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 <151> 2018-12-21
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745

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ccgggagggc cttttgtgcg gggggagcgg ctcggggctg tccgcggggg gacggctgcc	780
ttcggggggg acggggcagg gcgggggttcg gcttctggcg tgtgaccggc ggctctagag	840
cctctgctaa ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg	900
ttattgtgct gtctcatcat tttggcaaag aatt	934

<210> 6
 <211> 270
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Bovine Growth Hormone poly-A (bGH poly-A) signal sequence

<400> 6	
tcgctgatca gcctcgactg tgccttctag ttgccagcca tctgttgttt gcccctcccc	60
cgtgccttcc ttgaccctgg aaggtgccac tcccactgtc ctttcctaataaaaatgagga	120
aattgcatcg cattgtctga gtaggtgtca ttctattctg gggggtgggg tggggcagga	180
cagcaagggg gaggattggg aagacaatag caggcatgct ggggatgcgg tgggctctat	240
ggcttctgag gcggaaagaa ccagctgggg	270

<210> 7
 <211> 588
 <212> DNA
 <213> Artificial Sequence

<220>

<223> example woodchuck hepatitis post-transcriptional regulatory
element (WPRE) sequence

<400> 7

atcaacctct ggattacaaa atttgtgaaa gattgactgg tattcttaac tatgttgctc	60
cttttacgct atgtggatac gctgctttaa tgcctttgta tcatgctatt gcttcccgtg	120
tggctttcat tttctcctcc ttgtataaat cctggttgct gtctctttat gaggagtgtg	180
ggcccgttgt caggcaacgt ggcgtggtgt gcactgtgtt tgctgacgca accccactg	240
gttggggcat tgccaccacc tgtcagctcc tttccgggac tttcgctttc cccctcccta	300
ttgccacggc ggaactcatc gccgcctgcc ttgcccgctg ctggacaggg gctcggctgt	360
tgggcactga caattccgtg gtgttgtcgg ggaaatcatc gtcctttcct tggctgctcg	420
cctgtgttgc cacctggatt ctgcgcggga cgtccttctg ctacgtccct tcggccctca	480
atccagcgga ccttccttcc cgcggcctgc tgccggctct gcggcctctt ccgcgtcttc	540
gccttcgccc tcagacgagt cggatctccc tttgggccgc ctccccgc	588

<210> 8

<211> 1752

<212> DNA

<213> Artificial Sequence

<220>

<223> codon-optimised nucleotide sequence encoding Complement Factor I

<400> 8

atgaagctgc tgcatgtctt tctgctgttt ctgtgcttcc atctgcggtt ctgtaaagtg	60
acctatacta gccaggagga tctggtggag aagaagtgtc tggccaagaa gtacacacac	120
ctgagctgcg acaaggtgtt ctgtcagcct tggcagcggg gcatcgaggg cacctgcgtg	180
tgcaagctgc cttaccagtg cccaagaac ggcaccgccg tgtgcgccac aaatcggaga	240
tcttttccaa catattgcca gcagaagagc ctggagtgtc tgcaccccgg caccaagttc	300
ctgaacaatg gcacctgcac agccgagggc aagttttctg tgagcctgaa gcacggcaac	360
acagatagcg agggcatcgt ggaggtgaag ctggtggacc aggataagac catgttcatc	420
tgtaagagct cctggtccat gagggaggca aacgtggcat gcctggatct gggattccag	480
caggagcag acacacagag gcgctttaag ctgtccgacc tgtctatcaa tagcaccgag	540

tgctgcacg tgcactgtag gggcctggag acatccctgg cagagtgcac cttcaciaaag	600
cggagaacca tgggctacca ggactttgcc gacgtggtgt gctataacca gaaggccgat	660
agcccatgg acgatttctt tcagtgcgtg aacggcaagt atatctcca gatgaaggcc	720
tgcgacggca tcaatgactg tggcgatcag tctgacgagc tgtgctgtaa ggcctgtcag	780
ggcaagggct tccactgcaa gagcggcgtg tgcattcctt cccagtacca gtgcaacggc	840
gaggtggatt gtatcacagg agaggacgaa gtgggatgag caggatttgc atctgtggca	900
caggaggaga cagagatcct gacagccgac atggatgccg agaggcgccg gatcaagtct	960
ctgctgccta agctgagctg tggcgtgaag aatcgatgc acatcagaag gaagcgcac	1020
gtgggaggca agagggcaca gctgggcgat ctgccatggc aggtggccat caaggacgcc	1080
tctggcatca cctgcggcgg catctacatc ggaggatgtt ggatcctgac cgcagcacac	1140
tgcttgagag caagcaagac acacaggtat cagatctgga ccacagtggg ggattggatc	1200
caccagacc tgaagagaat cgtgatcag tacgtggata ggatcatctt tcacgagaac	1260
tacaatgccg gcacatatca gaacgacatc gccctgatcg agatgaagaa ggatggcaat	1320
aagaaggact gtgagctgcc cagatccatc cctgcatgag tgccatggag cccctatctg	1380
ttccagcca acgatacctg catcgtgtcc ggatggggaa gggagaagga caatgagcgg	1440
gtgttttctc tgcagtgggg cgaggtgaag ctgatctcca actgttctaa gttctacggc	1500
aataggtttt atgagaagga gatggagtgc gccggcacct acgatggcag catcgacgcc	1560
tgtaagggcg attccggagg accactggtg tgcattggac caaacaatgt gacatacgtg	1620
tggggagtgg tgtcctgggg agagaactgc ggcaagccag agttccccgg cgtatatacc	1680
aaggtggcca attattttga ttggatttcc taccacgtcg gcaggccctt tatttccag	1740
tataatgtct aa	1752

<210> 9
 <211> 583
 <212> PRT
 <213> Homo sapiens

<400> 9

Met	Lys	Leu	Leu	His	Val	Phe	Leu	Leu	Phe	Leu	Cys	Phe	His	Leu	Arg
1				5					10					15	

Phe Cys Lys Val Thr Tyr Thr Ser Gln Glu Asp Leu Val Glu Lys Lys
20 25 30

Cys Leu Ala Lys Lys Tyr Thr His Leu Ser Cys Asp Lys Val Phe Cys
35 40 45

Gln Pro Trp Gln Arg Cys Ile Glu Gly Thr Cys Val Cys Lys Leu Pro
50 55 60

Tyr Gln Cys Pro Lys Asn Gly Thr Ala Val Cys Ala Thr Asn Arg Arg
65 70 75 80

Ser Phe Pro Thr Tyr Cys Gln Gln Lys Ser Leu Glu Cys Leu His Pro
85 90 95

Gly Thr Lys Phe Leu Asn Asn Gly Thr Cys Thr Ala Glu Gly Lys Phe
100 105 110

Ser Val Ser Leu Lys His Gly Asn Thr Asp Ser Glu Gly Ile Val Glu
115 120 125

Val Lys Leu Val Asp Gln Asp Lys Thr Met Phe Ile Cys Lys Ser Ser
130 135 140

Trp Ser Met Arg Glu Ala Asn Val Ala Cys Leu Asp Leu Gly Phe Gln
145 150 155 160

Gln Gly Ala Asp Thr Gln Arg Arg Phe Lys Leu Ser Asp Leu Ser Ile
165 170 175

Asn Ser Thr Glu Cys Leu His Val His Cys Arg Gly Leu Glu Thr Ser
180 185 190

Leu Ala Glu Cys Thr Phe Thr Lys Arg Arg Thr Met Gly Tyr Gln Asp
195 200 205

Phe Ala Asp Val Val Cys Tyr Thr Gln Lys Ala Asp Ser Pro Met Asp
210 215 220

Asp Phe Phe Gln Cys Val Asn Gly Lys Tyr Ile Ser Gln Met Lys Ala
225 230 235 240

Cys Asp Gly Ile Asn Asp Cys Gly Asp Gln Ser Asp Glu Leu Cys Cys
245 250 255

Lys Ala Cys Gln Gly Lys Gly Phe His Cys Lys Ser Gly Val Cys Ile
260 265 270

Pro Ser Gln Tyr Gln Cys Asn Gly Glu Val Asp Cys Ile Thr Gly Glu
275 280 285

Asp Glu Val Gly Cys Ala Gly Phe Ala Ser Val Ala Gln Glu Glu Thr
290 295 300

Glu Ile Leu Thr Ala Asp Met Asp Ala Glu Arg Arg Arg Ile Lys Ser
305 310 315 320

Leu Leu Pro Lys Leu Ser Cys Gly Val Lys Asn Arg Met His Ile Arg
325 330 335

Arg Lys Arg Ile Val Gly Gly Lys Arg Ala Gln Leu Gly Asp Leu Pro
340 345 350

Trp Gln Val Ala Ile Lys Asp Ala Ser Gly Ile Thr Cys Gly Gly Ile
355 360 365

Tyr Ile Gly Gly Cys Trp Ile Leu Thr Ala Ala His Cys Leu Arg Ala
370 375 380

Ser Lys Thr His Arg Tyr Gln Ile Trp Thr Thr Val Val Asp Trp Ile
385 390 395 400

His Pro Asp Leu Lys Arg Ile Val Ile Glu Tyr Val Asp Arg Ile Ile
405 410 415

Phe His Glu Asn Tyr Asn Ala Gly Thr Tyr Gln Asn Asp Ile Ala Leu
420 425 430

Ile Glu Met Lys Lys Asp Gly Asn Lys Lys Asp Cys Glu Leu Pro Arg
435 440 445

Ser Ile Pro Ala Cys Val Pro Trp Ser Pro Tyr Leu Phe Gln Pro Asn
450 455 460

Asp Thr Cys Ile Val Ser Gly Trp Gly Arg Glu Lys Asp Asn Glu Arg
465 470 475 480

Val Phe Ser Leu Gln Trp Gly Glu Val Lys Leu Ile Ser Asn Cys Ser
485 490 495

Lys Phe Tyr Gly Asn Arg Phe Tyr Glu Lys Glu Met Glu Cys Ala Gly
500 505 510

Thr Tyr Asp Gly Ser Ile Asp Ala Cys Lys Gly Asp Ser Gly Gly Pro
515 520 525

Leu Val Cys Met Asp Ala Asn Asn Val Thr Tyr Val Trp Gly Val Val
530 535 540

Ser Trp Gly Glu Asn Cys Gly Lys Pro Glu Phe Pro Gly Val Tyr Thr
545 550 555 560

Lys Val Ala Asn Tyr Phe Asp Trp Ile Ser Tyr His Val Gly Arg Pro
565 570 575

Phe Ile Ser Gln Tyr Asn Val
580

<210> 10
<211> 1752
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence encoding Complement Factor I

<400> 10
atgaaactgc tgcattgtctt cctcctcttc ctgtgcttcc acctccgttt ctgtaaagtc 60
acctacacta gccaggagga tctggtggag aagaaatgcc tggccaagaa gtataccac 120
ctgagctgcg acaaagtgtt ctgccagccc tggcaacgct gcattgaagg tacttgtgtg 180
tgcaagctgc cctaccagtg cccaagaac ggcacggccg tgtgtgccac caacaggagg 240
agcttcccca cctactgcca gcagaagagc ctggaatgcc tccaccctgg caccaagttt 300

ctgaacaacg ggacctgcac agccgagggg aaattcagcg tctccctcaa gcacggcaat	360
acagactccg agggcattgt ggaagtgaag ctggtggacc aggacaagac catgttcatc	420
tgcaaaagca gctggtccat gcgggaggcc aatgtcgcct gcctggacct gggcttccag	480
cagggcgctg atacacagcg ccgctttaa ctcagtgacc tcagcatcaa cagcactgag	540
tgtctgcacg tgcactgccg gggcctggag accagcctgg ctgagtgcac cttcaccaag	600
cgcaggacca tgggctacca ggattttgca gatgtggtct gctacacca gaaggcagac	660
agcccatgg atgacttctt ccagtgtgtc aatggcaagt acatttcca gatgaaggct	720
tgtgacggga tcaatgattg cggggatcag agcgatgagc tctgctgcaa ggcctgcaa	780
gggaagggct ttactgtaa gtctggggtg tgcattcctt ctcagtatca gtgcaacgga	840
gaggtggact gcatcactgg ggaggacgag gtgggctgtg ctggcttcgc ctctgtggcc	900
caggaggaga cagagatcct cacagctgac atggatgcag agcggcggcg catcaagagt	960
ctgctcccaa agctctcctg cggcgtaaag aatcgcatgc acatccggag gaagcggatc	1020
gttggaggca aacgggctca gctgggggac ttgccgtggc aggtggccat caaagatgcc	1080
tccggaatca cctgtggtgg catctacatc ggaggctgct ggatcctgac cgccgccac	1140
tgcttctggg ccagcaagac tcaccgctac cagatctgga ccaccgtggt ggattggatt	1200
caccccgacc tgaagaggat tgtcattgag tatgtcgacc gcatcatctt ccatgaaaac	1260
tacaatgccg ggacgtatca gaacgacatc gccctcatcg agatgaagaa ggatgggaac	1320
aagaaggact gtgagctgcc tcgctccatc cccgcctgtg taccatggtc tccgtacctg	1380
ttccagccaa atgacacatg catcgtgagc ggctggggcc gcgagaaaga caacgagagg	1440
gtcttctccc tgcatgggg tgaagtcaag ctgatcagca actgctcaa gttctacggc	1500
aaccgcttct atgagaagga gatggagtgc gccggcacct atgacggcag cattgacgcg	1560
tgcaaggag acagtggggg cccctggtc tgcatggacg ccaacaatgt gacctacgtg	1620
tggggagttg tgtcctgggg cgagaactgt ggcaagcctg agttcccggg cgtgtacaca	1680
aaggtggcaa actattttga ctggatctcc tatcacgttg gcaggccctt catttcacag	1740
tacaacgtat aa	1752

<210> 11

<211> 449

<212> PRT
<213> Artificial Sequence

<220>

<223> sequence of Complement Factor H-like Protein 1 (FHL1)

<400> 11

Met Arg Leu Leu Ala Lys Ile Ile Cys Leu Met Leu Trp Ala Ile Cys
1 5 10 15

Val Ala Glu Asp Cys Asn Glu Leu Pro Pro Arg Arg Asn Thr Glu Ile
20 25 30

Leu Thr Gly Ser Trp Ser Asp Gln Thr Tyr Pro Glu Gly Thr Gln Ala
35 40 45

Ile Tyr Lys Cys Arg Pro Gly Tyr Arg Ser Leu Gly Asn Ile Ile Met
50 55 60

Val Cys Arg Lys Gly Glu Trp Val Ala Leu Asn Pro Leu Arg Lys Cys
65 70 75 80

Gln Lys Arg Pro Cys Gly His Pro Gly Asp Thr Pro Phe Gly Thr Phe
85 90 95

Thr Leu Thr Gly Gly Asn Val Phe Glu Tyr Gly Val Lys Ala Val Tyr
100 105 110

Thr Cys Asn Glu Gly Tyr Gln Leu Leu Gly Glu Ile Asn Tyr Arg Glu
115 120 125

Cys Asp Thr Asp Gly Trp Thr Asn Asp Ile Pro Ile Cys Glu Val Val
130 135 140

Lys Cys Leu Pro Val Thr Ala Pro Glu Asn Gly Lys Ile Val Ser Ser
145 150 155 160

Ala Met Glu Pro Asp Arg Glu Tyr His Phe Gly Gln Ala Val Arg Phe
165 170 175

Val Cys Asn Ser Gly Tyr Lys Ile Glu Gly Asp Glu Glu Met His Cys
180 185 190

Ser Asp Asp Gly Phe Trp Ser Lys Glu Lys Pro Lys Cys Val Glu Ile
195 200 205

Ser Cys Lys Ser Pro Asp Val Ile Asn Gly Ser Pro Ile Ser Gln Lys
210 215 220

Ile Ile Tyr Lys Glu Asn Glu Arg Phe Gln Tyr Lys Cys Asn Met Gly
225 230 235 240

Tyr Glu Tyr Ser Glu Arg Gly Asp Ala Val Cys Thr Glu Ser Gly Trp
245 250 255

Arg Pro Leu Pro Ser Cys Glu Glu Lys Ser Cys Asp Asn Pro Tyr Ile
260 265 270

Pro Asn Gly Asp Tyr Ser Pro Leu Arg Ile Lys His Arg Thr Gly Asp
275 280 285

Glu Ile Thr Tyr Gln Cys Arg Asn Gly Phe Tyr Pro Ala Thr Arg Gly
290 295 300

Asn Thr Ala Lys Cys Thr Ser Thr Gly Trp Ile Pro Ala Pro Arg Cys
305 310 315 320

Thr Leu Lys Pro Cys Asp Tyr Pro Asp Ile Lys His Gly Gly Leu Tyr
325 330 335

His Glu Asn Met Arg Arg Pro Tyr Phe Pro Val Ala Val Gly Lys Tyr
340 345 350

Tyr Ser Tyr Tyr Cys Asp Glu His Phe Glu Thr Pro Ser Gly Ser Tyr
355 360 365

Trp Asp His Ile His Cys Thr Gln Asp Gly Trp Ser Pro Ala Val Pro
370 375 380

Cys Leu Arg Lys Cys Tyr Phe Pro Tyr Leu Glu Asn Gly Tyr Asn Gln
385 390 395 400

Asn Tyr Gly Arg Lys Phe Val Gln Gly Lys Ser Ile Asp Val Ala Cys
405 410 415

His Pro Gly Tyr Ala Leu Pro Lys Ala Gln Thr Thr Val Thr Cys Met
420 425 430

Glu Asn Gly Trp Ser Pro Thr Pro Arg Cys Ile Arg Val Ser Phe Thr
435 440 445

Leu

<210> 12
<211> 1350
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence encoding FHL1

<400> 12
atgcgcctcc tggccaagat catctgcctc atgctgtggg ccatctgcgt ggctgaggac 60
tgcaatgagc tgccgcccag gaggaacaca gagatcctga caggagctg gtctgaccag 120
acctaccctg agggcaccca ggcgatctac aagtgccggc cgggctacag gaggctgggg 180
aacatcatca tgggtgtgtag aaagggcgaa tgggtggccc tcaaccccct gaggaagtgc 240
cagaagcggc cctgtggcca ccccggggac acacccttcg ggaccttcac cctgaccggc 300
ggcaatgtgt ttgagtacgg cgtgaaggct gtctacacat gcaacgaggg gtaccagctg 360
ctgggcgaga ttaactaccg ggagtgtgac accgatgggt ggaccaacga cattcccatc 420
tgtgaggtgg tcaagtgtct ccccgtgaca gcccagaaa atggcaaaat cgtgagcagc 480
gccatggagc ctgaccgga atatcacttt gggcaggccg tgaggtttgt gtgcaactcg 540
ggctacaaaa ttgaaggatga tgaggagatg cactgcagcg atgatggctt ctggtccaag 600
gagaagccca aatgtgtgga gatctcctgc aagtctccc acgtgatcaa cggcagccca 660
atcagccaga agattattta caaagagaac gagcgcttcc agtacaagtg taacatgggc 720
tatgagtatt cagagagggg agatgccgtc tgcactgaga gcggctggag accactgcct 780
agctgcgagg aaaagagttg tgacaaccct tacatcccaa atggcgacta ctcccctctg 840
cggatcaaac accggaccgg ggatgaaatc acctatcagt gccgcaatgg attctaccg 900

gccacccgcg gcaacaccgc caaatgcacc agcacaggct ggatccccgc cccccgctgt	960
acgctgaagc cttgcgacta tccagacatc aagcacggag gcctgtacca cgaaaacatg	1020
cggcggcctt atttcctgtt ggcagtgggg aagtactaca gctactactg cgacgagcac	1080
ttcgagaccc cctctggctc ctactgggac cacatccact gcacacagga cggctggtct	1140
ccagctgtgc cctgcctgag gaaatgctac ttcccctacc tggagaacgg atacaaccag	1200
aactatggcc gcaagtctgt gcagggcaag agcatcgatg tggcctgcca ccctggctac	1260
gccctgcca aggccagac aactgtgacc tgcattgaga atggttgag cccacccccg	1320
cgctgcatcc ggggtgtcctt cacgctctga	1350

<210> 13
 <211> 585
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> example CMV (cytomegalovirus) promoter sequence

<400> 13	
ggagtccgc gttacataac ttacggtaaa tggccgcct ggctgaccgc ccaacgaccc	60
ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag ggactttcca	120
ttgacgtcaa tgggtggagt atttacggta aactgcccac ttggcagtac atcaagtgt	180
tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg cctggcatta	240
tggccagtac atgaccttat gggactttcc tacttggcag tacatctacg tattagtc	300
cgctattacc atggtgatgc ggttttggca gtacatcaat gggcgtggat agcggtttga	360
ctcacgggga tttccaagtc tccaccccat tgacgtcaat gggagtttgt tttggcacca	420
aatcaacgg gactttccaa aatgtcgtaa caactccgcc ccattgacgc aaatgggcgg	480
taggcgtgta cgggtgggagg tctatataag cagagctcgt ttagtgaacc gtcagatcgc	540
ctggagacgc catccacgct gttttgacct ccatagaaga caccg	585

<210> 14
 <211> 223
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Bovine Growth Hormone poly-A (bGH poly-A) signal sequence

<400> 14

gtgccttcta gttgccagcc atctgttggt tgcccctccc ccgtgccttc cttgaccctg 60

gaaggtgcca ctcccactgt cctttcctaa taaaatgagg aaattgcatc gcattgtctg 120

agtaggtgtc attctattct ggggggtggg gtggggcagg acagcaaggg ggaggattgg 180

gaagacaata gcaggcatgc tggggatgcg gtgggctcta tgg 223

<210> 15

<211> 245

<212> DNA

<213> Artificial Sequence

<220>

<223> WPRE3 sequence (shortened version of WPRE, contains only minimal gamma and alpha elements)

<400> 15

aatcaacctc tggattacaa aatttgtgaa agattgactg gtattcttaa ctatgttgct 60

ccttttacgc tatgtggata cgctgcttta atgcctttgt atcatgctat tgcttcccg 120

atggctttca ttttctcctc cttgtataaa tcctggtttag ttcttgccac ggcggaactc 180

atgccgcct gccttgcccg ctgctggaca ggggctcggc tgttgggcac tgacaattcc 240

gtggt 245

<210> 16

<211> 1752

<212> DNA

<213> Artificial Sequence

<220>

<223> GT005: CFI wild type sequence

<400> 16

atgaagcttc ttcatgtttt cctgttattt ctgtgcttcc acttaagggt ttgcaaggctc 60

acttatacat ctcaagagga tctggtggag aaaaagtgtc tagcaaaaaa atatactcac 120

ctctcctgcg ataaagtctt ctgccagcca tggcagagat gcattgaggg cacctgtgtt 180

tgtaaaactac cgtatcagtg cccaaagaat ggactgcag tgtgtgcaac taacaggaga 240

agcttcccaa catactgtca acaaaagagt ttggaatgtc ttcatccagg gacaaagttt 300

ttaaataacg gaacatgcac agccgaagga aagtttagtg tttccttgaa gcatggaaat 360

acagattcag aggggaatagt tgaagtaaaa cttgtggacc aagataagac aatgttcata	420
tgcaaaagca gctggagcat gaggggaagcc aacgtggcct gccttgacct tgggtttcaa	480
caaggtgctg atactcaaag aaggtttaag ttgtctgac tctctataaa ttccactgaa	540
tgtctacatg tgcattgccg aggattagag accagtttgg ctgaatgtac ttttactaag	600
agaagaacta tgggttacca ggatttcgct gatgtggttt gttatacaca gaaagcagat	660
tctccaatgg atgacttctt tcagtgtgtg aatgggaaat acatttctca gatgaaagcc	720
tgtgatggta tcaatgattg tggagaccaa agtgatgaac tgtgttgtaa agcatgccaa	780
ggcaaaggct tccattgcaa atcgggtgtt tgcattccaa gccagtatca atgcaatggt	840
gaggtggact gcattacagg ggaagatgaa gttggctgtg caggctttgc atctgtggct	900
caagaagaaa cagaaatfff gactgctgac atggatgcag aaagaagacg gataaaatca	960
ttattaccta aactatcttg tggagttaaa aacagaatgc acattcgaag gaaacgaatt	1020
gtgggaggaa agcgagcaca actgggagac ctcccatggc aggtggcaat taaggatgcc	1080
agtggaatca cctgtggggg aatttatatt ggtggctgtt ggattctgac tgctgcacat	1140
tgtctcagag ccagtaaaac tcatcgttac caaatatgga caacagtagt agactggata	1200
caccccgacc ttaaacgtat agtaattgaa tacgtggata gaattatfff ccatgaaaac	1260
tacaatgcag gcacttacca aatgacatc gctttgattg aaatgaaaaa agacggaaac	1320
aaaaaagatt gtgagctgcc tcgttccatc cctgcctgtg tcccctggtc tccttaccta	1380
ttccaaccta atgatacatg catcgtttct ggctggggac gagaaaaaga taacgaaaga	1440
gtcttttcac ttcagtgggg tgaagttaaa ctaataagca actgctctaa gttttacgga	1500
aatcgtttct atgaaaaaga aatggaatgt gcaggtacat atgatggttc catcgatgcc	1560
tgtaaagggg actctggagg ccccttagtc tgtatggatg ccaacaatgt gacttatgtc	1620
tgggggtgtg tgagttgggg ggaaaactgt ggaaaaccag agttcccagg tgtttacacc	1680
aaagtggcca attatfffga ctggattagc taccatgtag gaaggcfff tatttctcag	1740
tacaatgtat aa	1752

<210> 17
 <211> 1350
 <212> DNA
 <213> Artificial Sequence

<220>

<223> RC001: FHL-1 wild type sequence

<400> 17

atgagacttc tagcaaagat tatttgcctt atgttatggg ctatttgtgt agcagaagat	60
tgcaatgaac ttcctccaag aagaaataca gaaattctga caggttcctg gtctgaccaa	120
acatatccag aaggcaccca ggctatctat aaatgccgcc ctggatatag atctcttgga	180
aatataataa tggatatgcag gaaggagaa tgggttgctc ttaatccatt aaggaaatgt	240
cagaaaaggc cctgtggaca tcctggagat actccttttg gtacttttac ccttacagga	300
ggaaatgtgt ttgaatatgg tgtaaaagct gtgtatacat gtaatgaggg gtatcaattg	360
ctaggtgaga ttaattaccg tgaatgtgac acagatggat ggaccaatga tattcctata	420
tgtgaagttg tgaagtgttt accagtgcga gcaccagaga atggaaaaat tgtcagtagt	480
gcaatggaac cagatcgga ataccatttt ggacaagcag tacggtttgt atgtaactca	540
ggctacaaga ttgaaggaga tgaagaaatg cattgttcag acgatggttt ttggagtaaa	600
gagaaaccaa agtgtgtgga aatttcatgc aaatccccag atgttataaa tggatctcct	660
atatctcaga agattattta taaggagaat gaacgatttc aatataaatg taacatgggt	720
tatgaataca gtgaaagagg agatgctgta tgcactgaat ctggatggcg tccgttgcc	780
tcatgtgaag aaaaatcatg tgataatcct tatattccaa atgggtgacta ctcaccttta	840
aggattaaac acagaactgg agatgaaatc acgtaccagt gtagaaatgg tttttatcct	900
gcaaccggg gaaatacagc aaaatgcaca agtactggct ggatacctgc tccgagatgt	960
accttgaaac cttgtgatta tccagacatt aaacatggag gtctatatca tgagaatatg	1020
cgtagaccat actttccagt agctgtagga aaatattact cctattactg tgatgaacat	1080
tttgagactc cgtcaggaag ttactgggat cacattcatt gcacacaaga tggatggctg	1140
ccagcagtac catgcctcag aaaatgttat tttccttatt tggaatatgg atataatcaa	1200
aattatggaa gaaagtttgt acagggtaaa tctatagacg ttgcctgcca tcctggctac	1260
gctcttccaa aagcgagac cacagttaca tgtatggaga atggctggtc tcctactccc	1320
agatgcatcc gtgtcagctt taccctctga	1350

<210> 18

<211> 1752

<212> DNA

<213> Artificial Sequence

<220>

<223> RC128: CFI GeneArt - Basic

<400> 18

atgaagctgc tgcattgtgtt tctgctgttc ctctgcttcc acctgagggtt ctgcaaagtg	60
acctacacca gccaaaggga cctggtggaa aagaagtgcc tggccaagaa gtacacccac	120
ctgagctgcg acaagggtgtt ctgccagcct tggcagagat gcatcgaggg cacctgtgtg	180
tgcaagctgc cctatcagtg cccaagaat ggcacagccg tgtgcgccac caacagaaga	240
agcttcccta cctactgccg gcagaaaagc ctggaatgtc tgcaccccgg caccaagttt	300
ctgaacaacg gcacctgtac cgccgagggc aagtttagcg tgtccctgaa gcacggcaac	360
accgactctg agggcatcgt ggaagtgaag ctggtggacc aggacaagac catgttcatc	420
tgcaagagca gctggtccat gcgcgaggcc aatgtggctt gtctggatct gggattccag	480
cagggcgccg acacacagag aagattcaag ctgagcgacc tgagcatcaa cagcaccgag	540
tgcttgcatt tgcactgtag aggcctggaa acaagcctgg ccgagtgcac cttaccaag	600
agaaggacca tgggctacca ggacttcgcc gacgtcgtgt gctacacca gaaagccgac	660
tctcccatgg acgatttctt ccagtgcgtg aacggcaagt acatcagcca gatgaaggcc	720
tgcgacggca tcaacgattg cggcgatcag agcgacgagc tgtgctgcaa agcctgtcaa	780
ggcaagggtt tccactgcaa gtccggcggtg tgtatcccta gccagtacca gtgcaatggc	840
gaggtggact gtatcaccgg cgaggatgaa gtgggctgtg ccggatttgc cagcgtggcc	900
caagaggaaa ccgagatcct gaccgccgat atggacgccg agcggcggag aatcaaaagc	960
ctgctgccta agctgtcctg cggcgtgaag aaccggatgc acatccggcg caagagaatc	1020
gtcggaggca aaagagcaca gctgggcatg ctgccttggc aagtggccat caaggatgcc	1080
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tgtctgcggg ccagcaagac ccaccggtat cagatctgga ccaccgtggt ggactggatt	1200
caccccgacc tgaagcggat cgtgatcgag tacgtggacc ggatcatctt ccacgagaac	1260
tacaacgccg gcacctacca gaacgatatc gccctgatcg agatgaagaa ggacgggaac	1320
aagaaggact gcgagctgcc tagatctatc cccgcctgtg ttccttggag cccctacctg	1380
ttccagccta acgatactg catcgtgtcc ggctggggca gagagaagga taacgagagg	1440

gtgttcagcc tgcagtgggg cgaagtgaag ctgatcagca actgcagcaa gttctacggc	1500
aaccggttct acgagaaaga aatggaatgc gccggcacat acgacggctc catcgatgcc	1560
tgtaaaggcg attctggcgg ccctctcgtg tgcattgatg ccaacaatgt gacctacgtg	1620
tggggcgctc tgtcctgggg agagaattgt ggcaagcctg agttccccgg cgtgtacacc	1680
aaggtggcca actacttcga ctggatcagc taccacgtgg gcagaccctt tatcagccag	1740
tacaacgtgt ga	1752

<210> 19
 <211> 1752
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC129: CFI GeneArt - Manually optimised

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acctacacca gccaaagagga cctggtggaa aagaaatgcc tggccaagaa atacaccac	120
ctgagctgcg acaagggtgtt ctgccagcct tggcagagat gcatcgaggg cacctgtgtg	180
tgcaagctgc cctatcagtg cccaagaat ggcacagccg tgtgcgctac aaacagaagg	240
agcttcccta cctactgccg gcaaaaaagc ctggagtgcc tgcaccccgg caccaagttt	300
ctgaacaatg gcacctgtac cgccgagggc aagtttagcg tgtccctgaa gcacggcaac	360
accgactctg agggcatcgt ggaagtgaag ctggtggacc aggacaagac catgttcatc	420
tgcaagagct cctggtccat gcgcgaggcc aatgtggctt gtctggatct gggattccag	480
caaggcgccg acacacagag aaggttcaag ctgagcgacc tgagcatcaa cagcaccgag	540
tgcctgcatg tgcactgtag aggcctggaa acaagcctgg ccgagtgcac cttaccaag	600
agaaggacca tgggctacca ggacttcgcc gacgtcgtgt gctacacca gaaagccgac	660
tctcccatgg acgatttctt tcagtgcgtg aacggcaagt acatcagcca gatgaaggcc	720
tgcgacggca tcaacgattg cggcgatcag agcgacgagc tgtgctgtaa agcctgtcaa	780
ggcaagggct tccactgcaa gtccggcgtg tgtatcccta gccagtacca gtgcaatggc	840
gaggtggact gtatcaccgg cgaggatgaa gtgggctgtg ccggatttgc cagcgtggcc	900
caagaggaaa ccgagatcct gaccgccgat atggacgccg agcggaggag aatcaaaagc	960

ctgctcccta agctgtcctg cggcgtgaag aaccggatgc acatccggcg caagagaatc	1020
gtcggaggca aaagagcaca gctgggcat ctgccttggc aagtggccat caaggatgcc	1080
agcggcatca catgtggcgg gatctacatc ggcggatgct ggattctgac agccgctcat	1140
tgtctgcggg ccagcaagac ccaccggtat cagatctgga ccacagtggc cgactggatt	1200
caccccgacc tgaagcggat cgtgatcgag tacgtggacc ggatcatttt ccacgagaac	1260
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aagaaagact gcgagctgcc tagatctatc cccgcctgtg ttccttggag cccctacctg	1380
ttccagccta acgatacctg catcgtgtcc ggctggggca gagagaagga taacgagagg	1440
gtgttcagcc tgcagtgggg cgaagtgaac ctgatcagca actgcagcaa gttctacggc	1500
aaccggttct acgagaaaga aatggaatgc gccggcacat acgacggctc catcgatgcc	1560
tgtaaaggcg attctggcgg acctctcgtg tgcattgatg ccaacaatgt gacctacgtg	1620
tggggcgctg tgtcctgggg agagaattgt ggcaagcctg agttccccgg cgtgtacacc	1680
aaggtggcca actacttcga ctggatcagc taccacgtgg gcagaccctt tatcagccag	1740
tacaacgtgt ga	1752

<210> 20

<211> 1752

<212> DNA

<213> Artificial Sequence

<220>

<223> RC130: CFI Genscript - Basic

<400> 20

atgaagctgc tgcattctt tctgctgttt ctgtgcttcc atctgaggtt ctgcaaggctc	60
acttacacta gccaggagga tctggctgag aagaagtgtc tggccaagaa gtacacacac	120
ctgagctgcg acaagggtgt ctgtcagcct tggcagcggg gcatcgaggg cacctgcgtg	180
tgcaagctgc cttaccagtg cccaaagaac ggcaccgccg tgtgcgccac aaatcggaga	240
tcttttccaa catattgccg gcagaagagc ctggagtgtc tgcaccccg caccaagttc	300
ctgaacaatg gcacctgcac agccgagggc aagttttctg tgagcctgaa gcacggcaac	360
acagatagcg agggcatcgt ggaggtgaag ctggtggacc aggataagac catgttcatc	420
tgtaaagaca gctggtccat gagggaggca aacgtggcat gcctggatct gggattccag	480

cagggagcag acacacagag gcgctttaag ctgtccgacc tgtctatcaa tagcaccgag	540
tgcctgcacg tgcactgtag gggcctggag acatccctgg cagagtgcac cttcaciaaag	600
cggagaacaa tgggctacca ggactttgcc gacgtggtgt gctataccca gaaggccgat	660
agccctatgg acgatttctt tcagtgcgtg aacggcaagt atatctcca gatgaaggcc	720
tgcgacggca tcaatgactg tggcgatcag tctgacgagc tgtgctgtaa ggcctgtcag	780
ggcaagggct tccactgcaa gagcggcgtg tgcattcctt cccagtacca gtgcaacggc	840
gaggtggatt gtatcacagg agaggacgaa gtgggatgcg caggatttgc atctgtggca	900
caggaggaga cagagatcct gacagccgac atggatgccg agaggcgccg gatcaagtct	960
ctgctgccta agctgagctg tggcgtgaag aatcggtatgc acatcagaag gaagcgcatt	1020
gtgggaggca agcgggcccc gctgggcat ctgccctggc aggtggccat caaggacgcc	1080
tctggcatca cctgcggcgg catctacatc ggcggctgtt ggattctgac cgcagcacac	1140
tgcctgagag caagcaagac acacaggtat cagatctgga ccacagtggg ggattggatt	1200
caccagacc tgaagagaat cgtgatcgag tacgtggata ggatcatctt ccacgagaac	1260
tacaatgccg gcacatatca gaacgacatc gccctgatcg agatgaagaa ggatggcaat	1320
aagaaggact gtgagctgcc cagatccatc cctgcatgag tgcctggag cccctatctg	1380
ttccagcca acgatacctg catcgtgtcc ggatggggaa gggagaagga caatgagcgg	1440
gtgttttctc tgcagtgggg cgaggtgaag ctgatctcca actgttctaa gttctacggc	1500
aataggtttt atgagaagga gatggagtgc gccggcacct acgatggcag catcgacgcc	1560
tgtaagggcg attccggagg accactggtg tgcattgacg caaacaatgt gacatacgtg	1620
tggggagtgg tgtcctgggg agagaactgc ggcaagccag agtttcccgg cgtgtatacc	1680
aaggtggcca attattttga ttggatttca taccatgtcg ggagaccatt cattagtcag	1740
tacaacgtgt ga	1752

<210> 21

<211> 1752

<212> DNA

<213> Artificial Sequence

<220>

<223> RC131: CFI Genscript - Manually optimised

<400> 21

atgaagctgc tccatgtctt tctgctcttt ctgtgcttcc atctgaggtt ctgcaaggtc	60
acttacacta gccaggagga tctggtcgag aagaaatgtc tggccaagaa atacacacac	120
ctgagctgcg acaaggtgtt ctgtcagcct tggcagcggg gcatcgaggg cacctgcgtg	180
tgcaagctgc cttaccagtg cccaaagaac ggcaccgccg tgtgcgccac aaatcggaga	240
tcttttccaa catattgcc aaaaaagagc ctggagtgtc tgcaccccgg caccaagttc	300
ctgaacaatg gcacctgcac agccgagggc aagttttctg tgagcctgaa gcacggcaac	360
acagatagcg agggcatcgt ggaggtgaag ctggtggacc aggataagac catgttcatc	420
tgtaagagct cctgggtccat gagggaggca aacgtggcat gcctggatct gggattccag	480
caaggagcag acacacagag gcgctttaag ctgtccgatac tgagtatcaa tagcaccgag	540
tgcctgcacg tgcactgtag gggcctggag acatccctgg cagagtgcac cttcaciaaag	600
cggagaacaa tgggctacca ggactttgcc gacgtggtct gctataccca gaaggccgat	660
agccctatgg acgatttctt tcagtgcgtg aacggcaagt atatctcca gatgaaggcc	720
tgcgacggca tcaatgactg tggcgatcag tctgacgagc tgtgctgtaa ggcctgtcag	780
ggcaagggct tccactgcaa gagcggcgtg tgcattccctt cccagtagca gtgcaacggc	840
gaggtggatt gtatcacagg agaggacgaa gtgggatgag caggatttgc atctgtggca	900
caggaggaaa cagagatcct gacagccgac atggatgccg agaggcgccg gatcaagtct	960
ctgctcccta agctgagctg tggcgtgaag aatcggatgc acatcagaag gaagcgcatac	1020
gtgggaggca agcgggccc a gctgggcat ctgccctggc aggtggccat caaggacgcc	1080
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tgcctgagag caagcaagac acacagatat cagatctgga ccacagtggg cgattggatt	1200
cacccagacc tgaagagaat cgtgatcagac tacgtggata ggatcatttt ccacgagaat	1260
tacaatgctg gcacatatca gaatgatatc gctctcatcg agatgaagaa agatggcaat	1320
aagaaagact gtgagctgcc cagatccatc cctgcatgag tgcctggag cccctatctg	1380
ttccagccca acgatactg catcgtgtcc ggatggggaa gggagaagga caatgagcgg	1440
gtgttttctc tgcagtgggg cgaggtgaag ctgatctcca actgttctaa gttctacggc	1500
aataggtttt atgagaagga gatggagtgc gccggcacct acgatggcag catcgacgcc	1560
tgtaagggcg attccggagg cccactggtg tgcattggacg caaacaatgt gacatacgtg	1620

tggggagtgg tctcctgggg agagaactgc ggcaagccag agtttcccgg cgtgtataacc	1680
aaggtggcca attattttga ttggatttca taccatgtcg ggagaccatt cattagtcaa	1740
tacaacgttt ga	1752

<210> 22
 <211> 1752
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC132: CFI IDT - Basic

<400> 22	
atgaagctcc tccacgtctt cttgttgttt ctctgtttcc acctgagatt ttgcaaagta	60
acttacacca gtcaagaaga cttggctcgag aagaagtgtc tcgccaaaaa gtatactcac	120
ctgagctgtg ataaagtgtt ctgtcagccg tggcagcgct gcattgaggg tacatgtgtc	180
tgtaaactgc cttatcagt tccgaagaac ggtacggctg tctgtgctac taacagacgg	240
tcttttccta cttattgcca gcagaagagt ttggaatgtc tccaccctgg taccaagttt	300
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actgacagtg aagggatagt agaggtaaag ttggttgacc aggacaagac gatgttcata	420
tgcaagtcaa gctggtccat gcgcgaggcg aatgtcgctt gtcttgattt gggcttccag	480
caaggggcag acacacagag aagattcaaa ttgagcgacc tgagtataaa ttcaaccgag	540
tgcctccatg tacattgcag agggctcgag acttcacttg ccgaatgtac atttacgaag	600
aggcggacta tgggatatca ggactttgcc gacgtagtat gttatactca gaaagcagac	660
agtcctatgg atgacttttt ccaatgcgtc aacggcaa atacatcagtca aatgaaagcg	720
tgcgacggta tcaacgattg tggtgaccag tctgatgagc tttgctgtaa agcatgtcaa	780
ggaaaggggt tccattgcaa gagtggtgta tgtattccct cacaatatca gtgcaatggg	840
gaagtcgatt gcataacagg tgaggatgag gtgggctgcg cgggatttgc ttctgtggcg	900
caagaggaga ctgagatcct tacagcggat atggacgccg aacgaagacg catcaaattc	960
ctccttccca aactttcatg cggcgtcaaa aaccgaatgc atatacgag gaagagaatt	1020
gttgggggaa agcgggcaca gctgggcgac ctcccctggc aagttgcaat aaaggatgca	1080
agtgggataa cgtgcggggg catctacatc ggggggtgct ggatcttgac tgccgccac	1140

tgtcttagag cctctaagac ccataggtac caaatctgga caactgtagt tgactggata	1200
catccggacc ttaaacgcat agttattgaa tacgttgacc gcataatatt tcatgagaat	1260
tataacgcgg gtacctatca gaatgacatc gccctcatcg agatgaaaaa agacgggaat	1320
aaaaaggact gcgagctgcc gcgctctata cctgcgtgtg tcccctggag tccttatctt	1380
ttccaaccta acgatacgtg tatagtgagc ggctggggcc gggagaagga caatgaacga	1440
gttttttcct tgcaatgggg agaagtgaag cttattttcca attgttcaaa gttttatgga	1500
aatagatttt atgaaaaaga aatggagtgt gcgggcactt atgacgggtc aattgatgct	1560
tgcaaagtg atagcggggg cccacttgct tgcattggacg ctaacaacgt gacttatgtg	1620
tgggggtgtg tgtcctgggg cgaaaactgt ggcaagccc agtttcccgg cgtatacacc	1680
aaagtagcta attatttcga ctggattagt tatcatgttg ggcggccatt tatatcccag	1740
tataatgtct aa	1752

<210> 23
 <211> 1752
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC133: CFI IDT - Manually optimised

<400> 23	
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ctgagctgtg ataaagtgtt ctgtcagccg tggcagcgct gcattgaggg tacatgtgtc	180
tgtaaaactgc cttatcagtg tccgaagaac ggcacggctg tctgtgctac taacagacgg	240
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actgattctg aagggatagt agaagtaaag ttggttgacc aggacaagac gatgttcata	420
tgcaagtcaa gctgggtccat gcgcgaggcg aatgtcgctt gtcttgattt gggcttccag	480
caaggggcag acacacagag aagattcaaa ttgagcgacc tgagtataaa ttcaaccgag	540
tgcttccatg tacattgcag agggctcgag acttctcttg ctgagtgtac atttacgaag	600
aggcggacta tgggatatca ggactttgct gacgtagtgt gttatactca gaaagcagac	660

agtcctatgg atgacttttt ccaatgcgtc aacggcaaat acatcagtca aatgaaagcg	720
tgcgacggta tcaacgattg tggtagaccag tctgatgagc tttgctgtaa agcatgtcaa	780
ggaaaggggt tccattgcaa gagggtgta tgtattccct cacaatatca gtgcaatggg	840
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ctccttccca aactttcatg cggcgtcaaa aaccgaatgc atatacgag gaagagaatt	1020
gttgggggaa agcgggcaca gctgggcgac ctcccctggc aagttgcaat aaaggatgca	1080
agtgggataa cgtgcggggg catctacatc gggggctgct ggatcttgac tgccgctcac	1140
tgtcttagag cctctaagac ccatagatac caaatctgga caactgtagt tgactggata	1200
catccggacc ttaaacgcat agttattgaa tacgttgacc gcataatctt tcatgagaat	1260
tataacgcgg gcacatacca aaatgacatc gccctgatcg agatgaaaaa ggacgggaat	1320
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ttccaaccta acgatacgtg tatagtgagc ggctggggcc gggagaagga caatgaacga	1440
gttttttcct tgcaatgggg agaagtgaag cttatttcca attgttcaaa gttttatgga	1500
aatagatttt atgaaaaaga aatggagtgt gcgggcactt atgacgggtc aattgatgct	1560
tgcaaagggtg atagcggggg ccacttgtc tgcattggacg ctaacaatgt gacttatgtg	1620
tgggggtgtg tgtcctgggg cgaactgt ggcaagccc agtttcccgg cgtatacacc	1680
aaagtagcta attatttcga ctggattagt tatcatgttg ggcggccatt tatatcccag	1740
tataatgtct aa	1752

<210> 24
 <211> 1752
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC134: CFI JCat - Basic

<400> 24	
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acctacacca gccaggagga cctggtggag aagaagtgcc tggccaagaa gtacacccac	120
ctgagctgcg acaagggtgt ctgccagccc tggcagcgct gcatcgaggg cacctgcgtg	180

tgcaagctgc cctaccagtg ccccaagaac ggcaccgccg tgtgcgccac caaccgccgc	240
agcttcccca cctactgcca gcagaagagc ctggagtgcc tgcaccccg caccaagttc	300
ctgaacaacg gcacctgcac cgccgagggc aagttcagcg tgagcctgaa gcacggcaac	360
accgacagcg agggcatcgt ggaggtgaag ctggtggacc aggacaagac catgttcac	420
tgcaagagca gctggagcat gcgcgaggcc aacgtggcct gcctggacct gggcttcag	480
cagggcgccg acaccagcg ccgcttcaag ctgagcgacc tgagcatcaa cagcaccgag	540
tgctgcacg tgcactgccg cggcctggag accagcctgg ccgagtgcac cttaccaag	600
cgccgcacca tgggctacca ggacttcgcc gacgtggtgt gctacacca gaaggccgac	660
agcccatgg acgacttctt ccagtgcgtg aacggcaagt acatcagcca gatgaaggcc	720
tgcgacggca tcaacgactg cggcgaccag agcgacgagc tgtgctgcaa ggcctgccag	780
ggcaagggtt tccactgcaa gagcggcgtg tgcacccca gccagtacca gtgcaacggc	840
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ctgctgcca agctgagctg cggcgtgaag aaccgcatgc acatccgccg caagcgcac	1020
gtgggcggca agcgcgcca gctgggcgac ctgccctggc aggtggccat caaggacgcc	1080
agcggcatca cctgcggcgg catctacac ggcggctgct ggatcctgac cgccgccac	1140
tgctgcgcg ccagcaagac ccaccgctac cagatctgga ccaccgtggt ggactggatc	1200
caccccgacc tgaagcgcat cgtgatcgag tacgtggacc gcatcatctt ccacgagaac	1260
tacaacgccg gcacctacca gaacgacac gccctgatcg agatgaagaa ggacggcaac	1320
aagaaggact gcgagctgcc ccgcagcatc cccgcctgcg tgccctggag cccctacctg	1380
ttccagcca acgacacctg catcgtgagc ggctggggcc gcgagaagga caacgagcgc	1440
gtgttcagcc tgacgtgggg cgaggtgaag ctgatcagca actgcagcaa gttctacggc	1500
aaccgcttct acgagaagga gatggagtgc gccggcacct acgacggcag catcgacgcc	1560
tgcaagggcg acagcggcgg cccctggtg tgcatggacg ccaacaacgt gacctacgtg	1620
tggggcgtgg tgagctgggg cgagaactgc ggcaagccc agttccccgg cgtgtacacc	1680
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tacaacgtgt aa	1752

<210> 25
<211> 1752
<212> DNA
<213> Artificial Sequence

<220>
<223> RC135: CFI JCat - Manually optimised

<400> 25
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tgcaagctgc cctaccagtg cccaagaac ggcaccgccg tgtgcgccac caaccgccgg 240
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ctgaacaatg gcacctgcac cgccgagggc aagttcagcg tgagcctgaa gcacggcaac 360
accgacagcg agggcatcgt ggaggtgaag ctggtggacc aggacaagac catgttcatc 420
tgcaagagct cctggagcat gcgcgaggcc aacgtggcct gcctggacct gggcttccag 480
caaggcgccg acaccagcg ccggttcaag ctgagcgacc tgagcatcaa cagcaccgag 540
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aagaaagact gcgagctgcc ccgcagcatc cccgcctgcg tgccctggag cccctacctg	1380
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gtgttcagcc tgcagtgggg cgaggtgaag ctgatcagca actgcagcaa gttctacggc	1500
aaccgcttct acgagaagga gatggagtgc gccggcacct acgacggcag catcgacgcc	1560
tgcaagggcg acagcggcgg gcccctggtg tgcatggacg ccaacaatgt gacctacgtg	1620
tggggcgtgg tcagctgggg cgagaactgc ggcaagcccg agttccccgg cgtgtacacc	1680
aaggtggcca actacttcga ctggatcagc taccacgtgg gccgcccctt tatctctcaa	1740
tacaacgtct aa	1752

<210> 26
 <211> 1752
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC137: CFI COOL - Manually optimised

<400> 26	
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ctgagctgcg acaaagtgtt ctgccagccc tggcaacgct gcattgaagg cacttgtgtg	180
tgcaagctgc cctaccagtg cccaagaac ggcacggccg tgtgtgccac caacaggaga	240
agcttcccca cctactgcca gaaaagagc ctggaatgcc tccaccctgg caccaagttt	300
ctgaacaatg ggacctgcac agccgagggg aaattcagcg tctccctcaa gcacggcaat	360
acagactccg agggcattgt ggaagtgaag ctggtggacc aggacaagac catgttcatc	420
tgcaaaagct cctggtccat gcgggaggcc aatgtcgcct gcctggacct gggcttccag	480
caaggcgctg atacacagcg cagatttaaa ctcagtgacc tcagcatcaa cagcactgag	540
tgtctgcacg tgcactgccg gggcctggag accagcctgg ctgagtgcac cttaccaag	600
cgcaggacca tgggctacca ggattttgca gatgtggtct gctacacca gaaggcagac	660
agcccatgg atgacttctt tcagtgtgtc aatggcaagt acatttcca gatgaaggct	720
tgtgacggga tcaatgattg cggggatcag agcgatgagc tctgctgtaa ggcctgcaa	780
gggaagggtt ttcactgcaa gtctggggtg tgcatccctt ctcagtatca gtgcaacgga	840

gaggtggact gcatcactgg ggaggacgag gtgggctgtg ctggcttcgc ctctgtggcc	900
caggaggaaa cagagatcct cacagctgac atggatgcag agcggaggcg catcaagagt	960
ctgctcccaa agctctcctg cggcgттааg аатсgсatgc асatccggag gaagcggatc	1020
gttggaggca aacgggctca gctgggggac ttgccgtggc aggtggccat caaagatgcc	1080
tccggaatca cctgtggtgg catctacatc ggcgggtgct ggatcctgac cgccgctcac	1140
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caccccgacc tgaagaggat tgtcattgag tatgtcgacc gcatcatttt ccatgaaaac	1260
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aaccgcttct atgagaagga gatggagtgc gccggcacct atgacggcag cattgacgcg	1560
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tggggagttg tgtcctgggg cgagaactgt ggcaagcctg agttcccggg cgtgtacaca	1680
aaggtggcaa actattttga ctggatctcc тatcacgttg gcaggccctt cattagccag	1740
tataatgtat aa	1752

<210> 27
 <211> 1350
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RC138: FHL-1 GeneArt - Basic

<400> 27	
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tgcaatgagc tgcctcctcg gagaaacacc gagatcctga caggctcttg gagcgaccag	120
acataccctg agggaaacca ggccatctac aagtgcagac ccggctacag aagcctgggc	180
aacatcatca tggтctgccg gaaaggcgag tgggtcgccc tgaatcctct gcggaagtgc	240
cagaaaagac cctgcggaca ccctggcgat acccctttcg gaacctttac actgaccggc	300
ggcaacgtgt tcgagtacgg cgtgaaagcc gtgtacacct gtaacgaggg ctaccagctg	360

ctgggcgaga tcaactacag agagtgcgat accgacggct ggaccaacga catccctatc	420
tgcgaggtgg tcaagtgcct gcctgtgaca gcccctgaga acggcaagat tgtgtccagc	480
gccatggaac ccgacagaga gtaccacttt ggccaggccg tcagattcgt gtgcaacagc	540
ggctacaaga tcgagggcga cgaggaaatg cactgcagcg acgatggctt ctggtccaaa	600
gaaaagccta agtgcgtgga aatcagctgc aagagcccg acgtgatcaa cggcagccct	660
atcagccaga agattatcta caaagagaac gagcggttcc agtacaagtg taacatgggc	720
tacgagtaca gcgagagggg cgacgccgtg tgtacagaat ctggatggcg acctctgcct	780
agctgcgagg aaaagagctg cgacaaccct tacatcccca acggcgacta cagcccactg	840
cggatcaaac acagaaccgg cgacgagatc acctaccagt gccggaatgg cttctaccct	900
gccaccagag gcaataccgc caagtgtaca agcaccggct ggatccctgc tcctcggtgt	960
acactgaagc cctgcgacta ccccgatata aagcacggcg gactgtacca cgagaacatg	1020
cggaggcctt acttccctgt ggccgtgggc aagtactaca gctactactg cgacgagcac	1080
ttcgagacac ccagcggcag ctactgggat cacatccact gtaccagga cggctggtca	1140
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aactacggcc ggaagtctgt gcagggcaag agcatcgatg tggcctgcca tcctggatac	1260
gccctgccta aggctcagac caccgtgacc tgcattgaaa atggctggtc cccaacacct	1320
cgggtgcatcc ggggtgtcctt cacactgtaa	1350

<210> 28

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC139: FHL-1 GeneArt - Manually optimised

<400> 28

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tgcaatgagc tgcctccccg gagaaacacc gagatcctga caggctcttg gagcgaccag	120
acataccctg aggggaacca ggccatctac aagtgcagac ccggctacag aagcctgggc	180
aacatcatta tggctctgccg gaaaggcgag tgggtcgccc tgaatcctct gcggaagtgc	240
cagaaaagac cctgcggaca ccctggcgat acccctttcg gaacctttac actgaccggc	300

gggaacgtgt tcgagtacgg cgtgaaagcc gtgtacacct gtaacgaggg ctaccagctg	360
ctcggcgaga tcaactacag agagtgcgat accgacggct ggaccaacga catccctatc	420
tgcgaggtgg tcaagtgcct gcctgtgaca gcccctgaga acggcaagat tgtgtccagc	480
gccatggaac ccgacagaga gtaccacttt ggccaggccg tcagattcgt gtgcaacagc	540
ggctacaaga tcgagggcga cgaggaaatg cactgcagcg acgatggctt ctggtccaaa	600
gaaaagccta agtgcgtgga aatcagctgc aagagcccg acgtgatcaa cggcagccct	660
atcagccaga agattatcta caaagagaac gagcggttcc agtacaagtg taacatgggc	720
tacgagtaca gcgagagggg cgacgccgtg tgtacagaat ctggatggcg acctctgcct	780
agctgcgagg aaaagagctg cgacaaccct tacatcccca acggcgacta cagcccactg	840
cggatcaaac acagaaccgg cgacgagatc acctaccagt gccggaatgg cttctaccct	900
gccaccagag gcaataccgc caagtgtaca agcaccggct ggatccctgc tcctcggtgt	960
acactgaagc cctgcgacta ccccgatatc aagcacggcg gactgtacca cgagaacatg	1020
cggaggcctt acttcctgt ggccgtgggc aagtactata gctactattg cgacgagcac	1080
ttcgagacac ccagcggcag ctactgggat cacatccact gtaccaggga cggctggtca	1140
ccagctgtgc cttgcctgag aaagtgtac ttcccctacc tggaacacgg ctacaaccag	1200
aactacggcc ggaagtctgt gcagggaag agcatcgatg tggcctgcca tcctggatac	1260
gccctgccta aggctcagac cacagtgacc tgcattgaaa atggctggtc cccaacacct	1320
cggatcatcc ggggtgtcctt cacactgtaa	1350

<210> 29

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC140: FHL-1 Genscript - Basic

<400> 29

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tgtaacgagc tgccccctcg gagaaataca gagatcctga ccggctcttg gagcgatcag	120
acatatcctg agggcaccca ggccatctac aagtgcaggc caggctatcg ctccctgggc	180
aacatcatca tgggtgtgcag gaaggagag tgggtggccc tgaatcctct gaggaagtgc	240

cagaagaggc catgtggaca cccaggcgac acccctttcg gcacctttac actgaccggc	300
ggcaacgtgt tcgagtacgg cgtgaaggcc gtgtatacat gcaacgaggg ctaccagctg	360
ctgggcgaga tcaattacag agagtgtgac acagatggct ggaccaacga tatcccaatc	420
tgcgaggtgg tgaagtgtct gccagtgacc gccccgaga atggcaagat cgtgagctcc	480
gccatggagc cgcacagga gtatcacttc ggccaggccg tgcgcttcgt gtgcaactct	540
ggctacaaga tcgagggcgga tgaggagatg cactgtagcg acgatggctt ctggtccaag	600
gagaagccca agtgcgtgga gatcagctgt aagtccccag acgtgatcaa tggctctccc	660
atcagccaga agatcatcta taaggagaac gagaggtttc agtacaagtg caatatgggc	720
tacgagtatt ccgagagggg cgatgccgtg tgcaccgagt ctggctggag accactgccc	780
tcctgcgagg agaagtcttg tgacaacca tatatcccca atggcgatta ctctcccctg	840
cggatcaagc acagaacagg cgacgagatc acctatcagt gccggaacgg cttctaccct	900
gccacaagag gcaataccgc caagtgtaca agcaccggat ggatccctgc accaaggtgc	960
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aggcgccctt acttcccagt ggccgtgggc aagtactata gctactattg cgacgagcac	1080
tttgagacct cttccggctc ttactgggac cacatccact gtacacagga tggatggctc	1140
ccagcagtgc cttgcctgag gaagtgttac ttcccatatc tggagaacgg ctacaaccag	1200
aattatggcc gcaagtttgt gcagggcaag agcatcgatg tggcatgcca cccaggatac	1260
gcactgccta aggcacagac cacagtgaca tgcattggaga atggctggtc tcccaccct	1320
cggatgtatca gattgagctt tacactgtga	1350

<210> 30

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC141: FHL-1 Genscript - Manually optimised

<400> 30

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tgtaacgagc tgccccctcg gagaaataca gagatcctga ccggctcttg gagcgatcag	120
acatatcctg agggcaccca ggccatctac aagtgcaggc caggctatcg ctccctgggc	180

aacatcatta tgggtgtgcag gaagggagag tgggtggccc tgaatcctct gaggaagtgc	240
cagaagaggc catgtggaca cccaggcgac acccctttcg gcacctttac actgaccggc	300
gggaacgtgt tcgagtacgg cgtgaaggcc gtgtatacat gcaacgaggg ctaccagctg	360
ctcggcgaga tcaattacag agagtgtgac acagatggct ggaccaacga tatcccaatc	420
tgcgaggtgg tcaagtgtct gccagtgacc gccccgaga atggcaagat cgtgagctcc	480
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atcagccaga agatcattta taaggagaac gagaggtttc agtacaagtg caatatgggc	720
tacgagtatt ccgagagggg cgatgccgtg tgcaccgagt ctggctggag accactgccc	780
tcctgcgagg aaaagtcttg tgacaacca tatatccca atggcgatta ctctcccctg	840
cggatcaagc acagaacagg cgacgagatc acctatcagt gccggaacgg cttctaccct	900
gccacaagag gcaataccgc caagtgtaca agcaccggat ggatccctgc accaaggtgc	960
accctgaagc cttgtgacta tccagatatc aagcacggcg ggctgtatca cgagaatatg	1020
aggcgccctt acttcccagt ggccgtgggc aagtactata gctactattg cgacgagcac	1080
tttgagacct cttccggctc ttactgggac cacatccact gtacacagga tggatggtcc	1140
ccagcagtgc cttgcctgag gaagtgttac ttcccatatc tggagaacgg ctacaaccag	1200
aattatggcc gcaagtttgt gcagggcaag agcatcgatg tggcatgcca cccaggatac	1260
gcactgccta aggcacagac cacagtgaca tgcattggaga atggctggtc tcccaccctt	1320
cgggtgtatca gattgagctt tacactgtga	1350

<210> 31

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC142: FHL-1 IDT - Basic

<400> 31

atgagactgc ttgcgaaaat tatatgcctg atgctttggg ctatttgcgt tgcggaagac	60
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tgtaacgaac tcccgccccg ccgaaataca gagatcctca caggcagttg gagcgaccaa	120
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acgtaccctg aaggtacgca ggccatatat aagtgtaggc caggctacag atcacttggt	180
aacataataa tggatatgtcg gaaaggagag tgggtcgctc tcaaccctct taggaaatgt	240
caaaaaagac cctgtgggca tccgggagat acgcctttcg ggacattcac tctcacgggc	300
ggaaacgtat tcgaatatgg cgtgaaggca gtgtatacct gcaatgaagg gtatcagctg	360
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gaaaagccta agtgtgttga aatcagctgt aagagtccag acgtgattaa cggttccccg	660
atctctcaga agataattta caaggaaaac gaacgattcc aatataagtg taacatgggc	720
tacgagtatt ccgagcgagg tgacgcagta tgtacggaaa gcgggtggcg acctctgccc	780
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cgcataaaac atcggacggg agatgagatt acataccaat gccgcaatgg tttttacccc	900
gccacccgag ggaacacggc aaagtgcact tctacggggg ggattccagc tcctaggtgc	960
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aggagaccat actttccagt tgcagtgggc aagtactata gctattactg tgatgagcac	1080
tttgaaactc cgtctgggag ctactgggat catatccatt gtacgaaga cggctggagt	1140
ccagcagttc catgcttgcg gaaatgttat tttccctacc tcgaaaacgg atataatcag	1200
aactatggga ggaagtttgt tcaaggcaaa agcattgatg tggcatgtca ccccggttat	1260
gccctgcca aggcgcaaac cacagtaact tgcattggaga atggatggag cccacacccc	1320
agatgtatac gagtatcctt cacgctttga	1350

<210> 32

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC143: FHL-1 IDT - Manually optimised

<400> 32

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tgtaacgaac tccccgccccg ccgaaataca gagatcctca caggcagttg gagcgaccaa	120
acgtaccctg aaggcacgca ggccatatat aagtgtaggc caggctacag atcacttggt	180
aacataatca tgggtgtgtcg gaaaggagag tgggtcgctc tcaaccctct tcgcaaattg	240
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ggaaacgtat tcgaatatgg cgtgaaggca gtgtatacct gcaatgaagg gtatcagctg	360
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tgcgaagtag ttaaatgcct gcccgttact gcaccggaga atggcaaaat agtcagtagc	480
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gaaaagccta agtgtgttga aatcagctgt aagagtccag acgtgattaa cggttccccg	660
atctctcaga agataattta caaggaaaac gaacgattcc aatataagtg taacatgggc	720
tacgagtatt ccgagcgagg tgacgcagta tgtacggaaa gcgggtggcg acctctgccc	780
tcctgcgagg aaaagagctg tgataatccg tatatcccca acggcgacta tagcccactg	840
cgcataaaac atcggacggg agatgagatt acataccaat gccgcaatgg tttttacccc	900
gccacccgag ggaacacggc aaagtgcact tctacggggt ggattccagc tcctaggtgc	960
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aggagaccat actttccagt tgcagtgggc aagtactata gctattactg tgatgagcac	1080
tttgaaactc cgtctgggag ctactgggat catatccatt gtacgaaga cggctggagt	1140
ccagcagttc catgcttgcg gaaatgttat tttccctacc tcgaaaacgg atataatcag	1200
aattacggca ggaaatttgt gcaaggcaaa agcattgatg tggcatgtca ccccggttat	1260
gccctgcca aggcgcaaac cacagtaact tgcatggaga atggatggag cccacacccc	1320
agatgtatac gagtatcctt cacgctttga	1350

<210> 33

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC144: FHL-1 JCat - Basic

<400> 33

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tgcaacgagc tgcccccccg ccgcaacacc gagatcctga ccggcagctg gagcgaccag	120
acctaccccg agggcaccca ggccatctac aagtgccgcc ccggctaccg cagcctgggc	180
aacatcatca tgggtgtgccg caagggcgag tgggtggccc tgaaccccct gcgcaagtgc	240
cagaagcgcc cctgcggcca ccccggcgac acccccttcg gcaccttcac cctgaccggc	300
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<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC145: FHL-1 JCat - Manually optimised

<400> 34

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<210> 35

<211> 1350

<212> DNA

<213> Artificial Sequence

<220>

<223> RC147: FHL-1 COOL - Manually optimised

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