaaGfuCfcAfcCfausu	109	UAUUGAGAGAAGUCCACCAUU	174
AM05863-AS	usAfsusUfgAfggaaGfuCfcAfcCfacsg	110	UAUUGAGAGAAGUCCACCACG	160
AM05864-AS	usAfsusUfgAfggaaGfuCfcAfcCfacsusu	111	UAUUGAGAGAAGUCCACCACUU	175
AM05865-AS	usAfsusUfgAfggaaGfuCfcAfcCfacsgsa	112	UAUUGAGAGAAGUCCACCACGA	170

FIG. 9

AM05867-AS	vpusAfsusUfgAfgagaaGfuCfcAfcCfaCfsg	113	UAUUGAGAGAAGUCCACCACG	160
AM05873-AS	usUfsusGfaGfagagaUfcCfaCfcAfcusu	114	UUUGAGAGAAGUCCACCACUU	165
AM05874-AS	usUfsusGfaGfagagaUfcCfaCfcAfcgsu	115	UUUGAGAGAAGUCCACCACGA	157
AM05875-AS	usUfsusGfaGfagaagUfcCfaCfcAfcgusu	116	UUUGAGAGAAGUCCACCACGUU	176
AM05876-AS	usUfsusGfaGfagaagUfcCfaCfcAfcgasg	117	UUUGAGAGAAGUCCACCACGAG	177
AM05877-AS	cPrpusUfsusGfaGfaGfaAfgUfcCfaCfcAfcusu	118	UUUGAGAGAAGUCCACCACUU	165
AM06074-AS	cPrpusAfsusUfgAfgagaaGfuCfcAfcCfacusu	119	UAUUGAGAGAAGUCCACCACUU	175
AM06142-AS	usAfsusUfgAfgagaaGfuCfcAfcCfacusu	120	UAUUGAGAGAAGUCCACCACUU	175
AM06143-AS	usAfsusUfgAfgagaaGfuCfcAfcCfacgusu	121	UAUUGAGAGAAGUCCACCACGUU	168
AM06144-AS	usAfsusUfgAfgagaaGfuCfcAfcCfacusu(invAb)	122	UAUUGAGAGAAGUCCACCACUU	175
AM06145-AS	usAfsusUfgAfgagaaGfuCfcAfcCfacgasg	123	UAUUGAGAGAAGUCCACCACGAG	169
AM06222-AS	usAfsusUfgAfgAfgAfaGfuCfcAfcCfacusu	124	UAUUGAGAGAAGUCCACCACUU	175
AM06281-AS	asGfsusAfaAfaUfgAfgAfgAfaGfuCfcusu	125	AGAAAAUUGAGAGAAGUCCUU	178
AM06282-AS	asGfsasAfaAfuUfgAfgAfgAfaGfuCfcasc	126	AGAAAAUUGAGAGAAGUCCAC	171
AM06283-AS	asGfsasAfaAfaUfgAfgAfgAfaGfuCfcacusu	127	AGAAAAUUGAGAGAAGUCCACUU	179
AM06284-AS	asGfsasAfaAfaUfgAfgAfgAfaGfuCfcacsc	128	AGAAAAUUGAGAGAAGUCCACC	180
AM06285-AS	usGfsasAfaAfuUfgAfgAfgAfaGfuCfcusu	129	UGAAAAUUGAGAGAAGUCCUU	152
AM06286-AS	usGfsasAfaAfuUfgAfgAfgAfaGfuCfcasc	130	UGAAAAUUGAGAGAAGUCCAC	181
AM06299-AS	asCfscsAfaUfuUfaUfgCfcUfaCfaGfcusu	131	ACCAAUUUAUGCCUACAGCUU	182
AM06300-AS	asCfscsAfaUfuUfaUfgCfcUfaCfaGfccusu	132	ACCAAUUUAUGCCUACAGCCUU	183
AM06301-AS	asCfscsAfaUfuUfaUfgCfcUfaCfaGfccasc	133	ACCAAUUUAUGCCUACAGCCUC	184
AM06302-AS	usCfscsAfaUfuUfaUfgCfcUfaCfaGfcusu	134	UCCAAUUUAUGCCUACAGCUU	185
AM06303-AS	usCfscsAfaUfuUfaUfgCfcUfaCfaGfccusu	135	UCCAAUUUAUGCCUACAGCCUU	186
AM06463-AS	cPrpusAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsc	136	UACCAAUUUAUGCCUACAGCC	162
AM06464-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsc	137	UACCAAUUUAUGCCUACAGCC	162
AM06465-AS	cPrpusAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsc	138	UACCAAUUUAUGCCUACAGCC	162
AM06604-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsu	139	UACCAAUUUAUGCCUACAGCU	187
AM06606-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsg	140	UACCAAUUUAUGCCUACAGCG	188

AM06608-AS	asAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsc	141	AACCAAUUUAUGCCUACAGCC	189
AM06611-AS	usAfscsCfaAfuUfUfAfuGfcCfuAfcAfgusu	142	UACCAAUUUAUGCCUACAGUU	154
AM06612-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgCfsc	143	UACCAAUUUAUGCCUACAGCC	162
AM06614-AS	asCfscAfaUfuUfaUfgCfcUfaCfaGfcCfsu	144	ACCAAUUUAUGCCUACAGCCU	190
AM06616-AS	usCfscAfaUfuUfaUfgCfcUfaCfaGfcCfsu	145	UCCAAUUUAUGCCUACAGCCU	191
AM06618-AS	asCfscAfaUfuUfaUfgCfcUfaCfaGfccsg	146	ACCAAUUUAUGCCUACAGCCG	192
AM06620-AS	usCfscAfaUfuUfaUfgCfcUfaCfaGfccsg	147	UCCAAUUUAUGCCUACAGCCG	193
AM06751-AS	usAfscsCfaAfuUfuAfuGfcCfuAfcAfgcsg	148	UACCAAUUUAUGCCUACAGCG	194

FIG. 9 (Continued)

Table 8. HBV RNAi agent sense sequences from WO2018027106

Strand ID	Modified sequence (5' → 3')	SEQ ID NO.	Unmodified sequence (5' → 3')	SEQ ID NO.
AM04444-SS	(NAG25)asusgscsugguagGfCfAfuaaaaugguuasi(invdT)	195	UUGCCUGUAGGCAUAAAUUGGUAUT	275
AM04445-SS	(NAG25)asasasgscsugguagGfCfAfuaaauggu(invdA)	196	UAUAUGCCUGUAGGCAUAAAUUGGUA	276
AM04767-SS	(NAG25)gcsgsgasgscsuguagGfCfAfuaaaauggTM(invdA)	197	GCGGAGGCUGUAGGCAUAAAUUGGTA	277
AM05010-SS	(NAG25)scsugguagGfCfAfuaaaugguauus(invAb)	198	CUGUAGGCAUAAAUUGGUAUU	278
AM05015-SS	(NAG25)sgsccugguagGfCfAfuaaaugguas(invAb)	199	GCCUGUAGGCAUAAAUUGGUA	279
AM05016-SS	(NAG25)sgsccugguagGfCfAfuaaauggus(invdA)	200	GCCUGUAGGCAUAAAUUGGUA	279
AM05017-SS	(NAG25)sgsccugguagGfCfAfuaaaugguAMs(invAb)	201	GCCUGUAGGCAUAAAUUGGUA	279
AM05018-SS	(NAG25)sgsccugguagGfCfAfuaaauggTMAMs(invAb)	202	GCCUGUAGGCAUAAAUUGGTA	280
AM05019-SS	(NAG25)sasascsugguGfCfAfuaaauggguas(invAb)	203	AACUGUAGGCAUAAAUUGGUA	281
AM05034-SS	(NAG25)sascsgugggugGfAfCfuucucucaaus(invAb)	204	UCGUGGGUGGACUUCUCUCAAU	282
AM05046-SS	(NAG25)sasasgugggugGfAfCfuucucucaaus(invAb)	205	AAGUGGGUGGACUUCUCUCAAU	283
AM05047-SS	(NAG25)sascsgugggugGfAfCfuucucucaAMTMs(invAb)	206	UCGUGGGUGGACUUCUCUCAAT	284
AM05048-SS	(NAG25)scsguggguggAfCfUfucucucaaaus(invAb)	207	CGUGGGUGGACUUCUCUCAAUU	285
AM05049-SS	(NAG25)sasasugggugAfCfUfucucucaaaus(invAb)	208	AAUGGGUGGACUUCUCUCAAUU	286
AM05050-SS	(NAG25)scsgugggugAfCfUfucucucaTMTMs(invAb)	209	CGUGGGUGGACUUCUCUCAATT	287
AM05051-SS	(NAG25)sgsgacuucuCfUfCfaaaauucuaas(invAb)	210	GGACUUCUCUCAAUUUUCUAA	288
AM05063-SS	(NAG25)scsgugggugAfCfUfucucucaaaas(invAb)	211	CGUGGGUGGACUUCUCUCAAAA	289
AM05064-SS	(NAG25)sascsgugggugGfAfCfuucucucaaas(invAb)	212	UCGUGGGUGGACUUCUCUCAAA	290
AM05346-SS	(NAG31)sascscugugGfCfAfuaaauugguas(invAb)	213	ACCUGUAGGCAUAAAUUGGUA	291
AM05347-SS	(NAG31)s(invAb)scugugGfCfAfuaaauugguas(invAb)	214	CUGUAGGCAUAAAUUGGUA	292
AM05606-SS	(NAG25)s(invAb)scugugGfCfAfuaaauugguas(invAb)	215	CUGUAGGCAUAAAUUGGUA	292
AM05607-SS	(NAG37)s(invAb)scugugGfCfAfuaaauugguas(invAb)	216	CUGUAGGCAUAAAUUGGUA	292
AM05615-SS	(NAG25)s(invAb)sacugugGfCfAfuaaauugguas(invAb)	217	ACUGUAGGCAUAAAUUGGUA	293

Strand ID	Modified sequence (5' → 3')	SEQ ID NO.	Unmodified sequence (5' → 3')	SEQ ID NO.
AM05616-SS	(NAG25)sgsgcugugGfCfAfuaaauugguas(invAb)	218	GGCUGUAGGCAUAAAUUGGUA	294
AM05617-SS	(NAG37)sasasgugggugGfAfCfuucucucaaus(invAb)	219	AAGUGGGUGGACUUCUCUCAAU	283
AM05620-SS	(NAG25)sasasgugggugGfAfCfuucucucaaas(invAb)	220	AAGUGGGUGGACUUCUCUCAAA	295
AM05622-SS	(NAG25)scsgugggugGfAfCfuucucucaaus(invAb)	221	CCGUGGGUGGACUUCUCUCAAU	296
AM05624-SS	(NAG25)s(invAb)sccgugggugGfAfCfuucucucaaus(invAb)	222	CCGUGGGUGGACUUCUCUCAAU	296
AM05627-SS	(NAG25)scsacgugggugGfAfCfuucucucaaus(invAb)	223	CUCGUGGGUGGACUUCUCUCAAU	297
AM05629-SS	(NAG25)s(invAb)sgsugggugGfAfCfuucucucaaus(invAb)	224	GUGGGUGGACUUCUCUCAAU	298
AM05630-SS	(NAG25)s(invAb)sgugggugGfAfCfuucucucaaauus(invAb)	225	GUGGGUGGACUUCUCUCAAUUU	299
AM05636-SS	(NAG25)sascsgugggugAfCfUfucucucaaaus(invAb)	226	UCGUGGGUGGACUUCUCUCAAUU	300
AM05639-SS	(NAG25)s(invAb)sugggugAfCfUfucucucaaaus(invAb)	227	UGGGUGGACUUCUCUCAAUU	301
AM05640-SS	(NAG37)s(invAb)sugggugAfCfUfucucucaaaus(invAb)	228	UGGGUGGACUUCUCUCAAUU	301
AM05746-SS	(NAG25)sgsuggacuuCfUfCfucaaaaucus(invAb)	229	GUGGACUUCUCUCAAUUUCU	302
AM05856-SS	(NAG25)s(invAb)scugugGfCfAfuaaauugguausu(invAb)	230	CUGUAGGCAUAAAUUGGUAUU	278
AM05857-SS	(NAG25)s(invAb)scugugGfCfAfuaaauugguausu(invAb)	231	GCUGUAGGCAUAAAUUGGUAUU	303
AM05858-SS	(NAG25)s(invAb)sggcugugGfCfAfuaaauugguausu(invAb)	232	GGCUGUAGGCAUAAAUUGGUAUU	304
AM05859-SS	(NAG25)s(invAb)sacugugGfCfAfuaaauugguausu(invAb)	233	AACUGUAGGCAUAAAUUGGUAUU	305
AM05868-SS	(NAG25)s(invAb)sugguggAfCfUfucucucaauusu(invAb)	234	UGGUGGACUUCUCUCAAUAUU	306
AM05869-SS	(NAG25)s(invAb)scugguggAfCfUfucucucaauusu(invAb)	235	GUGGUGGACUUCUCUCAAUAUU	307
AM05870-SS	(NAG25)sasasgugggAfCfUfucucucaauusu(invAb)	236	AAUGGUGGACUUCUCUCAAUAUU	308
AM05871-SS	(NAG25)scsgugggugAfCfUfucucucaauusu(invAb)	237	CGUGGUGGACUUCUCUCAAUAUU	309
AM05872-SS	(NAG31)scsgugggugAfCfUfucucucaaaus(invAb)	238	CGUGGUGGACUUCUCUCAAUA	289
AM05879-SS	(NAG25)s(invAb)sasgugggugGfAfCfuucucucaaus(invAb)	239	AAGUGGGUGGACUUCUCUCAAU	283
AM05880-SS	(NAG25)s(invAb)sgugggugGfAfCfuucucucaaauusu(invAb)	240	GUGGGUGGACUUCUCUCAAAUU	310
AM05881-SS	(NAG25)scsgugggugGfAfCfuucucucaaaus(invAb)	241	CGUGGGUGGACUUCUCUCAAAUU	311

FIG. 10

Strand ID	Modified sequence (5' → 3')	SEQ ID NO	Unmodified sequence (5' → 3')	SEQ ID NO
AM05882-SS	(NAG25)sasaguggugGfAfCfuucucucaaaaus(invAb)	242	AAGUGGUGGACUUCUCUCAAAUU	312
AM05883-SS	(NAG25)susguggugGfAfCfuucucucaaaaus(invAb)	243	UCGUGGUGGACUUCUCUCAAAUU	313
AM06146-SS	(NAG37)s(invAb)sgugguggAfCfUfucucucaaaaus(invAb)	244	GUGGUGGACUUCUCUCAAAUU	307
AM06147-SS	(NAG37)s(invAb)scgugguggAfCfUfucucucaaaaus(invAb)	245	CGUGGUGGACUUCUCUCAAAUU	309
AM06148-SS	(NAG37)s(invAb)scucgugguggAfCfUfucucucaaaus(invAb)	246	CUCGUGGUGGACUUCUCUCAAAU	314
AM06149-SS	(NAG37)s(invAb)scucgugguggAfCfUfucucucaaaaus(invAb)	247	CUCGUGGUGGACUUCUCUCAAAUU	315
AM06150-SS	(NAG37)s(invAb)sgccuguagGfCfAfuaaaauggcus(invAb)	248	GGCUGUAGGCAUAAAUUGGUA	294
AM06151-SS	(NAG37)s(invAb)sgaggcuguagGfCfAfuaaaauggcus(invAb)	249	GAGGCUGUAGGCAUAAAUUGGUA	316
AM06152-SS	(NAG37)s(invAb)sgaggcuguagGfCfAfuaaaauggcaaus(invAb)	250	GAGGCUGUAGGCAUAAAUUGGUAUU	317
AM06287-SS	(NAG37)s(invAb)sggacuuCfUfCfucaauuuucus(invAb)	251	GGACUUCUCUCAAUUUUCU	318
AM06288-SS	(NAG37)s(invAb)sguggacuuCfUfCfucaauuuucus(invAb)	252	GUGGACUUCUCUCAAUUUUCU	302
AM06289-SS	(NAG37)s(invAb)sgguggacuuCfUfCfucaauuuucus(invAb)	253	GGUGGACUUCUCUCAAUUUUCU	319
AM06290-SS	(NAG37)s(invAb)sggacuuCfUfCfucaauuuuca(invAb)	254	GGACUUCUCUCAAUUUUCA	320
AM06291-SS	(NAG37)s(invAb)sguggacuuCfUfCfucaauuuuca(invAb)	255	GUGGACUUCUCUCAAUUUUCA	321
AM06304-SS	(NAG37)s(invAb)sgcuguaGfGfCfauaaauuggus(invAb)	256	GCUGUAGGCAUAAAUUGGU	322
AM06305-SS	(NAG37)s(invAb)sggcuguaGfGfCfauaaauuggus(invAb)	257	GGCUGUAGGCAUAAAUUGGU	323
AM06306-SS	(NAG37)s(invAb)sgaggcuguaGfGfCfauaaauuggus(invAb)	258	GAGGCUGUAGGCAUAAAUUGGU	324
AM06307-SS	(NAG37)s(invAb)sgcuguaGfGfCfauaaauuggas(invAb)	259	GCUGUAGGCAUAAAUUGGA	325
AM06308-SS	(NAG37)s(invAb)sggcuguaGfGfCfauaaauuggas(invAb)	260	GGCUGUAGGCAUAAAUUGGA	326
AM06603-SS	(NAG37)s(invAb)sagcuguagGfCfAfuaaaaugguas(invAb)	261	AGCUGUAGGCAUAAAUUGGUA	327
AM06605-SS	(NAG37)s(invAb)scgcuguagGfCfAfuaaaauggcus(invAb)	262	CGCUGUAGGCAUAAAUUGGUA	328
AM06607-SS	(NAG37)s(invAb)sggcuguagGfCfAfuaaaauggcus(invAb)	263	GGCUGUAGGCAUAAAUUGGUU	329
AM06609-SS	(NAG37)s(invAb)scuguagGfCfAfuaaaauggcaaus(invAb)	264	CUGUAGGCAUAAAUUGGUAUU	278
AM06610-SS	(NAG37)s(invAb)scuGfuAfgGfCfAfuAfaAfuUfgGfuasasus(invAb)	265	CUGUAGGCAUAAAUUGGUAUU	278

Strand ID	Modified sequence (5' → 3')	SEQ ID NO	Unmodified sequence (5' → 3')	SEQ ID NO
AM06613-SS	(NAG37)s(invAb)sagccuguaGfGfCfauaaauuggus(invAb)	266	AGGCUGUAGGCAUAAAUUGGU	330
AM06615-SS	(NAG37)s(invAb)sagccuguaGfGfCfauaaauuggas(invAb)	267	AGGCUGUAGGCAUAAAUUGGA	331
AM06617-SS	(NAG37)s(invAb)scggcuguaGfGfCfauaaauuggus(invAb)	268	CGGCUGUAGGCAUAAAUUGGU	332
AM06619-SS	(NAG37)s(invAb)scggcuguaGfGfCfauaaauuggas(invAb)	269	CGGCUGUAGGCAUAAAUUGGA	333
AM06750-SS	(NAG37)s(invAb)scccuguagGfCfAfuaaaaugguas(invAb)	270	CCCUGUAGGCAUAAAUUGGUA	334
AM06752-SS	(NAG37)sgcuguagGfCfAfuaaaauggcuas(invAb)	271	CGCUGUAGGCAUAAAUUGGUA	328
AM06753-SS	(NAG37)sccuguagGfCfAfuaaaauggcuas(invAb)	272	CCCUGUAGGCAUAAAUUGGUA	334
AM06776-SS	(NAG25)s(invAb)sguggacuuCfUfCfucaauuuucus(invAb)	273	GUGGACUUCUCUCAAUUUUCU	302
AM06777-SS	(NAG25)scgcuguagGfCfAfuaaaauggcuas(invAb)	274	CGCUGUAGGCAUAAAUUGGUA	328

FIG. 10 (Continued)

Table 9. Examples of HBV RNAi agent duplexes from WO2018027106

Duplex ID	Antisense Strand ID	Sense Strand ID
AD03498	AM03508-AS	AM04445-SS
AD03499	AM04441-AS	AM04444-SS
AD03500	AM04442-AS	AM04444-SS
AD03501	AM04443-AS	AM04444-SS
AD03738	AM04768-AS	AM04767-SS
AD03739	AM04769-AS	AM04767-SS
AD03967	AM04443-AS	AM05010-SS
AD03968	AM05011-AS	AM05010-SS
AD03969	AM04443-AS	AM05015-SS
AD03970	AM05011-AS	AM05019-SS
AD03971	AM05012-AS	AM05015-SS
AD03972	AM04443-AS	AM05016-SS
AD03973	AM04443-AS	AM05017-SS
AD03974	AM04443-AS	AM05018-SS
AD03975	AM05013-AS	AM05015-SS
AD03976	AM05014-AS	AM05019-SS
AD03977	AM05013-AS	AM05017-SS
AD03978	AM05013-AS	AM04444-SS
AD04001	AM05052-AS	AM05034-SS
AD04002	AM05053-AS	AM05034-SS
AD04003	AM05054-AS	AM05046-SS
AD04004	AM05052-AS	AM05047-SS
AD04005	AM05055-AS	AM05064-SS
AD04006	AM05056-AS	AM05048-SS
AD04007	AM05057-AS	AM05048-SS
AD04008	AM05058-AS	AM05049-SS
AD04009	AM05056-AS	AM05050-SS
AD04010	AM05060-AS	AM05063-SS
AD04176	AM05351-AS	AM05346-SS
AD04177	AM04443-AS	AM05347-SS
AD04178	AM05011-AS	AM05347-SS
AD04412	AM05011-AS	AM05606-SS
AD04413	AM05011-AS	AM05607-SS
AD04414	AM05608-AS	AM05606-SS
AD04415	AM05011-AS	AM05615-SS
AD04416	AM05609-AS	AM05616-SS
AD04417	AM05610-AS	AM05616-SS
AD04418	AM05611-AS	AM05616-SS
AD04419	AM05612-AS	AM05616-SS
AD04420	AM05613-AS	AM05616-SS
AD04421	AM05614-AS	AM05616-SS
AD04422	AM05054-AS	AM05617-SS
AD04423	AM05618-AS	AM05046-SS
AD04425	AM05621-AS	AM05620-SS

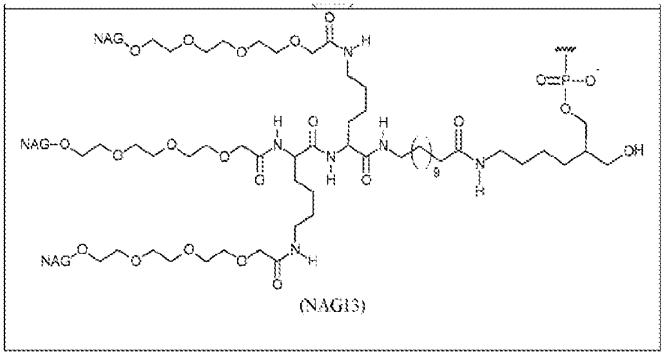
Duplex ID	Antisense Strand ID	Sense Strand ID
AD04426	AM05623-AS	AM05622-SS
AD04427	AM05623-AS	AM05624-SS
AD04428	AM05626-AS	AM05622-SS
AD04429	AM05626-AS	AM05624-SS
AD04430	AM05628-AS	AM05627-SS
AD04431	AM05054-AS	AM05629-SS
AD04432	AM05054-AS	AM05630-SS
AD04433	AM05631-AS	AM05048-SS
AD04434	AM05632-AS	AM05048-SS
AD04435	AM05633-AS	AM05048-SS
AD04436	AM05635-AS	AM05048-SS
AD04437	AM05634-AS	AM05048-SS
AD04438	AM05637-AS	AM05636-SS
AD04439	AM05638-AS	AM05636-SS
AD04440	AM05058-AS	AM05639-SS
AD04441	AM05057-AS	AM05639-SS
AD04442	AM05057-AS	AM05640-SS
AD04511	AM05747-AS	AM05746-SS
AD04570	AM05011-AS	AM05856-SS
AD04571	AM05849-AS	AM05856-SS
AD04572	AM05850-AS	AM05856-SS
AD04573	AM05851-AS	AM05857-SS
AD04574	AM05852-AS	AM05857-SS
AD04575	AM05853-AS	AM05858-SS
AD04576	AM05854-AS	AM05858-SS
AD04577	AM05011-AS	AM05859-SS
AD04578	AM05850-AS	AM05858-SS
AD04579	AM05014-AS	AM05347-SS
AD04580	AM05855-AS	AM05347-SS
AD04581	AM05860-AS	AM05063-SS
AD04583	AM05862-AS	AM05868-SS
AD04584	AM05863-AS	AM05868-SS
AD04585	AM05864-AS	AM05869-SS
AD04586	AM05865-AS	AM05869-SS
AD04587	AM05862-AS	AM05870-SS
AD04588	AM05863-AS	AM05871-SS
AD04590	AM05867-AS	AM05063-SS
AD04591	AM05860-AS	AM05872-SS
AD04592	AM05054-AS	AM05879-SS
AD04593	AM05873-AS	AM05880-SS
AD04594	AM05874-AS	AM05880-SS
AD04595	AM05875-AS	AM05881-SS
AD04596	AM05876-AS	AM05881-SS
AD04597	AM05873-AS	AM05882-SS

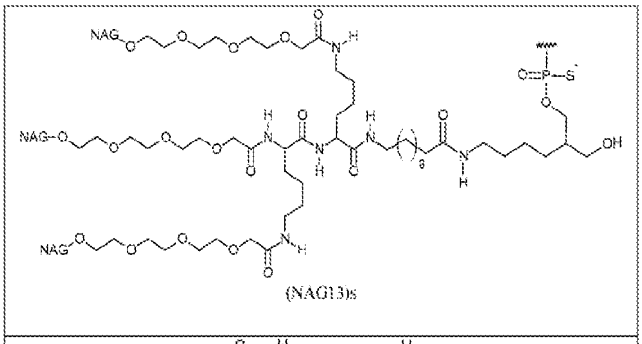
FIG. 11

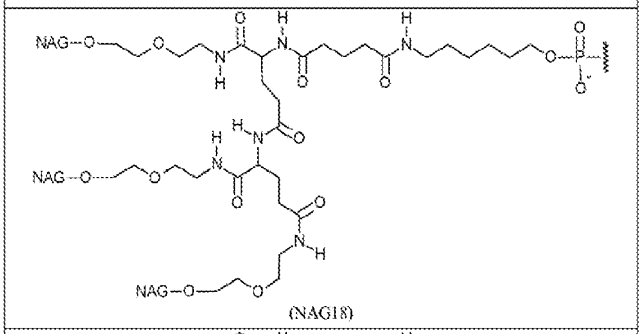
Duplex ID	Antisense Strand ID	Sense Strand ID
AD04598	AM05874-AS	AM05883-SS
AD04599	AM05877-AS	AM05620-SS
AD04734	AM06074-AS	AM05869-SS
AD04771	AM06142-AS	AM06146-SS
AD04772	AM06143-AS	AM06147-SS
AD04773	AM06144-AS	AM06146-SS
AD04774	AM06145-AS	AM06148-SS
AD04775	AM06145-AS	AM06149-SS
AD04776	AM05850-AS	AM06150-SS
AD04777	AM05854-AS	AM06151-SS
AD04778	AM05854-AS	AM06152-SS
AD04822	AM06222-AS	AM06146-SS
AD04823	AM05609-AS	AM06150-SS
AD04871	AM06281-AS	AM06287-SS
AD04872	AM06282-AS	AM06288-SS
AD04873	AM06283-AS	AM06288-SS
AD04874	AM06284-AS	AM06289-SS
AD04875	AM06285-AS	AM06290-SS
AD04876	AM06286-AS	AM06291-SS
AD04881	AM06299-AS	AM06304-SS
AD04882	AM06300-AS	AM06305-SS
AD04883	AM06301-AS	AM06306-SS
AD04884	AM06302-AS	AM06307-SS
AD04885	AM06303-AS	AM06308-SS
AD04962	AM05864-AS	AM06146-SS
AD04963	AM05855-AS	AM05607-SS
AD04981	AM06463-AS	AM06150-SS
AD04982	AM06464-AS	AM06150-SS
AD04983	AM06465-AS	AM06150-SS
AD05069	AM06604-AS	AM06603-SS
AD05070	AM06606-AS	AM06605-SS
AD05071	AM06608-AS	AM06607-SS
AD05072	AM05011-AS	AM06609-SS
AD05073	AM06611-AS	AM06610-SS
AD05074	AM06612-AS	AM06150-SS
AD05075	AM06614-AS	AM06613-SS
AD05076	AM06616-AS	AM06615-SS
AD05077	AM06618-AS	AM06617-SS
AD05078	AM06620-AS	AM06619-SS
AD05147	AM06751-AS	AM06750-SS
AD05148	AM06606-AS	AM06752-SS
AD05149	AM06751-AS	AM06753-SS
AD05164	AM06282-AS	AM06776-SS
AD05165	AM06606-AS	AM06777-SS

FIG. 11 (Continued)

Table 10: Examples of Targeting Ligand







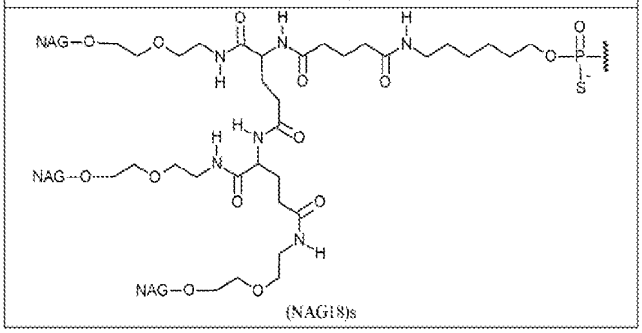


FIG. 12

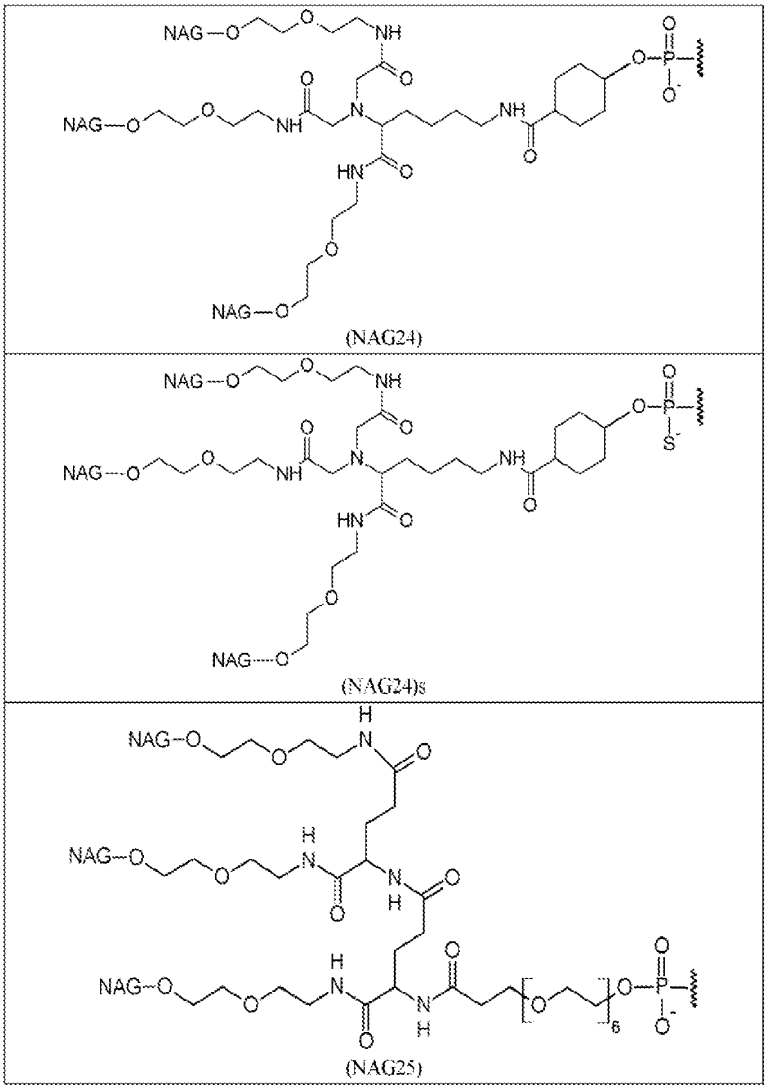


FIG. 12 (Continued)

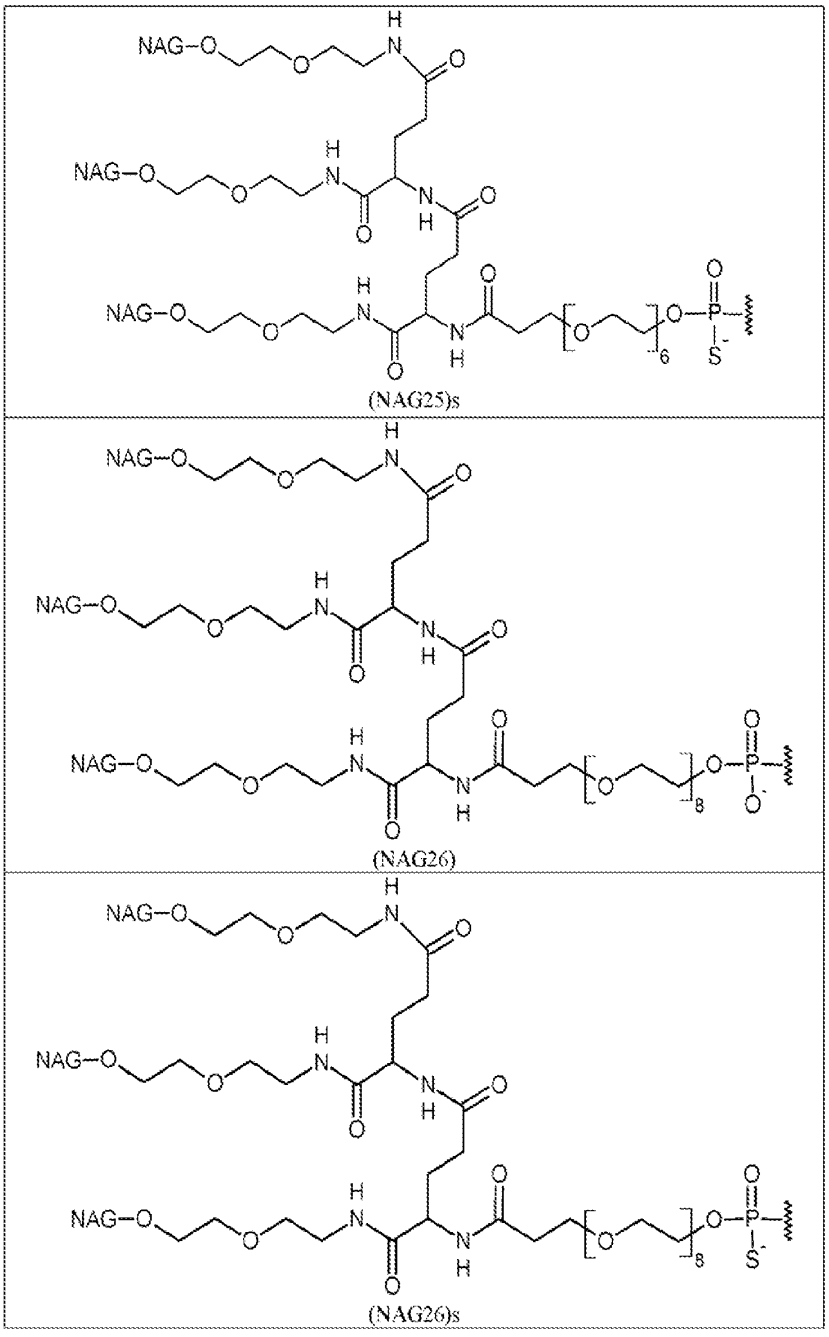


FIG. 12 (Continued)

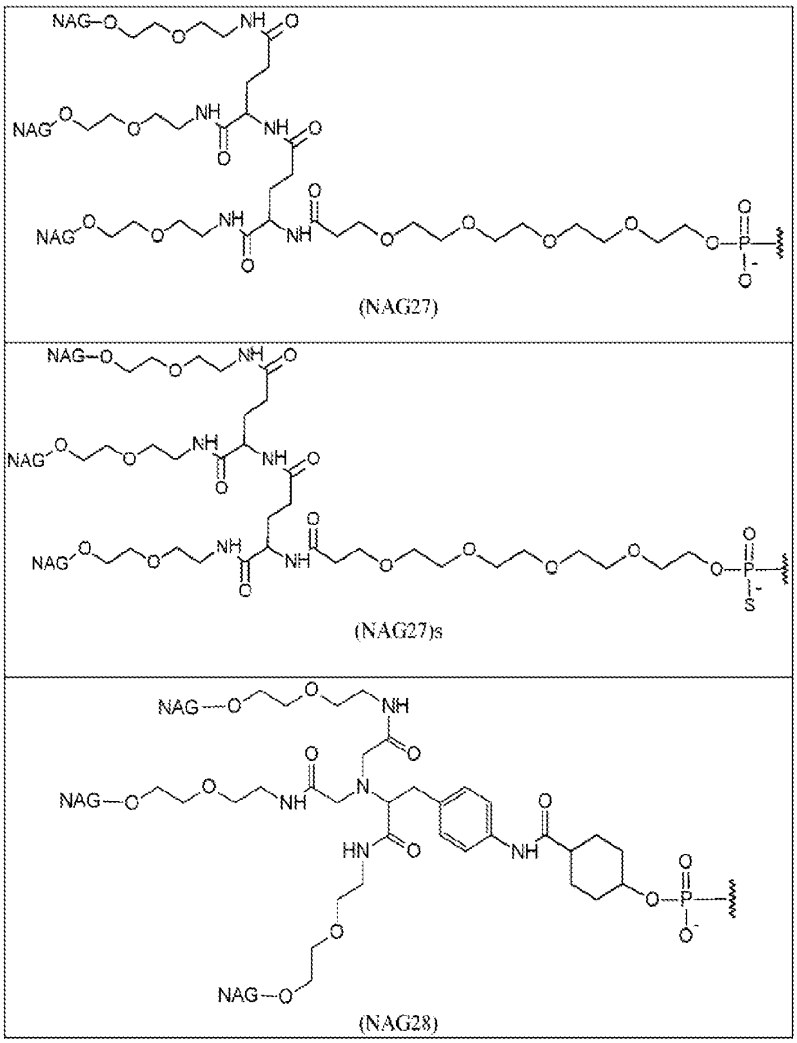


FIG. 12 (Continued)

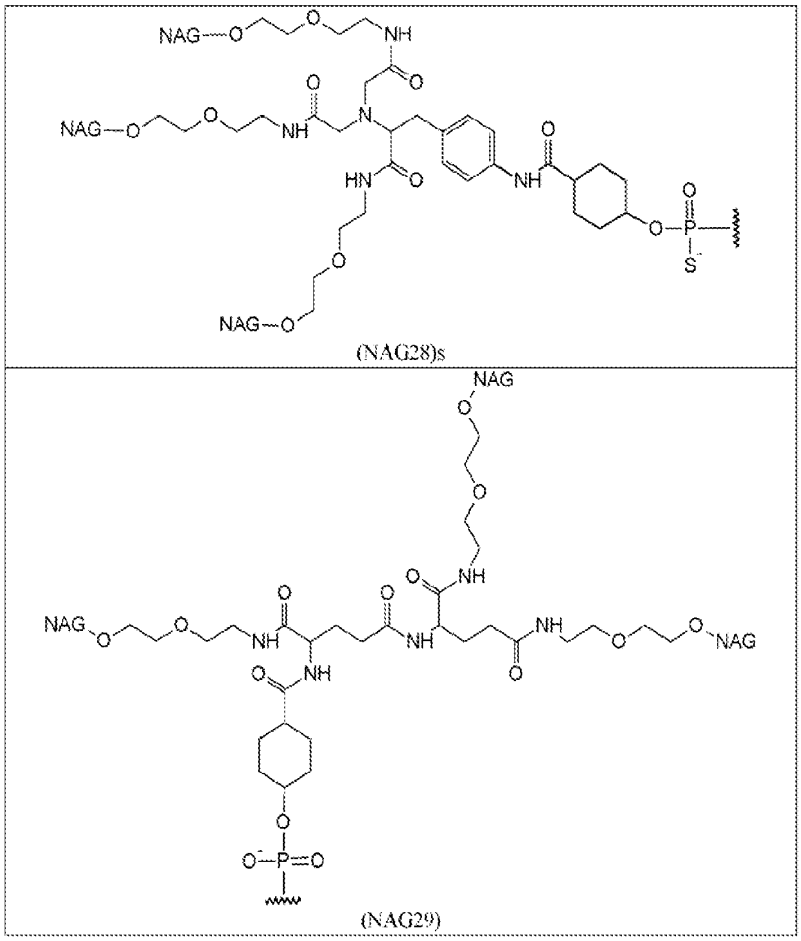
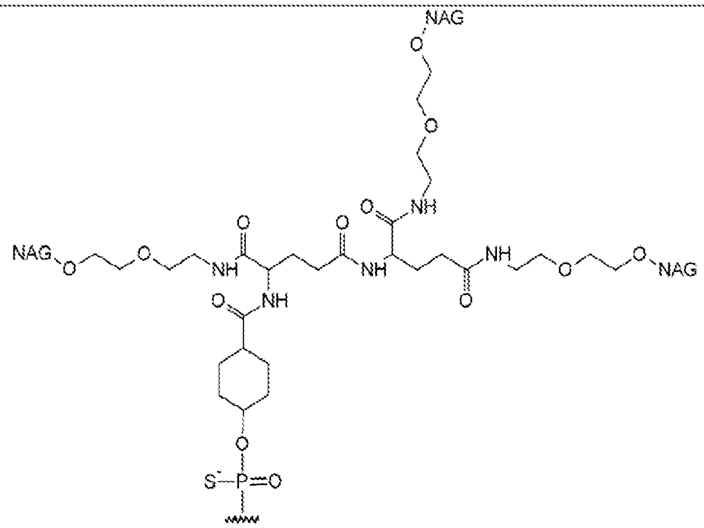
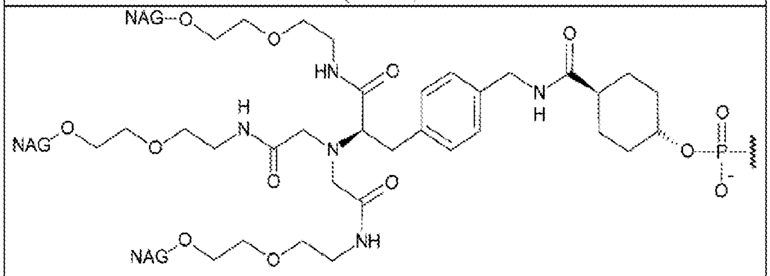


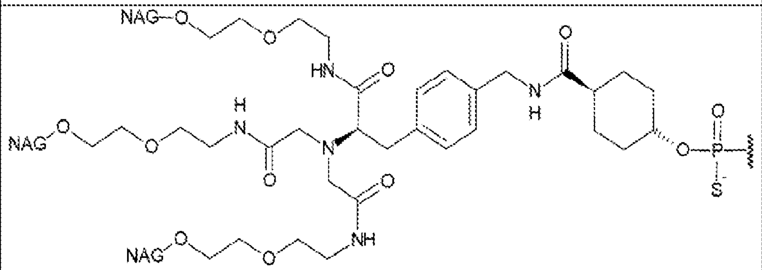
FIG. 12 (Continued)



(NAG29)s



(NAG30)



(NAG30)s

FIG. 12 (Continued)

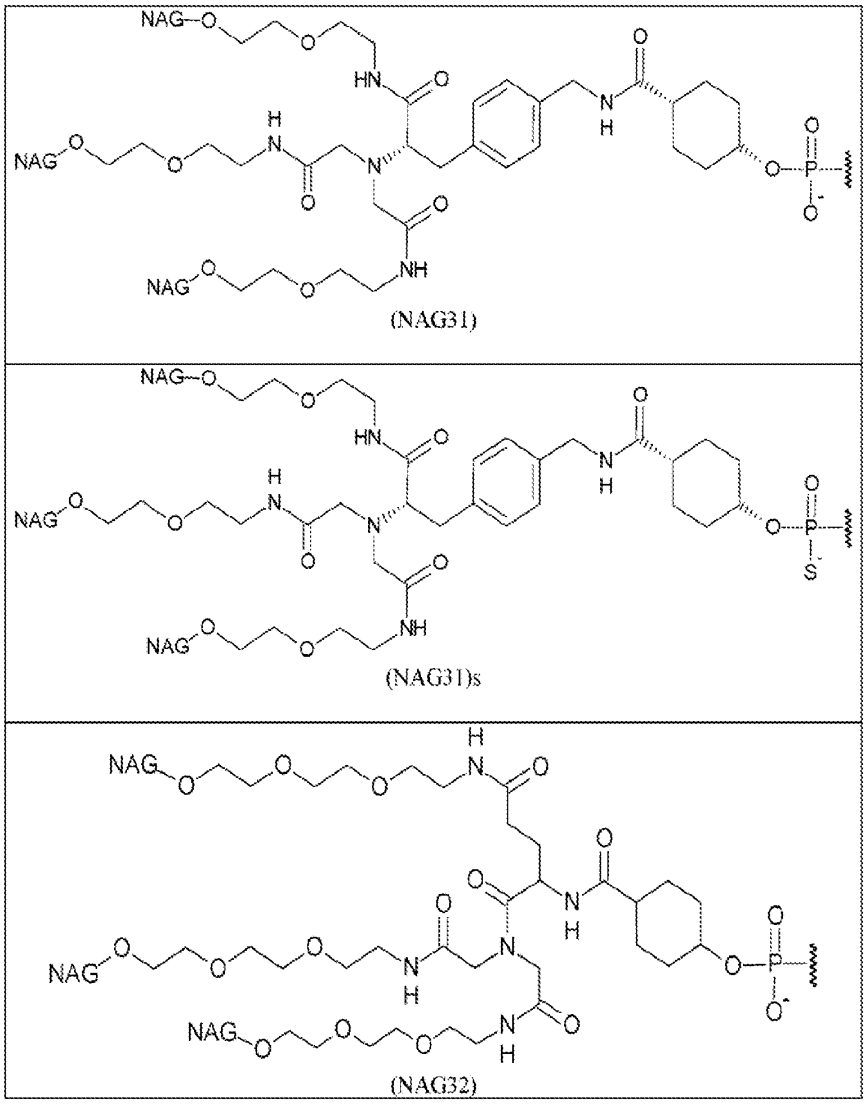


FIG. 12 (Continued)

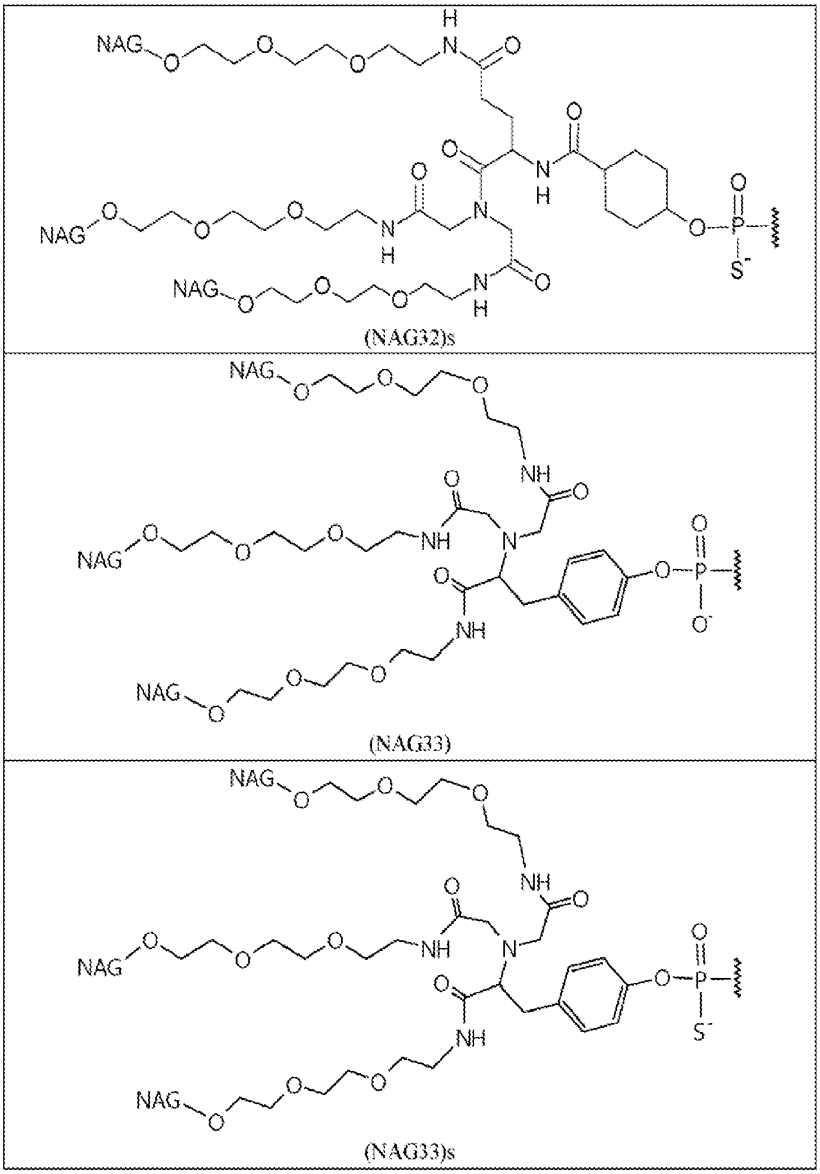


FIG. 12 (Continued)

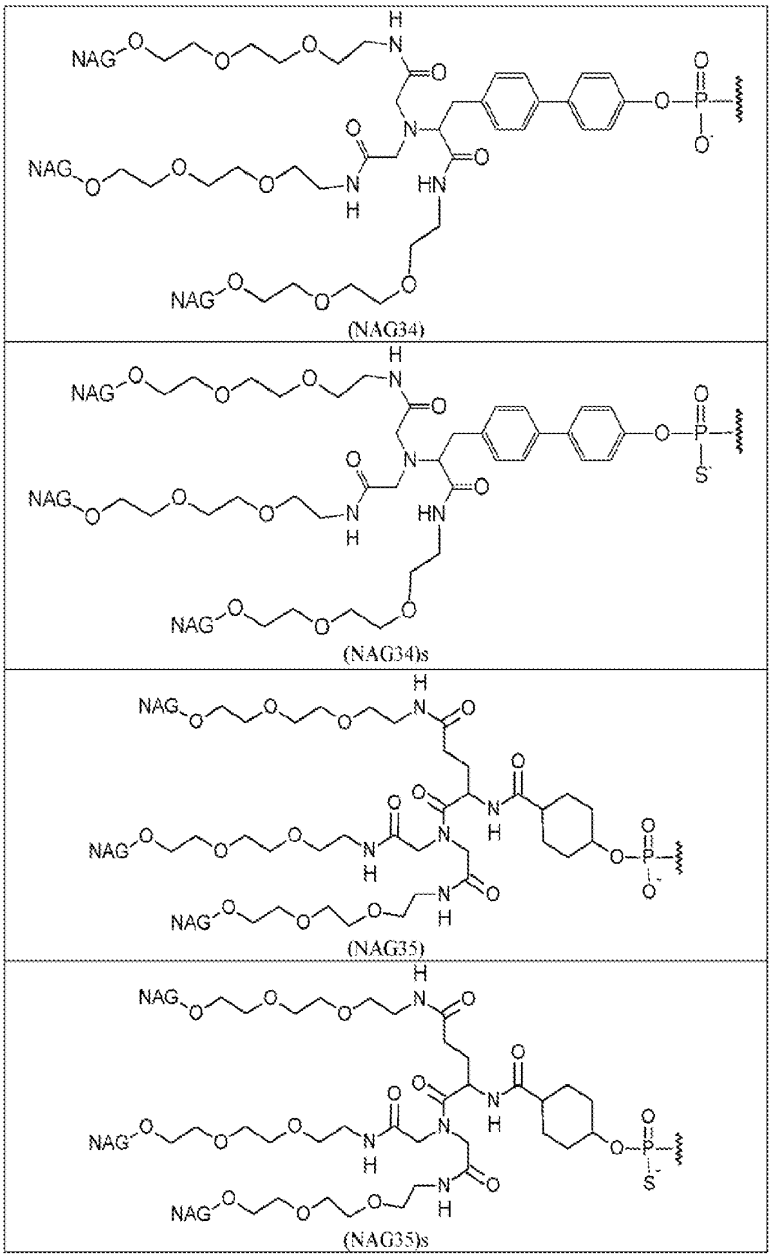


FIG. 12 (Continued)

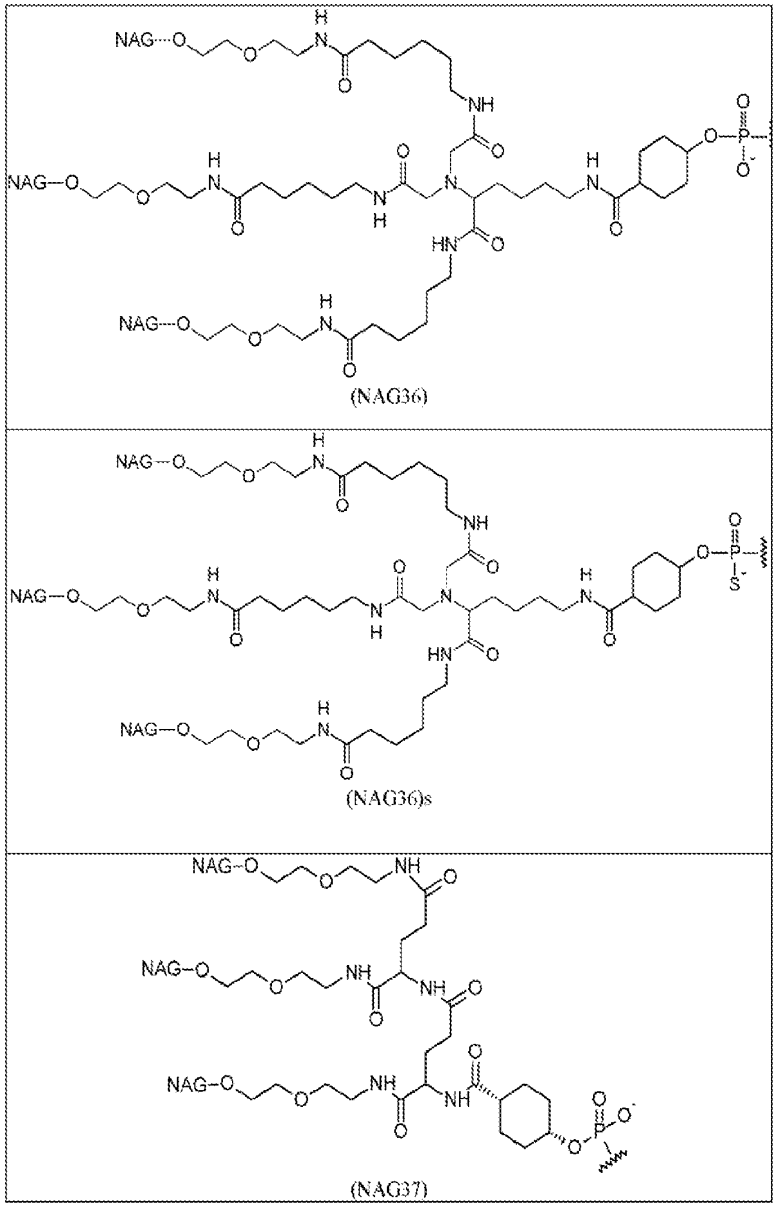


FIG. 12 (Continued)

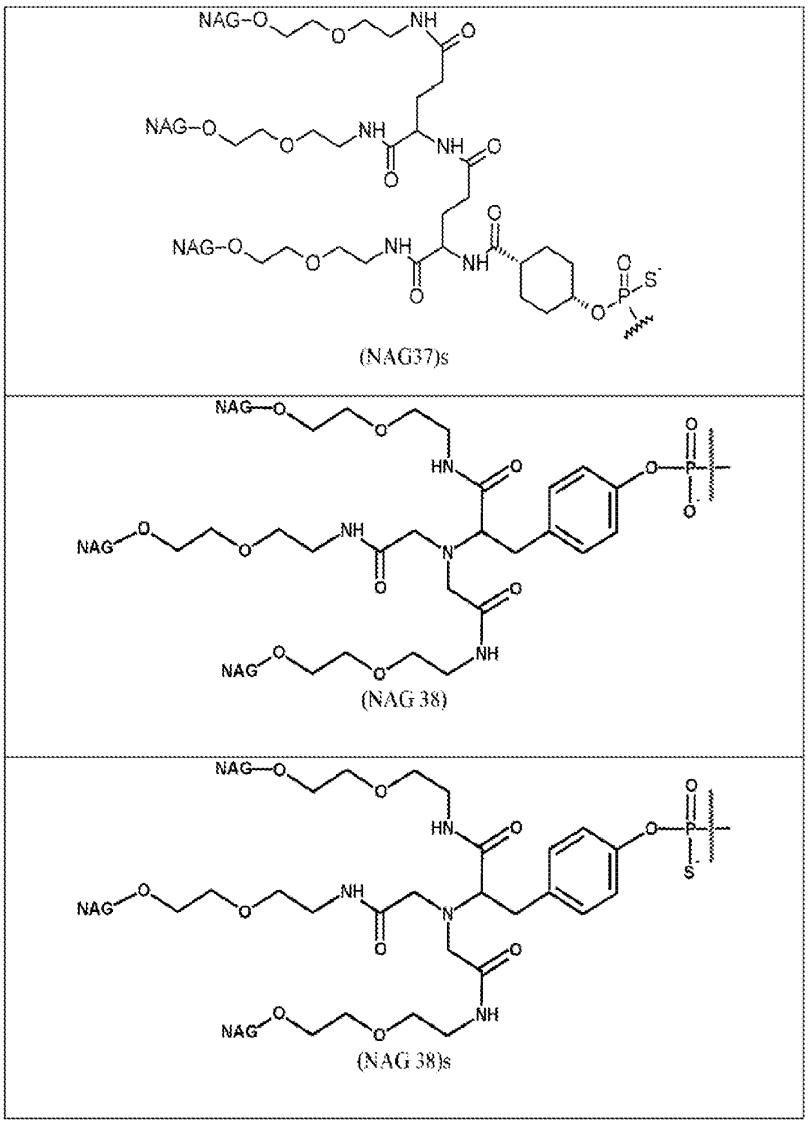


FIG. 12 (Continued)

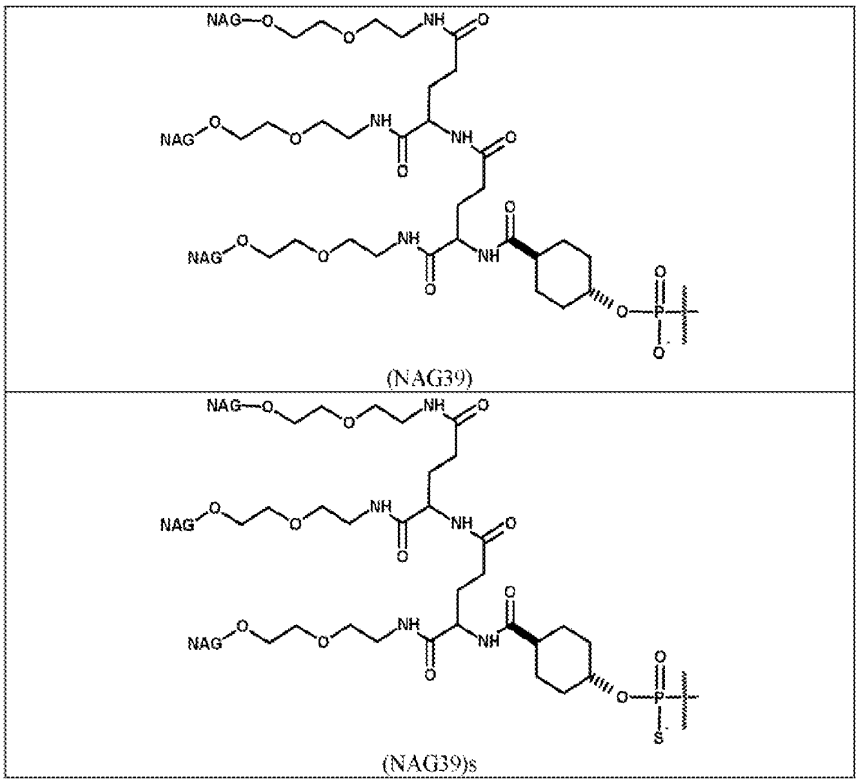


FIG. 12 (Continued)