

SEQUENCE LISTING

<110> Arizona Board of Regents on behalf of Arizona State University
 Kiani, Samira
 Ebrahimkhani, Mohammed
 Moghadam, Farzaneh

<120> SYNTHETIC IMMUNOMODULATION WITH A CRISPR SUPER-REPRESSOR IN VIVO

<130> 112624.01135

<150> US 62/757,679
 <151> 2018-11-08

<150> US 62/899,584
 <151> 2019-09-12

<160> 66

<170> PatentIn version 3.5

<210> 1
 <211> 14
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 1
 gcctagtcca tcca 14

<210> 2
 <211> 14
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 2
 ccaccgatca aggt 14

<210> 3
 <211> 14
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 3
gcgagcgtac tgga 14

<210> 4
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 4
gtggacggca ccgg 14

<210> 5
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 5
agcttaggga taac 14

<210> 6
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 6
ataaaaagtcc gggt 14

<210> 7
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 7
tccggtaacc acca 14

<210> 8
<211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 8
 ggcaggaaga gcagcggcga gg 22

 <210> 9
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 9
 ggggggcgga tactgacccg 20

 <210> 10
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 10
 ggatactgac ccgaggacgc cg 22

 <210> 11
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 11
 gggcgctggg ttcctggtga gt 22

 <210> 12
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

<400> 12
ggttgcgggc gtcgcaggca 20

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 13
ggcaccggcg tctgaggtct c 21

<210> 14
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 14
ggcgacaggg agggatgcgc gcc 23

<210> 15
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 15
ggcgcgcctg ggtgtagttg t 21

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 16
ggaagtggct agctcagggc ttc 23

<210> 17
<211> 21

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 17
 ggcagcgctt taagaactga a 21

 <210> 18
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 18
 ggactgaaga tctctctgca ctt 23

 <210> 19
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 19
 ggccatattt cttactctct cg 22

 <210> 20
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 20
 gcaggtagca aagtgacgcc ga 22

 <210> 21
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

<400> 21
caaccactac ctgagcaccc 20

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 22
gtccatgccg agagtgatcc 20

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 23
gtgaggatat actgaaggag ctg 23

<210> 24
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 24
ctgtaaaggc ttctcggact c 21

<210> 25
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 25
cctgacattc ccaaagacaa agc 23

<210> 26
<211> 22

<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	synthetic	
<400>	26	
	tctctcagca cagcatatgc ac	22
<210>	27	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	synthetic	
<400>	27	
	gaccatggct gggattcacc	20
<210>	28	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	synthetic	
<400>	28	
	ccaagggagc ttcaggggtca	20
<210>	29	
<211>	25	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	synthetic	
<400>	29	
	ggactttgga ttcccgcagg agaag	25
<210>	30	
<211>	25	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	synthetic	

<400> 30
gctgcatcag acagccttgc aggtc 25

<210> 31
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 31
caatttctca tgccgcacag 20

<210> 32
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 32
agctggaaga tcgaaagtcc g 21

<210> 33
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 33
aggctgcccc gactacgt 18

<210> 34
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 34
gactttctcc tggatgaga tagcaaa 27

<210> 35
<211> 21

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 35
 gctgcgtgaa cactatcctg g 21

<210> 36
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 36
 aggtcgtact tctccattct gta 23

<210> 37
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 37
 ggccgttctt agttggtgga gcg 23

<210> 38
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 38
 ctgaacgcca cttgtccctc 20

<210> 39
 <211> 17
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

<400> 39
 tgcggctccc tgtgtgt 17

<210> 40
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 40
 tcttcctctg ttccttgggc tat 23

<210> 41
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 41
 gctcagtcac cagcaactcg 20

<210> 42
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 42
 tcacaggcga agtccatc 18

<210> 43
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 43
 gagagtcagc ggagttctc 19

<210> 44
 <211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 44
 ctcacaggtc aaagtattgt tg 22

 <210> 45
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 45
 tcgctcaggg tcacaagaaa 20

 <210> 46
 <211> 22
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 46
 catcagaggc aaggaggaaa ac 22

 <210> 47
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 47
 gtggctgttg ggtcggat 20

 <210> 48
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

<400> 48
attcactccc caccctctct 20

<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 49
aggtcaggca gaggaagtca 20

<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 50
ctgcctcccg atacaacaat 20

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 51
aggtcaggca gaggaagtca 20

<210> 52
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic

<400> 52
ctgcctcccg atacaacaat 20

<210> 53
<211> 20

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 53
 accagcatcc ctagctcaga 20

 <210> 54
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 54
 tcctcaggca tctcctctgt 20

 <210> 55
 <211> 1634
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> synthetic

 <400> 55
 ccaccatggg acctaagaaa aagaggaagg tggcggccgc tgactacaag gatgacgacg 60
 ataaatctag aatggcttct aactttactc agttcgttct cgtcgacaat ggcggaactg 120
 gcgacgtgac tgtcgcccca agcaacttcg ctaacgggat cgctgaatgg atcagctcta 180
 actcgcgttc acaggcttac aaagtaacct gtagcgttcg tcagagctct gcgcagaatc 240
 gcaaatacac catcaaagtc gaggtgccta aaggcgcctg gcgttcgtac ttaaatatgg 300
 aactaaccat tccaattttc gccacgaatt cgcactgcga gcttattggt aaggcaatgc 360
 aaggctctct aaaagatgga aacccgattc cctcagcaat cgagcagaaac tccggcatct 420
 acgaggccag cccaagaag aagaggaagg tgagtgggtg aggaagtggc gggtcagggt 480
 cgtccatgga cgcgaaatca cttacggcat ggtcgagaac actggttacg ttcaaggacg 540
 tgtttgtgga ctttacacgt gaggagtgga aattgctgga tactgcgcaa caaattgtgt 600
 atcgaaatgt catgcttgag aattacaaga acctcgtcag tctcggatac cagttgacga 660
 aaccggatgt gatccttagg ctcgaaaagg gggaagaacc ttggctggta tcgggaggtg 720

gttcgggtgg ctctggatca agcccaaaga agaaacggaa ggtggaagcc tcagtgcagg	780
tgaaaaggggt gctggaaaaa tccccggca aactcctcgt gaagatgccc ttccaggctt	840
cccctggcgg aaaaggtgaa ggggggtggcg caaccacatc tgcccagggtc atgggtcatca	900
agcgacctgg aaggaaaaga aaggccgagg ctgaccctca ggccattcca aagaaacggg	960
gacgcaagcc aggggtccgtg gtcgcagctg cagcagctga ggctaagaaa aaggcagtga	1020
aggaaagctc catccgcagt gtgcaggaga ctgtcctgcc catcaagaag aggaagacta	1080
gggagaccgt gtccatcgag gtcaaagaag tggtaagcc cctgctcgtg tccaccctgg	1140
gcgaaaaatc tggaaagggg ctcaaaacat gcaagtcacc tggacggaaa agcaaggagt	1200
ctagtccaaa ggggcgctca agctccgctt ctagtcccc taaaaaggaa caccatcacc	1260
atcaccatca cgccgagtct cctaaggctc ctatgccact gctcccacca cctccaccac	1320
ctgagccaca gtcaagcgaa gaccccatca gccacccga gcctcaggat ctgtcctcta	1380
gtattttgcaa agaggaaaag atgccagag caggcagcct ggagagtgat ggctgtccaa	1440
aagaacccgc caagaccag cctatgggtg cagccgtgc aactaccacc acaaccacaa	1500
ctaccacagt ggccgaaaaa tacaagcatc gcggcgaggg cgaacgaaag gacattgtgt	1560
caagctccat gccagacct aaccgggagg aaccagtcga tagtaggaca cccgtgactg	1620
agagagtctc atga	1634

<210> 56
 <211> 399
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 56	
gcggccgctg actacaagga tgacgacgat aaatctagaa tggcttctaa ctttactcag	60
ttcgttctcg tcgacaatgg cggaactggc gacgtgactg tcgccccaaag caacttcgct	120
aacgggatcg ctgaatggat cagctctaac tcgcgttcac aggcttacia agtaacctgt	180
agcgttcgtc agagctctgc gcagaatcgc aaatacacca tcaaagtcga ggtgcctaaa	240
ggcgcttggc gttcgtactt aaatatggaa ctaaccattc caattttcgc cacgaattcc	300
gactgcgagc ttattgttaa ggcaatgcaa ggtctcctaa aagatggaaa cccgattccc	360

tcagcaatcg cagcaaactc cggcatctac gaggccagc 399

<210> 57
 <211> 225
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 57
 atggacgcga aatcacttac ggcatggctg agaacactgg ttacgttcaa ggacgtgttt 60
 gtggacttta cacgtgagga gtggaaattg ctggatactg cgcaacaaat tgtgtatcga 120
 aatgtcatgc ttgagaatta caagaacctc gtcagtctcg gataccagtt gacgaaaccg 180
 gatgtgatcc ttaggctcga aaagggggaa gaaccttggc tggta 225

<210> 58
 <211> 891
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 58
 agcccaaaga agaaacggaa ggtggaagcc tcagtgcagg tgaaaagggt gctggaaaaa 60
 tccccggca aactcctcgt gaagatgccc ttccaggctt cccctggcgg aaaagggtgaa 120
 gggggtggcg caaccacatc tgcccaggtc atggatcatca agcgacctgg aaggaaaaga 180
 aaggccgagg ctgaccctca ggccattcca aagaaacggg gacgcaagcc aggggtccgtg 240
 gtcgcagctg cagcagctga ggctaagaaa aaggcagtga aggaaagctc catccgcagt 300
 gtgcaggaga ctgtcctgcc catcaagaag aggaagacta gggagaccgt gtccatcgag 360
 gtcaaagaag tggtaagcc cctgctcgtg tccaccctgg gcgaaaaatc tggaaagggg 420
 ctcaaaacat gcaagtcacc tggacggaaa agcaaggagt ctagtccaaa ggggcgctca 480
 agtcccgctt ctagtcccc taaaaaggaa caccatcacc atcaccatca cgccgagtct 540
 cctaaggctc ctatgccact gctcccacca cctccaccac ctgagccaca gtcaagcgaa 600
 gaccccatca gccacccga gcctcaggat ctgtcctcta gtatttgcaa agaggaaaag 660
 atgccagag caggcagcct ggagagtgat ggctgtccaa aagaaccgc caagaccag 720

cctatggtgg cagccgctgc aactaccacc acaaccacaa ctaccacagt ggccgaaaaa	780
tacaagcatc gcggcgaggg cgaacgaaag gacatttgtt caagctccat gccagacct	840
aaccgggagg aaccagtcga tagtaggaca cccgtgactg agagagtctc a	891

<210> 59
 <211> 1134
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 59	
ccaccatggg acctaagaaa aagaggaagg tggcggccgc tgactacaag gatgacgacg	60
ataaatctag aatggcttct aactttactc agttcgttct cgtcgacaat ggcggaactg	120
gcgacgtgac tgtcgcccca agcaacttcg ctaacgggat cgctgaatgg atcagctcta	180
actcgcgttc acaggcttac aaagtaacct gtagcgttcg tcagagctct gcgcagaatc	240
gcaaatacac catcaaagtc gaggtgccta aaggcgcctg gcgttcgtac ttaaatatgg	300
aactaacat tccaattttc gccacgaatt ccgactgcga gcttattgtt aaggcaatgc	360
aaggcttcct aaaagatgga aacccgattc cctcagcaat cgcagcaaac tccggcatct	420
acgaggccag cccaagaag aagaggaagg tgagtggtag aggaagtggc gggtcagggt	480
cgtccagccc caagaaaaaa cggaaagtgg aggcattcaat gaaggaggga gaaaacaaca	540
aaccaggga gaaaagtga gggaataaga gaaaagctc cttctctaac agtgcagacg	600
atatcaagtc caagaaaaag cgggagcagt ctaatgacat tgctaggggc ttcgagagag	660
gactggagcc agaaaaaatc attggggcaa ccgacagctg cggcgatctg atgtttctca	720
tgaaatggaa ggacacagat gaggccgacc tgggtgctcg caaagaagct aacgtgaagt	780
gtccccagat cgtcattgct ttttacgagg aaaggctcac ctggcacgca tctctgagg	840
atgccgaaaa caaggagaag gaatcagcta agagcctcgg gaggtgggtt ggggtggctct	900
ggatcaatgg acgcgaaatc acttacggca tggtcgagaa cactggttac gttcaaggac	960
gtgtttgtgg actttacacg tgaggagtgg aaattgctgg atactgcgca acaaattgtg	1020
tatcgaaatg tcatgcttga gaattacaag aacctcgtca gtctcggata ccagttgacg	1080
aaaccggatg tgatccttag gctcgaaggg ggggaagaac cttggctggt atga	1134

<210> 60
 <211> 390
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 60
 agccccaaga aaaaacggaa agtggaggca tcaatgaagg agggagaaaa caacaaaccc 60
 agggagaaaa gtgaaggga taagagaaaa agctccttct ctaacagtgc agacgatatc 120
 aagtccaaga aaaagcggga gcagtcta gacattgcta ggggcttcga gagaggactg 180
 gagccagaaa aaatcattgg ggcaaccgac agctgcggcg atctgatgtt tctcatgaaa 240
 tggaaggaca cagatgaggc cgacctggtg ctcgcaaag aagctaacgt gaagtgtccc 300
 cagatcgtca ttgcttttta cgaggaaagg ctcacctggc acgcatatcc tgaggatgcc 360
 gaaaacaagg agaaggaatc agctaagagc 390

<210> 61
 <211> 2351
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 61
 ccaccatggg acctaagaaa aagaggaagg tggcggccgc tgactacaag gatgacgacg 60
 ataaatctag aatggcttct aactttactc agttcgttct cgtcgacaat ggcggaactg 120
 gcgacgtgac tgtcgcccca agcaacttcg ctaacgggat cgctgaatgg atcagctcta 180
 actcgcgttc acaggcttac aaagtaacct gtagcggttcg tcagagctct gcgcagaatc 240
 gcaaatacac catcaaagtc gaggtgccta aaggcgcttg gcgttcgtac ttaaatatgg 300
 aactaaccat tccaattttc gccacgaatt ccgactgcga gcttattgtt aaggcaatgc 360
 aaggtctcct aaaagatgga aacccgattc cctcagcaat cgagcaaac tccggcatct 420
 acgaggccag cccaagaag aagaggaagg tgagtgggtg aggaagtggc gggtcagggt 480
 cgtccagccc aaagaagaaa cggaagggtg aagcctcagt gcaggtgaaa aggggtgctgg 540
 aaaaatcccc cggcaaactc ctcgtgaaga tgcccttcca ggcttcccct ggcggaaaag 600

gtgaaggggg	tggcgcaacc	acatctgccc	aggtcatggt	catcaagcga	cctggaagga	660
aaagaaaggc	cgaggctgac	cctcaggcca	ttccaaagaa	acggggacgc	aagccagggt	720
ccgtggctgc	agctgcagca	gctgaggcta	agaaaaaggc	agtgaaggaa	agctccatcc	780
gcagtgtgca	ggagactgtc	ctgccccatca	agaagaggaa	gactagggag	accgtgtcca	840
tcgaggtcaa	agaagtggtc	aagcccctgc	tcgtgtccac	cctgggcgaa	aaatctggaa	900
agggggtcaa	aacatgcaag	tcacctggac	ggaaaagcaa	ggagtctagt	ccaaaggggc	960
gctcaagctc	cgcttctagt	ccccctaaaa	aggaacacca	tcaccatcac	catcacgccg	1020
agtctcctaa	ggctcctatg	ccactgctcc	caccacctcc	accacctgag	ccacagtcaa	1080
gcgaagaccc	catcagccca	cccagacctc	aggatctgtc	ctctagtatt	tgcaaagagg	1140
aaaagatgcc	cagagcaggc	agcctggaga	gtgatggctg	tcmetaagaa	cccgccaaaga	1200
cccagcctat	ggtggcagcc	gctgcaacta	ccaccacaac	cacaactacc	acagtggccg	1260
aaaaatacaa	gcatcgcggc	gagggcgaac	gaaaggacat	tgtgtcaagc	tccatgcccc	1320
gacctaacgc	ggaggaacca	gtcgatagta	ggacacccgt	gactgagaga	gtctcatcgg	1380
gaggtgggtc	gggtggctct	ggatcaatgg	acgcgaaatc	acttacggca	tggtcgagaa	1440
cactggttac	gttcaaggac	gtgtttgtgg	actttacacg	tgaggagtgg	aaattgctgg	1500
atactgcgca	acaaattgtg	tatcgaaatg	tcattgcttg	gaattacaag	aacctcgtca	1560
gtctcggata	ccagttgacg	aaaccggatg	tgatccttag	gctcgaaaag	ggggaagaac	1620
cttggctggt	atcgggaggt	ggttcgggtg	gctctggatc	atccccaaa	aagaaacgca	1680
aggtgaggca	tctgctcgct	atctcggtaa	cactgtcgat	ctgtcatcat	tcgatttccg	1740
cactggcaag	atgatgcctt	ctaaactgca	gaagaacaaa	cagaggctga	gaaatgaccc	1800
actcaaccag	aataaggga	aacccgatct	gaacaccaca	ctccctatcc	ggcagacagc	1860
tagtatattc	aagcagcctg	tgactaaagt	accaaccac	ccatccaata	aggtgaaatc	1920
tgaccacag	aggatgaatg	agcagcccag	acagctgttt	tgggaaaagc	gcctgcaggg	1980
tctctctgca	agtgatgtga	cagagcagat	cattaagact	atggaactgc	caaaaggact	2040
ccagggagtg	ggacctgggt	ctaacgacga	gactctgctc	tcagctgtcg	caagcgcact	2100
gcataccagc	tccgcacca	tcacaggaca	ggtgagtgcc	gctgtcgaga	agaaccagc	2160
cgtgtggctg	aatacttcac	agcccctctg	caaggctttc	atcgtcaccg	acgaggatat	2220

tcggaagcag gaggaacgcg tgcagcaggt ccgaaaaatc ctggaagacg ctctcatggc	2280
agatatcttg agcagagcag ccgacaccga ggaaatggat attgagatgg actccgggga	2340
tgaagcctga a	2351

<210> 62
 <211> 633
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 62	
aggcatctgc tcgctatctc ggtaacactg tcgatctgtc atcattcgat ttccgcactg	60
gcaagatgat gccttctaaa ctgcagaaga acaaacagag gctgagaaat gaccactca	120
accagaataa gggaaaacc gatctgaaca ccacactccc tatccggcag acagctagta	180
ttttcaagca gcctgtgact aaagtcacca accacccatc caataaggtg aaatctgacc	240
cacagaggat gaatgagcag cccagacagc tgttttggga aaagcgctg cagggtctct	300
ctgcaagtga tgtgacagag cagatcatta agactatgga actgccaaaa ggactccagg	360
gagtgggacc tgggtctaac gacgagactc tgctctcagc tgtcgcaagc gcactgcata	420
ccagctccgc acccatcaca ggacaggtga gtgccgctgt cgagaagaac ccagccgtgt	480
ggctgaatac ttcacagccc ctctgcaagg ctttcatcgt caccgacgag gatattcgga	540
agcaggagga acgcgtgcag caggtccgaa aaatcctgga agacgctctc atggcagata	600
ttctgagcag agcagccgac accgaggaaa tgg	633

<210> 63
 <211> 1595
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 63	
ccaccatggg acctaagaaa aagaggaagg tggcggccgc tgactacaag gatgacgacg	60
ataaatctag aatggcttct aactttactc agttcgttct cgtcgacaat ggcggaactg	120
gcgacgtgac tgtcgcccca agcaacttcg ctaacgggat cgctgaatgg atcagctcta	180

actcgcgttc acaggcttac aaagtaacct gtagcgttcg tcagagctct gcgcagaatc	240
gcaaatacac catcaaagtc gaggtgccta aaggcgcctg gcgttcgtac ttaaatatgg	300
aactaaccat tccaattttc gccacgaatt ccgactgcga gcttattgtt aaggcaatgc	360
aaggtctcct aaaagatgga aacccgattc cctcagcaat cgagcaaac tccggcatct	420
acgaggccag cccaagaag aagaggaagg tgagtggtag aggaagtggc gggtcagggt	480
cgtcctcccc caaaaagaaa cgcaaggtag aggcattctgc tcgctatctc ggtaaacactg	540
tcgatctgtc atcattcgat ttccgcactg gcaagatgat gccttctaaa ctgcagaaga	600
acaaacagag gctgagaaat gaccactca accagaataa gggaaaaccg gatctgaaca	660
ccacactccc tatccggcag acagctagta ttttcaagca gcctgtgact aaagtcacca	720
accacccatc caataaggtag aaatctgacc cacagaggat gaatgagcag ccagacagc	780
tgttttggga aaagcgcctg cagggtctct ctgcaagtga tgtgacagag cagatcatta	840
agactatgga actgcaaaa ggactccagg gaggggacc tgggtctaac gacgagactc	900
tgctctcagc tgtcgcaagc gcactgcata ccagctccgc acccatcaca ggacaggtag	960
gtgccgctgt cgagaagaac ccagccgtgt ggctgaatac ttcacagccc ctctgcaagg	1020
ctttcatcgt caccgacgag gatattcgga agcaggagga acgcgtgcag cagggtccgaa	1080
aaatcctgga agacgctctc atggcagata ttctgagcag agcagccgac accgaggaaa	1140
tggatattga gatggactcc ggggatgaag cctcgggagg tgggtcgggt ggctctggat	1200
caagcccaa gaaaaaacgg aaagtggagg catcaatgaa ggaggagaa aacaacaaac	1260
ccaggagaa aagtgaagg aataagagaa aaagctcctt ctctaacagt gcagacgata	1320
tcaagtcaa gaaaaagcgg gagcagtcta atgacattgc taggggcttc gagagaggac	1380
tggagccaga aaaaatcatt ggggcaaccg acagctgcgg cgatctgatg tttctcatga	1440
aatggaagga cacagatgag gccgacctgg tgctcgcaa agaagctaac gtgaagtgtc	1500
cccagatcgt cattgctttt tacgaggaaa ggctcacctg gcacgcata cctgaggatg	1560
ccgaaaacaa ggagaaggaa tcagctaaga gctga	1595

<210> 64
 <211> 6159
 <212> DNA
 <213> Artificial Sequence

<220>

<223> synthetic

<400> 64

cctgcaggca gctgcgctcg cgctcgctca ctgaggccgc ccgggcgtcg ggcgaccttt	60
ggtcgcccgg cctcagttag cgagcgagcg cgagagagg gaggggccaa ctccatcact	120
aggggttcct gcggccgcac gcgttgatat caactttgta tagaaaagtt ttcccatgat	180
tccttcatat ttgcatatac gatacaaggc tgtagagag ataattggaa ttaatttgac	240
tgtaaacaca aagatattag tacaaaatac gtgacgtaga aagtaataat ttcttgggta	300
gtttgcagtt ttaaaattat gttttaaaat ggactatcat atgcttaccg taacttgaaa	360
gtatttcgat ttcttggcct tatatatctt gtggaaagga cgaaacacct gcgggtcctg	420
cactgtttta gagctaggcc aacatgagga tcacccatgt ctgcagggcc tagcaagtta	480
aaataaggct agtccgttat caacttggcc aacatgagga tcacccatgt ctgcagggcc	540
aagtggcacc gaggcgtgc tttttttgaa ttctgatgcg gtattttctc cttacgcac	600
tgtgcggtat ttacaccgc atacgtcaaa gcaaccatag tacgcgcct gtattttcca	660
tgattccttc atatttgcat atacgataca aggctgttag agagataatt ggaattaatt	720
tgactgtaaa cacaagata ttagtataaa atacgtgacg tagaaagtaa taatttcttg	780
ggtagtttgc agttttaaaa ttatgtttta aaatggacta tcatatgctt accgtaactt	840
gaaagtattt cgatttcttg gctttatata tcttgtggaa aggacgaaac accgaagctt	900
cgggaggggt ttagagctag gccaacatga ggatcaccca tgtctgcagg gcctagcaag	960
ttaaaataag gctagtccgt tatcaacttg gccaacatga ggatcaccca tgtctgcagg	1020
gccaagtggc accgagtcgg tgcttttttt gaattctgat gcggtatttt ctccttacgc	1080
atctgtgcgg tatttcacac cgcatagtc aaagcaacca tagtacgcgc cctgtagcgg	1140
accaagttt gtacaaaaaa gcaggctagg ctccggtgcc cgtcagtggg cagagcgcac	1200
atcgcccaca gtccccgaga agttgggggg aggggtcggc aattgaaccg gtgcctagag	1260
aaggtggcgc ggggtaaaact gggaaagtga tgtcgtgtac tggctccgcc tttttccga	1320
gggtggggga gaaccgtata taagtgcagt agtcgccgtg aacgttcttt ttcgcaacgg	1380
gtttgccgcc agaacacagc ttaagcttgg taccgagctc ggatccacta gtaacggccg	1440
ccagtgtgct ggaattctgc agatatccat cacactggcg gccgctcgag catgcatcta	1500

gaggacaact ttgtatacaa aagttgaggc tggatcccgg taccctcgac acctgctgac	1560
aggtccacca tgggacctaa gaaaaagagg aaggtggcgg ccgctgacta caaggatgac	1620
gacgataaat ctagaatggc ttctaacttt actcagttcg ttctcgtcga caatggcgga	1680
actggcgacg tgactgtcgc cccaagcaac ttcgctaacg ggatcgctga atggatcagc	1740
tctaactcgc gttcacaggc ttacaaagta acctgtagcg ttcgtcagag ctctgcgcag	1800
aatcgcaaat acaccatcaa agtcgaggtg cctaaaggcg cctggcgttc gtacttaaat	1860
atggaactaa ccattccaat tttcgccacg aattccgact gcgagcttat tgttaaggca	1920
atgcaaagtc tcctaaaaga tggaacccg attccctcag caatcgcagc aaactccggc	1980
atctacgagg ccagcccaa gaagaagagg aaggtgagtg gtggaggaag tggcgggtca	2040
gggtcgagcc ccaagaaaaa acggaaagtg gaggcacaa tgaaggaggg agaaaacaac	2100
aaaccagagg agaaaagtga agggaataag agaaaaagct ctttctctaa cagtgcagac	2160
gatatcaagt ccaagaaaaa gcgggagcag tctaatagaca ttgctagggg cttcgagaga	2220
ggactggagc cagaaaaaat cattggggca accgacagct gcggcgatct gatgtttctc	2280
atgaaatgga aggacacaga tgaggccgac ctggtgctcg ccaaagaagc taacgtgaag	2340
tgtccccaga tcgtcattgc tttttacgag gaaaggctca cctggcacgc atatcctgag	2400
gatgccgaaa acaaggagaa ggaatcagct aagagctcgg gaggtggttc ggggtggctct	2460
ggatcaatgg acgcgaaatc acttacggca tggtcgagaa cactggttac gttcaaggac	2520
gtgtttgtgg actttacacg tgaggagtgg aaattgctgg atactgcgca acaaattgtg	2580
tatcgaaatg tcatgcttga gaattacaag aacctcgtca gtctcggata ccagttgacg	2640
aaaccggatg tgatccttag gctcgaaggg ggggaagaac cttggctggt atagaagaat	2700
tcgatcccg cttcagtgcag gtgaattcta ccaccagct taagcttggt accgagctcg	2760
gatccactag taacggccgc cagtgtgctg gaattctgca gatatccatc aactggcgg	2820
ccgctcgagc atgcatctag aggtaccag ctttcttgta caaagtggta agcttgccctc	2880
gagcagcgct gctcgagaga tctacgggtg gcatccctgt gaccctccc cagtgcctct	2940
cctggccctg gaagttgcca ctccagtgcc caccagcctt gtcctaataa aattaagttg	3000
catcattttg tctgactagg tgtccttcta taatattatg ggggtggagg ggggtggtatg	3060
gagcaagggg caagttggga agacaacctg tagggcctgc ggggtctatt gggaaccaag	3120

ctggagtgca gtggcacaat cttggctcac tgcaatctcc gcctcctggg ttcaagcgat	3180
tctcctgcct cagcctcccc agttgttggg attccaggca tgcattgacca ggctcagcta	3240
atTTTTgttt ttttggtaga gacgggggttt caccatattg gccaggctgg tctccaactc	3300
ctaattctcag gtgatctacc caccttggcc tcccaaattg ctgggattac aggcgtgaac	3360
cactgctccc ttccctgtcc ttctgatttt gtaggtaacc acgtgcggac cgagcggccg	3420
caggaacccc tagtgatgga gttggccact ccctctctgc gcgctcgctc gctcactgag	3480
gccgggagac caaaggctgc ccgacgccc ggctttgccc gggcggcctc agtgagcgag	3540
cgagcgcgca gctgcctgca ggggcgcctg atgcggtatt ttctccttac gcatctgtgc	3600
ggatatttcac accgcatacg tcaaagcaac catagtacgc gccctgtagc ggcgcattaa	3660
gcgcggcggg tgtgggtggtt acgcgcagcg tgaccgctac acttgccagc gccctagcgc	3720
ccgctccttt cgctttcttc ctttcctttc tcgccacgtt cgccggcttt ccccgtaag	3780
ctctaaatcg ggggctccct ttagggttcc gatttagtgc ttacggcac ctcgacccca	3840
aaaaacttga tttgggtgat ggttcacgta gtgggccatc gccctgatag acggtttttc	3900
gccctttgac gttggagtcc acgttcttta atagtggact cttgttccaa actggaacaa	3960
cactcaaccc tatctcgggc tattcttttg atttataagg gattttgccg atttcggcct	4020
attggttaaa aaatgagctg atttaacaaa aatttaacgc gaattttaac aaaatattaa	4080
cgtttacaat tttatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc	4140
agccccgaca cccgccaaca cccgctgacg cgccctgacg ggcttgtctg ctcccggcat	4200
ccgcttacag acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt	4260
catcaccgaa acgcgcgaga cgaaagggcc tcgtgatacg cctatTTTTa taggttaatg	4320
tcatgataat aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa	4380
cccctatttg tttatTTTTc taaatacatt caaatatgta tccgctcatg agacaataac	4440
cctgataaat gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg	4500
tcgcccttat tccctTTTTt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc	4560
tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg	4620
atctcaacag cggtaaagtc cttgagagtt ttcgccccga agaacgtttt ccaatgatga	4680
gcacttttaa agttctgcta tgtggcgcgg tattatcccc tattgacgcc gggcaagagc	4740

aactcgggtcg ccgcatacac tattctcaga atgacttgggt tgagtactca ccagtcacag	4800
aaaagcatct tacggatggc atgacagtaa gagaattatg cagtgtgcc ataaccatga	4860
gtgataacac tgcggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg	4920
cttttttgca caacatgggg gatcatgtaa ctgccttga tcgttgggaa ccggagctga	4980
atgaagccat accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt	5040
tgcgcaaact attaaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact	5100
ggatggaggc ggataaagtt gcaggaccac ttctgcgctc ggcccttcg gctggctgggt	5160
ttattgctga taaatctgga gccggtgagc gtgggtctcg cggtatcatt gcagcactgg	5220
ggccagatgg taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta	5280
tggatgaacg aaatagacag atcgctgaga taggtgcctc actgattaag catttgtaac	5340
tgtcagacca agtttactca tatatacttt agattgattt aaaacttcat ttttaattta	5400
aaaggatcta ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt	5460
tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt	5520
tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt	5580
gtttgccgga tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc	5640
agataccaaa tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg	5700
tagcaccgcc tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg	5760
ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcgggt	5820
cgggctgaac ggggggttcg tgcacacagc ccagcttgga gcgaacgacc tacaccgaac	5880
tgagatacct acagcgtgag ctatgagaaa gcgccacgct tcccgaaggg agaaaggcgg	5940
acaggatatcc ggtaagcggc agggctcgga caggagagcg cacgaggag cttccagggg	6000
gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat	6060
ttttgtgatg ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt	6120
tacggttcct ggccttttgc tggccttttg ctcacatgt	6159

<210> 65
 <211> 6158
 <212> DNA
 <213> Artificial Sequence

<220>

<223> synthetic

<400> 65

cctgcaggca gctgcgctcg cgctcgctca ctgaggccgc ccgggcgctg ggcgaccttt	60
ggtcgcccgg cctcagtgag cgagcgagcg cgcagagagg gagtggccaa ctccatcact	120
aggggttcct gcggccgcac gcgttgatat caactttgta tagaaaagtt ttcccatgat	180
tccttcatat ttgcatatac gatacaaggc tgttagagag ataattggaa ttaatttgac	240
tgtaaacaca aagatattag tacaaaatac gtgacgtaga aagtaataat ttcttgggta	300
gtttgcagtt ttaaaattat gttttaaaat ggactatcat atgcttaccg taacttgaaa	360
gtatttcgat ttcttggcct tatatatctt gtggaaagga cgaaacacca taaaagtccg	420
gttgttttag agctaggcca acatgaggat caccatgtc tgcagggcct agcaagttaa	480
aataaggcta gtccgttatc aacttggcca acatgaggat caccatgtc tgcagggccca	540
agtggcaccg agtcggtgct ttttttgaat tctgatgcgg tattttctcc ttacgcatct	600
gtgcggtatt tcacaccgca tacgtcaaag caaccatagt acgcgccctg tatttcccat	660
gattccttca tatttgcata tacgatacaa ggctgttaga gagataattg gaattaattt	720
gactgtaaac acaaagatat tagtacaaaa tacgtgacgt agaaagtaat aatttcttgg	780
gtagtttgca gttttaaaat tatgttttaa aatggactat catatgctta ccgtaacttg	840
aaagtatttc gatttcttgg ctttatatat cttgtggaaa ggacgaaaca cctccggtaa	900
ccaccagttt tagagctagg ccaacatgag gatcacccat gtctgcaggg cctagcaagt	960
taaaataagg ctagtccgtt atcaacttgg ccaacatgag gatcacccat gtctgcaggg	1020
ccaagtggca ccgagtcggt gctttttttg aattctgatg cggatatttc tccttacgca	1080
tctgtgcggt atttcacacc gcatacgtca aagcaaccat agtacgcgcc ctgtagcgga	1140
cccaagtttg tacaaaaaag caggctaggc tccggtgccc gtcagtgggc agagcgcaca	1200
tcgcccacag tccccgagaa gttgggggga ggggtcggca attgaaccgg tgcctagaga	1260
aggtggcgcg gggtaaaactg ggaaagtgat gtcgtgtact ggctccgcct ttttcccag	1320
ggtagggggag aaccgtatat aagtgcagta gtcgccgtga acgttctttt tcgcaacggg	1380
tttgccgcca gaacacagct taagcttggg accgagctcg gatccactag taacggccgc	1440
cagtgtgctg gaattctgca gatatccatc aactggcgg ccgctcgagc atgcatctag	1500

aggacaactt tgtatacaaa agttgaggct ggatcccggc accctcgaca cctgctgaca	1560
ggtccaccat gggacctaag aaaaagagga aggtggcggc cgctgactac aaggatgacg	1620
acgataaatc tagaatggct tctaacttta ctcagttcgt tctcgtcgac aatggcggaa	1680
ctggcgacgt gactgtcgcc ccaagcaact tcgctaacgg gatcgctgaa tggatcagct	1740
ctaactcgcg ttcacaggct taciaagtaa cctgtagcgt tcgtcagagc tctgcgcaga	1800
atcgcaaata caccatcaaa gtcgaggtgc ctaaaggcgc ctggcgttcg tacttaaata	1860
tggaactaac cattccaatt ttcgccacga attccgactg cgagcttatt gttaaggcaa	1920
tgcaaagtct cctaaaagat ggaaacccga ttccctcagc aatcgagca aactccggca	1980
tctacgaggc cagccccaag aagaagagga aggtgagtgg tggaggaagt ggcgggtcag	2040
ggtcgagccc caagaaaaaa cggaaagtgg aggcatcaat gaaggaggga gaaaacaaca	2100
aaccaggga gaaaagtga ggaataaga gaaaagctc cttctctaac agtgcagacg	2160
atatcaagtc caagaaaaag cgggagcagt ctaatgacat tgctaggggc ttcgagagag	2220
gactggagcc agaaaaaatc attggggcaa ccgacagctg cggcgatctg atgtttctca	2280
tgaaatggaa ggacacagat gaggccgacc tgggtgctgc caaagaagct aacgtgaagt	2340
gtccccagat cgtcattgct ttttacgagg aaaggctcac ctggcacgca tatcctgagg	2400
atgccgaaaa caaggagaag gaatcagcta agagctcggg aggtggttcg ggtggctctg	2460
gatcaatgga cgcgaaatca cttacggcat ggtcgagaac actggttacg ttcaaggacg	2520
tgtttgtgga ctttacacgt gaggagtgga aattgctgga tactgcgcaa caaattgtgt	2580
atcgaaatgt catgcttgag aattacaaga acctcgtcag tctcggatac cagttgacga	2640
aaccggatgt gatccttagg ctcgaaaagg gggaagaacc ttggctggta tagaagaatt	2700
cgatcccgct tcagtgcagg tgaattctac caccagctt aagcttggta ccgagctcgg	2760
atccactagt aacggccgcc agtgtgctgg aattctgcag atatccatca cactggcggc	2820
cgctcgagca tgcatctaga ggtaccagc tttcttgtag aaagtggtaa gcttgccctc	2880
agcagcgctg ctcgagagat ctacgggtgg catccctgtg acccctccc agtgcctctc	2940
ctggccctgg aagttgccac tccagtgcc accagccttg tcctaataaa attaatgtgc	3000
atcattttgt ctgactaggt gtccttctat aatattatgg ggtggagggg ggtggtatgg	3060
agcaaggggc aagttgggaa gacaacctgt agggcctgcg gggctctattg ggaaccaagc	3120

tggagtgcag tggcacaatc ttggctcact gcaatctccg cctcctgggt tcaagcgatt	3180
ctcctgcctc agcctcccga gttgttggga ttccaggcat gcatgaccag gctcagctaa	3240
tttttgtttt tttggtagag acgggggtttc accatattgg ccaggctgggt ctccaactcc	3300
taatctcagg tgatctaccc accttggcct cccaaattgc tgggattaca ggcgtgaacc	3360
actgctccct tccctgtcct tctgattttg taggtaacca cgtgcggacc gagcggccgc	3420
aggaaccct agtgatggag ttggccactc cctctctgcg cgctcgctcg ctactgagg	3480
ccgggcgacc aaaggtcgcc cgacgcccg gctttgccg ggcggcctca gtgagcgagc	3540
gagcgcgcag ctgcctgcag gggcgcctga tgcggtattt tctccttacg catctgtgcg	3600
gtatttcaca ccgcatacgt caaagcaacc atagtacgcg ccctgtagcg gcgcattaag	3660
cgcggggggt gtgggtggta cgcgcagcgt gaccgctaca cttgccagcg ccctagcgcc	3720
cgctcctttc gctttcttcc cttcctttct cgccacgttc gccggctttc cccgtcaagc	3780
tctaaatcgg gggctcccct tagggttccg atttagtgct ttacggcacc tcgaccccaa	3840
aaaacttgat ttgggtgatg gttcacgtag tgggccatcg ccctgataga cggtttttcg	3900
ccctttgacg ttggagtcca cgttctttaa tagtggactc ttgttccaaa ctggaacaac	3960
actcaaccct atctcgggct attcctttga tttataaggg attttgccga tttcggccta	4020
ttggttaaaa aatgagctga ttttaacaaa atttaacgcg aattttaaca aaatattaac	4080
gtttacaatt ttatgggtga ctctcagtac aatctgctct gatgccgcat agttaagcca	4140
gccccgacac ccgccaacac ccgctgacgc gccctgacgg gcttgtctgc tcccggcatc	4200
cgcttacaga caagctgtga ccgtctccgg gagctgcatg tgtcagaggt tttcaccgtc	4260
atcaccgaaa cgcgcgagac gaaagggcct cgtgatacgc ctatTTTTat aggttaatgt	4320
catgataata atggtttctt agacgtcagg tggcactttt cggggaaatg tgcgcggaac	4380
ccctatttgt ttatTTTTct aaatacattc aaatatgtat ccgctcatga gacaataacc	4440
ctgataaatg cttcaataat attgaaaaag gaagagtatg agtattcaac atttccgtgt	4500
cgcccttatt ccTTTTttg cggcattttg ctttctgtt tttgctcacc cagaaacgct	4560
ggtgaaagta aaagatgctg aagatcagtt ggggtgcacga gtgggttaca tcgaactgga	4620
tctcaacagc ggtaagatcc ttgagagttt tcgccccgaa gaacgttttc caatgatgag	4680
cacttttaaa gttctgctat gtggcgcgggt attatcccgt attgacgccg ggcaagagca	4740

actcggtcgc cgcatacact attctcagaa tgacttggtt gagtactcac cagtcacaga	4800
aaagcatctt acggatggca tgacagtaag agaattatgc agtgctgcca taaccatgag	4860
tgataacact gcggccaact tacttctgac aacgatcgga ggaccgaagg agctaaccgc	4920
ttttttgcac aacatggggg atcatgtaac tcgccttgat cgttggggaac cggagctgaa	4980
tgaagccata ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg caacaacgtt	5040
gcgcaaacta ttaactggcg aactacttac tctagcttcc cggcaacaat taatagactg	5100
gatggaggcg gataaagttg caggaccact tctgcgctcg gcccttccgg ctggctggtt	5160
tattgctgat aaatctggag ccggtgagcg tgggtctcgc ggtatcattg cagcactggg	5220
gccagatggg aagccctccc gtatcgtagt tatctacacg acggggagtc aggcaactat	5280
ggatgaacga aatagacaga tcgctgagat aggtgcctca ctgattaagc attggtaact	5340
gtcagaccaa gtttactcat atatacttta gattgattta aaacttcatt ttttaatttaa	5400
aaggatctag gtgaagatcc tttttgataa tctcatgacc aaaatccctt aacgtgagtt	5460
ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccttt	5520
ttttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cgggtggttg	5580
tttgccggat caagagctac caactctttt tccgaaggta actggcttca gcagagcgca	5640
gataccaaat actgtccttc tagtgtagcc gtagttaggc caccacttca agaactctgt	5700
agcaccgcct acatacctcg ctctgctaata cctgtttacca gtggctgctg ccagtggcga	5760
taagtcgtgt cttaccgggt tggactcaag acgatagtta ccggataagg cgcagcggtc	5820
gggctgaacg gggggttcgt gcacacagcc cagcttgagc cgaacgacct acaccgaact	5880
gagataccta cagcgtgagc tatgagaaaag cgccacgctt cccgaaggga gaaaggcgga	5940
caggatatccg gtaagcggca gggtcggaac aggagagcgc acgaggagac ttccaggggg	6000
aaacgcctgg tatctttata gtcctgtcgg gtttcgccac ctctgacttg agcgtcgatt	6060
tttgtgatgc tcgtcagggg ggcggagcct atggaaaaac gccagcaacg cggccttttt	6120
acggttcctg gccttttgct ggccttttgc tcacatgt	6158

<210> 66
 <211> 7499
 <212> DNA
 <213> Artificial Sequence

<220>

<223> synthetic

<400> 66

cctgcaggca gctgcgcgct cgctcgctca ctgaggccgc ccgggcaaag cccgggcgtc	60
gggcgacctt tggtcgcccc gcctcagtga gcgagcgagc gcgagagag ggagtggcca	120
actccatcac taggggttcc tgcggcctct agaaatgtag tcttatgcaa tactcttgta	180
gtcttgcaac atggtaacga tgagttagca acatgcctta caaggagaga aaaagcaccg	240
tgcatgccga ttggtggaag taagggtgta cgatcgtgcc ttattaggaa ggcaacagac	300
gggtctgaca tggattggac gaaccactga attgccgcat tgcagagata ttgtatttaa	360
gtgcctagct cgatacataa aaccggtgcc accatgtacc catacgtgt tccagattac	420
gcttcgccga agaaaaagcg caaggctgaa gcgtccgaca agaagtacag catcggcctg	480
gacatcggca ccaactctgt gggctgggcc gtgatcaccg acgagtacaa ggtgcccagc	540
aagaaattca aggtgctggg caacaccgac cggcacagca tcaagaagaa cctgatcggg	600
gccctgctgt tcgacagcgg cgaaacagcc gaggccaccc ggctgaagag aaccgccaga	660
agaagataca ccagacggaa gaaccggatc tgctatctgc aagagatctt cagcaacgag	720
atggccaagg tggacgacag cttcttccac agactggaag agtccttcct ggtggaagag	780
gataagaagc acgagcggca ccccatcttc ggcaacatcg tggacgaggt ggcctaccac	840
gagaagtacc ccacatcta ccacctgaga aagaaactgg tggacagcac cgacaaggcc	900
gacctgcggc tgatctatct ggccctggcc cacatgatca agttccgggg ccacttcctg	960
atcgagggcg acctgaaccc cgacaacagc gacgtggaca agctgttcat ccagctggtg	1020
cagacctaca accagctgtt cgaggaaaac cccatcaacg ccagcggcgt ggacgccaaag	1080
gccatcctgt ctgccagact gagcaagagc agacggctgg aaaatctgat cgcccagctg	1140
cccggcgaga agaagaatgg cctgttcggc aacctgattg ccctgagcct gggcctgacc	1200
cccaacttca agagcaactt cgacctggcc gaggatgcca aactgcagct gagcaaggac	1260
acctacgacg acgacctgga caacctgctg gccagatcg gcgaccagta cgccgacctg	1320
tttctggccg ccaagaacct gtccgacgcc atcctgctga gcgacatcct gagagtgaac	1380
accgagatca ccaaggcccc cctgagcgcc tctatgatca agagatacga cgagcaccac	1440
caggacctga ccctgctgaa agctctcgtg cggcagcagc tgcctgagaa gtacaaagag	1500

at t t t t c t t c g	a c c a g a g c a a	g a a c g g c t a c	g c c g g c t a c a	t t g a c g g c g g	a g c c a g c c a g	1560
g a a g a g t t c t	a c a a g t t c a t	c a a g c c c a t c	c t g g a a a a g a	t g g a c g g c a c	c g a g g a a c t g	1620
c t c g t g a a g c	t g a a c a g a g a	g g a c c t g c t g	c g g a a g c a g c	g g a c c t t c g a	c a a c g g c a g c	1680
a t c c c c c a c c	a g a t c c a c c t	g g g a g a g c t g	c a c g c c a t t c	t g c g g c g g c a	g g a a g a t t t t	1740
t a c c c a t t c c	t g a a g g a c a a	c c g g g a a a a g	a t c g a g a a g a	t c c t g a c c t t	c c g c a t c c c c	1800
t a c t a c g t g g	g c c c t c t g g c	c a g g g g a a a c	a g c a g a t t c g	c c t g g a t g a c	c a g a a a g a g c	1860
g a g g a a a c c a	t c a c c c c c t g	g a a c t t c g a g	g a a g t g g t g g	a c a a g g g c g c	t t c c g c c c a g	1920
a g c t t c a t c g	a g c g g a t g a c	c a a c t t c g a t	a a g a a c c t g c	c c a a c g a g a a	g g t g c t g c c c	1980
a a g c a c a g c c	t g c t g t a c g a	g t a c t t c a c c	g t g t a t a a c g	a g c t g a c c a a	a g t g a a a t a c	2040
g t g a c c g a g g	g a a t g a g a a a	g c c c g c c t t c	c t g a g c g g c g	a g c a g a a a a a	g g c c a t c g t g	2100
g a c c t g c t g t	t c a a g a c c a a	c c g g a a a g t g	a c c g t g a a g c	a g c t g a a a g a	g g a c t a c t t c	2160
a a g a a a a t c g	a g t g c t t c g a	c t c c g t g g a a	a t c t c c g g c g	t g g a a g a t c g	g t t c a a c g c c	2220
t c c c t g g g c a	c a t a c c a c g a	t c t g c t g a a a	a t t a t c a a g g	a c a a g g a c t t	c c t g g a c a a t	2280
g a g g a a a a c g	a g g a c a t t c t	g g a a g a t a t c	g t g c t g a c c c	t g a c a c t g t t	t g a g g a c a g a	2340
g a g a t g a t c g	a g g a a c g g c t	g a a a a c c t a t	g c c c a c c t g t	t c g a c g a c a a	a g t g a t g a a g	2400
c a g c t g a a g c	g g c g g a g a t a	c a c c g g c t g g	g g c a g g c t g a	g c c g g a a g c t	g a t c a a c g g c	2460
a t c c g g g a c a	a g c a g t c c g g	c a a g a c a a t c	c t g g a t t t c c	t g a a g t c c g a	c g g c t t c g c c	2520
a a c a g a a a c t	t c a t g c a g c t	g a t c c a c g a c	g a c a g c c t g a	c c t t t a a a g a	g g a c a t c c a g	2580
a a a g c c c a g g	t g t c c g g c c a	g g g c g a t a g c	c t g c a c g a g c	a c a t t g c c a a	t c t g g c c g g c	2640
a g c c c c g c c a	t t a a g a a g g g	c a t c c t g c a g	a c a g t g a a g g	t g g t g g a c g a	g c t c g t g a a a	2700
g t g a t g g g c c	g g c a c a a g c c	c g a g a a c a t c	g t g a t c g a a a	t g g c c a g a g a	g a a c c a g a c c	2760
a c c c a g a a g g	g a c a g a a g a a	c a g c c g c g a g	a g a a t g a a g c	g g a t c g a a g a	g g g c a t c a a a	2820
g a g c t g g g c a	g c c a g a t c c t	g a a a g a a c a c	c c c g t g g a a a	a c a c c c a g c t	g c a g a a c g a g	2880
a a g c t g t a c c	t g t a c t a c c t	g c a g a a t g g g	c g g g a t a t g t	a c g t g g a c c a	g g a a c t g g a c	2940
a t c a a c c g g c	t g t c c g a c t a	c g a t g t g g a c	c a t a t c g t g c	c t c a g a g c t t	t c t g a a g g a c	3000
g a c t c c a t c g	a c a a c a a g g t	g c t g a c c a g a	a g c g a c a a g a	a c c g g g g c a a	g a g c g a c a a c	3060
g t g c c c t c c g	a a g a g g t c g t	g a a g a a g a t g	a a g a a c t a c t	g g c g g c a g c t	g c t g a a c g c c	3120

aagctgatta	cccagagaaa	gttcgacaat	ctgaccaagg	ccgagagagg	cggcctgagc	3180
gaactggata	aggccggctt	catcaagaga	cagctggtgg	aaacccggca	gatacaciaag	3240
cacgtggcac	agatcctgga	ctcccggatg	aacactaagt	acgacgagaa	tgacaagctg	3300
atccgggaag	tgaaagtgat	caccctgaag	tccaagctgg	tgtccgattt	ccggaaggat	3360
ttccagtttt	acaaagtgcg	cgagatcaac	aactaccacc	acgcccacga	cgcctacctg	3420
aacgccgtcg	tgggaaccgc	cctgatcaaa	aagtacccta	agctggaaag	cgagttcgtg	3480
tacggcgact	acaaggtgta	cgacgtgcgg	aagatgatcg	ccaagagcga	gcaggaaatc	3540
ggcaaggcta	ccgccaagta	cttcttctac	agcaacatca	tgaacttttt	caagaccgag	3600
attaccctgg	ccaacggcga	gatccggaag	cggcctctga	tcgagacaaa	cggcgaaacc	3660
ggggagatcg	tgtgggataa	gggccgggat	tttgccaccg	tgcggaagt	gctgagcatg	3720
ccccaaagtga	atatcgtgaa	aaagaccgag	gtgcagacag	gcggcttcag	caaagagtct	3780
atcctgcccc	agaggaacag	cgataagctg	atcgccagaa	agaaggactg	ggaccctaag	3840
aagtacggcg	gcttcgacag	ccccaccgtg	gcctattctg	tgctggtggt	ggccaaagtg	3900
gaaaagggca	agtccaagaa	actgaagagt	gtgaaagagc	tgctggggat	caccatcatg	3960
gaaagaagca	gcttcgagaa	gaatcccatc	gactttcttg	aagccaaggg	ctacaaagaa	4020
gtgaaaaagg	acctgatcat	caagctgcct	aagtactccc	tgttcgagct	ggaaaacggc	4080
cggaagagaa	tgctggcctc	tgccggcgaa	ctgcagaagg	gaaacgaact	ggccctgccc	4140
tccaaatatg	tgaacttcct	gtacctggcc	agccactatg	agaagctgaa	gggctcccc	4200
gaggataatg	agcagaaaac	gctgtttgtg	gaacagcaca	agcactacct	ggacgagatc	4260
atcgagcaga	tcagcgagtt	ctccaagaga	gtgatcctgg	ccgacgctaa	tctggacaaa	4320
gtgctgtccg	cctacaacaa	gcaccgggat	aagcccatca	gagagcaggc	cgagaatatc	4380
atccacctgt	ttacctgac	caatctggga	gcccctgccg	ccttcaagta	ctttgacacc	4440
accatcgacc	ggaagaggta	caccagcacc	aaagaggtgc	tggacgccac	cctgatccac	4500
cagagcatca	ccggcctgta	cgagacacgg	atcgacctgt	ctcagctggg	aggcgacagc	4560
ccaagaaga	agagaaaggt	ggaggccagc	taagaattca	gcggcgcgcc	ttcccaaac	4620
ccaccaaact	aagtaactgc	tactttcttc	agcaacacca	agatcaatga	aagaggcaag	4680
gtgggtcttc	gagaagacct	gcttaataaa	agatctttat	tttcattaga	tctgtgtgtt	4740

ggttttttgt gtggcggccg caggaacccc tagtgatgga gttggccact ccctctctgc	4800
gcgctcgctc gctcactgag gccgggcgac caaaggctgc ccgacgcccg ggctttgccc	4860
gggcggcctc agtgagcgag cgagcgcgca gctgcctgca ggggcgcctg atgcggtatt	4920
ttctccttac gcatctgtgc ggtatttcac accgcatacg tcaaagcaac catagtacgc	4980
gccctgtagc ggcgcatata gcgcggcggg tgtgggtggtt acgcgcagcg tgaccgctac	5040
acttgccagc gccctagcgc ccgctccttt cgctttcttc ccttcctttc tcgccacgtt	5100
cgccggcctt ccccgtaag ctctaaatcg ggggctccct ttagggttcc gatttagtgc	5160
tttacggcac ctcgacccca aaaaacttga tttgggtgat ggttcacgta gtgggccatc	5220
gccctgatag acggtttttc gccctttgac gttggagtcc acgttcttta atagtggact	5280
cttggtccaa actggaacaa cactcaacc tatctcgggc tattcttttg atttataagg	5340
gattttgccg atttcggcct attggttaaa aaatgagctg atttaacaaa aatttaacgc	5400
gaattttaac aaaatattaa cgtttacaat tttatggtgc actctcagta caatctgctc	5460
tgatgccgca tagttaagcc agccccgaca cccgccaaca cccgctgacg cgccctgacg	5520
ggcttgcttg ctcccggcat ccgcttacag acaagctgtg accgtctccg ggagctgcat	5580
gtgtcagagg ttttcaccgt catcaccgaa acgcgcgaga cgaaagggcc tcgtgatacg	5640
cctattttta taggttaatg tcatgataat aatggtttct tagacgtcag gtggcacttt	5700
tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta	5760
tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat	5820
gagtattcaa catttccgtg tcgcccttat tccctttttt gcggcatttt gccttcctgt	5880
ttttgctcac ccagaaacgc tgggtgaaagt aaaagatgct gaagatcagt tgggtgcacg	5940
agtgggttac atcgaactgg atctcaacag cggtgaagatc cttgagagtt ttcgccccga	6000
agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccg	6060
tattgacgcc gggcaagagc aactcggctg ccgcatacac tattctcaga atgacttggt	6120
tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg	6180
cagtgtgcc ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg	6240
aggaccgaag gagctaaccg cttttttgca caacatgggg gatcatgtaa ctgccttgga	6300
tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc	6360

tgtagcaatg gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc	6420
ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc	6480
ggcccttccg gctggctggt ttattgctga taaatctgga gccggtgagc gtggaagccg	6540
cggtatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac	6600
gacggggagt caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc	6660
actgattaag cattggtaac tgtcagacca agtttactca tatatacttt agattgattt	6720
aaaacttcat ttttaattta aaaggatcta ggtgaagatc ctttttgata atctcatgac	6780
caaaatccct taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa	6840
aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc	6900
accgctacca gcggtgggtt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt	6960
aactggcttc agcagagcgc agatacaaaa tactgtcctt ctagtgtagc cgtagttagg	7020
ccaccacttc aagaactctg tagcaccgcc tacatactc gctctgctaa tcctgttacc	7080
agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt	7140
accggataag gcgcagcggc cgggctgaac ggggggttcg tgcacacagc ccagcttgga	7200
gcgaacgacc tacaccgaac tgagatacct acagcgtgag ctatgagaaa gcgccacgct	7260
tcccgaaggg agaaaggcgg acaggtatcc ggtaagcggc agggtcggaa caggagagcg	7320
cacgagggag cttccagggg gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca	7380
cctctgactt gagcgtcgat ttttgtgatg ctcgtcaggg gggcggagcc tatggaaaaa	7440
cgccagcaac gcggcctttt tacggttcct ggccttttgc tggccttttg ctcacatgt	7499