

SEQUENCE LISTING

<110> Silence Therapeutics Inc.

<120> Means for inhibiting the expression of OPA1

<130> A 19034 PCT

<150> EP 09 002 077.7

<151> 2009-02-13

<160> 16

<170> PatentIn version 3.3

<210> 1

<211> 5756

<212> RNA

<213> Homo sapiens

<220>

<221> mRNA

<222> (1) .. (5756)

<400> 1

```
cacgggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug      60
gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc      120
uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca      180
uucacaucau ccuaccuuaa agcuucaacg accccaauua aggacauccu uucagcaguu      240
cucuucucug acaaaccuuc cuuuacguaa acugaaaauuc ucuccaauua aaauaggcua      300
ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcu      360
ucucauacua ggaucggcgug uugggggugg cuacacagcc aaaaagacuu ugaucagug      420
gaaagauaug auaccggacc uuagugaaua uaaauggauu gugccugaca uuguguggga      480
aaauaugagag uauaucgauu uugguucucc ggaagaaacg gcguuuagag caacagaucg      540
uggaucugaa agugacaagc auuuuagaaa ggugucagac aaagagaaaa uugaccaacu      600
ucaggaagaa cuucugcaca cucaguugaa guaucagaga aucuuggaac gauuagaaaa      660
ggagaacaaa gaauugagaa aauuaguauu gcagaaagau gacaaaggca uucaucauag      720
aaagcuuaag aaaucuuuga uugacaugua uucugaaguu cuugauguuc ucucugauua      780
ugaugccagu uauaaauacgc aagaucaucu gccacggguu guugugguug gagaucagag      840
ugcuggaaag acuagugugu uggaauugau ugcccaagcu cgaauauucc caagagggauc      900
ugggggagaug augacacguu cuccaguuaa ggugacucug agugaagguc cucaccaugu      960
ggcccuauuu aaagauaguu cucgggaguu ugaucuuacc aaagaagaag aucuugcagc     1020
auuaagacau gaaauagaac uucgaauagag gaaaaaugug aaagaaggcu quaccguuag     1080
cccugagacc auauccuuaa auguaaaagg cccuggacua cagagggaug ugcuuuguua     1140
```

cuuaccaggu	gugauuaaua	cugugacauc	aggcauggcu	ccugacacaa	aggaaacuau	1200
uuucaguauc	agcaaagcuu	acaugcagaa	uccuaaugcc	aucauacugu	guauucaaga	1260
uggaucugug	gaugcugaac	gcaguauugu	uacagacuug	gucagucaaa	uggacccuca	1320
uggaaggaga	accauauucg	uuuugacca	aguagaccug	gcagagaaaa	auguagccag	1380
uccaagcagg	auucagcaga	uaauugaagg	aaagcucuuc	ccaaugaaag	cuuuagguua	1440
uuuugcuguu	guaacaggaa	aagggaacag	cucugaaagc	auugaagcua	uaagagaaua	1500
ugaagaagag	uuuuuucaga	auucaaagcu	ccuaaagaca	agcaugcuua	aggcacacca	1560
agugacuaca	agaaauuuua	gccuugcagu	aucagacugc	uuuuggaaaa	ugguacgaga	1620
gucuguugaa	caacaggcug	auaguuucaa	agcaacacgu	uuuaaccuug	aaacugaaug	1680
gaagaauaac	uauccucgcc	ugcggaacu	ugaccggaau	gaacuauuug	aaaaagcuua	1740
aaugaaauc	cuugaugaag	uuauagucu	gagccagguu	acacaaaaac	auugggagga	1800
aauccuucua	caaucuuugu	gggaaagagu	aucaacucua	gugauugaaa	acaucuaccu	1860
uccagcugcg	cagaccauga	auucaggaac	uuuuaacacc	acaguggaua	ucaagcuuaa	1920
acaguggacu	gauaaacaac	uuccuaauaa	agcaguagag	guugcuuggg	agaccuaca	1980
agaagaauuu	ucccgcuua	ugacagaacc	gaaagggaaa	gagcaugaug	acauuuuga	2040
uaaacuuaaa	gaggccguua	aggaagaaag	uauuaaacga	cacaagugga	augacuugc	2100
ggaggacagc	uugagggua	uucacacaa	ugcuuuggaa	gaccgaucca	uauugauaa	2160
acagcaaugg	gaugcagcua	uuuuuuuuau	ggaagaggcu	cugcaggcuc	gucucaagga	2220
uacugaaaau	gcaauugaaa	acaugguggg	uccagacugg	aaaaagaggu	gguuauacug	2280
gaagaaucgg	acccaagaac	aguguguuca	caaugaaacc	aagaaugaau	uggagaagau	2340
guugaaaugu	aaugaggagc	accagcuua	ucuugcaagu	gaugaaaua	ccacaguccg	2400
gaagaaccuu	gaaucccgag	gaguagaagu	agauccaagc	uugauuaagg	auacuuggca	2460
ucaaguuuau	agaagacauu	uuuuaaaaac	agcucuaaac	cauuguaacc	uuugucgaag	2520
agguuuuuau	uacuacaaa	ggcauuuugu	agauucugag	uuggaaugca	augauguggu	2580
cuuguuuugg	cguauacagc	gcaugcuugc	uauaccgca	aaacuuaa	ggcaacaacu	2640
uacaaauacu	gaaguuaagg	gauuagagaa	aauguuuaa	gagguauugg	aagauuuugc	2700
ugaagauggu	gagaagaaga	uuuuuuugcu	uacugguaaa	cgcguaaac	uggcggaaga	2760
ccucaagaaa	guuagagaaa	uucaagaaaa	acuugaugcu	uucauugaag	cucuucauca	2820
ggagaaaaua	auuuuuuucg	uacucauaa	cagcucugca	uacaucugaa	gaacaaaaac	2880
aucaacgucu	uuuguccagc	cucuuuuucu	ucugcuguuc	caccuuucua	aacauacaau	2940
aaagucaugg	gauaaaaaua	aucgauguau	guuacgggcg	cuuaaccuau	cagcugccuc	3000

ucgaauggaa gaacaguggu aauggauuaa cauccuauuu uguuguacua aagugacaaa	3060
ucggaauaau auaauuggua uggccauuag guucaguccu ugaagauaag aagcuuguuc	3120
ucuguuuguu gucuuaauug ugguggcacu cguuaaugg auuaacugag guugcucaau	3180
guucaguuuu uuuuccagaa auacaauugu agguuuuuug aaauaaaacu uauauagcaa	3240
uuguuuuaag uuaucaauug uauauaaaau cacaguagcc ugcuaaauc uuguauugugu	3300
cuguaguauu cuauucccag aaacuauuug accaugauaa uucaguuuau auucaccaca	3360
ugaaagaaaa auggguaaca gaagaacccc uaaaacaggu uaauuuggau uguaacguuc	3420
agugaaagaa auuucacccc uucauagcca gcgaagaaau uugccuugga agccaaguca	3480
guaccagcuu accuauuuga uucaguugcu guuuucucac ucucuauauc cauugaaaau	3540
ugauuuauuu uagauguugu auacuacgu uaggcuuuu guuaauagug guuuuucucc	3600
uguugacaga gccaccggau uaugacacag gaugaggaag auuaaggaua aucaauugac	3660
uaauuucauu uagaauauua ucaaacauiu caacuaggua ucagaaaaag gcuuucuuuc	3720
auaagacuau uuuaauaga aaauuuuua acaauuaaag uaauuguugac cauuuuuuc	3780
ucagcugaau aaagaaaaau uuaguucaau uuauugcaau uuaauuacaa uacuaccuuc	3840
acaacauuuu cauguguuuu aaauaaauu uuuuuauuug gcuaaaggac auucaagcaa	3900
agaaugcuu ucuuuacuua aaugucua ucuauuugcu gccuuuucac uaagccuuua	3960
cuuuguuauu aaaagugucc auugugugau guuuuugauu uuacaguug cuaaaucuua	4020
uuuucuuugga guugcuuuuu gguaacagcc ccauugcuac uccccauuuu auuguuuuac	4080
aucaaugcau gcuucguugu gaucccucaa gauguaacac uugguauugcu cgguugagga	4140
uaugaaaaaa uacuuccgaa accaggaauu caguguaugu uuguuuuua cuguuugaua	4200
agaaaaguag guccagccuu aagcagcaca gaugcgcugg uaugucaua gucaggaacu	4260
uuuuuuauuu cuuuuagguc uagggacagg agugaauaga aaggaggag agcucuauua	4320
uguucuauc acagauuagg agaugaccuu acuggguaa cccucuaac cagugcuuac	4380
agguuaaugg auguuaauga auuuuuuugc aguuguaaag cauaacaauu acaacuacac	4440
aucuauuuu aaagaauaaa acaggaccuu auuuuuuac uucugucaac uauagaaaga	4500
aagaccuua gcuguauuuc cacagauuuc uccaaggaa aaggcuaua uuagucacua	4560
cuguuauac aucccuuugu auuaguuuuu aaaagagaug gagggagau uucauuuucuu	4620
ugaggagauc aguauuguaa cguauugua uaugauuaa cauuuauuu uacuaaaagu	4680
cccacaugag aguccugacg cccucuccau gcccacagu aauguggcuu cuuucauggg	4740
uuuuuuuuu uucuuuuuag cugaucucuu ccuaagcaug cuuuuuuuu ccuugaaagc	4800
uagguauuuu ucaacugcag auuuuuuuga aagaaaaua auuucagucu caagaguaua	4860
cccugugucu ugugucugua guucaaagu cagaaugau ucuaauuuu acaaaaagau	4920

auuaaaauuaa cagaaguuaa auucgaacua gccacagaau cauuguuuuu uaugucagaa 4980
 uuugcaaaga guggagugga caaagcucug uauggaagac ugaacaacug uaaauagaug 5040
 auauccaaac uuaauuuggc uaggacuua auuuuaaaaa ucaguguacc uaggcagugc 5100
 acagcacgaa auuaguggcc cuugcagcuu ccccguuuaa cccacugugc uauaguugcg 5160
 gguggaacag ucaaccuuuc uaguaguuaa ugauauugcc cucuuuguau ucccauuuuc 5220
 cacaguuuuu uccgcagacu ucuuucugca aaauauucag ccuccaaaug caaaugaauug 5280
 auuaaaaaau aaguagggaa cauggcagag aguggugcuu cccagccuca caauguggga 5340
 auuugacaua ggauagagau cagaguauag guuuaaaaga uaaaauuuu aguaauaaau 5400
 uuuguauuuu uuuauucuaug auguauuguau cugaggaaag aaucuggua uuuuugcuuu 5460
 ccaauaaagg ggaucaaagu aaugguuuuu cucucaguuc ucuaagcugg ucuauguuau 5520
 agcucuagca guauggaaau gugcuuuuaa auaugcuuac cuuuugaug aucauggcua 5580
 uauguuguug agauuuuga aacuuaccuu guuuucacuu gugcacugug aaugaacuuu 5640
 guauuuuuuu uuuuuuaccu ucacauuacg uguagauuu auugcaacuu auauuuugcc 5700
 ugugcuugau caaaggucuu uuguguagau gaguaauuaa aaaaauuuu auucac 5756

<210> 2
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 2
 ucuuaaugcu gcaagaucu 19

<210> 3
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 3
 agaucuugca gcuaaaga 19

<210> 4
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 4

uaagcuuugc ugauacuga 19

<210> 5
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 5
 ucaguaucag caaagcuua 19

<210> 6
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 6
 uucaguaucc uugagacga 19

<210> 7
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 7
 ucgucucaag gauacugaa 19

<210> 8
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 8
 uccuuaauca agcuuggau 19

<210> 9
 <211> 19
 <212> RNA
 <213> Artificial

<220>
 <223> Synthetic

<400> 9
 auccaaqcuu gauuaagga 19

<210> 10
 <211> 5867
 <212> RNA
 <213> Homo sapiens

<220>
 <221> mRNA
 <222> (1) .. (5867)

<400> 10
 cacgggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug 60
 gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc 120
 uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca 180
 uucacaucau ccuaccuuaa agcuucaacg accccaauua aggacauccu uucagcaguu 240
 cucuucucug acaaaccuuc cuuuacguaa acugaaaauuc ucuccaauua aaauaggcua 300
 ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcuu 360
 ucucauacua ggauccgcug uugggggugg cuacacagcc aaaaagacuu uugaucagug 420
 gaaagauaug auaccggacc uuagugaaua uaaauggauu gugccugaca uuguguggga 480
 aaugaugag uauaucgauu uugguucucc ggaagaaacg gcguuuagag caacagaucg 540
 uggaucugaa agugacaagc auuuuagaaa gggucugcuu ggugagcuca uucucuuaa 600
 acaacaaaau caagagcaug aagaggaagc gcgcagagcc gcuggccaau auagcacgag 660
 cuaugcccaa cagaagcgca aggugucaga caaagagaaa auugaccaac uucaggaaga 720
 acuucugcac acucaguuga agauacagag aaucuuaggaa cgauuagaaa aggagaacaa 780
 agaauugaga aaauuaguau ugcagaaaga ugacaaaggc auucaucaua gaaagcuuaa 840
 gaaaucuuug auugacaugu auucugaagu ucuugauguu cucucugauu augaugccag 900
 uuauaaauacg caagaucauc ugccacgggu uguugugguu ggagaucaga gugcuggaaa 960
 gacuagugug uuggaaauga uugcccaagc ucgaauauuc ccaagaggau cuggggagau 1020
 gaugacacgu ucuccaguua aggugacucu gagugaaggu ccucaccaug uggcccuauu 1080
 uaaagauagu ucucgggagu uugaucuuac caaagaagaa gaucuugcag cauaaagaca 1140
 ugaaaauagaa cuucgaauga ggaaaaaugu gaaagaaggc uguaccguua gccucgagac 1200
 cauauccuua aauguaaaag gccuaggacu acagaggauug gugcuuguug acuuaccagg 1260
 ugugauuaau acugugacau caggcauggc uccugacaca aaggaaacua uuuucaguau 1320
 cagcaaagcu uacaugcaga auccuaaugc caucauacug uguauucaag auggaucugu 1380
 ggaugcugaa cgcaguauug uuacagacuu ggucagucua auggaccuc auggaaggag 1440
 aaccauauuc guuuugacca aaguagaccu ggagagaaa aauguagcca guccaagcag 1500
 gauucagcag auaauugaag gaaagcucu cccaugaaa gcuuuagguu auuuugcugu 1560

uguaacagga	aaaggggaaca	gcucugaaaag	cauugaagcu	auaagagaau	augaagaaga	1620
guuuuuucag	aaaucaaagc	uccuaaagac	aagcaugcua	aaggcacacc	aagugacuac	1680
aagaaauua	agccuugcag	uaucaagacug	cuuuuggaaa	augguacgag	agucuguuga	1740
acaacaggcu	gauaguuuca	aagcaacacg	uuuuuacuu	gaaacugaau	ggaagaauaa	1800
cuauccucgc	cugcggggaac	uugaccggaa	ugaacuauuu	gaaaaagcua	aaaaugaaa	1860
ccuugaugaa	guuaucaugc	ugagccaggu	uacaccaaaa	cauuggggagg	aaauccuua	1920
acaaucuuug	ugggaaagag	uaucaacuca	ugugauugaa	aacaucuacc	uuccagcugc	1980
gcagaccaug	aaucaggaa	cuuuuacac	cacaguggau	aucaagcuua	aacaguggac	2040
ugauaaacaa	cuuccuaaua	aagcaguaga	gguugcuugg	gagaccuac	aagaagaauu	2100
uucccgcuu	augacagaac	cgaaagggaa	agagcaugau	gacauuuug	auaaacuua	2160
agaggccguu	aaggaagaaa	guauuaaacg	acacaagugg	aaugacuug	cggaggacag	2220
cuugaggggu	auucaacaca	augcuuugga	agaccgaucc	auaucugua	aacagcaaug	2280
ggaugcagcu	auuuuuuuu	uggaagaggg	ucugcaggcu	cgucucaagg	auacugaaaa	2340
ugcaauugaa	aacauggugg	guccagacug	gaaaaagagg	ugguuauacu	ggaagaaucg	2400
gacccaagaa	caguguguuc	acaaugaaac	caagaugaa	uggagaaga	uguugaaaug	2460
uaaugaggag	caccagcuu	aucuugcaag	ugaugaaaua	accacagucc	ggaagaaccu	2520
ugaaucccga	ggaguagaag	uagauccaag	cuugauuaag	gauacuuggc	aucaaguua	2580
uagaagacau	uuuuuuuuu	cagcucuaaa	ccauuguaac	cuuugucgaa	gagguuuuu	2640
uuacuaccaa	aggcauuuug	uagauucuga	guuggaaugc	aaugaugugg	ucuuguuuug	2700
gcguauacag	cgcaugcuug	cuaucaccgc	aaauacuua	aggcaacaac	uuacaaauac	2760
ugaaguuagg	cgauuagaga	aaaauguua	agagguauug	gaagauuuug	cugaagaugg	2820
ugagaagaag	auuuuuuugc	uuacugguaa	acgcguucaa	cuggcggaag	accucaagaa	2880
aguuagagaa	auucaagaaa	aacuugaugc	uuucauugaa	gcucucauc	aggagaaaua	2940
auuuuuuuc	guacucauaa	ucagcucugc	auacaucuga	agaacaaaaa	caucaacguc	3000
uuuuguccag	ccucuuuuuc	uucugcuguu	ccaccuuucu	aaacauacaa	uaaagucaug	3060
ggauaaaaau	aaucgaugua	uguuacgggc	gcuuaacca	ucagcugccu	cucgaaugga	3120
agaacagugg	uaauggauua	acauccuauu	uuguuguacu	aaagugacaa	aucggaauaa	3180
uauuuuuggu	auggccauua	gguucagucc	uugaagauaa	gaagcuuguu	cucuguuuugu	3240
ugucuauuuu	gugguggcac	ucguuuuauug	gauuaacuga	gguugcucaa	uguucaguuu	3300
cuuuuccaga	aaucacauugc	uagguguuuu	gaaauuuuac	uuauauagca	auuguuuuuu	3360
guuaucauuu	quauuuuuu	ucacaguagc	cugcuuuuuc	auuguauugug	ucuguaguau	3420
ucuauuccca	gaaacuauuu	gaccaugaua	auucaguuuu	uauucaccac	augaaagaaa	3480

aauggguaac	agaagaaccc	cuaaaacagg	uaauuuugga	uuguaacguu	cagugaaaga	3540
aauuucaacc	cuucauagcc	agcgaagaaa	uuugccuugg	aagccaaguc	aguaccagcu	3600
uaccuauuug	auucaguugc	uguuuucuca	cucucuaauu	ccauuugaaa	uugauuuauu	3660
uuagauguug	uauacuuacg	uuaggcuuuc	uguuaauagu	gguuuuucuc	cuguugacag	3720
agccaccgga	uuaugacaca	ggaugaggaa	gauuaaggau	aaucaauuga	cuaauuucau	3780
uuagaauauu	aucaaacaau	ucaacuaggu	aucagaaaaa	ggcuuucuuu	cauaagacua	3840
uuuuuuauag	aaauuuuuuc	aacaauuaaa	guaauguuga	ccaucuuuuu	cucagcugaa	3900
uaaagaaaaa	uuuaguucua	uuuauugcaa	uuuaauuaca	auacuaccuu	cacaacaauu	3960
ucauguguuu	uaauuuuuu	uuuuuuuuuu	ggcuuaagga	cauucagca	aagaaugcu	4020
uucuuuacuu	aaaauugucua	ucucauuugc	ugccuuuuca	cuaagccuuu	acuuuguuaa	4080
uaaaaguguc	cauuguguga	uguuuuugau	uuuacaguuu	gcuaaaucuu	auuuucuuug	4140
aguugcuuuu	ugguaacagc	cccuuugcua	cuccccauuu	uaauuuuuu	caucaaugca	4200
ugcuucguug	ugaucuuca	agauguaaca	cuugguugc	ucggugagag	auaugaaaa	4260
auacuuccga	aaccaggaa	ucaguguaug	uuuguuuuu	acuguuugau	aagaaaagua	4320
gguccagccu	uaagcagcac	agaugcgcug	guagaugcau	agucaggaac	uuuuuuuuu	4380
ucuuuuaggu	cuagggacag	gagugaauag	aaagggagga	gagcucuauu	auguucuaua	4440
cacagauuag	gagaugaccu	uacuggguac	acccucuaa	ccagugcuua	cagguaauug	4500
cauguuaauug	aaauuuuuug	caguuguaaa	gcuaaacaau	uacaacuaca	caucuauuuu	4560
uaaagaauua	aacaggacca	uaauuuuuu	cuucugucua	cuauagaaag	aaagaccuuc	4620
agcuguauuu	ccacagauuu	cucccaagga	aaaggcuau	auuagucacu	acuguuauca	4680
caucccuuug	uaauaguuuu	aaaaagagau	ggagggagau	cuucauuucu	uugaggagau	4740
caguauugua	acguauguga	auagaugaua	acaauuaaua	uuacuaaaag	ucccacauga	4800
gaguccugac	gcccucucca	ugccccacag	uaauguggcu	ucuuucaugg	guuuuuuuuu	4860
cuucuuuuua	gcugaucuca	uccuaagcau	gcuuuuuuu	uccuugaaag	cuagguauuu	4920
aucaacugca	gauguuauug	aaagaaaaua	aaauucaguc	ucaagaguaa	accuguguc	4980
uugugucugu	aguucaaaag	ucagaaauga	uucuaauuu	aacaaaaaga	uaauaaauau	5040
acagaaguua	aaauucgaacu	agccacagaa	ucauuuguuu	uuauugcaga	auuugcaaag	5100
aguggagugg	acaaagcucu	guauggaaga	cugaacaacu	guaaaauagau	gauauccaaa	5160
cuuaauuugg	cuaggacuuc	aaauuuuuuu	aucaguguac	cuaggcagug	cacagcacga	5220
aaauaguggc	ccuugcagcu	uccccguuu	accacugug	cuauaguugc	ggguggaaca	5280
gucaaccuuu	cuaguaguuu	augauauugc	ccucuugua	uucccauuuu	ccacaguuuu	5340

uuccgcagac uucuuucugc aaauuauuca gccuccaaau gcaaaugaau gauauaaaaa 5400
 uaaguaggga acauggcaga gaguggugcu ucccagccuc acaauguggg aauuugacau 5460
 aggaugagag ucagaguaua gguuuaaaag auaaaaucuu uaguuaauaa uuuuguauuu 5520
 auuuauucua gauguaugua ucugaggaaa gaaaucuggu auuuuugcuu uccaauaaaag 5580
 gggaucaaag uaaugguuuu ucucucaguu cucuaagcug gucuauguua uagcucuagc 5640
 aguauggaaa ugugcuuuua aaauugcuua ccuuuugaau gaucauggcu auauguuguu 5700
 gagauuuuug aaacuuaccu uguuuucacu ugugcacugu gaaugaacuu uguauuuuuu 5760
 uuuuaaaacc uucacauuac guguauguau uauugcaacu uauauuuuugc cugugcuuga 5820
 ucaaagguca uuuguguaga ugaguaauua aaaaauauuu aaauacac 5867

<210> 11
 <211> 5810
 <212> RNA
 <213> Homo sapiens

<220>
 <221> mRNA
 <222> (1)..(5810)

<400> 11
 cacgggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug 60
 gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc 120
 uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca 180
 uucacaucau ccuaccuuaa agcuucaacg accccaauua aggacauccu uucagcaguu 240
 cucuucucug acaaaccuuc cuuuacguua acugaaaauuc ucuccaauua aaauuggcua 300
 ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcua 360
 ucucauacua ggaucggcug uuggggggug cuacacagcc aaaaagacuu uugaucagug 420
 gaaagauaug auaccggacc uuagugaaua uaaauggauu gugccugaca uuguguggga 480
 aaauaugag uauaucgauu uuggucacaa auugguuagu gaagucauag gagcuucuga 540
 ccuacuucuc uuguuagguu cuccggaaga aacggcguuu agagcaacag aucguggauc 600
 ugaaagugac aagcauuuaa gaaagguguc agacaaagag aaaaugacc aacuucagga 660
 agaacuucug cacacucagu ugaaguauca gagaaucuug gaacgauuag aaaaggagaa 720
 caaagaauug agaaaaauag uauugcagaa agaugacaaa ggcauucauc auagaaagcu 780
 uaagaaaucu uugauugaca uguauucuga aguucuugau guucucucug auuauaugc 840
 caguuaauaa acgcaagauc aucugccacg gguuguugug guuggagauc agagugcugg 900
 aaagacuagu guguuaggaa ugauugccca agcucgaaua uucccaagag gaucugggga 960
 gaugaugaca cguucuccag uuaaggugac ucugagugaa gguccucacc auguggcccu 1020

auuuuaagau	aguucucggg	aguuugaucu	uaccaaagaa	gaagaucuug	cagcauuuag	1080
acaugaaaua	gaacuucgaa	ugaggaaaaa	ugugaaagaa	ggcuguaccg	uuagcccuga	1140
gaccauaucc	uuaaauguaa	aaggcccugg	acuacagagg	auggugcuug	uugacuuacc	1200
aggugugauu	aauacuguga	caucaggcau	ggcuccugac	acaaaggaaa	cuauuuucag	1260
uauagcaaaa	gcuuacaugc	agaauccuaa	ugccaucaua	cuguguaauu	aagauggauc	1320
uguggaugcu	gaacgcagua	uuguuacaga	cuuggucagu	caaauggacc	cucauggaag	1380
gagaaccaua	uucguuuuga	ccaaaguaga	ccuggcagag	aaaaauguag	ccaguccaag	1440
caggauucag	cagauaaauu	aaggaaagcu	cuucccaaug	aaagcuuuag	guuauuuugc	1500
uguuguaaca	ggaaaagggg	acagcucuga	aagcauugaa	gcuauaagag	aaauugaaga	1560
agaguuuuuu	cagaauucaa	agcuccuaaa	gacaagcaug	cuaaaggcac	accaagugac	1620
uacaagaaau	uuagccuug	caguaucaga	cugcuuuugg	aaaauuguac	gagagucugu	1680
ugaacaacag	gcugauaguu	ucaaagcaac	acguuuuaac	cuugaaacug	aauggaagaa	1740
uaacuauccu	cgccugcggg	aacuugaccg	gaaugaacua	uuugaaaaag	cuaaaaauga	1800
aauccuugau	gaaguuauc	gucugagcca	gguuacacca	aaacauuggg	aggaaauccu	1860
ucaacaaucu	uugugggaaa	gaguaucaac	ucaugugauu	gaaaacaucu	accuuccagc	1920
ugcgagacc	augaauucag	gaacuuuuaa	caccacagug	gauaucaagc	uuaaacagug	1980
gacugauaaa	caacuuccua	auaaagcagu	agagguugcu	ugggagaccc	uacaagaaga	2040
auuuuuccgc	uuuauagac	aaccgaaagg	gaaagagcau	gaugacauau	uugauaaaacu	2100
uaaagaggcc	guuaaggaag	aaaguauuaa	acgacacaag	uggaauagcu	uugcggagga	2160
cagcuugagg	guuauucaac	acaauvcuuu	ggaagaccga	uccauaucug	auaaacagca	2220
augggauagca	gcuauuuuuu	uuauuggaag	ggcucugcag	gcucgucuca	aggauacuga	2280
aaaugcaauu	gaaaacaugg	uggguccaga	cuggaaaaag	aggugguuau	acuggaagaa	2340
ucggacccaa	gaacagugug	uucacaauga	aaccaagaau	gaauuggaga	agauguugaa	2400
auguaaugag	gagcacccag	cuuauvcuug	aagugaugaa	auaaccacag	uccggaagaa	2460
ccuugaaucc	cgaggaguag	aaguagauc	aagcuugauu	aaggauacuu	ggcaucaagu	2520
uuauagaaga	cauuuuuuua	aaacagcucu	aaaccauugu	aaccuuuguc	gaagagguuu	2580
uuauuacuac	caaaggcauu	uuguagauuc	ugaguuggaa	ugcaaugaug	uggucuuguu	2640
uuggcguaua	cagcgcaugc	uugcuaucac	cgcaauuacu	uuaggcaac	aacuuaacaa	2700
uacugaaguu	aggcgauuag	agaaaaaugu	uaaagaggua	uuggaagauu	uugcugaaga	2760
uggugagaag	aagauuuuuu	ugcuuacugg	uaaacgcguu	caacuggcgg	aagaccucaa	2820
gaaaguuaag	gaaauucaag	aaaaacuuga	ugcuuucauu	gaagcucuuc	aucaggagaa	2880

auaaaauaaa	aucguacuca	uaaucagcuc	ugcauacauc	ugaagaaca	aaacaucaac	2940
gucuuuuguc	cagccucuuu	uucuuucugcu	guuccaccuu	ucuaaacaia	caauaaaguc	3000
augggauaaa	aaauaucgau	guauguuacg	ggcgcuuuua	ccaucagcug	ccucucgaau	3060
ggaagaacag	ugguaaugga	uuacauccu	auuuuguugu	acuaaaguga	caaaucgga	3120
uaauauaaau	gguauggcca	uuagguucag	uccuugaaga	uaagaagcuu	guucucuguu	3180
uguugucuaa	uuuguggugg	cacucguuuu	auggauuaac	ugagguugcu	caauguucag	3240
uuucuuuucc	agaaauaca	ugcuaggugu	uuugaaaaua	aacuuauua	gcaauuguuu	3300
aaaguuauca	auuguauua	aaucacagu	agccugcuua	aucuuuguau	gugucuguag	3360
uauucuauc	ccagaaacua	uuugaccaug	auaaauucagu	uuauauucac	cacaugaaag	3420
aaaaauggg	aacagaagaa	ccccuaaaac	agguaauuuu	ggauuguaac	guucagugaa	3480
agaaauuuc	acccuucua	gccagcgaag	aaauuugccu	uggaagccaa	gucaguacca	3540
gcuuaccuau	uugauucagu	ugcuguuuuc	ucacucucua	uuccauuug	aaauugauuu	3600
auuuuagaug	uuguauacuu	acguuaggcu	uucuguuaau	agugguuuuu	cuccuguuga	3660
cagagccacc	ggauuauag	acaggauag	gaagauuaag	gauaaucuu	ugacuaauuu	3720
cauuuagaau	auuaucaaac	auuucacua	ggauucagaa	aaaggcuuuc	uuucuaaaga	3780
cuauuuuaaa	uagaaauuu	uucaacaauu	aaaguaaugu	ugaccauucc	ccucucagcu	3840
gaauaaagaa	aaauuuaguu	cauuuuauug	cauuuuauuu	acaauacuac	cuucacaaca	3900
uuuucaugug	uuuuaaaaua	auuuuuuuu	auuggcuaaa	ggacauucaa	gcaaagaaaau	3960
gcuuucuuua	cuuaaaaugu	cuauucuuu	ugcugccuuu	ucacuaagcc	uuuacuuugu	4020
uaauaaaagu	guccauugug	ugauguuuu	gauuuuacag	uuugcuaaa	cuuauuuuc	4080
uggaguugcu	uuuugguaac	agcccauug	cuacucccca	uuuuauuguu	uuacaucaau	4140
gcaugcuucg	uugugauccc	ucaagaugua	acacuuggua	ugcucggug	aggauaugaa	4200
aaaauacuuc	cgaaaccagg	aaucagugu	auguuuguuu	uauacuguuu	gauaagaaaa	4260
guagguccag	ccuaagcag	cacagaugcg	cugguagaug	cauagucagg	aacuuuuuuu	4320
auuucuuuu	ggucuaggg	caggagugaa	uagaaaggg	ggagagcucu	auuauuguuc	4380
auacacagau	uaggagauga	ccuucuggg	uacaccccuc	uaaccagugc	uuacagguua	4440
augcauguua	augaauauuu	uugcaguugu	aaagcauaac	aaauacaacu	acacaucuau	4500
uucuaaagaa	uaaaacagga	ccauauuuu	uuacuucugu	caacuauaga	aagaaagacc	4560
uucagcugua	uuuccacaga	uuucucccaa	ggaaaaggcu	aaauuaguc	acuacugua	4620
ucacaucccu	uuguauaagu	uuuaaaaaga	gauggaggga	gaucuucauu	ucuuugagga	4680
gaucaguauu	guaacguaug	ugaauagau	auaacaauua	auauuacuaa	aagucccaca	4740
ugagaguccu	gacgccucuc	ccaugcccca	caguaaugug	gcuucuuuca	uggguuuuuu	4800

```

uuucuucuuu uuagcugauc ucauccuaag caugcuuuau uuuuccuuga aagcuaggua 4860
uuuaucaacu gcagauguua uugaaagaaa auaaaaauca gucucaagag uaaaccugug 4920
gucuuguguc uguaguuaa aagucagaaa ugauucuaau uaaaacaaaa agauauuaaa 4980
uauacagaag uaaaauucga acuagccaca gaaucauuug uuuuuauuguc agaauuugca 5040
aagaguggag uggacaaagc ucuguaugga agacugaaca acuguaaaua gaugauaucc 5100
aaacuuaauu uggcuaggac uucauuuuu aaaaucagug uaccuaggca gugcacagca 5160
cgaaauaagu ggcccuugca gcuuccccgu uuaaccacac gugcuauagu ugcgggugga 5220
acagucaacc uuucuaguag uuuaugauau ugcccucuuu guauucccau uuuccacagu 5280
uuuuuccgca gacuucuuuc ugcaaaauau ucagccucca aaugcaaaug aaugauauaa 5340
aaauaaguag ggaacauggc agagaguggu gcuucccagc cucacaauug gggauuuuga 5400
cauaggauga gagucagagu auagguuuua aagauaaaau cuuuaguuaa uauuuuugua 5460
uuuauuuauu cuagauguau guaucugagg aaagaaaucu gguauuuuug cuuuccaaua 5520
aaggggauca aaguaauggu uuucucuca guucucuaag cuggucuaug uuauagcucu 5580
agcaguaugg aaauugucuu uaaaaauaugc uuaccuuuug aaugaucaug gcuauauguu 5640
guugagauau uugaaacuua ccuuguuuuc acuugugcac ugugaaugaa cuuuguauua 5700
uuuuuuuaaa accuucacau uacguguaga uauuuuugca acuuauauuu ugccugugcu 5760
ugaucaaagg ucauuugugu agaugaguaa uaaaaaaaaa uuuaaaucac 5810

```

```

<210> 12
<211> 5921
<212> RNA
<213> Homo sapiens

```

```

<220>
<221> mRNA
<222> (1) .. (5921)

```

```

<400> 12
cacgggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug 60
gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc 120
uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca 180
uucacaucau ccuaccuuua agcuucaacg accccaauua aggacauccu uucagcaguu 240
cucuucucug acaaaccuuc cuuuacguua acugaaaauc ucuccaauua aaauuggcua 300
ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcua 360
ucucauacua ggauccggcug uugggggugg cuacacagcc aaaaagacuu uugaucagug 420
gaaagauaug auaccggacc uuagugaaua uaaugggauu gugccugaca uuguguggga 480

```

aaauaugagag	uauaucgauu	uuggucacaa	auugguuagu	gaagucauag	gagcuucuga	540
ccuacuucuc	uuguuagguu	cuccggaaga	aacggcguuu	agagcaacag	aucguggauc	600
ugaaagugac	aagcauuuuu	gaaagggucu	gcuuggugag	cucauucucu	uacaacaaca	660
aaaucaagag	caugaagagg	aagcgcgcag	agccgcuggc	caauauagca	cgagcuauagc	720
ccaacagaag	cgcaaggugu	cagacaaaga	gaaaauugac	caacuucagg	aagaacuucu	780
gcacacucag	uugaaguauc	agagaauucu	ggaacgauua	gaaaaggaga	acaaagaaau	840
gagaaaauuu	guauugcaga	aagaugacaa	aggcauucuu	cauagaaagc	uuagaaauc	900
uuugauugac	auguauucug	aaguucuuga	uguucucucu	gauuaugaug	ccaguuaaua	960
uacgcaagau	caucugccac	ggguuguugu	gguuggagau	cagagugcug	gaaagacuag	1020
uguguuggaa	augauugccc	aagcucgaau	auucccaaga	ggaucugggg	agaugaugac	1080
acguucucca	guuaagguga	cucugaguga	agguccucac	cauguggccc	uauuuuaaga	1140
uaguucucgg	gaguuuugauc	uuaccaaaga	agaagaucuu	gcagcauuua	gacaugaaau	1200
agaacuucga	augaggaaaa	augugaaaga	aggcuguacc	guuagcccug	agaccuauuc	1260
cuuaaaugua	aaaggcccug	gacuacagag	gauggugcuu	guugacuua	caggugugau	1320
uaauacugug	acaucaggca	uggcuccuga	cacaaaggaa	acuauuuuca	guaucagcaa	1380
agcuuacaug	cagaauccua	augccaucuu	acuguguaau	caagauggau	cuguggaugc	1440
ugaacgcagu	auuguuacag	acuuggucag	ucaaauaggac	ccucauggaa	ggagaaccuu	1500
auucguuuug	accaaaguag	accuggcaga	gaaaaaugua	gccaguccaa	gcaggauuca	1560
gcagauaaau	gaaggaaaagc	ucuucccaau	gaaagcuuuu	gguuauuuug	cuguuguaac	1620
aggaaaagg	aacagcucug	aaagcauuga	agcuauaaga	gaauaugaag	aagaguuuuu	1680
ucagaauuca	aagcuccuaa	agacaagcau	gcuaaaggca	caccaaguga	cuacaagaaa	1740
uuuaagccuu	gcaguaucag	acugcuuuug	gaaaauuggua	cgagagucug	uugaacaaca	1800
ggcugauagu	uucaaagcaa	cacguuuuuu	ccuugaaacu	gaauggaaga	auaacuaucc	1860
ucgccugcgg	gaacuugacc	ggaaugaacu	auuugaaaaa	gcuaaaaaug	aaauccuuga	1920
ugaaguuauc	agucugagcc	agguuacacc	aaaacauugg	gaggaaaucc	uucaacaau	1980
uuugugggaa	agaguaucua	cucaugugau	ugaaaacauc	uaccuuccag	cugcgcagac	2040
caugaauuca	ggaacuuiuu	acaccacagu	ggauaucaag	cuuaaacagu	ggacugauua	2100
acaacuuccu	aauaagcag	uagagguugc	uugggagacc	cuacaagaag	aauiuuuccg	2160
cuuuaugaca	gaaccgaaag	ggaaagagca	ugaugacaua	uuugauaaac	uuaaagaggc	2220
cguuaaggaa	gaaaguauua	aacgacacaa	guggaauagc	uuugcggagg	acagcuugag	2280
gguuauucaa	cacaugcuu	uggaagaccg	auccauaucu	gauaaacagc	aaugggaugc	2340
agcuauuuau	uuuauggaag	aggcucugca	ggcucgucuc	aaggauacug	aaaugcaau	2400

ugaaaacaug	guggguccag	acuggaaaaa	gaggugguua	uacuggaaga	aucggaccca	2460
agaacagugu	guucacaaug	aaaccaagaa	ugaauuggag	aagauguuga	aauguaauga	2520
ggagcaccca	gcuuaucuug	caagugauga	aauaaccaca	guccggaaga	accuugaauc	2580
ccgaggagua	gaaguagauc	caagcuugau	uaaggauacu	uggcaucaag	uuuauagaag	2640
acauuuuuua	aaaacagcuc	uaaaccuug	uaaccuuugu	cgaagagguu	uuuuuuacua	2700
ccaaaggcau	uuuguagauu	cugaguugga	augcaaugau	guggucuugu	uuuggcgauu	2760
acagcgcaug	cuugcuauca	ccgcaaauac	uuuaaggcaa	caacuuaaca	auacugaagu	2820
uaggcgauua	gagaaaaaug	uuaaagaggu	auuggaagau	uuugcugaag	auggugagaa	2880
gaagauuaaa	uugcuuacug	guaaacgcgu	ucaacuggcg	gaagaccuca	agaaaguua	2940
agaaauucaa	gaaaaacuug	augcuuucan	ugaagcucuu	caucaggaga	aauaauuaa	3000
aaucguacuc	auaaucagcu	cugcauacau	cugaagaaca	aaaacaucaa	cgucuuuugu	3060
ccagccucuu	uuucuuucug	uguuccaccu	uucuaaacau	acaauaaagu	caugggauaa	3120
aaauaaucga	uguauguuac	gggcgcuuua	accaucagcu	gccucucgaa	uggaagaaca	3180
gugguaaugg	auuaacaucc	uauuuuguug	uacuaaagug	acaaucgga	auaaauuaau	3240
ugguauggcc	auuagguuca	guccuugaag	auaagaagcu	uguucucugu	uuguugucuu	3300
auuuguggug	gcacucguuu	aauggauuaa	cugagguugc	ucaauguua	guuucuuuuc	3360
cagaaauaca	augcuaggug	uuuugaaaau	aaacuuauau	agcaauuguu	uaaaguuauc	3420
aauguauau	aaaauacag	uagccugcua	aaucuuugua	ugugucugua	guauucuaau	3480
cccagaaacu	auuugaccau	gauaaauucag	uuuauauuca	ccacaugaaa	gaaaaauggg	3540
uaacagaaga	accccuaaaa	cagguuaauu	uggauuguaa	cguucaguga	aagaaauuuc	3600
aaccuuucan	agccagcgaa	gaaauuugcc	uuggaagcca	agucaguacc	agcuuaccua	3660
uuugauucag	uugcuguuuu	cucacucucu	auauccauuu	gaaauugauu	uauuuuagau	3720
guuguauacu	uacguuaggc	uuucuguuaa	uagugguuuu	ucuccuguug	acagagccac	3780
cggauuauga	cacaggauga	ggaagauuaa	ggauaaucan	uugacuaauu	ucauuuagaa	3840
uauuaucan	cauuucaacu	agguaucaga	aaaaggcuuu	cuuucanag	acuauuuuaa	3900
auagaaaaua	uuucaacaau	uaaaguaaug	uugaccaucc	cccucucagc	ugaauaaaga	3960
aaaauuuagu	ucaauuuauu	gcaauuuauu	uacaauacua	ccuucacaac	auuuucaugu	4020
guuuuaaaau	aaauuuuuuu	aaugggcuaa	aggacauuca	agcaaagaaa	ugcuuucuuu	4080
acuuaaaau	ucuaucucan	uugcugccuu	uucacuaagc	cuuuacuug	uuauuaaaag	4140
uguccauugu	gugauguuuu	ugauuuuaca	guuugcuaaa	ucuuauuuuc	uuggaguugc	4200
uuuuugguaa	cagccccauu	gcuacucucc	auuuuauugu	uuuacaucaa	ugcaugcuuc	4260

guugugaucc cucaagaugu aacacuuggu augcucgguu gaggauauga aaaaauacuu 4320
 ccgaaaccag gaauucagug uauguuuguu uuauacuguu ugauaagaaa aguaggucca 4380
 gccuaagca gcacagaugc gcugguagau gcauagucag gaacuuuuuu uauuucuuuu 4440
 aggucuaagg acaggaguga auagaaagg aggagagcuc uauuauguuc uauacacaga 4500
 uuaggagaug accuucugg guacaccccu cuaaccagug cuuacagguu aaugcauguu 4560
 aaugaauauu uuugcaguug uaaagcauaa caauuacaac uacacaucua uuucuaaaga 4620
 auaaaacagg accauuuua uuucucucug ucaacuauag aaagaaagac cuucagcugu 4680
 auuuccacag auuucuccca aggaaaaggc uaauuuuagu cacuacuguu aucacaucucc 4740
 uuuguaaag uuuuaaaaag agauggaggg agaucuucuu uucuuugagg agaucaguau 4800
 uguaacguau gugaauagau gaaacaaau aaauuacua aaaguccac augagagucc 4860
 ugacgcccuc uccaugcccc acagaaugu ggcuucuuuc auggguuuuu uuucucuuu 4920
 uuugcugau cucauccuaa gcaugcuuuu uuuuuccuug aaagcuaggu auuuaucaac 4980
 ugcagauguu auugaaagaa auaaaaauuc agucucaaga guaaaccucug ugucuuugugu 5040
 cuguaguuca aaagucagaa augauucuaa uuuuaacaaa aagauuuua auauacagaa 5100
 guaaaauucg aacuagccac agaaucauuu guuuuuuagu cagaauuugc aaagagugga 5160
 guggacaaag cucuguaugg aagacugaac aacuguaau agaugauauc caaacuuau 5220
 uuggcuagga cuucauuuu aaaaaucagu guaccuaggc agugcacagc acgaaauaag 5280
 uggcccuugc agcuuccccg uuuaaccac ugugcuauag uugcgggugg aacagucaac 5340
 cuuucuaqua guuuauqua uugcccucu uguauuccca uuuccacag uuuuuuccgc 5400
 agacuucuuu cugcaauua uucagccucc aaugcaauu gaugauua aaaaauagua 5460
 gggaacaugg cagagagugg ugcuucccag ccucacaau ugggaauuug acauaggau 5520
 agagucagag uauagguua aaagauaaa ucuuaguuu auuuuuuugu auuuuuuuu 5580
 ucuagaugua uguaucugag gaaagaauc ugguuuuuu gcuuuccaau aaaggggauc 5640
 aaaguaaugg uuuuucucuc aguucucuaa gcuggucua uuuauagcuc uagcaguaug 5700
 gaaugugcu uuaaaauaug cuuaccuuu gaugaucau ggcuauaugu uguugagaua 5760
 uuugaaacu accuuguuuu cacuugugc cugugauga acuuuguau auuuuuuuua 5820
 aaccuucaca uuacguugag auuuuuuugc aacuuauuu uugccugugc uugaucaag 5880
 gucauuugug uagaugagua auuaaaaaau auuuuuuau c 5921

<210> 13
 <211> 5864
 <212> RNA
 <213> Homo sapiens

<220>

<221> mRNA

<222> (1) .. (5864)

<400> 13

cacggggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug	60
gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc	120
uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca	180
uucacaucau ccuaccuuaa agcuucaacg accccaauua aggacauccu uucagcaguu	240
cucuucucug acaaaccuuc cuuuacguaa acugaaaauuc ucuccaaaua aaauuggcua	300
ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcua	360
ucucauacua ggaucggcug uugggggugug cuacacagcc aaaaagacuu uugaucagug	420
gaaagauaug auaccggacc uuagugaaua uaaauggauu gugccugaca uuguguggga	480
aaugaugag uauaucgauu uugagaaaau uagaaaagcc cuuccuaauu cagaagaccu	540
uguaaaguua gcaccagacu uugacaagau uguugaaagc cuuagcuuau ugaaggacuu	600
uuuuaccuca gguucuccgg aagaaacggc guuuagagca acagaucgug gaucugaaag	660
ugacaagcau uuagaaaagg ugucagacaa agagaaaauu gaccaacuuc aggaagaacu	720
ucugcacacu caguugaagu aucagagaau cuuggaacga uuagaaaagg agaacaaaga	780
auugagaaaa uuaguauugc agaaagauga caaaggcauu caucauagaa agcuuaagaa	840
aucuuugauu gacauguauu cugaaguucu ugauguucuc ucugauuau augccaguua	900
uaauacgcaa gaucaucugc cacggguugu ugugguugga gaucagagug cuggaaagac	960
uaguguguug gaaaugauug cccaagcucg aaauauccca agaggauucg gggagaugau	1020
gacacguucu ccaguuaagg ugacucugag ugaagguccu caccaugugg ccuauuuua	1080
agauaguucu cgggaguug augcuaccaa agaagaagau cuugcagcau uaagacauga	1140
aauagaacuu cgaaugagga aaaaugugaa agaaggcugu accguuagcc cugagaccu	1200
auccuuuuuu guaaaaggcc cuggacuaca gaggauggug cuuguugacu uaccaggugu	1260
gauuaauacu gugacaucag gcauggcucc ugacacaaag gaaacuauuu ucaguaucag	1320
caaagcuuac augcagaauc cuaaugccau cauacugugu auucaaug gaucugugga	1380
ugcugaacgc aguauuguaa cagacuuggu cagucaaaug gaccucaug gaaggagaac	1440
cauauucguu uugaccaaag uagaccuggc agagaaaaau guagccaguc caagcaggau	1500
ucagcagaua auugaaggaa agcucuucc aaugaaagcu uuagguuuu uugcuguugu	1560
aacaggaaaa gggaacagcu cugaaagcau ugaagcuaua agagaauaug aagaagagu	1620
uuuucagaau ucaaagcucc uaaagacaag caugcuaaag gcacaccaag ugacuacaag	1680
aaaauuaagc cuugcaguau cagacugcuu uuggaaaaug guacgagagu cuguugaaca	1740

acaggcugau	aguuucaaag	caacacguuu	uaaccuugaa	acugaaugga	agaauaacua	1800
uccucgccug	cgggaacuug	accggaauga	acuauuugaa	aaagcuaaaa	augaaauccu	1860
ugaugaaguu	aucagucuga	gccagguuac	acaaaaacau	ugggaggaaa	uccuuaaca	1920
aucuuugugg	gaaagaguau	caacucaugu	gauugaaaac	aucuaccuuc	cagcugcgca	1980
gaccaugaau	ucaggaacuu	uuaacaccac	aguggauauc	aagcuuaaac	aguggacuga	2040
uaaacaacuu	ccuaauaaag	caguagaggu	ugcuuggggag	acccuacaag	aagaauuuuc	2100
ccgcuuuau	acagaaccga	aagggaaaga	gcaugaugac	auauuugaua	aacuuuaaga	2160
ggccguuaag	gaagaaagua	uuaaacgaca	caaguggaa	gacuuugcgg	aggacagcuu	2220
gaggguuauu	caacacaau	cuuuggaaga	ccgauccaua	ucugauaaac	agcaauggga	2280
ugcagcuauu	uauuuuau	aagaggcucu	gcaggcucgu	cucaaggaua	cugaaaaugc	2340
aaauugaaaac	augguggguc	cagacuggaa	aaagaggugg	uuauacugga	agaaucggac	2400
ccaagaacag	uguguucaca	augaaaccaa	gaaugaaug	gagaagaugu	ugaaauguaa	2460
ugaggagcac	ccagcuuau	uugcaaguga	ugaaauaacc	acaguccgga	agaaccuuga	2520
aucccagagga	guagaaguag	auccaagcuu	gauuaaggau	acuuggcauc	aaguuuauag	2580
aagacauuuu	uuaaaaacag	cucuaaacca	uuguaaccuu	ugucgaagag	guuuuuauua	2640
cuaccaaagg	cauuuuguag	auucugaguu	ggaaugcaau	gauguggucu	uguuuuggcg	2700
uauacagcgc	augcuugcua	ucaccgcaaa	uacuuaaagg	caacaacuua	caaaauacuga	2760
aguuaggcga	uuagagaaaa	auguuaaaga	gguauuggaa	gauuuugcug	aagaugguga	2820
gaagaagauu	aaauugcuua	cugguaaacg	cguucaacug	gcggaagacc	ucaagaaagu	2880
uagagaaaau	caagaaaaac	uugaugcuuu	cauugaagcu	cuucaucagg	agaaaauaa	2940
uaaaaucgua	cucauaauca	gcucugcaua	caucugaaga	acaaaaacau	caacgucuuu	3000
uguccagccu	cuuuuucuu	ugcuguucca	ccuuucuaaa	cauacaauaa	agucauggga	3060
uaaaaauaa	cgauguaugu	uacgggcgc	uuaaccauca	gcugccucuc	gaauggaaga	3120
acagugguaa	uggauuaaca	uccuauuuug	uuguacuuaa	gugacaaauc	ggaauaaau	3180
aauggguau	gccauuaggu	ucaguccuug	aagauaagaa	gcuuguucuc	uguuuguugu	3240
cuuauuuug	guggcacucg	uuuaauggau	uaacugaggu	ugcucaaugu	ucaguuuucu	3300
uuccagaaa	acaugcuag	guguuuugaa	auaaaaacuua	uauagcaauu	guuuuaaguu	3360
aucaauugua	uauaaaauca	caguagccug	cuaaaucuu	guaugugucu	guaguauucu	3420
auucccagaa	acuauuugac	caugauaaau	caguuuauau	ucaccacaug	aaagaaaaau	3480
ggguaacaga	agaaccccu	aaacagguaa	auuuggauug	uaacguucag	ugaaagaaa	3540
uucaacccuu	cauagccagc	gaagaaaauu	gccuuggaag	ccaagucagu	accagcuuac	3600
cuauuugauu	caguugcugu	uuucucacuc	ucuauaucca	uuugaaaau	auuuauuuua	3660

gauguuguau	acuuacguua	ggcuuucugu	uaauaguggu	uuuucuccug	uugacagagc	3720
caccggauua	ugacacagga	ugaggaagau	uaaggauaau	caauugacua	auuucauuuu	3780
gaauauuauc	aaacauuuc	acuagguuac	agaaaaaggc	uuucuuuac	aagacuauuu	3840
uaaaauagaaa	uuauuucaac	aaauaaagua	auguugacca	ucccccucuc	agcugaauaa	3900
agaaaaauuu	aguucaauuu	auugcaauuu	aaauacaaua	cuaccuucac	aacauuuuca	3960
uguguuuuaa	auaaaauuuu	uuuaauuggc	uaaaggacau	ucaagcaaag	aaaugcuuuc	4020
uuuacuuaaa	augucuaucu	cauuugcugc	cuuuucacua	agccuuuacu	uuguuaauaa	4080
aaguguccau	ugugugaugu	uuuugauuuu	acaguuugcu	aaauuuuuu	uucuuuggagu	4140
ugcuuuuugg	uaacagcccc	auugcuacuc	cccauuuuau	uguuuuacau	caaugcaugc	4200
uucguuguga	ucccucaaga	uguaacacuu	gguaugcucg	guugaggaua	ugaaaaaaua	4260
cuuccgaaac	caggaauuca	guguauguuu	guuuuauacu	guuugauaag	aaaaguaggu	4320
ccagccuuaa	gcagcacaga	ugcgucggua	gaugcauagu	caggaacuuu	uuuuuuuucu	4380
uuuaggucua	gggacaggag	ugaauagaaa	gggaggagag	cucuauuaug	uucuauacac	4440
agauuaggag	augaccuuac	uggguacacc	ccucuaacca	gugcuuacag	guuaaugcau	4500
guuaaугааu	auuuuugcag	uuguaaaгca	uaacaauuac	aacuacacau	cuauuucuaa	4560
agaauaaaac	aggaccauau	uuauuuacuu	cugucaacua	uagaaagaaa	gaccuucagc	4620
uguauuucca	cagauuucuc	ccaaggaaaa	ggcuauuuu	agucacuacu	guuaucacau	4680
cccuuuguau	aaguuuuaaa	aagagaugga	gggagaucuu	cauuucuuug	aggagauцag	4740
uauuguaacg	uauгugaaua	gaugauaaca	auuaauuuu	cuaaaagucc	cacaugagag	4800
uccugacgcc	cucuccaugc	cccacaguaa	uguggcuuuc	uucauggguu	uuuuuuuucu	4860
cuuuuuagcu	gaucucaucc	uaagcaugcu	uuauuuuucc	uugaaagcua	gguauuuauc	4920
aacugcagau	guuaauugaaa	gaaaauaaaa	uucagucuca	agaguaaacc	cugugucuug	4980
ugucuguagu	ucaaaaгuca	gaaaugauuc	uaauuuaaac	aaaaagauau	uaaaauuaca	5040
gaaguuaaa	ucgaacuagc	cacagaauca	uuuguuuuu	ugucagaauu	ugcaaagagu	5100
ggaguggaca	aagcucugua	uggaagacug	aacaacugua	aaуagaugau	auccaaacuu	5160
aauuuuggcua	ggacuucaau	uuuaaaaauc	aguguaccua	ggcagugcac	agcacgaaa	5220
aaguggcccu	ugcagcuucc	ccguuuuacc	cacugugcua	uaguugcggg	uggaacaguc	5280
aaccuuucua	guaguuuauг	auauugcccu	cuuuguauuc	ccauuuucca	caguuuuuuc	5340
cgцagacuuc	uuucugcaaa	uuauucagcc	uccaaaugca	aaugaaugau	auaaaaauaa	5400
guagggaaaca	uggcagagag	uggugcuucc	cagccucaca	augugggaau	uugacauagg	5460
augagaguca	gaguauaggu	uuaaaagaua	aaaucuuuag	uuauuaauuu	uguauuuuuu	5520

uauucua_{gau} guaguacu gag_{gaa}aga aucugguauu uuugcuuucc aauaaagggg 5580
 aucaaguaa ugguuuuucu cucaguucuc uaagcugguc uaguuauag cucuagcagu 5640
 aug_{gaaa}ugu gcuuuaaaau augcuuaccu uuugaaugau cauggcuaua uguuguugag 5700
 auauuugaaa cuuaccuugu uuucacuugu gcacugugaa ugaacuuugu auuauuuuuu 5760
 uaaaaccuuc acauuacgug uagauauuau ugcaacuuau auuuugccug ugcuugauca 5820
 aaggucauuu guguagaga guauuaaaa aauaauuuaaa ucac 5864

<210> 14
 <211> 5975
 <212> RNA
 <213> Homo sapiens

<220>
 <221> mRNA
 <222> (1)..(5975)

<400> 14
 cacggggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug 60
 gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuagaga aacacagcuc 120
 uggauuaaaa ggaaguuuac cacuacaaa acuacaucug guuucacgaa gcauuuauca 180
 uucacaucau ccuaccuuaa agcuucaacg accccaauuu aggacauccu uucagcaguu 240
 cucuucucug acaaaccuuc cuuuacguaa acugaaauuc ucuccaauuu aauauggcua 300
 ccagccucgc aggauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcua 360
 ucucauacua ggaucggcug uuggggggug cuacacagcc aaaaagacu uugaucagug 420
 gaaagauaug auaccggacc uuagugaua uaaauggauu gugccugaca uuguguggga 480
 aauugaugag uauaucgauu uugagaaau uagaaaagcc cuuccuauu cagaagaccu 540
 uguaaaguua gcaccagacu uugacaagau uguugaaagc cuuagcuuau ugaaggacuu 600
 uuuuaccuca gguucuccgg aagaaacggc guuuagagca acagaucgug gaucugaaag 660
 ugacaagcau uuuagaagg gucugcuugg ugagcucau cuuuacaac aacaauuca 720
 agagcaugaa gaggaagcgc gcagagccgc uggccaauau agcacgagcu augcccaaca 780
 gaagcgcaag gugucagaca aagagaaau ugaccaacu caggaagaac uucugcacac 840
 ucaguugaag uaucagagaa ucuuggaacg auuagaaaag gagaacaaag aauugagaaa 900
 auuaguauug cagaaagau acaaaaggcau ucaucauaga aagcuuaaga aaucuugau 960
 ugacauguau ucugaaguuc uugauguucu cucugauuau gaugccaguu auaauacgca 1020
 agaucaucug ccacggguug uugugguugg agaucagagu gcuggaaaga cuaguguguu 1080
 ggaaaugauu gcccaagcuc gaauauuccc aagaggaucu ggggagauga ugacacguuc 1140
 uccaguuaag gugacucuga gugaaggucc ucaccaugug gcccuauua aagauaguuc 1200

ucgggaguuu	gaucuuacca	aagaagaaga	ucuugcagca	uuaagacaug	aaauagaacu	1260
ucgaaugagg	aaaaauguga	aagaaggcug	uaccguuagc	ccugagacca	uauccuuaaa	1320
uguaaaaggc	ccuggacuac	agaggauugu	gcuuguugac	uuaccaggug	ugauuaauac	1380
ugugacauca	ggcauggcuc	cugacacaaa	ggaaacuauu	uucaguauca	gcaaagcuua	1440
caugcagaau	ccuaaugcca	ucauacugug	uauucaagau	ggaucugugg	augcugaacg	1500
caguauuguu	acagacuugg	ucagucaaa	ggaccucacu	ggaaggagaa	ccauauucgu	1560
uuugaccaa	guagaccugg	cagagaaaa	uguagccagu	ccaagcagga	uucagcagau	1620
aaaugaagga	aagcucuucc	caugaaagc	uuuagguuau	uuugcuguug	uaacaggaaa	1680
agggaacagc	ucugaaagca	uugaagcuau	aagagaauau	gaagaagagu	uuuuucagaa	1740
uucaaagcuc	cuaaagacaa	gcaugcuaaa	ggcacaccaa	gugacuacaa	gaaauuuag	1800
ccuugcagua	ucagacugcu	uuuggaaaa	gguacgagag	ucuguugaac	aacaggcuga	1860
uaguuucaaa	gcaacacguu	uuaaccuuga	aacugaauug	aagaauaacu	auccucgccu	1920
gcgggaacuu	gaccggaaug	aacuauuuga	aaaagcuaaa	aaugaaaucc	uugaugaagu	1980
uauagucug	agccagguua	cacaaaaaca	uugggaggaa	auccuuaac	aaucuuugug	2040
ggaaagagua	ucaacucaug	ugauugaaaa	caucuaccuu	ccagcugcgc	agaccaugaa	2100
uucaggaacu	uuuaacacca	caguggauau	caagcuuaaa	caguggacug	auaaacaacu	2160
uccuaauaaa	gcaguagagg	uugcuuggga	gaccuacaa	gaagaauuuu	cccgcuuuau	2220
gacagaaccg	aaagggaaag	agcaugauga	cauauuugau	aaacuuaaag	aggccguuaa	2280
ggaagaaagu	auuaaacgac	acaaguggaa	ugacuungcg	gaggacagcu	ugaggguuau	2340
ucaacacaau	gcuuuggaag	accgauccau	aucugauaaa	cagcaauugg	augcagcuau	2400
uuauuuuau	gaagaggcuc	ugcaggcucg	ucucaaggau	acugaaaau	caauugaaaa	2460
cauggugggg	ccagacugga	aaaagaggug	guuauacugg	aagaauccg	cccaagaaca	2520
guguguucac	aaugaaacca	agaaugaauu	ggagaagaug	uugaaaugua	augaggagca	2580
cccagcuuau	cuugcaagug	augaaaauac	cacaguccgg	aagaaccuug	aaucccgagg	2640
aguagaagua	gauccaagcu	ugauuaagga	uacuuggcau	caaguuuaua	gaagacauuu	2700
uuuaaaaaca	gcucuaaaacc	auuguaaccu	uugucgaaga	gguuuuuauu	acuaccaaag	2760
gcauuuugua	gauucugagu	uggaauugca	ugaugugguc	uuguuuuggc	guauacagcg	2820
caugcuugcu	aucaccgcaa	auacuuaaag	gcaacaacuu	acaaauacug	aaguuaaggcg	2880
auuagagaaa	aauguuaaag	agguauugga	agaauuugcu	gaagauggug	agaagaagau	2940
uaauuugcuu	acugguaaac	gcguucaacu	ggcggaagac	cucaagaaag	uuagagaaau	3000
ucaagaaaaa	cuugaugcuu	ucauugaagc	ucuucaucag	gagaaauaaa	uuaaaaucgu	3060

acucauaa	agcucugcau	acaucugaag	aacaaaaaca	ucaacgucuu	uuguccagcc	3120
ucuuuuucuu	cugcuguucc	accuuucuaa	acauacaaua	aagucauggg	auaaaaauaa	3180
ucgauguaug	uuacggggcg	uuuaaccauc	agcugccucu	cgaauggaag	aacaguggua	3240
auggauuaac	auccuauuuu	guuguacuaa	agugacaaa	cgaauaaua	uaauugguau	3300
ggccauuagg	uucaguccuu	gaagauaaga	agcuuguucu	cuguuuguug	ucuuuuuugu	3360
gguggcacuc	guuuaaugga	uuacugagg	uugcucaaug	uucaguuuu	uuuccagaaa	3420
uacaaugcua	gguguuuuga	auaaaaacuu	auauagcaau	uguuuuaagu	uaucaauugu	3480
auauaaaauc	acaguagccu	gcuaaauc	uguauugug	uguaguauuc	uauucccaga	3540
aacuaauuga	ccaugauaau	ucaguuuaua	uucaccacau	gaaagaaaaa	uggguaacag	3600
aagaaccccu	aaaacagguu	auuuggauu	guaacguuca	gugaaagaaa	uuucaacccu	3660
ucauagccag	cgaagaaauu	ugccuuggaa	gccaaugcag	uaccagcuua	ccuauuugau	3720
ucaguugcug	uuuucucacu	cucuauaucc	auuugaaauu	gauuuuuuuu	agauguugua	3780
uacuuacguu	aggcuuucug	uuauagugg	uuuucuccu	guugacagag	ccaccggauu	3840
augacacagg	augaggaaga	uuaggauaa	ucaauugacu	aauuucauuu	agaauuuau	3900
caaacaauuc	aacuagguau	cagaaaaagg	cuuucuuuca	uaagacuauu	uuaaaauaga	3960
auuauuucaa	caauuaaagu	aauguugacc	aucccccucu	cagcugaaua	aagaaaaauu	4020
uaguucaauu	uauugcaauu	uaauuacaau	acuaccuuca	caacaauuuc	auguguuuua	4080
aauaaaauuu	uuuaauuugg	cuaaaggaca	uucaagcaaa	gaaaugcuuu	cuuuacuuaa	4140
aaugucuauc	ucauuugcug	ccuuuucacu	aagccuuuac	uuuguuaaua	aaagugucca	4200
uugugugaug	uuuuugauuu	uacaguuugc	uaaaucuuau	uuucuuuggag	uugcuuuuug	4260
guaacagccc	cauugcuacu	ccccauuuua	uuguuuuaca	ucaaugcaug	cuucguugug	4320
aucccucaag	auguaacacu	ugguaugcuc	gguugaggau	augaaaaau	acuuccgaaa	4380
ccaggaaauuc	aguguauguu	uguuuuauac	uguuugauaa	gaaaaguagg	uccagccuua	4440
agcagcacag	augcgcuggu	agaugcauag	ucaggaacuu	uuuuuauuuc	uuuuaggucu	4500
agggacagga	gugaauagaa	agggaggaga	gcucuauuau	guucuauaca	cagauuagga	4560
gaugaccuua	cuggguacac	cccucuaacc	agugcuuaca	gguaaauuca	uguuaaugaa	4620
uauuuuugca	guuguaaaagc	auaacaauua	caacuacaca	ucuauuucua	aagaauaaaa	4680
caggaccaua	uuuauuuacu	ucugucaacu	auagaaagaa	agaccuucag	cuguauuucc	4740
acagauuucu	cccaaggaaa	aggcuauuau	uagucacuac	uguuauca	ucccuuugua	4800
uaaguuuuaa	aaagagaugg	agggagaucu	ucauuucuuu	gaggagauca	guauuguaac	4860
guauugugaau	agaugauaac	aauuauuuu	acuaaaaguc	ccacauagaga	guccugacgc	4920
ccucuccaug	ccccacagua	auguggcuuc	uuucaugggu	uuuuuuuucu	ucuuuuuagc	4980

```

ugaucucauc cuaagcaugc uuuuuuuuuc cuugaaagcu agguauuuau caacugcaga 5040
uguuauugaa agaaaauaaa auucagucuc aagaguaaac ccugugucuu gugucuguag 5100
uucaaaaguc agaaugauu cuaauuuaaa caaaaagaua uuaauauuac agaaguuaaa 5160
uucgaacuag ccacagaauu auuuguuuuu augucagaau uugcaaagag uggaguggac 5220
aaagcucugu auggaagacu gaacaacugu aaauagauga uauccaaacu uaauuuggcu 5280
aggacucaa uuuuaaaaau caguguaccu aggcagugca cagcacgaaa uaaguggccc 5340
uugcagcuuc cccguuuuac ccacugugcu auaguugcgg guggaacagu caaccuuucu 5400
aguaguuuau gauauugccc ucuuuguauu cccauuuucc acaguuuuuu ccgcagacuu 5460
cuuucugcaa auuauucagc cuccaaugc aaaugaauga uauaaaaua aguagggaac 5520
auggcagaga guggugcuuc ccagccucac aaugugggaa uuugacauag gaugagaguc 5580
agaguauagg uuuaaaagau aaaaucuuua guuaauauuu uuguauuuau uuauucuaga 5640
uguauguauc ugaggaaaga aaucugguau uuugcuuuc caauaaaggg gaucaaagua 5700
augguuuuuc ucucaguucu cuaagcuggu cuauguuaua gcucuagcag uauggaaaug 5760
ugcuuuaaaa uaugcuuacc uuugaauga ucauggcuau auguuguuga gauauuugaa 5820
acuuaccuug uuucacuuug ugcacuguga augaacuuug uauuuuuuu uuaaaaccuu 5880
cacauuacgu guagauauua uugcaacuua uauuuugccu gugcuugauc aaaggucuu 5940
uguguagaug aguauuuuuu aaauuuuuu aucac 5975

```

```

<210> 15
<211> 5918
<212> RNA
<213> Homo sapiens

```

```

<220>
<221> mRNA
<222> (1)..(5918)

```

```

<400> 15
cacgggggcu cccgcguggc cgucucggcg ccugcgugac cccccgccg gcgggaugug 60
gcgacuacgu cgggccgcug uggccuguga ggucugccag ucuuuaguga aacacagcuc 120
uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcauuuauca 180
uucacaucau ccuaccuuua agcuucaacg accccaauua aggacauccu uucagcaguu 240
cucuucucug acaaaccuuc cuuucaguaa acugaaaauu ucuccaauua aaauuggcua 300
ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcua 360
ucucauacua ggaucggcug uugggggugg cuacacagcc aaaaagacuu uugaucagug 420
gaaagauaug auaccggacc uuagugaaua uaaauggauu gugccugaca uuguguggga 480

```

aaugaugag	uauaucgauu	uugagaaaau	uagaaaagcc	cuuccuaauu	cagaagaccu	540
uguaaaguua	gcaccagacu	uugacaagau	uguugaaagc	cuuagcuuau	ugaaggacuu	600
uuuuaccuca	ggucacaaa	ugguuaguga	agucauagga	gcuucugacc	uacuucucuu	660
guuagguucu	ccggaagaaa	cggcguuuag	agcaacagau	cguggaucug	aaagugacaa	720
gcauuuuaga	aaggugucag	acaaagagaa	aaugacca	cuucaggaag	aacuucugca	780
cacucaguug	aaguaucaga	gaauucugga	acgauuagaa	aaggagaaca	aagaauugag	840
aaaauuagua	uugcagaaag	augacaaagg	cauucaucu	agaaagcuu	agaaaucuuu	900
gauugacaug	uauucugaag	uucuugaugu	ucucucugau	uauaugcca	guuauaaauac	960
gcaagaucau	cugccacggg	uuguuguggu	uggagaucag	agugcuggaa	agacuagugu	1020
guuggaaaug	auugcccaag	cucgaauuu	cccaagagga	ucuggggaga	ugaugacacg	1080
uucuccaguu	aaggugacuc	ugagugaagg	uccucaccu	guggcccuu	uuaaagauag	1140
uucucgggag	uuugaucuua	ccaaagaaga	agauucugca	gcauuagac	augaaauaga	1200
acuucgaaug	aggaaaaaug	ugaaagaagg	cuguaccguu	agcccugaga	ccauauccuu	1260
aaauguaaaa	ggcccuggac	uacagaggau	ggugcuuguu	gacuuaccag	gugugauuaa	1320
uacugugaca	ucaggcaugg	cuccugacac	aaaggaaacu	auuuucagua	ucagcaaagc	1380
uuacaugcag	aauccuaaug	ccaucauacu	guguauucaa	gauggaucug	uggaugcuga	1440
acgcaguauu	guuacagacu	uggucaguca	aauggaccu	cauggaagga	gaaccuauuu	1500
cguuuugacc	aaaguagacc	uggcagagaa	aaauguagcc	aguccaagca	ggauucagca	1560
gauaaauugaa	ggaaagcucu	ucccaaugaa	agcuuuaggu	uauuuugcug	uuguaacagg	1620
aaaagggaa	agcucugaaa	gcauugaagc	uauaagagaa	uauagaagaag	aguuuuuuca	1680
gaaaucaaag	cuccuaaaga	caagcaugcu	aaaggcacac	caagugacua	caagaaauuu	1740
aagccuugca	guaucagacu	gcuuuuggaa	aaugguacga	gagucuguug	aacaacaggc	1800
ugauaguuu	aaagcaacac	guuuuaaccu	ugaaacugaa	uggaagaaua	acuauccucg	1860
ccugcgggaa	cuugaccgga	augaacuauu	ugaaaaagcu	aaaaaugaaa	uccuugauga	1920
aguuaucagu	cugagccagg	uuacaccaa	acauugggag	gaaauccuuc	aacaauuuu	1980
gugggaaaga	guaucaacuc	augugauuga	aaacauacu	cuuccagcug	cgagaccuau	2040
gaaucagga	acuuuuuaca	ccacagugga	uaucaagcuu	aaacagugga	cugauaaaca	2100
acuuccuaau	aaagcaguag	agguugcuug	ggagaccuua	caagaagaau	uuucccgcuu	2160
uauacagaa	ccgaaaggga	aagagcauga	ugacauuuu	gauaaacuua	aagaggccgu	2220
uaaggaagaa	aguauuaaac	gacacaagug	gaugacuuiu	gcggaggaca	gcuugagggg	2280
uauucaacac	aaugcuuugg	aagaccgauc	cauauucugau	aaacagcaau	gggaugcagc	2340
uauuuuuuu	auggaagagg	cucugcaggc	ucgucucaag	gauacugaaa	augcaauuga	2400

aaacauggug	gguccagacu	ggaaaaagag	gugguuauac	uggaagaauc	ggacccaaga	2460
acaguguguu	cacaugaaa	ccaagaauga	auuggagaag	auguugaaau	guaaugagga	2520
gcacccagcu	uaucuugcaa	gugaugaaau	aaccacaguc	cggaagaacc	uugaaucccg	2580
aggaguagaa	guagauccaa	gcuugauuaa	ggauacuugg	caucaaguuu	auagaagaca	2640
uuuuuuaaaa	acagcucuaa	accauuguaa	ccuuugucga	agagguuuuu	auuacuacca	2700
aaggcauuuu	guagauucug	aguuggaaug	caaugaugug	gucuuguuuu	ggcguauaca	2760
gcgcaugcuu	gcuauccacc	caauuacuuu	aaggcaacaa	cuuacaaaua	cugaaguua	2820
gcgauuagag	aaaaauguua	aagagguauu	ggaagauuuu	gcugaagaug	gugagaagaa	2880
gauuaaaau	cuuacuggua	aacgcguuca	acuggcgga	gaccucaaga	aaguuaagaga	2940
aaaucaagaa	aaacuugaug	cuuucuuuga	agcucuucuu	caggagaaau	aaauuuuuuu	3000
cguacucuaa	aucagcucug	cauacaucug	aagaacaaaa	acaucaacgu	cuuuugucca	3060
gccucuuuuu	cuucugcugu	uccaccuuuc	uaaacauaca	auaaagucuu	gggauaaaaa	3120
uaaucgaugu	auguuacggg	cgcuuaaacc	aucagcugcc	ucucgaauug	aagaacagug	3180
guaauggauu	aacauccuau	uuuguuguac	uaaagugaca	aaucggaaua	auauaaauug	3240
uauggccauu	agguucaguc	cuugaagaua	agaagcuugu	ucucuguuug	uugucuuaau	3300
ugugguggca	cucguuuauu	ggauuaacug	agguugcuca	auguucaguu	ucuuuuccag	3360
aaauacaau	cuagguguuu	ugaaauaaaa	cuuauauagc	aauguuuuua	aguuaucuuu	3420
uguauauaaa	aucacaguag	ccugcuuuuu	cauuguaugu	gucuguagua	uucuaauccc	3480
agaaacuuuu	ugaccaugau	aaucaguuuu	auauucacca	caugaaagaa	aaauuggguua	3540
cagaagaacc	ccuaaaacag	guuaauuugg	auuguaacgu	ucagugaaag	aaauuucaac	3600
ccuucuuagc	cagcgaagaa	auuugccuug	gaagccaagu	caguaccagc	uuaccuuuuu	3660
gauucaguug	cuguuuucuc	acucucuaau	uccauuugaa	auugauuuuu	uuuagauguu	3720
guauacuuac	guuaggcuuu	cuguuaauag	ugguuuuucu	ccuguugaca	gagccaccgg	3780
auuaugacac	aggauagagga	agauuaagga	uaaucaauug	acuaauuuca	uuuagaauuu	3840
uaucaaacuu	uucaacuagg	uaucaaaaaa	aggcuuucuu	ucauaagacu	auuuuuuuuu	3900
gaaauuuuuu	caacaauuuu	aguuauguug	accauuuuuu	ucucagcuga	auaaagaaaa	3960
auuuaguucca	auuuauugca	auuuauuuac	auuacuaccu	ucacaacuuu	uucauguguu	4020
uuuuuuuuuu	uuuuuuuuuu	uggcuuuuug	acuuucaaagc	aaagaaauugc	uuuuuuuuuu	4080
uuuuuuuuuu	uuuuuuuuuu	uggcuuuuug	acuuucaaagc	aaagaaauugc	uuuuuuuuuu	4140
uuuuuuuuuu	uuuuuuuuuu	uggcuuuuug	acuuucaaagc	aaagaaauugc	uuuuuuuuuu	4200
uuuuuuuuuu	uuuuuuuuuu	uggcuuuuug	acuuucaaagc	aaagaaauugc	uuuuuuuuuu	4260

gugaucccuc aagauguaac acuugguaug cucgguaugag gauaugaaaa aaacuuccg 4320
 aaaccaggaa uucaguguau guuuguuuua uacuguuuga uaagaaaagu agguccagcc 4380
 uuaagcagca cagaugcgcu gguagaugca uagucaggaa cuuuuuuuau uucuuuuagg 4440
 ucuagggaca ggagugaaua gaaagggagg agagcucuau uauguucuau acacagauua 4500
 ggagaugacc uuacugggua caccuccua accagugcuu acagguuaau gcauguuaau 4560
 gaauauuuuu gcaguuguaa agcauaacaa uuacaacuac acaucuauuu cuaaagaaua 4620
 aaacaggacc auauuuauuu acuucuguca acuaugaaa gaaagaccuu cagcuguauu 4680
 uccacagauu ucuccaagg aaaaggcuua uauuagucac uacuguuauu acauccuuu 4740
 guauaaguuu uaaaaagaga uggagggaga ucuucauuu uuugaggaga ucaguauugu 4800
 aacguaugug aaugaugau aacaauuaa auuacuaaaa gucccacaug agaguccuga 4860
 cgcccucucc augcccaca guaauguggc uucuuucaug gguuuuuuuu ucuucuuuuu 4920
 agcugaucuc auccuaagca ugcuuuuuuu uuccuugaaa gcuagguauu uaucaacugc 4980
 agauguuauu gaaagaaaaa aaaaucagu cucaagagua aaccugugu cuugugucug 5040
 uaguucaaaa gucagaaaug auucuaauuu aaacaaaaag auauuaaua uacagaagu 5100
 aaauucgaac uagccacaga aucuuuugu uuuaugucag aaauugcaa gaguggagug 5160
 gacaaagcuc uguauggaag acugaacaac uguaaauga ugauauccaa acuaauuuug 5220
 gcuaggacuu caauuuuaaa aaucagugua ccuaggcagu gcacagcacg aaauaagugg 5280
 cccuugcagc uuccccguuu aaccacagu gcuauaguug cggguggaac agucaaccuu 5340
 ucuaguagu uaugauuuug cccucuugu auucccauu uccacaguuu uuuccgcaga 5400
 cuucuuucug caauuuauuc agccuccaaa ugcaaugaa ugauauaaaa auaguaggg 5460
 aacauggcag agaguggugc uucccagccu cacaugugg gaauuugaca uaggauagaga 5520
 gucagaguau agguuuaaaa gauaaaaucu uuaguuaau auuuuguauu uauuuauucu 5580
 agauguaugu aucugaggaa agaaucugg uauuuuugcu uuccaauaaa ggggaucaaa 5640
 guaaugguuu uucucucagu ucucuaagcu ggucuauguu auagcucuag caguauaggaa 5700
 augugcuuu aaauaugcuu accuuuugaa ugaucauggc uauauguugu ugagauuuu 5760
 gaaacuuaac uuguuuucac uugugcacug ugaaugaacu uuguauuuu uuuuuuuuac 5820
 cuucacauua cguguagaua uuauugcaac uuauuuuug ccugugcuug aucaaagguc 5880
 auuuguguag augaguauu aaaaaauuu uaaucac 5918

<210> 16
 <211> 6029
 <212> RNA
 <213> Homo sapiens

<220>

<221> mRNA

<222> (1) .. (6029)

<400> 16

cacgggggcu cccgcguggc cgucucggcg ccugcgugac cuccccgccg gcgggaugug	60
gcgacuacgu cgggccgcug uggccuguga ggucugccag uuuuaguga aacacagcuc	120
uggaauaaaa ggaaguuuac cacuacaaaa acuacaucug guuucacgaa gcuuuuauca	180
uucacaucau ccuaccuuaa agcuucaacg accccaauua aggacauccu uucagcaguu	240
cucuucucug acaaaccuuc cuuuacguaa acugaaaauuc ucuccaauua aaauuggcua	300
ccagccucgc aggaauuuuu ggccagcaag auuagcuacg agacucuuaa aacuucgcu	360
ucucauacua ggauccgcug uggggggugg cuacacagcc aaaaagacu uugaucagug	420
gaaagauaug auaccggacc uuagugaaua uaaauuggau gugccugaca uuguguggga	480
aaauaugag uauaucgauu uugagaaaau uagaaaagcc cuuccaauu cagaagaccu	540
uguaaaagua gcaccagacu uugacaagau uguugaaagc cuuagcuuau ugaaggacuu	600
uuuuaccuca ggucacaaa ugguuaguga agucauagga gcuucugacc uacuucucu	660
guuagguucu ccggaagaaa cggcguuuag agcaacagau cguggaucug aaagugacaa	720
gcuuuuuaga aaggguucugc uuggugagcu cauucucuua caacaacaaa uucaagagca	780
ugaagaggaa gcgcgcagag ccgcuggcca auauagcacg agcuauagccc aacagaagcg	840
caagguguca gacaaagaga aaauugacca acuucaggaa gaacuucugc acacucaguu	900
gaaguaucag agaaucuugg aacgauuaga aaaggagaac aaagaauuga gaaaauuagu	960
auugcagaaa gaugacaaa gcauucauca uagaaagcuu aagaaaucuu uguuugacau	1020
guauucugaa guucuuugaug uucucucuga uuaugaugcc aguuaauaau cgcaagauca	1080
ucugccacgg guuguugugg uuggagauca gagugcugga aagacuagug uguuggaaa	1140
gauugcccaa gcucgaauau uccaagagg aucuggggag augaugacac guucuccagu	1200
uaaggugacu cugagugaag guccucacca uguggccua uuuaaagaua guucucggga	1260
guuugaucuu accaaagaag aagaucuuugc agcauuuaga caugaaauag aacuucgaau	1320
gaggaaaaau gugaaagaag gcuguaccgu uagcccugag accauauccu uaaauguaaa	1380
aggcccugga cuacagagga uggugcuugu ugacuuaacca ggugugauua auacugugac	1440
aucaggcaug gcuccugaca caaaggaaac uauuuucagu aucagcaaag cuuacaugca	1500
gaauccuaau gccaucauac uguguauuca agauggaucu guggaugcug aacgcagauu	1560
uguuacagac uggucaguc aaauaggacc ucauggaagg agaaccuau ucguuuugac	1620
caaaguagac cuggcagaga aaaauaguagc caguccaagc aggauucagc agauaaaua	1680
aggaaagcuc uucccaauga aagcuuuagg uuauuuugcu guuguaacag gaaaaggga	1740

cagcucugaa	agcauugaag	cuauaagaga	auaugaagaa	gaguuuuuuc	agaauucaaa	1800
gcuccuaaag	acaagcaugc	uaaaggcaca	ccaagugacu	acaagaaauu	uaagccuugc	1860
aguaucagac	ugcuuuugga	aaaugguacg	agagucuguu	gaacaacagg	cugauaguuu	1920
caaagcaaca	cguuuuaacc	uugaaacuga	auggaagaau	aacuauccuc	gccugcggga	1980
acuugaccgg	aaugaacuau	uugaaaaagc	uaaaaaugaa	auccuugaug	aaguuaucag	2040
ucugagccag	guuacaccaa	aacauuggga	ggaaauccuu	caacaauucu	ugugggaaag	2100
aguaucaacu	caugugauug	aaaacaucua	ccuuccagcu	gcgcagacca	ugaauucagg	2160
aacuuuuuac	accacagugg	auaucaagcu	uaaacagugg	acugauaaac	aacuuccuaa	2220
uaaagcagua	gagguugcuu	gggagacccu	acaagaagaa	uuuucccgcu	uuaugacaga	2280
accgaaaggg	aaagagcaug	augacauauu	ugauaaacuu	aaagaggccg	uuagggaaga	2340
aaguauuaaa	cgacacaagu	ggaugacuu	ugcggaggac	agcuugaggg	uuauucaaca	2400
caaugcuuug	gaagaccgau	ccauaucuga	uaaacagcaa	ugggaugcag	cuauuuuuuu	2460
uauggaagag	gcucugcagg	cucgucuaa	ggauacugaa	aaugcaauug	aaaacauggu	2520
ggguccagac	uggaaaaaga	ggugguuaua	cuggaagaau	cggacccaag	aacagugugu	2580
ucacaaugaa	accaagaauug	aauggagaa	gauguugaaa	uguaaugagg	agcaccagc	2640
uuaucuugca	agugaugaaa	uaaccacagu	ccggaagaac	cuugaauccc	gaggaguaga	2700
aguagaucca	agcuugauua	aggauacuug	gcaucaaguu	uauagaagac	auuuuuuuaa	2760
aacagcucua	aaccuuugua	accuuugucg	aagagguuuu	uauuacuacc	aaaggcauuu	2820
uguagaauucu	gaguuggaau	gcaaugaugu	ggucuuguuu	uggcgauuac	agcgcaugcu	2880
ugcuauccac	gcaaaauacu	uaaggcaaca	acuuacaaau	acugaaguua	ggcgauuaga	2940
gaaaaauguu	aaagagguau	uggaagauuu	ugcugaagau	ggugagaaga	agaauaaaau	3000
gcuuacuggu	aaacgcguuc	aacuggcgga	agaccucaag	aaaguuaagag	aaaaucaaga	3060
aaaacuugau	gcuuucuuug	aagcucuuca	ucaggagaaa	uaaaauaaaa	ucguacucau	3120
aaucagcucu	gcauacaucu	gaagaacaaa	aacaucaacg	ucuuuugucc	agccucuuuu	3180
ucuucugcug	uuccaccuuu	cuaaacauac	aaauaaguca	ugggauaaaa	auaaucgaug	3240
uauguuacgg	gcgcuuuaac	caucagcugc	cucucgaauug	gaagaacagu	gguaauggau	3300
uaacauccua	uuuuuguugua	cuaaaugugac	aaaucggaau	aaauuaauug	guauggccau	3360
uagguucagu	ccuugaagau	aagaagcuug	uucucuguuu	guugucuauu	uugugguggc	3420
acucguuuua	uggauuaacu	gagguugcuc	aauguucagu	uucuuuucca	gaaauacaau	3480
gcuagguguu	uugaaauaaa	acuuauauag	caauuguuuu	aaguuaucua	uuguauauaa	3540
aaucacagua	gccugcuaaa	ucauuguaug	ugucuguagu	auucuaaucc	cagaaacuau	3600
uugaccauga	uaauucaguu	uauauucacc	acaugaaaga	aaaauuggua	acagaagaac	3660

cccuaaaaca	gguaauuug	gauuguaacg	uucagugaaa	gaaauucaa	cccuucauag	3720
ccagcgaaga	aaauugccuu	ggaagccaag	ucaguaccag	cuuaccuauu	ugauucaguu	3780
gcuguuuuu	cacucucuau	auccauuuga	aaugauuuu	uuuuagaugu	uguauacuua	3840
cguuagggcu	ucuguuaaua	gugguuuuu	uccuguugac	agagccaccg	gauuaugaca	3900
caggaugagg	aagauuaagg	auaaucuuu	gacuaauuuc	auuuagaaua	uuaucaaaaca	3960
uuucaacuag	guaucagaaa	aaggcuuucu	uucauaagac	uauuuuuuu	agaaauuuu	4020
ucaacaauua	aaguaauguu	gaccauuccc	cucucagcug	aaauaagaaa	aaauuaguuc	4080
aaauuauugc	aaauuaauua	cauacuacc	uucacaacau	uuucaugugu	uuuaauaaa	4140
uauuuuuuaa	uuggcuaaa	gacauucaag	caaagaaaug	cuuucuuiac	uuaaauguc	4200
uauucuauuu	gcugccuuuu	cacuaagccu	uuacuuguuu	aaauaaagug	uccauugugu	4260
gauguuuuug	auuuuacagu	uugcuaaauc	uuauuuucuu	ggaguugcuu	uuugguaaca	4320
gccccauugc	uacuccccau	uuuauuguuu	uacaucaaug	caugcuucgu	ugugaucucu	4380
caagauguaa	cacuugguau	gcucggguu	ggauaugaaa	aaauacuucc	gaaaccagga	4440
auucagugua	uguuuguuuu	auacuguuug	auaagaaaag	uagguccagc	cuuaagcagc	4500
acagaugcgc	ugguagaugc	auagucagga	acuuuuuuua	uuucuuiiag	gucuagggac	4560
aggagugaau	agaaagggag	gagagcucua	uuauuguucua	uacacagauu	aggagaugac	4620
cuuacugggu	acaccccucu	aaccagugcu	uacagguuaa	ugcauguuaa	ugaauuuuu	4680
ugcaguugua	aagcauaaca	auuacaacua	cacaucuauu	ucuaaagaau	aaaacaggac	4740
cauauuuuuu	uacuucuguc	aacuauagaa	agaaagaccu	ucagcuguau	uuccacagau	4800
uucucccaag	gaaaaggcua	auauuaguca	cuacuguuau	cacaucccuu	uguauaaguu	4860
uuaaaaagag	auaggaggag	aucuucauuu	cuuugaggag	aucaguauug	uaacguaugu	4920
gaauagauga	uaacaauuaa	uauuacuaaa	agucccacau	gagaguccug	acgcccucuc	4980
caugccccac	aguaaugugg	cuucuuiicu	ggguuuuuuu	uucuucuuuu	uagcugaucu	5040
cauccuaagc	augcuuuuuu	uuuccuugaa	agcuaggauu	uuaucaacug	cagauguuau	5100
ugaaagaaaa	uaaaauucag	ucucaagagu	aaaccugug	ucuugugucu	guaguucaaa	5160
agucagaaau	gauucuaauu	uaaacaacaa	gauauuaauu	auacagaagu	uaaaauucgaa	5220
cuagccacag	aaucuuuugu	uuuuauugca	gaauuugcaa	agaguggagu	ggacaaagcu	5280
cuguauggaa	gacugaacaa	cuguaauuag	augauuucca	aacuuuuuuu	ggcuaggacu	5340
ucaauuuuaa	aaucagugu	accuaggcag	ugcacagcac	gaaauaagug	gcccugcag	5400
cuuccccguu	uaaccacug	ugcuauaguu	gcggguggaa	cagucaaccu	uucuaguagu	5460
uuauugauuu	gcccucuuug	uauucccauu	uuccacaguu	uuuuccgcag	acuucuuucu	5520

gcaaaauuuu	cagccuccaa	augcaaauga	augauauaaa	aaauaguagg	gaacauggca	5580
gagaguggug	cuucccagcc	ucacaaugug	ggaauuugac	auaggauagag	agucagagua	5640
uagguuuaaa	agauaaaauc	uuuaguuaau	aauuuuguau	uuauuuauuc	uagauguauug	5700
uaucugagga	aagaaaucug	guauuuuugc	uuuccaauaa	aggggaucaa	aguaaugguu	5760
uuucucucag	uucucuaagc	uggucuaugu	uauagcucua	gcaguaugga	aaugugcuuu	5820
aaaauaugcu	uaccuuuuga	augaucaugg	cuauauguug	uugagauauu	ugaaacuuac	5880
cuuguuuua	cuugugcacu	gugaaugaac	uuuguauuuu	uuuuuuuuuu	ccuucacauu	5940
acguguagau	auuauugcaa	cuuauuuuuu	gccugugcuu	gaucaaaggu	cauuugugua	6000
gaugaguaau	uaaaaaauau	uuaaaucac				6029