SEQUENCE LISTING

<110> Shire Human Genetic Therapies

<120> CFTR MRNA COMPOSITIONS AND RELATED METHODS AND USES

<130> 2006685-0455

<140> PCT/US14/28849
<141> 2014-03-14

<150> US 61/783,663
<151> 2013-03-14

<160> 20

<170> PatentIn version 3.5

<210> 1
<211> 1480
<212> PRT
<213> Homo sapiens

<400> 1

```
Met Gln Arg Ser Pro Leu Glu Lys Ala Ser Val Val Ser Lys Leu Phe
1               5                  10                  15

Phe Ser Trp Thr Arg Pro Ile Leu Arg Lys Gly Tyr Arg Gln Arg Leu
            20                  25                  30

Glu Leu Ser Asp Ile Tyr Gln Ile Pro Ser Val Asp Ser Ala Asp Asn
        35                  40                  45

Leu Ser Glu Lys Leu Glu Arg Glu Trp Asp Arg Glu Leu Ala Ser Lys
    50                  55                  60

Lys Asn Pro Lys Leu Ile Asn Ala Leu Arg Arg Cys Phe Phe Trp Arg
65                  70                  75                  80

Phe Met Phe Tyr Gly Ile Phe Leu Tyr Leu Gly Glu Val Thr Lys Ala
                85                  90                  95

Val Gln Pro Leu Leu Leu Gly Arg Ile Ile Ala Ser Tyr Asp Pro Asp
            100                 105                 110

Asn Lys Glu Glu Arg Ser Ile Ala Ile Tyr Leu Gly Ile Gly Leu Cys
        115                 120                 125

Leu Leu Phe Ile Val Arg Thr Leu Leu Leu His Pro Ala Ile Phe Gly
    130                 135                 140

Leu His His Ile Gly Met Gln Met Arg Ile Ala Met Phe Ser Leu Ile
145                 150                 155                 160
```

Tyr Lys Lys Thr Leu Lys Leu Ser Ser Arg Val Leu Asp Lys Ile Ser
165 170 175

Ile Gly Gln Leu Val Ser Leu Leu Ser Asn Asn Leu Asn Lys Phe Asp
180 185 190

Glu Gly Leu Ala Leu Ala His Phe Val Trp Ile Ala Pro Leu Gln Val
195 200 205

Ala Leu Leu Met Gly Leu Ile Trp Glu Leu Leu Gln Ala Ser Ala Phe
210 215 220

Cys Gly Leu Gly Phe Leu Ile Val Leu Ala Leu Phe Gln Ala Gly Leu
225 230 235 240

Gly Arg Met Met Met Lys Tyr Arg Asp Gln Arg Ala Gly Lys Ile Ser
245 250 255

Glu Arg Leu Val Ile Thr Ser Glu Met Ile Glu Asn Ile Gln Ser Val
260 265 270

Lys Ala Tyr Cys Trp Glu Glu Ala Met Glu Lys Met Ile Glu Asn Leu
275 280 285

Arg Gln Thr Glu Leu Lys Leu Thr Arg Lys Ala Ala Tyr Val Arg Tyr
290 295 300

Phe Asn Ser Ser Ala Phe Phe Phe Ser Gly Phe Phe Val Val Phe Leu
305 310 315 320

Ser Val Leu Pro Tyr Ala Leu Ile Lys Gly Ile Ile Leu Arg Lys Ile
325 330 335

Phe Thr Thr Ile Ser Phe Cys Ile Val Leu Arg Met Ala Val Thr Arg
340 345 350

Gln Phe Pro Trp Ala Val Gln Thr Trp Tyr Asp Ser Leu Gly Ala Ile
355 360 365

Asn Lys Ile Gln Asp Phe Leu Gln Lys Gln Glu Tyr Lys Thr Leu Glu
370 375 380

Tyr Asn Leu Thr Thr Thr Glu Val Val Met Glu Asn Val Thr Ala Phe
385 390 395 400

Trp Glu Glu Gly Phe Gly Glu Leu Phe Glu Lys Ala Lys Gln Asn Asn

405 410 415

Asn Asn Arg Lys Thr Ser Asn Gly Asp Asp Ser Leu Phe Phe Ser Asn
420 425 430

Phe Ser Leu Leu Gly Thr Pro Val Leu Lys Asp Ile Asn Phe Lys Ile
435 440 445

Glu Arg Gly Gln Leu Leu Ala Val Ala Gly Ser Thr Gly Ala Gly Lys
450 455 460

Thr Ser Leu Leu Met Val Ile Met Gly Glu Leu Glu Pro Ser Glu Gly
465 470 475 480

Lys Ile Lys His Ser Gly Arg Ile Ser Phe Cys Ser Gln Phe Ser Trp
485 490 495

Ile Met Pro Gly Thr Ile Lys Glu Asn Ile Ile Phe Gly Val Ser Tyr
500 505 510

Asp Glu Tyr Arg Tyr Arg Ser Val Ile Lys Ala Cys Gln Leu Glu Glu
515 520 525

Asp Ile Ser Lys Phe Ala Glu Lys Asp Asn Ile Val Leu Gly Glu Gly
530 535 540

Gly Ile Thr Leu Ser Gly Gly Gln Arg Ala Arg Ile Ser Leu Ala Arg
545 550 555 560

Ala Val Tyr Lys Asp Ala Asp Leu Tyr Leu Leu Asp Ser Pro Phe Gly
565 570 575

Tyr Leu Asp Val Leu Thr Glu Lys Glu Ile Phe Glu Ser Cys Val Cys
580 585 590

Lys Leu Met Ala Asn Lys Thr Arg Ile Leu Val Thr Ser Lys Met Glu
595 600 605

His Leu Lys Lys Ala Asp Lys Ile Leu Ile Leu His Glu Gly Ser Ser
610 615 620

Tyr Phe Tyr Gly Thr Phe Ser Glu Leu Gln Asn Leu Gln Pro Asp Phe
625 630 635 640

Ser Ser Lys Leu Met Gly Cys Asp Ser Phe Asp Gln Phe Ser Ala Glu
645 650 655

```
Arg Arg Asn Ser Ile Leu Thr Glu Thr Leu His Arg Phe Ser Leu Glu
            660                 665                 670

Gly Asp Ala Pro Val Ser Trp Thr Glu Thr Lys Lys Gln Ser Phe Lys
        675                 680                 685

Gln Thr Gly Glu Phe Gly Glu Lys Arg Lys Asn Ser Ile Leu Asn Pro
    690                 695                 700

Ile Asn Ser Ile Arg Lys Phe Ser Ile Val Gln Lys Thr Pro Leu Gln
705                 710                 715                 720

Met Asn Gly Ile Glu Glu Asp Ser Asp Glu Pro Leu Glu Arg Arg Leu
                725                 730                 735

Ser Leu Val Pro Asp Ser Glu Gln Gly Glu Ala Ile Leu Pro Arg Ile
            740                 745                 750

Ser Val Ile Ser Thr Gly Pro Thr Leu Gln Ala Arg Arg Arg Gln Ser
        755                 760                 765

Val Leu Asn Leu Met Thr His Ser Val Asn Gln Gly Gln Asn Ile His
    770                 775                 780

Arg Lys Thr Thr Ala Ser Thr Arg Lys Val Ser Leu Ala Pro Gln Ala
785                 790                 795                 800

Asn Leu Thr Glu Leu Asp Ile Tyr Ser Arg Arg Leu Ser Gln Glu Thr
                805                 810                 815

Gly Leu Glu Ile Ser Glu Glu Ile Asn Glu Glu Asp Leu Lys Glu Cys
            820                 825                 830

Phe Phe Asp Asp Met Glu Ser Ile Pro Ala Val Thr Thr Trp Asn Thr
        835                 840                 845

Tyr Leu Arg Tyr Ile Thr Val His Lys Ser Leu Ile Phe Val Leu Ile
    850                 855                 860

Trp Cys Leu Val Ile Phe Leu Ala Glu Val Ala Ala Ser Leu Val Val
865                 870                 875                 880

Leu Trp Leu Leu Gly Asn Thr Pro Leu Gln Asp Lys Gly Asn Ser Thr
                885                 890                 895

His Ser Arg Asn Asn Ser Tyr Ala Val Ile Ile Thr Ser Thr Ser Ser
            900                 905                 910
```

Tyr Tyr Val Phe Tyr Ile Tyr Val Gly Val Ala Asp Thr Leu Leu Ala
915 920 925

Met Gly Phe Phe Arg Gly Leu Pro Leu Val His Thr Leu Ile Thr Val
930 935 940

Ser Lys Ile Leu His His Lys Met Leu His Ser Val Leu Gln Ala Pro
945 950 955 960

Met Ser Thr Leu Asn Thr Leu Lys Ala Gly Gly Ile Leu Asn Arg Phe
965 970 975

Ser Lys Asp Ile Ala Ile Leu Asp Asp Leu Leu Pro Leu Thr Ile Phe
980 985 990

Asp Phe Ile Gln Leu Leu Leu Ile Val Ile Gly Ala Ile Ala Val Val
995 1000 1005

Ala Val Leu Gln Pro Tyr Ile Phe Val Ala Thr Val Pro Val Ile
1010 1015 1020

Val Ala Phe Ile Met Leu Arg Ala Tyr Phe Leu Gln Thr Ser Gln
1025 1030 1035

Gln Leu Lys Gln Leu Glu Ser Glu Gly Arg Ser Pro Ile Phe Thr
1040 1045 1050

His Leu Val Thr Ser Leu Lys Gly Leu Trp Thr Leu Arg Ala Phe
1055 1060 1065

Gly Arg Gln Pro Tyr Phe Glu Thr Leu Phe His Lys Ala Leu Asn
1070 1075 1080

Leu His Thr Ala Asn Trp Phe Leu Tyr Leu Ser Thr Leu Arg Trp
1085 1090 1095

Phe Gln Met Arg Ile Glu Met Ile Phe Val Ile Phe Phe Ile Ala
1100 1105 1110

Val Thr Phe Ile Ser Ile Leu Thr Thr Gly Glu Gly Glu Gly Arg
1115 1120 1125

Val Gly Ile Ile Leu Thr Leu Ala Met Asn Ile Met Ser Thr Leu
1130 1135 1140

Gln Trp Ala Val Asn Ser Ser Ile Asp Val Asp Ser Leu Met Arg
1145 1150 1155

Ser Val Ser Arg Val Phe Lys Phe Ile Asp Met Pro Thr Glu Gly
1160 1165 1170

Lys Pro Thr Lys Ser Thr Lys Pro Tyr Lys Asn Gly Gln Leu Ser
1175 1180 1185

Lys Val Met Ile Ile Glu Asn Ser His Val Lys Lys Asp Asp Ile
1190 1195 1200

Trp Pro Ser Gly Gly Gln Met Thr Val Lys Asp Leu Thr Ala Lys
1205 1210 1215

Tyr Thr Glu Gly Gly Asn Ala Ile Leu Glu Asn Ile Ser Phe Ser
1220 1225 1230

Ile Ser Pro Gly Gln Arg Val Gly Leu Leu Gly Arg Thr Gly Ser
1235 1240 1245

Gly Lys Ser Thr Leu Leu Ser Ala Phe Leu Arg Leu Leu Asn Thr
1250 1255 1260

Glu Gly Glu Ile Gln Ile Asp Gly Val Ser Trp Asp Ser Ile Thr
1265 1270 1275

Leu Gln Gln Trp Arg Lys Ala Phe Gly Val Ile Pro Gln Lys Val
1280 1285 1290

Phe Ile Phe Ser Gly Thr Phe Arg Lys Asn Leu Asp Pro Tyr Glu
1295 1300 1305

Gln Trp Ser Asp Gln Glu Ile Trp Lys Val Ala Asp Glu Val Gly
1310 1315 1320

Leu Arg Ser Val Ile Glu Gln Phe Pro Gly Lys Leu Asp Phe Val
1325 1330 1335

Leu Val Asp Gly Gly Cys Val Leu Ser His Gly His Lys Gln Leu
1340 1345 1350

Met Cys Leu Ala Arg Ser Val Leu Ser Lys Ala Lys Ile Leu Leu
1355 1360 1365

Leu Asp Glu Pro Ser Ala His Leu Asp Pro Val Thr Tyr Gln Ile
1370 1375 1380

Ile Arg Arg Thr Leu Lys Gln Ala Phe Ala Asp Cys Thr Val Ile

1385 1390 1395

Leu Cys Glu His Arg Ile Glu Ala Met Leu Glu Cys Gln Gln Phe
1400 1405 1410

Leu Val Ile Glu Glu Asn Lys Val Arg Gln Tyr Asp Ser Ile Gln
1415 1420 1425

Lys Leu Leu Asn Glu Arg Ser Leu Phe Arg Gln Ala Ile Ser Pro
1430 1435 1440

Ser Asp Arg Val Lys Leu Phe Pro His Arg Asn Ser Ser Lys Cys
1445 1450 1455

Lys Ser Lys Pro Gln Ile Ala Ala Leu Lys Glu Glu Thr Glu Glu
1460 1465 1470

Glu Val Gln Asp Thr Arg Leu
1475 1480

<210> 2
<211> 4443
<212> RNA
<213> Homo sapiens

<400> 2
augcagaggu cgccucugga aaaggccagc guugucucca aacuuuuuuu cagcuggacc 60

agaccaauuu ugaggaaagg auacagacag cgccuggaau ugucagacau auaccaaauc 120

ccuucuguug auucugcuga caaucuaucu gaaaaauugg aaagagaaug ggauagagag 180

cuggcuucaa agaaaaaucc uaaacucauu aaugcccuuc ggcgauguuu uuucuggaga 240

uuuauguucu auggaaucuu uuuauauuua ggggaaguca ccaaagcagu acagccucuc 300

uuacugggaa gaaucauagc uuccuaugac ccggauaaca aggaggaacg cucuaucgcg 360

auuuaucuag gcauaggcuu augccuucuc uuuauuguga ggacacugcu ccuacaccca 420

gccauuuuug gccuucauca cauuggaaug cagaugagaa uagcuauguu uaguuugauu 480

uauaagaaga cuuuaaagcu gucaagccgu guucuagaua aaauaaguau uggacaacuu 540

guuagucucc uuuccaacaa ccugaacaaa uuugaugaag gacuugcauu ggcacauuuc 600

guguggaucg cuccuuugca aguggcacuc cucauggggc uaaucuggga guuguuacag 660

gcgucugccu ucuguggacu ugguuuccug auaguccuug cccuuuuuca ggcugggcua 720

gggagaauga ugaugaagua cagagaucag agagcuggga agaucaguga aagacuugug 780

auuaccucag aaaugauuga aaauauccaa ucuguuaagg cauacugcug ggaagaagca 840

auggaaaaaa ugauugaaaa cuuaagacaa acagaacuga aacugacucg gaaggcagcc 900

uaugugagau acuucaauag cucagccuuc uucuucucag gguucuuugu gguguuuuua 960

ucugugcuuc ccuaugcacu aaucaaagga aucauccucc ggaaaauauu caccaccauc 1020

ucauucugca uuguucugcg cauggcgguc acucggcaau uucccugggc uguacaaaca 1080

ugguaugacu cucuuggagc aauaaacaaa auacaggauu ucuuacaaaa gcaagaauau 1140

aagacauugg aauauaacuu aacgacuaca gaaguaguga uggagaaugu aacagccuuc 1200

ugggaggagg gauuugggga auuauuugag aaagcaaaac aaaacaauaa caauagaaaa 1260

acuucuaaug gugaugacag ccucuucuuc aguaauuucu cacuucuugg uacuccuguc 1320

cugaaagaua uuaauuucaa gauagaaaga ggacaguugu uggcgguugc uggauccacu 1380

ggagcaggca agacuucacu ucuaaugaug auuaugggag aacuggagcc uucagagggu 1440

aaaauuaagc acaguggaag aauuucauuc uguucucagu uuuccuggau uaugccuggc 1500

accauuaaag aaaauaucau cuuugguguu uccuaugaug aauauagaua cagaagcguc 1560

aucaaagcau gccaacuaga agaggacauc uccaaguuug cagagaaaga caauauaguu 1620

cuuggagaag guggaaucac acugagugga ggucaacgag caagaauuuc uuuagcaaga 1680

gcaguauaca aagaugcuga uuuguauuua uuagacucuc cuuuuggaua ccuagauguu 1740

uuaacagaaa aagaaauauu ugaaagcugu gucuguaaac ugauggcuaa caaaacuagg 1800

auuuugguca cuucuaaaau ggaacauuua aagaaagcug acaaaauauu aauuuugaau 1860

gaagguagca gcuauuuuua ugggacauuu ucagaacucc aaaaucuaca gccagacuuu 1920

agcucaaaac ucaugggaug ugauucuuuc gaccaauuua gugcagaaag aagaaauuca 1980

auccuaacug agaccuuaca ccguuucuca uuagaaggag augcuccugu cuccuggaca 2040

gaaacaaaaa aacaaucuuu uaaacagacu ggagaguuug gggaaaaaag gaagaauucu 2100

auucucaauc caaucaacuc uauacgaaaa uuuuccauug ugcaaaagac ucccuuacaa 2160

augaauggca ucgaagagga uucugaugag ccuuuagaga gaaggcuguc cuuaguacca 2220

gauucugagc agggagaggc gauacugccu cgcaucagcg ugaucagcac uggccccacg 2280

cuucaggcac gaaggaggca gucuguccug aaccugauga cacacucagu uaaccaaggu 2340

cagaacauuc accgaaagac aacagcaucc acacgaaaag ugucacuggc cccucaggca 2400

aacuugacug aacuggauau auauucaaga agguuaucuc aagaaacugg cuuggaaaua 2460

agugaagaaa uuaacgaaga agacuuaaag gagugccuuu uugaugauau ggagagcaua 2520

ccagcaguga cuacauggaa cacauaccuu cgauauauua cuguccacaa gagcuuaauu 2580

uuugugcuaa uuuggugcuu aguaauuuuu cuggcagagg uggcugcuuc uuugguugug 2640

cuguggcucc uuggaaacac uccucuucaa gacaaaggga auaguacuca uaguagaaau 2700

aacagcuaug cagugauuau caccagcacc aguucguauu auguguuuua cauuuacgug 2760

ggaguagccg acacuuugcu ugcuauggga uucuucagag gucuaccacu ggugcauacu 2820

cuaaucacag ugucgaaaau uuuacaccac aaaauguuac auucuguucu ucaagcaccu 2880

augucaaccc ucaacacguu gaaagcaggu gggauucuua auagauucuc caaagauaua 2940

gcaauuuugg augaccuucu gccucuuacc auauuugacu ucauccaguu guuauuaauu 3000

gugauuggag cuauagcagu ugucgcaguu uuacaacccu acaucuuugu ugcaacagug 3060

ccagugauag uggcuuuuau uauguugaga gcauauuucc uccaaaccuc acagcaacuc 3120

aaacaacugg aaucugaagg caggagucca auuuucacuc aucuuguuac aagcuuaaaa 3180

ggacuaugga cacuucgugc cuucggacgg cagccuuacu uugaaacucu guuccacaaa 3240

gcucugaauu uacauacugc caacugguuc uuguaccugu caacacugcg cugguuccaa 3300

augagaauag aaaugauuuu ugucaucuuc uucauugcug uuaccuucau uuccauuuua 3360

acaacaggag aaggagaagg aagaguuggu auuauccuga cuuuagccau gaauaucaug 3420

aguacauugc agugggcugu aaacuccagc auagaugugg auagcuugau gcgaucugug 3480

agccgagucu uuaaguucau ugacaugcca acagaaggua aaccuaccaa gucaaccaaa 3540

ccauacaaga auggccaacu cucgaaaguu augauuauug agaauucaca cgugaagaaa 3600

gaugacaucu ggcccucagg gggccaaaug acugucaaag aucucacagc aaaauacaca 3660

gaagguggaa augccauauu agagaacauu uccuucucaa uaaguccugg ccagagggug 3720

ggccucuugg gaagaacugg aucagggaag aguacuuugu uaucagcuuu uuugagacua 3780

cugaacacug aaggagaaau ccagaucgau ggugugucuu gggauucaau aacuuugcaa 3840

caguggagga aagccuuugg agugauacca cagaaaguau uuauuuuuuc uggaacauuu 3900

agaaaaaacu uggaucccua ugaacagugg agugaucaag aaauauggaa aguugcagau 3960

gagguugggc ucagaucugu gauagaacag uuuccuggga agcuugacuu uguccuugug 4020

gaugggggcu guguccuaag ccauggccac aagcaguuga ugugcuuggc uagaucuguu 4080

cucaguaagg cgaagaucuu gcugcuugau gaacccagug cucauuugga uccaguaaca 4140

uaccaaauaa uuagaagaac ucuaaaacaa gcauuugcug auugcacagu aauucucugu 4200

gaacacagga uagaagcaau gcuggaaugc caacaauuuu uggucauaga agagaacaaa 4260

gugcggcagu acgauuccau ccagaaacug cugaacgaga ggagccucuu ccggcaagcc 4320

aucagccccu ccgacagggu gaagcucuuu ccccaccgga acucaagcaa gugcaagucu 4380

aagccccaga uugcugcucu gaaagaggag acagaagaag aggugcaaga uacaaggcuu 4440

uag 4443

<210> 3
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 3

augcagcggu ccccgcucga aaaggccagu gucgugucca aacucuucuu cucauggacu 60

cggccuaucc uuagaaaggg guaucggcag aggcuugagu ugucugacau cuaccagauc 120

cccucgguag auucggcgga uaaccucucg gagaagcucg aacgggaaug ggaccgcgaa 180

cucgcgucua agaaaaaccc gaagcucauc aacgcacuga gaaggugcuu cuucuggcgg 240

uucauguucu acgguaucuu cuuguaucuc ggggagguca caaaagcagu ccaaccccug 300

uuguuggguc gcauuaucgc cucguacgac cccgauaaca aagaagaacg gagcaucgcg 360

aucuaccucg ggaucggacu guguuugcuu uucaucguca gaacacuuuu guugcaucca 420

gcaaucuucg gccuccauca caucgguaug cagaugcgaa ucgcuauguu uagcuugauc 480

uacaaaaaga cacugaaacu cucgucgcgg guguuggaua agauuuccau cggucaguug 540

gugucccugc uuaguaauaa ccucaacaaa uucgaugagg gacuggcgcu ggcacauuuc 600

guguggauug ccccguugca agucgcccuu uugaugggcc uuauuuggga gcuguugcag 660

gcaucugccu uuuguggccu gggauuucug auuguguugg cauuguuuca ggcugggcuu 720

gggcggauga ugaugaagua ucgcgaccag agagcgggua aaaucucgga aagacucguc 780

aucacuucgg aaaugaucga aaacauccag ucggucaaag ccuauugcug ggaagaagcu 840

auggagaaga ugauugaaaa ccuccgccaa acugagcuga aacugacccg caaggcggcg 900

uauguccggu auuucaauuc gucagcguuc uucuuuuccg gguucuucgu ugucuuucuc 960

ucgguuuugc cuuaugccuu gauuaagggg auuauccucc gcaagauuuu caccacgauu 1020

ucguucugca uuguauugcg cauggcagug acacggcaau uuccgugggc cgugcagaca 1080

ugguaugacu cgcuuggagc gaucaacaaa auccaagacu ucuugcaaaa gcaagaguac 1140

aagacccugg aguacaaucu uacuacuacg gagguaguaa uggagaaugu gacggcuuuu 1200

ugggaagagg guuuuggaga acuguuugag aaagcaaagc agaauaacaa caaccgcaag 1260

accucaaaug gggacgauuc ccuguuuuuc ucgaacuucu cccugcucgg aacacccgug 1320

uugaaggaca ucaauuucaa gauugagagg ggacagcuuc ucgcgguagc gggaagcacu 1380

ggugcgggaa aaacuagccu cuugauggug auuaugggggg agcuugagcc cagcgagggg 1440

aagauuaaac acuccgggcg uaucucauuc uguagccagu uuucauggau caugcccgga 1500

accauuaaag agaacaucau uuucggagua uccuaugaug aguaccgaua cagaucgguc 1560

auuaaggcgu gccaguugga agaggacauu ucuaaguucg ccgagaagga uaacaucguc 1620

uugggagaag gggguauuac auugucggga gggcagcgag cgcggaucag ccucgcgaga 1680

gcgguauaca aagaugcaga uuuguaucug cuugauucac cguuuggaua ccucgacgua 1740

uugacagaaa aagaaaucuu cgagucgugc guguguaaac uuauggcuaa uaagacgaga 1800

auccugguga caucaaaaau ggaacaccuu aagaaggcgg acaagauccu gauccuccac 1860

gaaggaucgu ccuacuuuua cggcacuuuc ucagaguugc aaaacuugca gccggacuuc 1920

ucaagcaaac ucauggggug ugacucauuc gaccaguuca gcgcggaacg gcggaacucg 1980

aucuugacgg aaacgcugca ccgauucucg cuugagggug augccccggu aucguggacc 2040

gagacaaaga agcagucguu uaagcagaca ggagaauuug gugagaaaag aaagaacagu 2100

aucuugaauc cuauuaacuc aauucgcaag uucucaaucg uccagaaaac uccacugcag 2160

augaauggaa uugaagagga uucggacgaa ccccuggagc gcaggcuuag ccucgugccg 2220

gauucagagc aaggggaggc cauucuuccc cggauuucgg ugauuucaac cggaccuaca 2280

cuucaggcga ggcgaaggca auccgugcuc aaccucauga cgcauucggu aaaccagggg 2340

caaaacauuc accgcaaaac gacggccuca acgagaaaag ugucacuugc accccaggcg 2400

aauuugacug aacucgacau cuacagccgu aggcuuucgc aagaaaccgg acuugagauc 2460

agcgaagaaa ucaaugaaga agauuugaaa gaguguuucu uugaugacau ggaaucaauc 2520

ccagcgguga caacguggaa cacauacuug cguuacauca cggugcacaa guccuugauu 2580

uucguccuca ucuggugucu cgugaucuuu cucgcugagg ucgcagcguc acuuguggUc 2640

cucuggcugc uugguaauac gcccuugcaa gacaaaggca auucuacaca cucaagaaac 2700

aauuccuaug ccgugauuau cacuucuaca agcucguauu acguguuuua caucuacgua 2760

ggaguggccg acacucugcu cgcgaugggu uucuuccgag gacucccacu cguucacacg 2820

cuuaucacug ucuccaagau ucuccaccau aagaugcuuc auagcguacu gcaggcuccc 2880

auguccaccu ugaauacgcu caaggcggga gguauuuuga aucgcuucuc aaaagauauu 2940

gcaauuuugg augaccuucu gccccugacg aucuucgacu ucauccaguu guugcugauc 3000

gugauugggg cuauugcagu agucgcuguc cuccagccuu acauuuuugu cgcgaccguu 3060

ccggugaucg uggcguuuau caugcugcgg gccuauuucu ugcagacguc acagcagcuu 3120

aagcaacugg agucugaagg gaggucgccu aucuuuacgc aucuugugac caguuugaag 3180

ggauugugga cguugcgcgc cuuuggcagg cagcccuacu uugaaacacu guuccacaaa 3240

gcgcugaauc uccauacggc aaauugguuu uuguauuuga guacccuccg augguuucag 3300

augcgcauug agaugauuuu ugugaucuuc uuuaucgcgg ugacuuuuau cuccaucuug 3360

accacgggag agggcgaggg acgggucggu auuauccuga cacucgccau gaacauuaug 3420

agcacuuugc agugggcagu gaacagcucg auugaugugg auagccugau gaggUccguu 3480

ucgagggucu uuaaguucau cgacaugccg acggagggaa agcccacaaa aaguacgaaa 3540

cccuauaaga augggcaauu gaguaaggua augaucaucg agaacaguca cgugaagaag 3600

gaugacaucu ggccuagcgg gggucagaug accgugaagg accugacggc aaaauacacc 3660

gagggaggga acgcaauccu ugaaaacauc ucguucagca uuagccccgg ucagcgugug 3720

ggguugcucg ggaggaccgg gucaggaaaa ucgacguugc ugucggccuu cuugagacuu 3780

cugaauacag agggugagau ccagaucgac ggcguuucgu gggauagcau caccuugcag 3840

caguggcgga aagcguuugg aguaaucccc caaaaggucu uuaucuuuag cggaaccuuc 3900

cgaaagaauc ucgauccuua ugaacagugg ucagaucaag agauuuggaa agucgcggac 3960

gagguuggcc uucggagugu aaucgagcag uuuccgggaa aacucgacuu uguccuugua 4020

gaugggggau gcguccuguc gcaugggcac aagcagcuca ugugccuggc gcgauccguc 4080

cucucuaaag cgaaaauucu ucucuuggau gaaccuucgg cccaucugga cccgguaacg 4140

uaucagauca ucagaaggac acuuaagcag gcguuugccg acugcacggu gauucucugu 4200

gagcaucgua ucgaggccau gcucgaaugc cagcaauuuc uugucaucga agagaauaag 4260

guccgccagu acgacuccau ccagaagcug cuuaaugaga gaucauuguu ccggcaggcg 4320

auuucaccau ccgauagggu gaaacuuuuu ccacacagaa auucgucgaa gugcaagucc 4380

aaaccgcaga ucgcggccuu gaaagaagag acugaagaag aaguucaaga cacgcgucuu 4440

uaa 4443

<210> 4
<211> 140
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 4
ggacagaucg ccuggagacg ccauccacgc uguuuugacc uccauagaag acaccgggac 60

cgauccagcc uccgcggccg ggaacggugc auuggaacgc ggauuccccg ugccaagagu 120

gacucaccgu ccuugacacg 140

<210> 5
<211> 100
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 5
cggguggcau cccugugacc ccucccccagu gccucuccug gcccuggaag uugccacucc 60

agugcccacc agccuugucc uaauaaaauu aaguugcauc 100

<210> 6
<211> 11
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 6
gggauccuac c 11

<210> 7
<211> 1652
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized olignucleotide

<400> 7
auggaagaug ccaaaaacau uaagaagggc ccagcgccau ucuacccacu cgaagacggg 60

accgccggcg agcagcugca caaagccaug aagcgcuacg cccuggugcc cggcaccauc 120

gccuuuaccg acgcacauau cgagguggac auuaccuacg ccgaguacuu cgagaugagc 180

guucggcugg cagaagcuau gaagcgcuau gggcugaaua caaaccaucg gaucguggug 240

ugcagcgaga auagcuugca guucuucaug cccguguugg gugcccuguu caucggugug 300

gcuguggccc cagcuaacga caucuacaac gagcgcgagc ugcugaacag caugggcauc 360

agccagccca ccgucguauu cgugagcaag aaagggcugc aaaagauccu caacgugcaa 420

aagaagcuac cgaucauaca aaagaucauc aucauggaua gcaagaccga cuaccagggc 480

uuccaaagca uguacaccuu cgugacuucc cauuugccac ccggcuucaa cgaguacgac 540

uucgugcccg agagcuucga ccgggacaaa accaucgccc ugaucaugaa caguaguggc 600

aguaccggau ugcccaaggg cguagcccua ccgcaccgca ccgcuugugu ccgauucagu 660

caugcccgcg accccaucuu cggcaaccag aucaucccg acaccgcuau ccucagcgug 720

gugccauuuc accacggcuu cggcauguuc accacgcugg gcuacuugau cugcggcuuu 780

cgggucgugc ucauguaccg cuucgaggag gagcuauucu ugcgcagcuu gcaagacuau 840

aagauucaau cugcccugcu ggugcccaca cuauuuagcu ucuucgcuaa gagcacucuc 900

aucgacaagu acgaccuaag caacuugcac gagaucgcca gcggcggggc gccgcucagc 960

aaggagguag gugaggccgu ggccaaacgc uuccaccuac caggcauccg ccagggcuac 1020

ggccugacag aaacaaccag cgccauucug aucacccccg aaggggacga caagccuggc 1080

gcaguaggca agguggugcc cuucuucgag gcuaaggugg uggacuugga caccgguaag 1140

acacugggug ugaaccagcg cggcgagcug ugcguccgug gccccaugau caugagcggc 1200

uacguuaaca accccgaggc uacaaacgcu cucaucgaca aggacggcug gcugcacagc 1260

ggcgacaucg ccuacuggga cgaggacgag cacuucuuca ucguggaccg gcugaagagc 1320

cugaucaaau acaagggcua ccagguagcc ccagccgaac uggagagcau ccugcugcaa 1380

caccccaaca ucuucgacgc cggggucgcc ggccugcccg acgacgaugc cggcgagcug 1440

cccgccgcag ucgucgugcu ggaacacggu aaaaccauga ccgagaagga gaucguggac 1500

uauguggcca gccagguuac aaccgccaag aagcugcgcg gugguguugu guucguggac 1560

gaggugccua aaggacugac cggcaaguug gacgcccgca agauccgcga gauucucauu 1620

aaggccaaga agggcggcaa gaucgccgug ua 1652

<210> 8
<211> 8
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oignucleotide

<400> 8
uuugaauu 8

<210> 9
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oignucleotide

<400> 9
augcagagaa gcccccugga aaaggccagc gugggugucca agcuguucuu cagcuggacc 60

agacccaucc ugagaaaggg cuacagacag agacuggaac ugagcgacau cuaccagauc 120

cccagcgugg acagcgccga caaccugagc gagaagcugg aaagagagug ggacagagag 180

cuggcuagca agaagaaccc caagcugauc aacgcccuga ggcggugcuu cuucuggcgg 240

uuuauguucu acggcaucuu ccuguaccug ggcgaaguga caaaggccgu gcagccccug 300

cuccugggca gaaucauugc cagcuacgac cccgacaaca aagaggaaag aucuaucgcc 360

aucuaccugg gcaucggccu gugccugcug uucaucgugc ggacacugcu gcugcacccc 420

gccaucuucg gccugcacca caucggcaug cagaugagaa ucgccauguu cagccugauc 480

uacaagaaaa cccugaagcu gagcagcagg gugcuggaca agaucagcau cggacagcug 540

gugucccugc ugagcaacaa ccugaacaag uucgacgagg gacuggcccu ggcucacuuc 600

guguggaucg cuccacugca ggucgcccug cugaugggcc ugaucuggga gcugcugcag 660

gccagcgcuu ucugcggccu gggcuuucug auugugcugg cccuguuuca ggcuggccug 720

ggcaggauga ugaugaagua cagggaccag agagccggca agaucagcga gagacugguc 780

aucaccagcg agaugaucga gaacauccag agcgugaagg ccuacugcug ggaagaggcc 840

auggaaaaga ugaucgaaaa ccugagacag accgagcuga agcugaccag aaaggccgcc 900

uacgugcggu acuucaacag cagcgccuuc uucuucuccg gcuucuucgu gguguuccug 960

uccgugcugc ccuacgcccu gaucaagggc aucauccuga ggaagaucuu caccaccauu 1020

ucuuucugca ucgugcugag aauggccgug accagacagu uccccugggc cgugcagacu 1080

ugguacgaca gccugggcgc caucaacaag auccaggacu uccugcagaa gcaggaguac 1140

aagacccucg aguacaaccu gaccaccacc gaggugguca uggaaaacgu gaccgccuuc 1200

ugggaggaag gcuucggcga gcuguucgag aaggccaagc agaacaacaa caacagaaag 1260

accagcaacg gcgacgacuc ccuguucuuc uccaacuucu cccugcuggg cacccccgug 1320

cugaaggaca ucaacuucaa gaucgagaga ggccagcugc ucgccguggc cggcucuaca 1380

ggcgcuggca agaccucucu gcugaugguc aucaugggcg agcuggaacc cagcgagggc 1440

aagaucaagc acagcggcag aaucagcuuc ugcagccagu ucagcuggau caugcccggc 1500

accaucaaag agaacaucau cuucggcgug uccuacgacg aguacagaua cagaagcgug 1560

aucaaggccu gccagcugga agaggacauc agcaaguucg ccgagaagga caacaucgug 1620

cugggcgagg gcggcaucac ccugucuggc ggccagagag ccagaaucag ccuggccaga 1680

gccguguaca aggacgccga ccuguaccug cuggacagcc ccuucggcua ccuggacgug 1740

cugaccgaga aagagaucuu cgagagcugc gugugcaagc ugauggccaa caagaccaga 1800

auccugguca ccagcaagau ggaacaccug aagaaggccg acaagauccu gauccugcac 1860

gagggcagca gcuacuucua cggcacauuc agcgagcugc agaaccugca gcccgacuuc 1920

agcagcaaac ugaugggcug cgacagcuuc gaccaguuca gcgccgagag aagaaacagc 1980

auccugaccg agacacugca cagauucagc cuggaaggcg acgcccccgu gucuuggacc 2040

gagacaaaga agcagagcuu caagcagacc ggcgaguucg gcgagaagag aaagaacucc 2100

auccugaacc ccaucaacag cauccggaag uucagcaucg ugcagaaaac cccccugcag 2160

augaacggca ucgaagagga cagcgacgag ccccuggaaa gacggcugag ccuggugccu 2220

gacagcgagc agggcgaggc cauccugccu agaaucagcg ugaucagcac cggccccacc 2280

cugcaggcua gaaggcggca gagcgugcug aaccugauga cccacagcgu gaaccagggc 2340

cagaacaucc accgcaagac caccgccagc accagaaagg ugucccuggc uccucaggcc 2400

aaccugaccg agcuggacau cuacagcaga aggcugagcc aggaaaccgg ccuggaaauc 2460

agcgaggaaa ucaacgaaga ggaccugaaa gagugcuucu ucgacgacau ggaauccauc 2520

cccgccguga ccaccuggaa caccuaccug cgguacauca ccgugcacaa gagccugauc 2580

uucgugcuga ucuggugccu ggucaucuuc cuggccgagg uggccgccag ccugguggug 2640

cuguggcucc ugggaaacac cccucugcag gacaagggca acagcaccca cagcagaaac 2700

aacagcuacg ccgugaucau caccuccacc agcuccuacu acguguucua caucuacgug 2760

ggcguggccg acacccugcu ggcuaugggc uucuucagag gccugccccu ggugcacacc 2820

cugaucaccg uguccaagau ccugcaccau aagaugcugc acagcgugcu gcaggcuccc 2880

augagcaccc ugaacacacu gaaggcuggc ggcauccuga acagguucag caaggauauc 2940

gccauccugg acgaccugcu gccucugacc aucuucgacu ucauccagcu gcugcugauc 3000

gugaucggcg cuaucgccgu gguggccgug cugcagcccu acaucuucgu ggccaccgug 3060

cccgugaucg uggccuucau uaugcugaga gccuacuuuc ugcagaccag ccagcagcug 3120

aagcagcugg aaagcgaggg cagaagcccc aucuucaccc accucgugac cagccugaag 3180

ggccugugga cccugagagc cuucggcaga cagcccuacu ucgagacacu guuccacaag 3240

gcccugaacc ugcacaccgc caacugguuu cuguaccugu ccacccugag augguuccag 3300

augaggaucg agaugaucuu cgucaucuuc uuuaucgccg ugaccuucau cucuauccug 3360

accaccggcg agggcgaggg aagaguggga aucauccuga cccuggccau gaacaucaug 3420

agcacacugc agugggccgu gaacagcagc aucgacgugg acagccugau gagaagcgug 3480

uccagagugu ucaaguucau cgacaugccu accgagggca agcccaccaa gagcaccaag 3540

cccuacaaga acggccagcu gagcaaagug augaucaucg agaacagcca cgucaagaag 3600

gacgacaucu ggcccagcgg cggacagaug accgugaagg accugaccgc caaguacaca 3660

gagggcggca acgcuauccu ggaaaacauc agcuucagca ucagcccagg ccagagagug 3720

ggccugcugg ggagaacagg cagcggcaag ucuacccugc uguccgccuu ccugagacug 3780

cugaacaccg agggcgagau ccagaucgau ggcguguccu gggacuccau cacccugcag 3840

caguggcgca aggccuucgg cgugaucccc cagaaggugu ucaucuucag cggcaccuuc 3900

agaaagaacc uggaccccua cgagcagugg uccgaccagg aaaucuggaa ggucgccgau 3960

gaaguggggcc ugagauccgu gaucgagcag uuccccggca agcuggacuu cgugcuggug 4020

gacggcggcu gcgugcugag ccacggccac aagcagcuga ugugucuggc ccgcuccgug 4080

cugagcaagg cuaagauucu gcugcuggac gagccuagcg cccaccugga cccugugacc 4140

uaccagauca ucagaaggac ccugaagcag gccuucgccg acugcaccgu gauccugugc 4200

gagcacagaa ucgaggccau gcuggaaugc cagcaguucc uggucaucga agagaacaaa 4260

gugcggcagu acgacagcau ccagaagcug cugaacgaga gaagccuguu cagacaggcc 4320

aucagcccca gcgacagagu gaagcuguuc ccccaccgca acagcagcaa gugcaagagc 4380

aagccccaga ucgccgcccu gaaagaagag acugaggaag aggugcagga caccagacug 4440

uga 4443

<210> 10
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>

<223> chemically synthesized oligonucleotide

<400> 10
augcagcggu ccccgcucga aaaggccagu gucgugucca aacucuucuu cucauggacu 60

cggccuaucc uuagaaaggg guaucggcag aggcuugagu ugucugacau cuaccagauc 120

cccucgguag auucggcgga uaaccucucg gagaagcucg aacgggaaug ggaccgcgaa 180

cucgcgucua agaaaaaccc gaagcucauc aacgcacuga gaaggugcuu cuucuggcgg 240

uucauguucu acgguaucuu cuuguaucuc ggggagguca caaaagcagu ccaaccccug 300

uuguuggguc gcauuaucgc cucguacgac cccgauaaca aagaagaacg gagcaucgcg 360

aucuaccucg ggaucggacu guguuugcuu uucaucguca gaacacuuuu guugcaucca 420

gcaaucuucg gccuccauca caucgguaug cagaugcgaa ucgcuauguu uagcuugauc 480

uacaaaaaga cacugaaacu cucgucgcgg guguuggaua agauuuccau cggucaguug 540

gugucccugc uuaguaauaa ccucaacaaa uucgaugagg gacuggcgcu ggcacauuuc 600

guguggauug ccccgcugca agucgcacug cuuaugggac ugauuuggga acuguugcag 660

gccagcgccu uuugcggccu gggauuucuc auugugcuug cacuuuucca agcagggcuc 720

ggcagaauga ugaugaagua cagggaccag agagccggaa agaucucaga acggcucgug 780

auuacuucag aaaugaucga gaacauucaa ucggugaaag cguacugcug ggaagaggcg 840

auggaaaaga ugaucgaaaa ccucagacag accgaguuga agcugacccg gaaggccgcg 900

uacgucagau acuucaacag cagcgcuuuc uucuucucgg gcuucuucgu cguguuccug 960

ucggugcugc cguaugcccu cauuaaggga auuaucuugc ggaagaucuu uacuacuauc 1020

ucauuuugca ucguccuucg gauggcgguc acucggcagu ucccgugggc cgugcagacc 1080

ugguacgaca gccucggggc caucaacaag auccaagacu uucuccaaaa gcaagaguac 1140

aaaacccucg aauacaaccu caccacuacu gaagugguca uggaaaacgu gaccgccuuu 1200

ugggaagaag gcuucggaga acuguucgag aaggcgaagc aaaacaacaa uaaucgcaag 1260

acuagcaacg gggaugacuc acuguucuuc agcaauuucu cacugcucgg caccccggug 1320

cuuaaggaca ucaacuucaa gauugaacgc ggacagcucu uggcgguggc cggauccacc 1380

ggagcaggaa agacuagccu gcugauggug aucaugggug agcuggaacc guccgaaggc 1440

aaaaucaagc acuccggcag aaucagcuuc ugcucgcagu uuucguggau caugccagga 1500

accaucaaag agaacaucau cuuuggaguc ucauacgaug aguaccgcua cagaagcgug 1560

auuaaggccu gccagcuuga agaggacauc uccaaguucg cggaaaagga caacaucgug 1620

cugggugagg gagggaucac guugucgggc ggucagagag cccgcauuuc gcuggcacgg 1680

gcuguguaca aggaugcgga ucuuuaccuu cuggacucgc cauucgguua ccucgacgug 1740

cugaccgaaa aagaaaucuu cgagagcugc guguguaagc ugauggcuaa uaagacuaga 1800

auccucguga cguccaaaau ggaacaucuu aagaaggcgg auaagauucu cauucuucac 1860

gaggggucga gcuacuucua cgggacuuuu agcgagcugc agaauuugca gccggacuuc 1920

agcucaaagc ucaugggcug cgacucguuc gaucaguuca gcgccgaacg gcgcaauucg 1980

aucuugacgg aaacccugca cagauucucg cuggagggag augcaccugu cucguggacc 2040

gaaaccaaga agcaguccuu caagcagacg ggagaguucg gagaaaagcg gaagaacuca 2100

auccucaacc caaucaacuc cauucgcaaa uucucaaucg ugcagaaaac uccacugcag 2160

augaacggua ucgaagagga uucggacgag ccacuugagc ggagacuguc gcuggugcca 2220

gauucagaac agggggaggc aauccugccg cgcauuuccg ugaucagcac ugggccgacc 2280

cuccaagcua gacgcaggca aucagugcug aaucucauga cccacuccgu caaccaggga 2340

cagaauaucc accgcaagac caccgcgucg acuagaaagg ugucauuggc accgcaagca 2400

aauuugacug aacuugacau cuacucacgg cgccucuccc aagaaaccgg auuggaaauc 2460

uccgaagaga uuaacgaaga agauuugaaa gaguguuucu ucgacgauau ggagucgauc 2520

cccgcaguga ccacuuggaa uacguaucuu cgguacauca ccgugcacaa gagccugauc 2580

uucguccuca ucuggugccu ggugaucuuu cuggccgaag ucgccgcuuc gcuggucgug 2640

cuguggcugc ucgguaauac cccgcuccaa gacaaaggca auuccacuca cucgcgcaac 2700

aacagcuacg cugugauuau cacgucaacc ucgucguacu auguguucua caucuacgug 2760

ggagucgcgg acacucugcu cgcuaugggc uucuuucgcg gacugccccu gguccacacu 2820

cucaucacgg ugagcaagau ccuccaucau aagaugcucc auuccgugcu gcaggccccg 2880

augagcacuc ucaacacucu gaaggcgggu ggaaucuuga acagauuuuc caaagacauc 2940

gcgauucugg acgaucugcu cccacucacu aucuucgacu ucauccaacu gcugcugauc 3000

gucaucggag cuaucgccgu gguggcuguc cuccagccgu auaucuucgu ggccacugug 3060

ccggugauug ucgcuuucau cauguugcgc gcguacuucu ugcaaaccuc gcagcaacuc 3120

aagcaacugg aguccgaggg ccggagccca aucuuuaccc aucuggugac uucacugaaa 3180

ggucugugga cccuccgcgc cuuuggucgc cagccuuacu ucgaaacucu cuuucacaaa 3240

gcacugaauc uccacacugc aaacugguuc uuguaccugu ccacccugcg gugguuccaa 3300

augcggaucg agaugaucuu ugucaucuuc uucaucgccg ugacuuuuau cuccauccuc 3360

accaccggcg agggagaggg gagaguggga aucauccuga cgcuggcgau gaauaucaug 3420

uccacuuugc agugggccgu caauucgagc aucgacgugg auucgcugau gcgcagcgug 3480

ucgcgcgugu ucaaguucau cgauaugccc accgaaggua aacccaccaa gagcacgaag 3540

ccuuacaaga acgggcagcu cucaaaggug augauuaucg agaacuccca ugugaagaag 3600

gacgacaucu ggccauccgg aggacagaug accgugaagg accugaccgc caaauacacg 3660

gagggcggaa augcaauccu cgaaaacauc ucguucucca ucucgccugg ccaaagggug 3720

ggacuuuugg gacgcacugg auccggaaag agcacccugc uuagcgccuu cuugaggcuc 3780

uugaacaccg agggcgaaau ccagaucgau ggcgugucgu gggauucgau cacccugcag 3840

caguggagaa aggccuucgg ggugaucccg caaaaagugu ucaucuucuc cggaacguuu 3900

cggaaaaacc uugacccaua cgaacaaugg ucggaucaag agauuuggaa ggucgccgac 3960

gaaguggggc ugcgcuccgu gaucgagcag uuuccgggaa aacuggacuu cgucuugguc 4020

gacggcggau gcguccuguc ccacggacau aagcagcuga ugugccuggc ccgcagcguc 4080

cuuucaaaag cuaagauccu gcugcuggau gaaccuucag cacaccucga cccggucacc 4140

uaccagauca ucagacggac ccugaaacag gccuuugcgg auuguacugu gaucuugugu 4200

gaacaccgca uugaagccau gcuggagugc cagcaguucc uggucaucga agagaacaaa 4260

gugcggcagu acgauuccau ccaaaaacug cucaaugagc ggucccuguu cagacaggca 4320

auuagcccga gcgacagggu caaauuguuc ccccauagaa auucgucgaa auguaaguca 4380

aagccucaga ucgcggcacu gaaagaagaa acugaagaag aggugcaaga caccagacug 4440

uga 4443

<210> 11
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 11
augcagagaa gcccacugga aaaggcgucg guggugucaa agcuguucuu uagcuggacc 60

agaccuaucu ugcggaaggg auaccgccaa cgccuggagc ugucggacau cuaccagauu 120

ccgucagugg auucagcaga caaucucucc gaaaagcugg aacgcgaaug ggacagagag 180

uuggcgucaa agaagaaccc aaaguugauc aaugcccugc gccgcugcuu cuucuggcgg 240

uucauguucu acggaaucuu ucuguaccuc ggcgaaguca ccaaggcugu gcaaccgcuu 300

cugcugggac gcaucaucgc cucauacgac ccggacaaca aggaagaacg cuccaucgca 360

aucuaccucg ggaucggccu cugccugcug uuuaucgugc ggacgcugcu gcuccaucca 420

gccauuuucg gacugcacca cauuggcaug caaaugcgga ucgccauguu cagccugauc 480

uacaaaaaga cccugaaguu gagcucacgg guguuggaua agauuucgau cggacagcug 540

gugucgcugc ucuccaacaa ccucaacaag uuugacgaag gccuggcacu ggcccacuuc 600

guguggauug ccccguugca agucgcccuu uugaugggcc uuauuuggga gcuguugcag 660

gcaucugccu uuuguggccu gggauuucug auuguguugg cauuguuuca ggcugggcuu 720

gggcggauga ugaugaagua ucgcgaccag agagcgggua aaaucucgga aagacucguc 780

aucacuucgg aaaugaucga aaacauccag ucggucaaag ccuauugcug ggaagaagcu 840

auggagaaga ugauugaaaa ccuccgccaa acugagcuga aacugacccg caaggcggcg 900

uauguccggu auuucaauuc gucagcguuc uucuuuuccg gguucuucgu ugucuuucuc 960

ucgguuuugc cuuaugccuu gauuaagggg auuauccucc gcaagauuuu caccacgauu 1020

ucguucugca uuguauugcg cauggcagug acacggcaau uuccgugggc cgugcagaca 1080

ugguaugacu cgcuuggagc gaucaacaaa auccaagacu ucuugcaaaa gcaagaguac 1140

aagacccugg aguacaaucu uacuacuacg gagguaguaa uggagaaugu gacggcuuuu 1200

ugggaggaag gauucggcga auuguucgaa aaggcuaagc agaacaacaa caaucggaaa 1260

accuccaaug gggacgauuc gcuguucuuc ucgaauuucu cccugcuggg aacgcccgug 1320

cuuaaagaca ucaacuucaa gaucgaacgg ggccagcugc ucgcggucgc gggcagcacu 1380

ggagcgggaa agacuucccu gcucaugguc aucaugggag agcuggagcc cucggagggc 1440

aaaaucaagc acucggggag gaucucauuu ugcagccagu ucucguggau caugcccggu 1500

acuaucaaag aaaacaucau cuuuggaguc agcuaugacg aguaccgcua ccggucggug 1560

aucaaggccu gccagcugga agaagauauc uccaaguucg ccgaaaagga caacauugug 1620

cugggagaag guggaaucac ucucucggga ggccagcgcg cacggaucuc acucgcaagg 1680

gccguguaca aggaugccga uuuguaccug uuggauucgc cguucgguua ucuugauguc 1740

cucacugaga aagagauuuu ugagucgugc gucuguaagc ugauggccaa caaaacccgc 1800

auccugguga ccucgaagau ggagcacuug aagaaggccg acaaaauccu uauccuccau 1860

gaggguagcu cauacuucua cggcaccuuu ucggaacugc agaaucugca gcccgacuuc 1920

ucaucaaaac ugaugggaug ugacucguuc gaucaguucu cggcggagcg gcggaacucg 1980

auccucaccg aaacucucca ccgguucagc cucgagggag augccccagu cagcuggacc 2040

gaaacuaaga agcaguccuu caaacagacc ggagaguucg gagaaaaacg caagaacucc 2100

auccucaauc caaucaacag cauccgcaag uucagcaucg ugcagaaaac uccacuucag 2160

augaacggaa ucgaagagga uagcgacgag ccgcuugagc ggagauuguc acuggugccg 2220

gacagcgagc aaggggaagc gauucugccg cggaucuccg ugaucucgac uggcccuacc 2280

cuccaagcuc gcagacgcca gagcgugcug aaucucauga cccacucagu caaccaggga 2340

caaaacaucc auagaaagac caccgcuuca acccggaaag ugucacuugc accgcaggca 2400

aaccugaccg aacucgacau cuacagcaga cggcucucac aagaaacugg auuggagauc 2460

agcgaagaga ucaacgaaga agaucucaaa gaaugcuucu ucgacgauau ggaguccauc 2520

ccagcaguca cuacguggaa uaccuaccuc cgcuacauca cugugcacaa gagccugauu 2580

uucguguuga ucuggugccu ggucaucuuc uuggccgagg uggccgcgag ccucgugguc 2640

cucuggcugc ucggcaauac gccgcugcaa gauaagggaa auuccacgca uagcagaaac 2700

aacucauacg cagugaucau cacuagcacu ucaucguacu acguguucua caucuacgug 2760

gggguggccg auacucuguu ggcaauggga uucuuuagag ggcugccucu ggugcauacu 2820

cugaucacug uguccaagau ccuccaccac aagaugcucc acuccgugcu ucaggccccu 2880

augucaacuc ucaacacccu caaggccgga gguauucuua aucgcuuuuc caaggacauc 2940

gccauucucg augacuugcu uccccugacu aucuucgacu uuauccaguu gcugcugauu 3000

gugaucggcg cuauugccgu cgucgcagug cugcaaccgu acaucuuugu ggcuaccguc 3060

ccagucauug uggccuucau caugcucagg gcauacuuuc uccagaccag ccagcagcuc 3120

aagcagcucg aauccgaagg cagaucgccg aucuucaccc accucgucac uucgcucaag 3180

ggccucugga cccugcgcgc cuucggucgc cagccguauu ucgaaacccu guuccauaaa 3240

gcacugaacc uccauacugc gaacugguuu cucuaccuuu caacccugag gugguuccag 3300

augagaaucg agaugaucuu ugugaucuuc uuuaucgcug ugacguucau cuccauucuc 3360

acuaccggcg agggagaggg cagaggcggg auuauccuca cgcuggccau gaauaucaug 3420

agcacgcugc agugggccgu caauagcagc aucgacgugg acucccugau gcgguccgug 3480

ucgagagugu uuaaguucau cgauaugccu acugaaggga aaccgaccaa gucgaccaag 3540

ccguacaaga augggcagcu gagcaaggug augauuauug agaacuccca ugugaagaag 3600

gacgacaucu ggcccagcgg aggccagaug accgugaagg acuugaccgc uaaguacacu 3660

gaggguggaa augccauucu ugagaauauc agcuucucga ucucgccggg acaacgcgug 3720

ggauugcucg ggcgcacugg cagcggcaaa uccacccugc uuagcgcuuu ucugaggcug 3780

cugaacacug aaggugaaau ucaaaucgau ggagugucgu gggauagcau cacccuucaa 3840

caguggcgca aggccuucgg cgugaucccu caaaaggucu uuaucuucuc ggggacguuc 3900

cggaaaaauc ucgaccccua cgaacagugg ucagaccaag agauuuggaa agucgcagau 3960

gaggucggac ugcgcucagu gaucgaacag uuuccgggua aacuugacuu cgugcucguc 4020

gauggagguu gcguccuguc ccacggacau aagcagcuga ugugucuggc gcgcucgguc 4080

cucuccaaag cgaagauccu gcugcucgau gaaccguccg cccaccuuga uccagugacc 4140

uaucagauca uucggagaac uuugaagcaa gccuucgcug acugcaccgu cauccucugc 4200

gaacaccgga ucgaggcaau gcuggagugc caacaguuuc uggucaucga agaaaacaaa 4260

gugcgccagu augacucgau ccaaaaacuu cugaacgagc gcucccucuu ccggcaggca 4320

aucagcccau ccgaccgcgu gaaguuguuc ccucaucgga auagcuccaa augcaaaucg 4380

aagccgcaga ucgcugccuu gaaagaagaa accgaagaag aaguccaaga cacuagguug 4440

uag 4443

<210> 12

<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 12
augcagcggu ccccucugga gaaggcuucc guggucagca agcuguucuu cucguggacc 60

agaccuaucc uccgcaaggg auaccgccag cgccuggagc ugucagauau cuaccagauc 120

ccaagcgugg acucagccga caaucugagc gaaaagcugg aacgggagug ggaccgggag 180

cucgccucca agaagaaucc gaaguugauc aaugcgcugc gcagaugcuu cuucuggcgg 240

uuuauguuuu acggcaucuu ucuguaucuc ggagaaguga ccaaagccgu gcagccgcug 300

cucuugggua ggaucauugc uucguacgac ccggacaaca aagaagaacg cuccaucgcc 360

aucuaccucg gaaucggucu gugccugcuc uuuaucgugc gcacucuccu gcugcauccg 420

gcgaucuucg gacugcacca caucggcaug caaaugcgga ucgcaauguu cucacugauc 480

uacaaaaaga cucugaagcu cagcuccaga gugcuggaua agaucucgau cgggcaacuc 540

gucagccugc ugucgaacaa ucugaauaag uucgacgaag gguuggcccu cgcacauuuc 600

guguggaucg caccgcugca aguggcgcuc cugaugggac ucauuuggga acugcuccaa 660

gccagcgcgu uuugcggacu cggauuccug aucgugcucg cccuguucca agccggacug 720

gggcgcauga ugaugaagua ccgcgaucag cgggcaggaa agaucuccga gcgguuggug 780

aucacuuccg aaaugaucga gaauauucag uccgugaagg ccuacugcug ggaagaagcu 840

auggaaaaga ugauugaaaa cuugcggcaa acugagcuga aauugacucg caaagcggca 900

uacguccgcu acuucaauag cagcgccuuc uucuuuucgg gcuuuuucgu gguguuucug 960

agcgugcugc ccuacgcucu gaucaaggga aucauccucc ggaaaaucuu caccaccauu 1020

ucguucugua ucguguugcg cauggccgug acucgccagu uccccugggc ggugcagacc 1080

ugguacgaca gcuugggggc aaucaauaag auucaagacu ucuugcaaaa gcaggaguac 1140

aagacucugg aguacaaccu gaccaccacu gaagucguga uggagaacgu gaccgccuuu 1200

ugggaagagg guuuuggaga acuguuugag aaagcaaagc agaauaacaa caaccgcaag 1260

accucaaaug gggacgauuc ccuguuuuuc ucgaacuucu cccugcucgg aacacccgug 1320

uugaaggaca ucaauuucaa gauugagagg ggacagcuuc ucgcgguagc gggaagcacu 1380

ggugcgggaa aaacuagccu cuugauggug auuaugggggg agcuugagcc cagcgagggg 1440

aagauuaaac acuccgggcg uaucucauuc uguagccagu uuucauggau caugcccgga 1500

accauuaaag agaacaucau uuucggagua uccuaugaug aguaccgaua cagaucgguc 1560

auuaaggcgu gccaguugga agaggacauu ucuaaguucg ccgagaagga uaacaucguc 1620

uugggagaag gggguauuac auugucggga gggcagcgag cgcggaucag ccucgcgaga 1680

gcgguauaca aagaugcaga uuuguaucug cuugauucac cguuuggaua ccucgacgua 1740

uugacagaaa aagaaaucuu cgagucgugc guguguaaac uuauggcuaa uaagacgaga 1800

auccugguga cuuccaaaau ggagcaucuc aagaaggcgg acaagauccu gauucugcau 1860

gagggaucaa gcuauuucua cggaacuuuu uccgagcugc agaaccucca gccggauuuu 1920

agcuccaagc ugauggguug cgacucauuc gaccaauucu cggcugagcg gcggaacuca 1980

auccugaccg aaacccugca ucgcuucucc cuugagggag augccccggu gucguggacu 2040

gagacuaaaa agcagucguu uaagcaaacu ggcgaauucg gcgaaaagcg gaagaauagc 2100

auccucaacc caaucaacag cauucggaag uucagcaucg uccaaaagac cccgcuccag 2160

augaacggca uugaagagga cucagacgag ccauuggaaa gacgccuguc acuggcccca 2220

gauucggagc agggugaagc aauucugccu cggaucucgg ucaucucgac uggccccacu 2280

cuccaagcuc ggcggagaca gagcgugcuu aacuugauga cccacuccgu gaaccagggu 2340

cagaacaucc accgcaaaac caccgccucc accaggaagg ugucacuggc cccucaagcc 2400

aaucugacug aguuggauau cuacuccaga aggcucagcc aggaaaccgg acuggaaauc 2460

ucggaagaga ucaacgaaga ggaucucaaa gaguguuucu ucgacgacau ggaaucaauc 2520

ccugcuguca cuacuuggaa caccuaucuc cgcuacauua ccgugcacaa gucacucauc 2580

uucguccuga ucuggugccu cgugaucuuc cuggccgagg ucgcagcauc gcuggucgug 2640

cuguggcugc ucggcaacac cccacuccaa gacaaaggca acagcaccca uucccgcaac 2700

aacuccuacg cggugaucau cacuucaacu ucguccuacu acgucuuuua caucuacgug 2760

ggcguggcgg acacgcuccu ggcuaugggg uucuuucgcg ggcugccucu uguccacacg 2820

cucaucacug ugucaaagau ucuccaccac aaaaugcugc acuccgugcu ccaggccccu 2880

augucgacuu ugaacacgcu uaaggccgga ggcauccuua acagauucuc gaaagauauc 2940

gcgaucuugg acgaucuucu gccgcugacu aucuuugacu ucauccaacu ccugcugauc 3000

gucaucggug ccaucgcagu ggucgcggug cuccaaccgu acauuuucgu ggcgacugug 3060

ccggugaucg uggcguucau caugcugcgg gcuuacuuuc uucagaccuc acagcagcug 3120

aagcaacucg aaucggaggg uagaucacca aucuuuaccc accucgucac cucgcugaag 3180

ggacucugga cccugcgcgc auuuggacgg caaccguacu ucgagacucu cuuccauaag 3240

gcccugaauc ugcauacggc gaauugguuu cuuuaccucu cgacgcuccg cugguuccag 3300

augcgcauug agaugauuuu cgucaucuuu uucaucgcgg ugaccuucau cuccauccuc 3360

accacgggug agggagaggg cagagucgga auuauccuca cucuggccau gaacaucaug 3420

uccacucugc agugggccgu caacucaucc auugacgugg acucgcugau gcgcuccgug 3480

ucgagagugu ucaaguucau cgauaugccg accgagggaa agccaacuaa gucgaccaag 3540

ccguacaaaa acggacagcu gagcaagguc augaucaucg aaaacuccca cgugaaaaag 3600

gaugacaucu ggccguccgg uggacagaug acggugaagg aucugacugc gaaguacacu 3660

gagggaggga augccauccu cgaaaacauc ucauucucaa ucuccccugg acagaggguc 3720

gggcugcugg gccgcacugg cucggggaag ucgacucuuc uuucggcauu ucugcgcuug 3780

cucaauaccg agggagaaau ccagaucgau ggagugucau gggacucgau cacccugcag 3840

caguggcgca aggcuuuugg cgucaucccg caaaaggugu ucaucuucuc gggcacuuuu 3900

agaaagaauc uggaucccua cgaacagugg ucagaucaag agauuuggaa agucgcagac 3960

gaaguggggcc uccgguccgu gauugaacag uuuccgggaa agcucgacuu cgugcuugug 4020

gacggaggau gugugcugag ccacggccac aaacagcuca ugugccuggc ucggucgguc 4080

cugucgaaag caaagauccu gcugcuggac gaaccgucgg cacaccucga uccagugacg 4140

uaccagauca uccggcggac ccugaagcag gccuucgcag acugcacugu cauuuugugu 4200

gaacacagaa ucgaagcuau guuggagugc cagcaguucc uggucaucga agaaaacaaa 4260

guccgccagu acgauucgau ucagaagcug cugaacgaac ggagccucuu cagacaggcg 4320

aucagcccca gcgaucgggu caaguuguuc ccgcaucgga acagcagcaa guguaaguca 4380

aagccucaga ucgcugcacu caaagaagag acugaagaag aagugcaaga caccagacuc 4440

uga 4443

<210> 13
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 13
augcagcgcu cgccucugga gaaagccuca gucgugucaa aacuguucuu uagcuggacu 60

cgcccgauuc uccggaaggg uuauagacag cgcuuggagc ucuccgacau cuaccaaauc 120

ccuuccgugg acuccgccga caaccugucg gagaagcucg aacgcgagug ggaccgggaa 180

cucgcgucca aaaagaaucc aaaacucauu aaugcacugc gccgcugcuu cuucuggcgc 240

uuuauguuuu acgguaucuu ucucuaccug ggcgagguga cgaaagcagu gcagccgcuc 300

cugcuuggca gaauuaucgc cucguacgau ccggauaaca aagaagaacg cucaaucgcu 360

aucuaccucg guaucggauu gugccugcuu uucaucgugc gcacccuguu gcugcacccg 420

gcgauuuucg gacuccacca caucggaaug caaaugagaa uugcaauguu cucauugauc 480

uacaaaaaga cccuuaaacu gucgucccgc guccucgaca agauuucaau cggccagcug 540

gugucgcuuc uuucgaauaa ucuuaacaag uucgaugaag gacucgcgcu cgcccauuuc 600

guguggaucg caccacuuca agucgcacug cucaugggac ugauuuggga guugcugcag 660

gcuuccgccu uuugcggccu gggauuccug aucguccugg cuuuguucca ggcuggacug 720

ggcagaauga ugaugaagua ccgggaccag cgggcaggaa agaucagcga aaggcucgug 780

aucacuagcg aaaugaucga gaacauccaa uccgucaagg cguacugcug ggaagaagcg 840

auggagaaga ugaucgaaaa ucuucgccag accgaacuca aacucacuag aaaggcugcc 900

uacgugcgcu acuuuaacag cucagcauuu uucuucuccg gauuuuucgu gguguuccug 960

ucggugcugc cauacgcccu gaucaagggg aucauucuuc gcaaaaucuu caccacgauc 1020

ucauucugca uuguccuccg gauggccgug acgcggcagu ucccuugggc agugcaaacu 1080

ugguacgauu cgcugggggc cauuaacaag auucaagauu uucuucaaaa gcaggaguac 1140

aaaacccugg aguacaaucu gaccacuacg gaagucguga uggaaaacgu gacugcuuuu 1200

ugggaggaag gcuucggcga acuuuuugaa aaggcaaagc aaaacaauaa caacagaaag 1260

acgucaaacg gcgaugacuc gcuguucuuc uccaauuucu cccugcucgg caccccugug 1320

cugaaggaca ucaacuucaa aauugaacgc ggacagcugc uggccguggc gggaucgacc 1380

ggggcuggga aaaccucguu guugauggug aucaugggag aacucgaacc cucggaggga 1440

aagauuaagc auagcggacg gaucagcuuc uguucccagu ucucguggau caugccggga 1500

accauuaagg aaaacaucau cuucggcgug uccuacgacg aguaccggua uaggucggug 1560

aucaaggccu gccaguugga agaggacauc uccaaguucg cugagaagga caacaucgug 1620

cucggugaag ggggcauuac ucuguccggu ggccagcgcg cgagaauuuc gcuggcucgc 1680

gcgguguaca aagaugcgga ucucuaucug cuggauucgc ccuucggaua ccucgauguc 1740

cucacggaga aggagaucuu cgaaucgugc gugugcaagu ugauggcgaa caagacuagg 1800

auccugguca cuuccaagau ggagcacuug aagaaggccg auaagaucuu gauccuccau 1860

gaaggaucga gcuacuuuua cggaacuuuc ucagagcugc agaacuugca gccggacuuc 1920

ucaagcaaac ugauggguug cgacucguuc gaccaguuuu cggcagaacg gcggaacucg 1980

auccugacug agacucugca ucgcuuuucg cuggaaggcg augccccugu guccuggacu 2040

gaaaccaaga agcaauccuu caaacaaacu ggagaauucg gagaaaagcg gaagaacucc 2100

auccuuaacc ccaucaauag cauccggaag uucucaaucg uccaaaagac cccgcugcag 2160

augaauggca ucgaagaaga uagcgacgaa ccucuugaaa gacggcuguc cuuggugcca 2220

gacucagaac agggagaagc uauccugccg cggaucuccg ugaucagcac cggaccgacu 2280

cugcaggcuc gcagacgcca gagcgugcuc aaccugauga cccacuccgu gaaccaggga 2340

caaaacaucc auagaaagac cacggccucc accagaaaag ucucccuggc accgcaagcc 2400

aaccugacug aacuggacau cuacagcaga aggcucagcc aagaaaccgg acuggagauu 2460

ucagaagaaa ucaacgagga agaucuuaaa gagugcuucu ucgacgacau ggaaucgauc 2520

ccagccguga ccacuuggaa uaccuaucug agauacauca ccgugcacaa aucccugauc 2580

uucgugcuga ucuggugccu ggugaucuuc cuggcugagg uggccgccuc acugguggug 2640

cuuugguugc uggggaauac gccgcuccaa gacaagggaa acuccacgca cuccagaaac 2700

aacucguacg ccgugaucau cacgucgacu ucgucguacu acguguucua caucuacguc 2760

gguguggcag acacucucuu ggcgaugggc uuuuuccggg gacugccacu gguccacacc 2820

cugaucaccg uguccaaaau cuugcaccac aagaugcucc acagcgugcu gcaagccccg 2880

augagcaccc ugaauacccu caaagcggga ggcauccuca acagauucag caaggacauc 2940

gccauccucg acgaccuguu gccccugacc aucuucgauu ucauccagcu ucuucucauc 3000

gugaucgggg caaucgcugu cguggcggug cugcagccgu acaucuucgu ggcgacugug 3060

ccagugaucg ucgccuuuau caugcugcgg gccuacuuuc uccaaacuuc ccaacagcug 3120

aaacaacugg agucggaggg ccgcagcccu aucuucaccc aucuggugac cagccucaaa 3180

ggacugugga cucugagggc uuucgggagg cagccauacu ucgagacucu cuuucacaag 3240

gcccugaauc uccauacggc aaauugguuu uuguauuuga guacccuccg augguuucag 3300

augcgcauug agaugauuuu ugugaucuuc uuuaucgcgg ugacuuuuau cuccaucuug 3360

accacgggag agggcgaggg acgggucggu auuauccuga cacucgccau gaacauuaug 3420

agcacuuugc agugggcagu gaacagcucg auugaugugg auagccugau gaggcccguu 3480

ucgagggucu uuaaguucau cgacaugccg acggagggaa agcccacaaa aaguacgaaa 3540

cccuauaaga augggcaauu gaguaaggua augaucaucg agaacaguca cgugaagaag 3600

gaugacaucu ggccuagcgg gggucagaug accgugaagg accugacggc aaaauacacc 3660

gagggaggga acgcaauccu ugaaaacauc ucguucagca uuagccccgg ucagcgugug 3720

ggguugcucg ggaggaccgg gucaggaaaa ucgacguugc ugucggccuu cuugagacuu 3780

cugaauacag agggugagau ccagaucgac ggcguuucgu gggauagcau caccuugcag 3840

caguggcgca aggcguucgg agucauuccc caaaaggugu ucaucuuuuc gggaaccuuc 3900

cgcaagaauc uggauccgua cgaacagugg agcgaccaag agauuuggaa aguggcagau 3960

gaagugggau ugcggagcgu caucgaacag uuuccgggaa agcucgauuu cguccuugug 4020

gacgguggau gugugcuguc gcacggccau aagcagcuga ugugucucgc ccgcucggug 4080

cugucaaagg cgaagauccu cuugcuggau gagccaucag cccaucugga cccggugacg 4140

uaccagauca uuagacggac gcugaaacag gcauucgcgg acugcacugu gauccucugu 4200

gaacaucgga ucgaggccau gcuggagugu caacaauucu uggucaucga agagaacaaa 4260

gugcggcagu acgacagcau ccaaaagcug cugaacgaga ggucccucuu ccgccaggcc 4320

aucuccccau ccgaccgggu caagcuguuc ccucaccgca acagcucaaa gugcaaaucc 4380

aaaccccaga ucgcagcgcu gaaagaagaa acugaagaag aagugcaaga cacuagacug 4440

uga 4443

<210> 14
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 14
augcaaaggu ccccauugga gaaggccuca gugguucga agcuguucuu cucguggacc 60

aggccuaucc uccggaaggg auacagacag cggcuggaac uguccgauau cuaccagauc 120

cccagcgugg acagcgccga uaaucucagc gaaaagcugg aacgggaaug ggaccgcgaa 180

cucgcuucga agaagaaccc gaagcugauu aaugcucugc ggagauguuu cuuuuggcgg 240

uucauguuuu acggaaucuu ucuguacuug ggagagguca cgaaggcugu gcagccucug 300

cugcugggac ggauuaucgc gucguaugac cccgacaaua aggaagaacg cagcaucgca 360

aucuaccugg gcaucggauu gugccugcug uucaucguga gaacucuccu gcugcaucca 420

gccaucuucg gacuccacca cauuggaaug cagaugagaa ucgcaauguu cucccugauc 480

uacaagaaaa cgcucaagcu cagcagccgc gugcucgaua agaucagcau cggucaauug 540

gugucccugc ugucgaauaa ccucaacaag uucgacgaag gguuggcccu cgcucacuuc 600

guguggaucg caccucugca aguggcccug cugaugggac ugauuuggga gcugcugcag 660

gcuuccgcuu ucugcggccu gggauuucuu aucgugcuug cucuguucca ggcgggacug 720

ggacgcauga ugaugaagua ccgggaccaa cgggcuggaa agaucagcga acggcuggug 780

aucacuuccg aaaugauuga gaauauccag ucagucaagg cguacugcug ggaagaggcu 840

auggaaaaga ugauugaaaa ucugagacaa accgagcuga agcugacucg gaaagcggcc 900

uacgucagau acuucaauag cucagcuuuc uuuuucucgg gguuuuucgu cguguuccug 960

ucggugcuuc ccuaugcccu gauuaagggc aucauucugc gcaagaucuu cacuacgauc 1020

ucauucugca ucgugcugcg cauggcugug accagacaau ucccgugggc cgugcaaacc 1080

ugguacgauu cacugggagc caucaacaag auccaagacu uucuccaaaa acaggaguau 1140

aagacccugg aguacaaccu gacuacuacc gaggugguga uggagaacgu gacugcguuu 1200

ugggaagaag gguucggcga acuguuugaa aaggccaagc agaacaauaa caacagaaag 1260

acuucaaacg gagaugacuc gcuguucuuu ucgaacuuca gccugcuggg uaccccagug 1320

uugaaagaua ucaacuucaa gauugagaga ggacagcugc uggcuguggc gggauccacc 1380

ggagcaggaa aaacuucacu ccugauggug aucaugggag aacucgaacc gucagagggg 1440

aagauuaaac acucgggaag aaucucauuu ugcucccaau uuucauggau uaugccggga 1500

accauuaaag aaaacauuau cuucggcgug uccuacgacg aguaccgcua cagaucggug 1560

aucaaagcau gccagcugga agaggacauc ucgaaauucg cugaaaaaga caauaucgug 1620

cucggggaag gcggcaucac ccucagcgga ggacaacggg cacggauuuc gcucgcacgc 1680

gcagucuaca aagacgccga ucucuaccuc uuggacagcc cauucgggua ucuggacgug 1740

cucaccgaga aagagaucuu cgaaagcugc gucugcaagc ucauggccaa caagacccgc 1800

auccucguga cgucgaagau ggaacaucuu aagaaggcug acaagauucu cauucuccau 1860

gaagggagcu cauacuucua cggcaccuuu uccgagcucc agaaucugca accggacuuc 1920

ucguccaagc ugaugggcug cgauucguuu gaucaguucu ccgccgagcg gagaaacagc 1980

auucugacgg aaacccugca ccgguucucg cuggaaggcg augcaccggu gucguggacc 2040

gaaacuaaga agcaaucguu caagcagacg ggagaguuug gagagaagcg gaaaaacucc 2100

auccucaacc cgaucaacag cauccggaag uucagcaucg ugcaaaagac cccgcuccag 2160

augaauggca uugaagagga cuccgacgaa ccuuuggaac gcagacugag ccucgugccg 2220

gauucagaac agggagaagc cauucugcca cggaucuccg ugaucagcac ugggccaacu 2280

cuccaagcac ggcggaggca guccgugcug aaucuuauga cgcacagcgu gaaccaaggg 2340

cagaacaucc auagaaaaac gaccgcuucg accaggaaag ucucccucgc cccacaagcu 2400

aaccucacgg aacuggauau cuacucccgc agacugucgc aagagacugg ccuugagauc 2460

uccgaagaga uuaacgaaga agaucucaaa gaauguuucu ucgaugauau ggaaucaauc 2520

ccggcaguga ccacuuggaa caccuacuug cgcuauauca cugugcacaa aagccuuauc 2580

uucguccuca ucuggugccu cgucaucuuc cuggcugagg ucgcagccuc gcuggucgug 2640

cucugguugc ucggaaacac uccgcugcag gauaagggga auucgacuca cucgcggaac 2700

aauucguacg cugucauuau caccucgacg ucgucauacu acguguuuua caucuacgug 2760

ggaguggcug acacucuguu ggcuaugggg uucuuucgcg gccugccacu gguccauacu 2820

cucauuacug uguccaaaau ccuucaucac aagauguugc auucagugcu gcaagcaccg 2880

auguccaccc ucaauacccu uaaggcuggc gggauucuca accgcuucuc gaaagacauc 2940

gccauccucg augaucuucu gccucucacc aucuuugauu ucauccagcu gcuccugauc 3000

gugaucggag cgauugccgu gguggcagug uugcagccgu acaucuuugu cgcaacugug 3060

ccggucaucg ucgccuucau caugcugcgc gccuacuucu ugcaaacguc acagcaacug 3120

aagcagcuug aauccgaggg aagaucaccu aucuucaccc accucgugac uucgcugaag 3180

gggcugugga cgcugcgcgc auuuggaagg caaccguacu ucgagacuuu guuccacaag 3240

gcgcucaauc uucacacugc caauugguuc uuguaccugu caacgcugag augguuucag 3300

augcggaucg aaaugaucuu cgugaucuuc uuuaucgcgg ugacuuucau cucgauccug 3360

acuaccggag agggagaagg acgggugggu auuauccuca cucuggcgau gaacaucaug 3420

ucgacgcuuc agugggcggu gaauagcuca aucgaugucg acucgcugau gcgcuccgug 3480

agccgggugu uuaaguucau cgacaugcca acugaaggga agccgaccaa gucgaccaaa 3540

ccguacaaaa acggacagcu cuccaaggug augauuaucg agaauuccca cgugaaaaag 3600

gacgacaucu ggccauccgg uggacagaug accgugaagg accugaccgc gaaguacacu 3660

gagggaggca acgcaauccu ugagaacauc agcuucucca ucucgcccgg ucagagggug 3720

ggccuucuug gccggaccgg aucgggaaag uccacucuuc ugucggccuu ucuucgccuc 3780

uugaauacug aaggggaaau ccagaucgac ggagugucgu gggauagcau cacucugcag 3840

caguggcgga aagcguuugg aguaaucccc caaaaggucu uuaucuuuag cggaaccuuc 3900

cgaaagaauc ucgauccuua ugaacagugg ucagaucaag agauuuggaa agucgcggac 3960

gagguuggcc uucggagugu aaucgagcag uuuccgggaa aacucgacuu uguccuugua 4020

gaugggggau gcguccuguc gcaugggcac aagcagcuca ugugccuggc gcgauccguc 4080

cucucuaaag cgaaaauucu ucucuuggau gaaccuucgg cccaucugga cccgguaacg 4140

uaucagauca ucagaaggac acuuaagcag gcguuugccg acugcacggu gauucucugu 4200

gagcaucgua ucgaggccau gcucgaaugc cagcaauuuc uugucaucga agagaauaag 4260

guccgccagu acgacuccau ccagaagcug cuuaaugaga gaucauuguu ccggcaggcg 4320

auuucaccau ccgauagggu gaaacuuuuu ccacacagaa auucgucgaa gugcaagucc 4380

aaaccgcaga ucgcggccuu gaaagaagag acugaagaag aaguucaaga cacgcgucuu 4440

uaa 4443

<210> 15
<211> 4473
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 15
augcagcggu ccccgcucga aaaggccagu gucgugucca aacucuucuu cucauggacu 60

cggccuaucc uuagaaaggg guaucggcag aggcuugagu ugucugacau cuaccagauc 120

cccucgguag auucggcgga uaaccucucg gagaagcucg aacgggaaug ggaccgcgaa 180

cucgcgucua agaaaaaccc gaagcucauc aacgcacuga gaaggugcuu cuucuggcgg 240

uucauguucu acgguaucuu cuuguaucuc ggggagguca caaaagcagu ccaaccccug 300

uuguuggguc gcauuaucgc cucguacgac cccgauaaca aagaagaacg gagcaucgcg 360

aucuaccucg ggaucggacu guguuugcuu uucaucguca gaacacuuuu guugcaucca 420

gcaaucuucg gccuccauca caucgguaug cagaugcgaa ucgcuauguu uagcuugauc 480

uacaaaaaga cacugaaacu cucgucgcgg guguuggaua agauuuccau cggucaguug 540

gugucccugc uuaguaauaa ccucaacaaa uucgaugagg gacuggcgcu ggcacauuuc 600

guguggauug ccccguugca agucgcccuu uugaugggcc uuauuuggga gcuguugcag 660

gcaucugccu uuuguggccu gggauuucug auuguguugg cauuguuuca ggcugggcuu 720

gggcggauga ugaugaagua ucgcgaccag agagcgggua aaaucucgga aagacucguc 780

aucacuucgg aaaugaucga aaacauccag ucggucaaag ccuauugcug ggaagaagcu 840

auggagaaga ugauugaaaa ccuccgccaa acugagcuga aacugacccg caaggcggcg 900

uauguccggu auuucaauuc gucagcguuc uucuuuuccg gguucuucgu ugucuuucuc 960

ucgguuuugc cuuaugccuu gauuaagggg auuauccucc gcaagauuuu caccacgauu 1020

ucguucugca uuguauugcg cauggcagug acacggcaau uuccgugggc cgugcagaca 1080

ugguaugacu cgcuuggagc gaucaacaaa auccaagacu ucuugcaaaa gcaagaguac 1140

aagacccugg aguacaaucu uacuacuacg gagguaguaa uggagaaugu gacggcuuuu 1200

ugggaagagg guuuuggaga acuguuugag aaagcaaagc agaauaacaa caaccgcaag 1260

accucaaaug gggacgauuc ccuguuuuuc ucgaacuucu cccugcucgg aacacccgug 1320

uugaaggaca ucaauuucaa gauugagagg ggacagcuuc ucgcgguagc gggaagcacu 1380

ggugcgggaa aaacuagccu cuugauggug auuaugggggg agcuugagcc cagcgagggg 1440

aagauuaaac acuccgggcg uaucucauuc uguagccagu uuucauggau caugcccgga 1500

accauuaaag agaacaucau uuucggagua uccuaugaug aguaccgaua cagaucgguc 1560

auuaaggcgu gccaguugga agaggacauu ucuaaguucg ccgagaagga uaacaucguc 1620

uugggagaag gggguauuac auugucggga gggcagcgag cgcggaucag ccucgcgaga 1680

gcgguauaca aagaugcaga uuuguaucug cuugauucac cguuuggaua ccucgacgua 1740

uugacagaaa aagaaaucuu cgagucgugc guguguaaac uuauggcuaa uaagacgaga 1800

auccugguga caucaaaaau ggaacaccuu aagaaggcgg acaagauccu gauccuccac 1860

gaaggaucgu ccuacuuuua cggcacuuuc ucagaguugc aaaacuugca gccggacuuc 1920

ucaagcaaac ucauggggug ugacucauuc gaccaguuca gcgcggaacg gcggaacucg 1980

aucuugacgg aaacgcugca ccgauucucg cuugagggug augccccggu aucguggacc 2040

gagacaaaga agcagucguu uaagcagaca ggagaauuug gugagaaaag aaagaacagu 2100

aucuugaauc cuauuaacuc aauucgcaag uucucaaucg uccagaaaac uccacugcag 2160

augaauggaa uugaagagga uucggacgaa ccccuggagc gcaggcuuag ccucgugccg 2220

gauucagagc aaggggaggc cauucuuccc cggauuucgg ugauuucaac cggaccuaca 2280

cuucaggcga ggcgaaggca auccgugcuc aaccucauga cgcauucggu aaaccagggg 2340

caaaacauuc accgcaaaac gacggccuca acgagaaaag ugucacuugc accccaggcg 2400

aauuugacug aacucgacau cuacagccgu aggcuuucgc aagaaaccgg acuugagauc 2460

agcgaagaaa ucaaugaaga agauuugaaa gaguguuucu uugaugacau ggaaucaauc 2520

ccagcgguga caacguggaa cacauacuug cguuacauca cggugcacaa guccuugauu 2580

uucguccuca ucuggugucu cgugaucuuu cucgcugagg ucgcagcguc acuuguggguc 2640

cucuggcugc uugguaauac gcccuugcaa gacaaaggca auucuacaca cucaagaaac 2700

aauuccuaug ccgugauuau cacuucuaca agcucguauu acguguuuua caucuacgua 2760

ggaguggccg acacucugcu cgcgaugggu uucuuccgag gacucccacu cguucacacg 2820

cuuaucacug ucuccaagau ucuccaccau aagaugcuuc auagcguacu gcaggcuccc 2880

auguccaccu ugaauacgcu caaggcggga gguauuuuga aucgcuucuc aaaagauauu 2940

gcaauuuugg augaccuucu gccccugacg aucuucgacu ucauccaguu guugcugauc 3000

gugauugggg cuauugcagu agucgcuguc cuccagccuu acauuuuugu cgcgaccguu 3060

ccggugaucg uggcguuuau caugcugcgg gccuauuucu ugcagacguc acagcagcuu 3120

aagcaacugg agucugaagg gaggucgccu aucuuuacgc aucuugugac caguuugaag 3180

ggauugugga cguugcgcgc cuuuggcagg cagcccuacu uugaaacacu guuccacaaa 3240

gcgcugaauc uccauacggc aaauugguuu uuguauuuga guacccuccg augguuucag 3300

augcgcauug agaugauuuu ugugaucuuc uuuaucgcgg ugacuuuuau cuccaucuug 3360

accacgggag agggcgaggg acgggucggu auuauccuga cacucgccau gaacauuaug 3420

agcacuuugc agugggcagu gaacagcucg auugaugugg auagccugau gaggcccguu 3480

ucgagggucu uuaaguucau cgacaugccg acggagggaa agcccacaaa aaguacgaaa 3540

cccuauaaga augggcaauu gaguaaggua augaucaucg agaacaguca cgugaagaag 3600

gaugacaucu ggccuagcgg gggucagaug accgugaagg accugacggc aaaauacacc 3660

gagggaggga acgcaauccu ugaaaacauc ucguucagca uuagccccgg ucagcgugug 3720

ggguugcucg ggaggaccgg gucaggaaaa ucgacguugc ugucggccuu cuugagacuu 3780

cugaauacag agggugagau ccagaucgac ggcguuucgu gggauagcau caccuugcag 3840

caguggcgga aagcguuugg aguaaucccc caaaaggucu uuaucuuuag cggaaccuuc 3900

cgaaagaauc ucgauccuua ugaacagugg ucagaucaag agauuuggaa agucgcggac 3960

gagguuggcc uucggagugu aaucgagcag uuuccgggaa aacucgacuu uguccuugua 4020

gaugggggau gcguccuguc gcaugggcac aagcagcuca ugugccuggc gcgauccguc 4080

cucucuaaag cgaaaauucu ucucuuggau gaaccuucgg cccaucugga cccgguaacg 4140

uaucagauca ucagaaggac acuuaagcag gcguuugccg acugcacggu gauucucugu 4200

gagcaucgua ucgaggccau gcucgaaugc cagcaauuuc uugucaucga agagaauaag 4260

guccgccagu acgacuccau ccagaagcug cuuaaugaga gaucauuguu ccggcaggcg 4320

auuucaccau ccgauagggu gaaacuuuuu ccacacagaa auucgucgaa gugcaagucc 4380

aaaccgcaga ucgcggccuu gaaagaagag acugaagaag aaguucaaga cacgcgucuu 4440

caccaucacc aucaccauca ccaucaccau uaa 4473

<210> 16
<211> 4542
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 16
auggccacug gaucaagaac cucacugcug cucgcuuuug gacugcuuug ccugcccugg 60

uugcaagaag gaucggcuuu cccgaccauc ccacucucca ugcagcgguc cccgcucgaa 120

aaggccagug ucguguccaa acucuucuuc ucauggacuc ggccuauccu uagaaagggg 180

uaucggcaga ggcuugaguu gucugacauc uaccagaucc ccucgguaga uucggcggau 240

aaccucucgg agaagcucga acgggaaugg gaccgcgaac ucgcgucuaa gaaaaacccg 300

aagcucauca acgcacugag aaggugcuuc uucuggcggu ucauguucua cgguaucuuc 360

uuguaucucg gggaggucac aaaagcaguc caaccccugu uguugggucg cauuaucgcc 420

ucguacgacc ccgauaacaa agaagaacgg agcaucgcga ucuaccucgg gaucggacug 480

uguuugcuuu ucaucgucag aacacuuuug uugcauccag caaucuucgg ccuccaucac 540

aucgguaugc agaugcgaau cgcuauguuu agcuugaucu acaaaaagac acugaaacuc 600

ucgucgcggg uguuggauaa gauuuccauc ggucaguugg ugucccugcu uaguaauaac 660

cucaacaaau ucgaugaggg acuggcgcug gcacauuucg uguggauugc cccguugcaa 720

gucgcccuuu ugaugggccu uauuugggag cuguugcagg caucugccuu uuguggccug 780

ggauuucuga uuguguuggc auuguuucag gcugggcuug ggcggaugau gaugaaguau 840

cgcgaccaga gagcggguaa aaucucggaa agacucguca ucacuucgga aaugaucgaa 900

aacauccagu cggucaaagc cuauugcugg gaagaagcua uggagaagau gauugaaaac 960

cuccgccaaa cugagcugaa acugacccgc aaggcggcgu auguccggua uuucaauucg 1020

ucagcguucu ucuuuuccgg guucuucguu gucuuucucu cgguuuugcc uuaugccuug 1080

auuaagggga uuauccuccg caagauuuuc accacgauuu cguucugcau uguauugcgc 1140

auggcaguga cacggcaauu uccgugggcc gugcagacau gguaugacuc gcuuggagcg 1200

aucaacaaaa uccaagacuu cuugcaaaag caagaguaca agacccugga guacaaucuu 1260

acuacuacgg agguaguaau ggagaaugug acggcuuuuu gggaagaggg uuuuggagaa 1320

cuguuugaga aagcaaagca gaauaacaac aaccgcaaga ccucaaaugg ggacgauucc 1380

cuguuuuucu cgaacuucuc ccugcucgga acacccgugu ugaaggacau caauuucaag 1440

auugagaggg gacagcuucu cgcgguagcg ggaagcacug gugcgggaaa aacuagccuc 1500

uugaugguga uuaugggggga gcuugagccc agcgagggga agauuaaaca cuccgggcgu 1560

aucucauucu guagccaguu uucauggauc augcccggaa ccauuaaaga gaacaucauu 1620

uucggaguau ccuaugauga guaccgauac agaucgguca uuaaggcgug ccaguuggaa 1680

gaggacauuu cuaaguucgc cgagaaggau aacaucgucu ugggagaagg ggguauuaca 1740

uugucgggag ggcagcgagc gcggaucagc cucgcgagag cgguauacaa agaugcagau 1800

uuguaucugc uugauucacc guuuggauac cucgacguau ugacagaaaa agaaaucuuc 1860

gagucgugcg uguguaaacu uauggcuaau aagacgagaa uccuggugac aucaaaaaug 1920

gaacaccuua agaaggcgga caagauccug auccuccacg aaggaucguc cuacuuuuac 1980

ggcacuuucu cagaguugca aaacuugcag ccggacuucu caagcaaacu caugggugu 2040

gacucauucg accaguucag cgcggaacgg cggaacucga ucuugacgga aacgcugcac 2100

cgauucucgc uugaggguga ugccccggua ucguggaccg agacaaagaa gcagucguuu 2160

aagcagacag gagaauuugg ugagaaaaga aagaacagua ucuugaaucc uauuaacuca 2220

auucgcaagu ucucaaucgu ccagaaaacu ccacugcaga ugaauggaau ugaagaggau 2280

ucggacgaac cccuggagcg caggcuuagc cucgugccgg auucagagca aggggaggcc 2340

auucuucccc ggauuucggu gauuucaacc ggaccuacac uucaggcgag gcgaaggcaa 2400

uccgugcuca accucaugac gcauucggua aaccaggggc aaaacauuca ccgcaaaacg 2460

acggccucaa cgagaaaagu gucacuugca ccccaggcga auuugacuga acucgacauc 2520

uacagccgua ggcuuucgca agaaaccgga cuugagauca gcgaagaaau caaugaagaa 2580

gauuugaaag aguguuucuu ugaugacaug gaaucaaucc cagcggugac aacguggaac 2640

acauacuugc guuacaucac ggugcacaag uccuugauuu ucguccucau cuggugucuc 2700

gugaucuuuc ucgcugaggu cgcagcguca cuuguggucc ucuggcugcu ugguaauacg 2760

cccuugcaag acaaaggcaa uucuacacac ucaagaaaca auuccuaugc cgugauuauc 2820

acuucuacaa gcucguauua cguguuuuac aucuacguag gaguggccga cacucugcuc 2880

gcgauggguu ucuuccgagg acucccacuc guucacacgc uuaucacugu cuccaagauu 2940

cuccaccaua agaugcuuca uagcguacug caggcuccca uguccaccuu gaauacgcuc 3000

aaggcgggag guauuuugaa ucgcuucuca aaagauauug caauuuugga ugaccuucug 3060

ccccugacga ucuucgacuu cauccaguug uugcugaucg ugauuggggc uauugcagua 3120

gucgcugucc uccagccuua cauuuuuguc gcgaccguuc cggugaucgu ggcguuuauc 3180

augcugcggg ccuauuucuu gcagacguca cagcagcuua agcaacugga gucugaaggg 3240

aggucgccua ucuuuacgca ucuugugacc aguuugaagg gauuguggac guugcgcgcc 3300

uuuggcaggc agcccuacuu ugaaacacug uuccacaaag cgcugaaucu ccauacggca 3360

aauugguuuu uguauuugag uacccuccga ugguuucaga ugcgcauuga gaugauuuuu 3420

gugaucuucu uuaucgcggu gacuuuuauc uccaucuuga ccacgggaga gggcgaggga 3480

cgggucggua uuauccugac acucgccaug aacauuauga gcacuuugca gugggcagug 3540

aacagcucga uugaugugga uagccugaug agguccguuu cgagggucuu uaaguucauc 3600

gacaugccga cggagggaaa gcccacaaaa aguacgaaac ccuauaagaa ugggcaauug 3660

aguaagguaa ugaucaucga gaacagucac gugaagaagg augacaucug gccuagcggg 3720

ggucagauga ccgugaagga ccugacggca aaauacaccg agggagggaa cgcaauccuu 3780

gaaaacaucu cguucagcau uagccccggu cagcgugugg gguugcucgg gaggaccggg 3840

ucaggaaaau cgacguugcu gucggccuuc uugagacuuc ugaauacaga gggugagauc 3900

cagaucgacg gcguuucgug ggauagcauc accuugcagc aguggcggaa agcguuugga 3960

guaaucccccc aaaaggucuu uaucuuuagc ggaaccuucc gaaagaaucu cgauccuuau 4020

gaacaguggu cagaucaaga gauuuggaaa gucgcggacg agguuggccu ucggagugua 4080

aucgagcagu uuccgggaaa acucgacuuu guccuuguag auggggggaug cguccugucg 4140

caugggcaca agcagcucau gugccuggcg cgauccgucc ucucuaaagc gaaaauucuu 4200

cucuuggaug aaccuucggc ccaucuggac ccgguaacgu aucagaucau cagaaggaca 4260

cuuaagcagg cguuugccga cugcacggug auucucugug agcaucguau cgaggccaug 4320

cucgaaugcc agcaauuucu ugucaucgaa gagaauaagg uccgccagua cgacuccauc 4380

cagaagcugc uuaaugagag aucauuguuc cggcaggcga uuucaccauc cgauagggug 4440

aaacuuuuuc cacacagaaa uucgucgaag ugcaagucca aaccgcagau cgcggccuug 4500

aaagaagaga cugaagaaga aguucaagac acgcgucuuu aa 4542

<210> 17
<211> 4443
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 17
augcagcggu ccccgcucga aaaggccagu gucgugucca aacucuucuu cucauggacu 60

cggccuaucc uuagaaaggg guaucggcag aggcuugagu ugucugacau cuaccagauc 120

cccucgguag auucggcgga uaaccucucg gagaagcucg aacgggaaug ggaccgcgaa 180

cucgcgucua agaaaaaccc gaagcucauc aacgcacuga gaaggugcuu cuucuggcgg 240

uucauguucu acgguaucuu cuuguaucuc ggggagguca caaaagcagu ccaaccccug 300

uuguuggguc gcauuaucgc cucguacgac cccgauaaca aagaagaacg gagcaucgcg 360
aucuaccucg ggaucggacu guguuugcuu uucaucguca gaacacuuuu guugcaucca 420
gcaaucuucg gccuccauca caucgguaug cagaugcgaa ucgcuauguu uagcuugauc 480
uacaaaaaga cacugaaacu cucgucgcgg guguuggaua agauuuccau cggucaguug 540
gugucccugc uuaguaauaa ccucaacaaa uucgaugagg gacuggcgcu ggcacauuuc 600
guguggauug ccccguugca agucgcccuu uugaugggcc uuauuuggga gcuguugcag 660
gcaucugccu uuuguggccu gggauuucug auuguguugg cauuguuuca ggcugggcuu 720
gggcggauga ugaugaagua ucgcgaccag agagcgggua aaaucucgga aagacucguc 780
aucacuucgg aaaugaucga aaacauccag ucggucaaag ccuauugcug ggaagaagcu 840
auggagaaga ugauugaaaa ccuccgccaa acugagcuga aacugacccg caaggcggcg 900
uauguccggu auuucaauuc gucagcguuc uucuuuuccg gguucuucgu ugucuuucuc 960
ucgguuuugc cuuaugccuu gauuaagggg auuauccucc gcaagauuuu caccacgauu 1020
ucguucugca uuguauugcg cauggcagug acacggcaau uuccgugggc cgugcagaca 1080
ugguaugacu cgcuuggagc gaucaacaaa auccaagacu ucuugcaaaa gcaagaguac 1140
aagacccugg aguacaaucu uacuacuacg gagguaguaa uggagaaugu gacggcuuuu 1200
ugggaagagg guuuuggaga acuguuugag aaagcaaagc agaauaacaa caaccgcaag 1260
accucaaaug gggacgauuc ccuguuuuuc ucgaacuucu cccugcucgg aacacccgug 1320
uugaaggaca ucaauuucaa gauugagagg ggacagcuuc ucgcgguagc gggaagcacu 1380
ggugcgggaa aaacuagccu cuugauggug auuaugggggg agcuugagcc cagcgagggg 1440
aagauuaaac acuccgggcg uaucucauuc uguagccagu uuucauggau caugcccgga 1500
accauuaaag agaacaucau uuucggagua uccuaugaug aguaccgaua cagaucgguc 1560
auuaaggcgu gccaguugga agaggacauu ucuaaguucg ccgagaagga uaacaucguc 1620
uugggagaag gggguauuac auugucggga gggcagcgag cgcggaucag ccucgcgaga 1680
gcgguauaca aagaugcaga uuuguaucug cuugauucac cguuuggaua ccucgacgua 1740
uugacagaaa aagaaaucuu cgagucgugc guguguaaac uuauggcuaa uaagacgaga 1800
auccugguga caucaaaaau ggaacaccuu aagaaggcgg acaagauccu gauccuccac 1860
gaaggaucgu ccuacuuuua cggcacuuuc ucagaguugc aaaacuugca gccggacuuc 1920
ucaagcaaac ucauggggug ugacucauuc gaccaguuca gcgcggaacg gcggaacucg 1980
aucuugacgg aaacgcugca ccgauucucg cuugagggug augccccggu aucguggacc 2040
gagacaaaga agcagucguu uaagcagaca ggagaauuug gugagaaaag aaagaacagu 2100
aucuugaauc cuauuaacuc aauucgcaag uucucaaucg uccagaaaac uccacugcag 2160

augaauggaa uugaagagga uucggacgaa ccccuggagc gcaggcuuag ccucgugccg 2220

gauucagagc aaggggaggc cauucuuccc cggauuucgg ugauuucaac cggaccuaca 2280

cuucaggcga ggcgaaggca auccgugcuc aaccucauga cgcauucggu aaaccagggg 2340

caaaacauuc accgcaaaac gacggccuca acgagaaaag ugucacuugc accccaggcg 2400

aauuugacug aacucgacau cuacagccgu aggcuuucgc aagaaaccgg acuugagauc 2460

agcgaagaaa ucaaugaaga agauuugaaa gaguguuucu uugaugacau ggaaucaauc 2520

ccagcgguga caacguggaa cacauacuug cguuacauca cggugcacaa guccuugauu 2580

uucguccuca ucuggugucu cgugaucuuu cucgcugagg ucgcagcguc acuuguggguc 2640

cucuggcugc uugguaauac gcccuugcaa gacaaaggca auucuacaca cucaagaaac 2700

aauuccuaug ccgugauuau cacuucuaca agcucguauu acguguuuua caucuacgua 2760

ggaguggccg acacucugcu cgcgaugggu uucuuccgag gacucccacu cguucacacg 2820

cuuaucacug ucuccaagau ucuccaccau aagaugcuuc auagcguacu gcaggcuccc 2880

auguccaccu ugaauacgcu caaggcggga gguauuuuga aucgcuucuc aaaagauauu 2940

gcaauuuugg augaccuucu gccccugacg aucuucgacu ucauccaguu guugcugauc 3000

gugauugggg cuauugcagu agucgcuguc cuccagccuu acauuuuugu cgcgaccguu 3060

ccggugaucg uggcguuuau caugcugcgg gccuauuucu ugcagacguc acagcagcuu 3120

aagcaacugg agucugaagg gaggucgccu aucuuuacgc aucuugugac caguuugaag 3180

ggauugugga cguugcgcgc cuuuggcagg cagcccuacu uugaaacacu guuccacaaa 3240

gcgcugaauc uccauacggc aaauugguuu uuguauuuga guacccuccg augguuucag 3300

augcgcauug agaugauuuu ugugaucuuc uuuaucgcgg ugacuuuuau cuccaucuug 3360

accacgggag agggcgaggg acgggucggu auuauccuga cacucgccau gaacauuaug 3420

agcacuuugc agugggcagu gaacagcucg auugaugugg auagccugau gaggcccguu 3480

ucgagggucu uuaaguucau cgacaugccg acggagggaa agcccacaaa aaguacgaaa 3540

cccuauaaga augggcaauu gaguaaggua augaucaucg agaacaguca cgugaagaag 3600

gaugacaucu ggccuagcgg gggucagaug accgugaagg accugacggc aaaauacacc 3660

gagggaggga acgcaauccu ugaaaacauc ucguucagca uuagccccgg ucagcgugug 3720

ggguugcucg ggaggaccgg gucaggaaaa ucgacguugc ugucggccuu cuugagacuu 3780

cugaauacag agggugagau ccagaucgac ggcguuucgu gggauagcau caccuugcag 3840

caguggcgga aagcguuugg aguaaucccc caaaaggucu uuaucuuuag cggaaccuuc 3900

cgaaagaauc ucgauccuua ugaacagugg ucagaucaag agauuuggaa agucgcggac 3960

gaggauuggcc uucggagugu aaucgagcag uuuccgggaa aacucgacuu uguccuugua 4020

gaugggggau gcguccuguc gcaugggcac aagcagcuca ugugccuggc gcgauccguc 4080

cucucuaaag cgaaaauucu ucucuuggau gaaccuucgg cccaucugga cccgguaacg 4140

uaucagauca ucagaaggac acuuaagcag gcguuugccg acugcacggu gauucucugu 4200

gagcaucgua ucgaggccau gcucgaaugc cagcaauuuc uugucaucga agagaauaag 4260

guccgccagu acgacuccau ccagaagcug cuuaaugaga gaucauuguu ccggcaggcg 4320

auuucaccau ccgauagggu gaaacuuuuu ccacacagaa auucgucgaa gugcaagucc 4380

aaaccgcaga ucgcggccuu gaaagaagag acugaagaag aaguucaaga cacgcgucuu 4440

uaa 4443

<210> 18
<211> 99
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 18
auggccacug gaucaagaac cucacugcug cucgcuuuug gacugcuuug ccugcccugg 60

uugcaagaag gaucggcuuu cccgaccauc ccacucucc 99

<210> 19
<211> 99
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 19
auggcaacug gaucaagaac cucccuccug cucgcauucg gccugcucug ucucccaugg 60

cuccaagaag gaagcgcguu ccccacuauc ccccucucg 99

<210> 20
<211> 105
<212> RNA
<213> Artificial Sequence

<220>
<223> chemically synthesized oligonucleotide

<400> 20
cggguggcau cccugugacc ccucccccagu gccucuccug gcccuggaag uugccacucc 60

agugcccacc agccuugucc uaauaaaauu aaguugcauc aagcu 105