

SEQUENCE LISTING

<110> Sanofi
 BioNTech RNA Pharmaceuticals GMBH

<120> Therapeutic RNA

<130> 01183-0001-00PCT

<150> US 62/464,981
 <151> 2017-02-28

<150> US 62/597,527
 <151> 2017-12-12

<150> EP 17306089.8
 <151> 2017-08-23

<160> 88

<170> PatentIn version 3.5

<210> 1
 <211> 52
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModA 5' UTR

<400> 1
 gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca cc 52

<210> 2
 <211> 52
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA 5' UTR

<400> 2
 gggcgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca cc 52

<210> 3
 <211> 145
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModB 5' UTR

<400> 3
ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
tctacttcta ttgcagcaat ttaaattcatt tcttttaaag caaaagcaat tttctgaaaa 120
ttttcaccat ttacgaacga tagcc 145

<210> 4
<211> 145
<212> RNA
<213> Artificial sequence

<220>
<223> ModB 5' UTR

<400> 4
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau 60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa 120
uuuucaccau uuacgaacga uagcc 145

<210> 5
<211> 52
<212> DNA
<213> Artificial sequence

<220>
<223> Alternative Mod 5' UTR

<400> 5
agacgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca cc 52

<210> 6
<211> 52
<212> RNA
<213> Artificial sequence

<220>
<223> Alternative Mod 5' UTR

<400> 6
agacgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca cc 52

<210> 7
<211> 427
<212> DNA
<213> Artificial sequence

<220>

<223> ModA/B 3' UTR

<400> 7

ctcgagctgg tactgcatgc acgcaatgct agctgcccct ttcccgtcct gggtagccccg	60
agtctcccc gacctcgggt cccaggtatg ctcccacctc cacctgcccc actcaccacc	120
tctgctagtt ccagacacct cccaagcacg cagcaatgca gctcaaaacg cttagcctag	180
ccacaccccc acgggaaaca gcagtgatta accttttagca ataaacgaaa gtttaactaa	240
gctatactaa ccccaggggtt ggtcaatttc gtgccagcca caccgagacc tgggtccagag	300
tcgctagccg cgtcgctaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagca tatgactaaa	360
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	420
aaaaaaa	427

<210> 8

<211> 427

<212> RNA

<213> Artificial sequence

<220>

<223> ModA/B 3' UTR

<400> 8

cucgagcugg uacugcaugc acgcaaugcu agcugccccc uucccguccu ggguacccccg	60
agucuccccc gaccucgggu cccagguaug cucccaccuc caccugcccc acucaccacc	120
ucugcuaguu ccagacaccu cccaagcacg cagcaaugca gcucaaaacg cuuagccuag	180
ccacaccccc acgggaaaca gcagugauua accuuuagca auaaacgaaa guuuuacuaa	240
gcuauacuaa ccccaggggu ggucuuuuc gugccagcca caccgagacc ugguccagag	300
ucgcuagccg cgucgcuaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagca uaugacuaaa	360
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	420
aaaaaaa	427

<210> 9

<211> 153

<212> PRT

<213> Homo sapiens

<400> 9

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ser Leu Ala Leu

1	5	10	15
Val Thr Asn Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Gln Leu	20	25	30
Gln Leu Glu His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile	35	40	45
Asn Asn Tyr Lys Asn Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe	50	55	60
Tyr Met Pro Lys Lys Ala Thr Glu Leu Lys His Leu Gln Cys Leu Glu	65	70	75
Glu Glu Leu Lys Pro Leu Glu Glu Val Leu Asn Leu Ala Gln Ser Lys	85	90	95
Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser Asn Ile Asn Val Ile	100	105	110
Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu Tyr Ala	115	120	125
Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe	130	135	140
Cys Gln Ser Ile Ile Ser Thr Leu Thr	145	150	

<210> 10
 <211> 465
 <212> DNA
 <213> Homo sapiens

<400> 10	
atgtacagga tgcaactcct gtcttgcatt gcactaagtc ttgcacttgt cacaaacagt	60
gcacctactt caagttctac aaagaaaaca cagctacaac tggagcattt actgctggat	120
ttacagatga ttttgaatgg aattaataat tacaagaatc ccaaactcac caggatgctc	180
acatttaagt ttacatgcc caagaaggcc acagaactga aacatcttca gtgtctagaa	240
gaagaactca aacctctgga ggaagtgcta aatttagctc aaagcaaaaa ctttcactta	300

agaccaggg acttaatcag caatatcaac gtaatagttc tggaactaaa gggatctgaa	360
acaacattca tgtgtgaata tgctgatgag acagcaacca ttgtagaatt tctgaacaga	420
tggattacct tttgtcaaag catcatctca acactgactt gatga	465

<210> 11
 <211> 465
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Human optimized IL-2

<400> 11	
atgtacagaa tgcagctgct gtcttgcatt gctctttctc ttgctcttgt gacaaattct	60
gctccaacat cttcttcaac aaagaaaaca cagcttcagc ttgaacacct tcttcttgat	120
cttcagatga ttctgaatgg aatcaacaat tacaaaaatc caaaactgac aagaatgctg	180
acatttaaatt tttacatgcc aaagaaagca acagaactga aacaccttca gtgccttgaa	240
gaagaactga aacctctgga agaagtgtg aatctggctc agagcaaaaa ttttcacctg	300
agaccaagag atctgatcag caacatcaat gtgattgtgc tggaactgaa aggatctgaa	360
acaacattca tgtgtgaata tgctgatgaa acagcaacaa ttgtggaatt tctgaacaga	420
tggatcacat tttgccagtc aatcatttca acactgacat gatga	465

<210> 12
 <211> 465
 <212> RNA
 <213> Homo sapiens

<400> 12	
auguacagga ugcaacuccu gucuugcauu gcacuaaguc uugcacuugu cacaaacagu	60
gcaccuacuu caaguucuaac aaagaaaaca cagcuacaac uggagcauuu acugcuggau	120
uuacagauga uuuugaauagg aaauaauaau uacaagaau ccaaacucac caggaugcuc	180
acaauuaagu uuuacaugcc caagaaggcc acagaacuga aacaucuua gugucuagaa	240
gaagaacua aaccucugga ggaagugcua aauiuagcuc aaagcaaaaa cuuucacuua	300
agaccaggg acuuaucaag caauaucaac guauuaguuc uggaacuaaa gggaucugaa	360
acaacauuca ugugugaaua ugcugaugag acagcaacca uuguagaauu ucugaacaga	420

uggauuaccu uuugucaaag caucaucuca acacugacuu gauga 465

<210> 13
<211> 465
<212> RNA
<213> Artificial sequence

<220>
<223> Human optimized IL-2

<400> 13
auguacagaa ugcagcugcu gucuugcauu gcucuucuc ugcucuugu gacaaaauucu 60
gcuccaaca cuucuuaac aaagaaaaca cagcuucagc uugaacaccu ucuucuugau 120
cuucagauga uucugaaugg aaucaacaau uacaaaaauc caaacugac aagaaucug 180
acauuuuuuu uuuaugcc aaagaaagca acagaacuga aacaccuua gugccuugaa 240
gaagaacuga aaccucugga agaagugcug aaucuggcuc agagcaaaaa uuucaccug 300
agaccaagag aucugaucag caacaucaau gugauugugc uggaacugaa aggaucugaa 360
acaacauuca ugugugaaua ugcugaugaa acagcaacaa uuuggaaau ucugaacaga 420
uggaucacau uuugccaguc aaucuuuua acacugacau gauga 465

<210> 14
<211> 539
<212> PRT
<213> Artificial sequence

<220>
<223> Human IL-12sc

<400> 14

Met Cys His Gln Gln Leu Val Ile Ser Trp Phe Ser Leu Val Phe Leu
1 5 10 15

Ala Ser Pro Leu Val Ala Ile Trp Glu Leu Lys Lys Asp Val Tyr Val
20 25 30

Val Glu Leu Asp Trp Tyr Pro Asp Ala Pro Gly Glu Met Val Val Leu
35 40 45

Thr Cys Asp Thr Pro Glu Glu Asp Gly Ile Thr Trp Thr Leu Asp Gln
50 55 60

Ser Ser Glu Val Leu Gly Ser Gly Lys Thr Leu Thr Ile Gln Val Lys
65 70 75 80

Glu Phe Gly Asp Ala Gly Gln Tyr Thr Cys His Lys Gly Gly Glu Val
85 90 95

Leu Ser His Ser Leu Leu Leu Leu His Lys Lys Glu Asp Gly Ile Trp
100 105 110

Ser Thr Asp Ile Leu Lys Asp Gln Lys Glu Pro Lys Asn Lys Thr Phe
115 120 125

Leu Arg Cys Glu Ala Lys Asn Tyr Ser Gly Arg Phe Thr Cys Trp Trp
130 135 140

Leu Thr Thr Ile Ser Thr Asp Leu Thr Phe Ser Val Lys Ser Ser Arg
145 150 155 160

Gly Ser Ser Asp Pro Gln Gly Val Thr Cys Gly Ala Ala Thr Leu Ser
165 170 175

Ala Glu Arg Val Arg Gly Asp Asn Lys Glu Tyr Glu Tyr Ser Val Glu
180 185 190

Cys Gln Glu Asp Ser Ala Cys Pro Ala Ala Glu Glu Ser Leu Pro Ile
195 200 205

Glu Val Met Val Asp Ala Val His Lys Leu Lys Tyr Glu Asn Tyr Thr
210 215 220

Ser Ser Phe Phe Ile Arg Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn
225 230 235 240

Leu Gln Leu Lys Pro Leu Lys Asn Ser Arg Gln Val Glu Val Ser Trp
245 250 255

Glu Tyr Pro Asp Thr Trp Ser Thr Pro His Ser Tyr Phe Ser Leu Thr
260 265 270

Phe Cys Val Gln Val Gln Gly Lys Ser Lys Arg Glu Lys Lys Asp Arg

275

280

285

Val Phe Thr Asp Lys Thr Ser Ala Thr Val Ile Cys Arg Lys Asn Ala
 290 295 300

Ser Ile Ser Val Arg Ala Gln Asp Arg Tyr Tyr Ser Ser Ser Trp Ser
 305 310 315 320

Glu Trp Ala Ser Val Pro Cys Ser Gly Ser Ser Gly Gly Gly Gly Ser
 325 330 335

Pro Gly Gly Gly Ser Ser Arg Asn Leu Pro Val Ala Thr Pro Asp Pro
 340 345 350

Gly Met Phe Pro Cys Leu His His Ser Gln Asn Leu Leu Arg Ala Val
 355 360 365

Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu Phe Tyr Pro Cys
 370 375 380

Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys Thr Ser
 385 390 395 400

Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys
 405 410 415

Leu Asn Ser Arg Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala
 420 425 430

Ser Arg Lys Thr Ser Phe Met Met Ala Leu Cys Leu Ser Ser Ile Tyr
 435 440 445

Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr Met Asn Ala Lys
 450 455 460

Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn Met Leu
 465 470 475 480

Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser Glu Thr
 485 490 495

Val Pro Gln Lys Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys
500 505 510

Ile Lys Leu Cys Ile Leu Leu His Ala Phe Arg Ile Arg Ala Val Thr
515 520 525

Ile Asp Arg Val Met Ser Tyr Leu Asn Ala Ser
530 535

<210> 15
<211> 1623
<212> DNA
<213> Artificial sequence

<220>
<223> Human non-optimized IL-12sc

<400> 15
atgtgtcacc agcagttggt catctcttgg ttttccttg ttttcttggc atctcccctc 60
gtggccatat gggaactgaa gaaagatgtt tatgtcgtag aattggattg gtatccggat 120
gcccctggag aaatggtggt cctcacctgt gacaccctg aagaagatgg tatcacctgg 180
accttgacc agagcagtga ggtcttaggc tctggcaaaa ccctgaccat ccaagtcaaa 240
gagtttggag atgctggcca gtacacctgt cacaaaggag gcgaggttct aagccattcg 300
ctcctgctgc ttcacaaaaa ggaagatgga atttggtcca ctgatatttt aaaggaccag 360
aaagaacca aaaataagac ctttctaaga tgcgaggcca agaattattc tggacgtttc 420
acctgctggt ggctgacgac aatcagtact gatttgacat tcagtgtcaa aagcagcaga 480
gggtcttctg accccaagg ggtgacgtgc ggagctgcta cactctctgc agagagagtc 540
agaggggaca acaaggagta tgagtactca gtggagtgcc aggaggacag tgcctgcccc 600
gtgctgagg agagtctgcc cattgaggtc atggtggatg ccgttcacaa gctcaagtat 660
gaaaactaca ccagcagctt cttcatcagg gacatcatca aacctgacct acccaagaac 720
ttgcagctga agccattaaa gaattctcgg caggtggagg tcagctggga gtaccctgac 780
acctggagta ctccacattc ctacttctcc ctgacattct gcgttcaggt ccagggaag 840
agcaagagag aaaagaaaga tagagtcttc acggacaaga cctcagccac ggtcatctgc 900
cgcaaaaatg ccagcattag cgtgcgggcc caggaccgct actatagctc atcttggagc 960

gaatgggcat ctgtgccctg cagtggctct agcggagggg gaggtctctc tggcggggga	1020
tctagcagaa acctccccgt ggccactcca gaccaggaa tgttcccatg cttcaccac	1080
tcccaaaacc tgctgagggc cgtcagcaac atgctccaga aggccagaca aactctagaa	1140
ttttaccctt gcacttctga ggaaattgat catgaagata tcacaaaaga taaaaccagc	1200
acagtggagg cctgtttacc attggaatta accaagaatg agagttgcct aaattccaga	1260
gagacctctt tcataactaa tgggagttgc ctggcctcca gaaagacctc ttttatgatg	1320
gccctgtgcc ttagtagtat ttatgaagac ttgaagatgt accaggtgga gttcaagacc	1380
atgaatgcaa agcttctgat ggatcctaag aggcatctt ttctagatca aaacatgctg	1440
gcagttattg atgagctgat gcaggccctg aatttcaaca gtgagactgt gccacaaaaa	1500
tcctcccttg aagaaccgga tttttataaa actaaaatca agctctgcat acttcttcat	1560
gctttcagaa ttcgggcagt gactattgat agagtgatga gctatctgaa tgcttcctga	1620
tga	1623

<210> 16
 <211> 1623
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Human optimized IL-12sc

<400> 16	
atgtgtcacc agcagctggt gatctcatgg ttctccctgg tatttctggc atctcctctt	60
gtcgcaatct gggaactgaa gaaagacgtg tatgtcgttg agctcgactg gtatccggat	120
gcgcttggcg agatggtggt gctgacctgt gacaccccag aggaggatgg gatcacttgg	180
acccttgatc aatcctccga agtgctcggg tctggcaaga ctctgaccat acaagtgaaa	240
gagtttggcg atgccgggca gtacacttgc cataaggcg gagaagttct gtcccactca	300
ctgctgctgc tgcacaagaa agaggacgga atttggagta ccgatatcct gaaagatcag	360
aaagagccca agaacaaaac cttcttgcgg tgcgaagcca agaactactc agggagattt	420
acttgttggt ggctgacgac gatcagcacc gatctgactt tctccgtgaa atcaagtagg	480
ggatcatctg accctcaagg agtcacatgt ggagcggcta ctctgagcgc tgaacgcgta	540
agaggggaca ataaggagta cgagtatagc gttgagtgcc aagaggatag cgcatgcccc	600

gccgccgaag aatcattgcc cattgaagtg atggtggatg ctgtacacaa gctgaagtat	660
gagaactaca caagctcctt cttcatccgt gacatcatca aaccagatcc tcctaagaac	720
ctccagctta aacctctgaa gaactctaga caggtggaag tgtcttggga gtatcccgcac	780
acctggtcta caccacattc ctacttcagt ctcacattct gcgttcaggt acagggcaag	840
tccaaaaggg agaagaagga tcgggtcttt acagataaaa caagtgccac cgttatatgc	900
cggaagaatg cctctatttc tgtgcgtgcg caggacagat actatagcag ctcttggagt	960
gaatgggcca gtgtcccatg ttcagggtca tccggtggtg gcggcagccc cggaggcgggt	1020
agctccagaa atctccctgt ggctacacct gatccaggca tgtttcctg tttgcaccat	1080
agccaaaacc tcctgagagc agtcagcaac atgctccaga aagctagaca aacactggaa	1140
ttctacccat gcacctcca ggaaatagat cacgaggata tcactaagga caaaacaagc	1200
actgtcgaag catgccttcc cttggaactg acaaagaacg agagttgcct taattcaaga	1260
gaaacatctt tcattacaaa cggtagctgc ttggcaagca gaaaaacatc ttttatgatg	1320
gccctttgtc tgagcagtat ttatgaggat ctcaaaatgt accaggtgga gtttaagacc	1380
atgaatgcca agctgctgat ggacccaaag agacagatct tcctcgatca gaatatgctg	1440
gctgtgattg atgaactgat gcaggccttg aatttcaaca gcgaaaccgt tccccagaaa	1500
agcagtcttg aagaacctga cttttataag accaagatca aactgtgtat tctcctgcat	1560
gccttttagaa tcagagcagt cactatagat agagtgatgt cctacctgaa tgcttcctga	1620
tga	1623

<210> 17
 <211> 1623
 <212> RNA
 <213> Artificial sequence

<220>
 <223> Human non-optimized IL-12sc

<400> 17	
augugucacc agcaguuggu caucucuugg uuuucccugg uuuuucuggc aucuccccuc	60
guggccauau gggaacugaa gaaagauguu uaugucguag aaugggauug guauccggau	120
gccccuggag aaaugguggu ccucaccugu gacaccccug aagaagaugg uaucaccugg	180
accuuggacc agagcaguga ggucuuaggc ucuggcaaaa ccugaccgau ccaagucaaa	240

gaguuuaggag	augcuggcca	guacaccugu	cacaaaggag	gcgagguucu	aagccauucg	300
cuccugcugc	uucacaaaaa	ggaagaugga	auuuggucca	cugauauuuu	aaaggaccag	360
aaagaaccca	aaaauaagac	cuuucuaaga	ugcgaggcca	agaauuauuc	uggacguuuc	420
accugcuggu	ggcugacgac	aaucaguacu	gauuugacau	ucagugucua	aagcagcaga	480
gggucuucug	acccccaagg	ggugacgugc	ggagcugcua	cacucucugc	agagagaguc	540
agagggggaca	acaaggagua	ugaguacuca	guggagugcc	aggaggacag	ugccugccca	600
gcugcugagg	agagucugcc	cauugagguc	augguggaug	ccguucacaa	gcucaaguau	660
gaaaacuaca	ccagcagcuu	cuucaucagg	gacaucauca	aaccugaccc	acccaagaac	720
uugcagcuga	agccauuaaa	gaauucucgg	cagguggagg	ucagcuggga	guaccugac	780
accuggagua	cuccacauuc	cuacuucucc	cugacauucu	gcuucaggu	ccagggaag	840
agcaagagag	aaaagaaaga	uagagucuuc	acggacaaga	ccucagccac	ggucaucugc	900
cgcaaaaau	ccagcauuag	cgugcgggcc	caggaccgcu	acuauagcuc	aucuuggagc	960
gaaugggcau	cugugcccug	caguggcucu	agcggagggg	gaggcucucc	uggcggggga	1020
ucuagcagaa	accuccccgu	ggccacucca	gaccagga	uguucccaug	ccuucaccac	1080
ucccaaaacc	ugcugagggc	cgucagcaac	augcuccaga	aggccagaca	aacucuagaa	1140
uuuuacccuu	gcacuucuga	ggaaaauugau	caugaagaua	ucacaaaaga	uaaaaccagc	1200
acaguggagg	ccuguuuuacc	auuggaauua	accaagaau	agaguugccu	aaauuccaga	1260
gagaccucuu	ucauaacuaa	ugggaguugc	cuggccucca	gaaagaccuc	uuuuauaug	1320
gcccugugcc	uuaguaguau	uuauagaagac	uugaagaugu	accaggugga	guucaagacc	1380
augaauugcaa	agcuucugau	ggauccuaag	aggcagaucu	uucuagauca	aaacaugcug	1440
gcaguuauug	augagcugau	gcaggcccug	aauuucaaca	gugagacugu	gccacaaaaa	1500
uccucccuug	aagaaccgga	uuuuuauaaa	acuaaaaauca	agcucugcau	acuucuucan	1560
gcuuucagaa	uucgggcagu	gacuaauugau	agagugauga	gcuauucugaa	ugcuuccuga	1620
uga						1623

<210> 18

<211> 1623

<212> RNA

<213> Artificial sequence

<220>

<223> Human optimized IL-12sc

<400> 18

augugucacc agcagcuggu gaucucaugg uucucccugg uauuucuggc aucuccucuu	60
gucgcaaucu gggaacugaa gaaagacgug uaugucguug agcucgacug guauccggau	120
gcgccuggcg agaugguggu gcugaccugu gacaccccag aggaggauagg gaucacuugg	180
acccuugauc aauccuccga agugcucggg ucuggcaaga cucugaccau acaagugaaa	240
gaguuuaggcg augccgggca guacacuugc cauaagggcg gagaaguucu gucccacuca	300
cugcugcugc ugcacaagaa agaggacgga auuuggagua ccgauauccu gaaagaucag	360
aaagagccca agaacaaaac cuucuugcgg ugcgaagcca agaacuacuc agggagauuu	420
acuuguuggu ggugacgac gaucagcacc gaucugacuu ucuccgugaa aucaaguagg	480
ggaucaucug acccucaagg agucacaugu ggagcggcua cucugagcgc ugaacgcgua	540
agaggggaca auaaggagua cgaguauagc guugagugcc aagaggauag cgcaugcccc	600
gccgccgaag aaucauugcc cauugaagug augguggaug cuguacacaa gcugaaguau	660
gagaacuaca caagcuccuu cuucauccgu gacaucauca aaccagauc uccuaagaac	720
cuccagcuua aaccucugaa gaacucuaga cagguggaag ugucuuggga guaucccgc	780
accuggucua caccacauuc cuacuucagu cucacauucu gcguucaggu acagggcaag	840
uccaaaaggg agaagaagga ucgggucuuu acagauaaaa caagugccac cguuauaugc	900
cggaagaaug ccucuauuuc ugugcgugcg caggacagau acuaauagcag cucuuggagu	960
gaaugggcca guguccaug uucaggguca uccgguggug gcggcagccc cggaggcggg	1020
agcuccagaa aucucccugu ggcuacaccu gauccaggca uguuucccug uuugcaccu	1080
agccaaaacc uccugagagc agucagcaac augcuccaga aagcuagaca aacacuggaa	1140
uucuacccau gcaccuccga ggaaauagau cacgaggaua ucacuaagga caaaacaagc	1200
acugucgaag caugccuucc cuuggaacug acaaagaacg agaguugccu uaaaucaaga	1260
gaaacaucuu ucauuacaaa cgguagcugc uuggcaagca gaaaaacauc uuuuauaug	1320
gccccuuguc ugagcaguau uuaugaggau cucaaaaugu accaggugga guuuagacc	1380
augaaugcc aagcugcugau ggacccaaag agacagauuu uccucgauca gaauaugcug	1440
gcugugauug augaacugau gcaggccuug aaauucaaca gcgaaaccgu ucccagaaa	1500

agcagucuug aagaaccuga cuuuuauaag accaagauca aacuguguau ucuccugcau 1560
gccuuuagaa ucagagcagu cacuauagau agagugaugu ccuaccugaa ugcuuccuga 1620
uga 1623

<210> 19
<211> 188
<212> PRT
<213> Homo sapiens

<400> 19

Met Ala Leu Thr Phe Ala Leu Leu Val Ala Leu Leu Val Leu Ser Cys
1 5 10 15

Lys Ser Ser Cys Ser Val Gly Cys Asp Leu Pro Gln Thr His Ser Leu
20 25 30

Gly Ser Arg Arg Thr Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser
35 40 45

Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu
50 55 60

Glu Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu His
65 70 75 80

Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys Asp Ser Ser
85 90 95

Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Thr Glu Leu Tyr
100 105 110

Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Gly Val Gly Val
115 120 125

Thr Glu Thr Pro Leu Met Lys Glu Asp Ser Ile Leu Ala Val Arg Lys
130 135 140

Tyr Phe Gln Arg Ile Thr Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro
145 150 155 160

Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser Leu
165 170 175

Ser Thr Asn Leu Gln Glu Ser Leu Arg Ser Lys Glu
180 185

<210> 20
<211> 570
<212> DNA
<213> Homo sapiens

<400> 20
atggccttga cctttgcttt actggtggcc ctctgtgtgc tcagctgcaa gtcaagctgc 60
tctgtgggct gtgatctgcc tcaaaccac agcctgggta gcaggaggac cttgatgctc 120
ctggcacaga tgaggagaat ctctcttttc tcctgcttga aggacagaca tgactttgga 180
tttccccagg aggagttagg caaccagttc caaaaggctg aaaccatccc tgtcctccat 240
gagatgatcc agcagatctt caaccttttc agcacaaagg actcatctgc tgcttgggat 300
gagaccctcc tagacaaatt ctacactgaa ctctaccagc agctgaatga cctggaagcc 360
tgtgtgatac aggggggtggg ggtgacagag actcccctga tgaaggagga ctccattctg 420
gctgtgagga aatacttcca aagaatcact ctctatctga aagagaagaa atacagccct 480
tgtgcctggg aggttgtcag agcagaaatc atgagatctt tttctttgtc aacaaacttg 540
caagaaagtt taagaagtaa ggaatgatga 570

<210> 21
<211> 570
<212> DNA
<213> Artificial sequence

<220>
<223> Human optimized IFN-alpha-2b

<400> 21
atggccctga cttttgccct tctcgtggct ttgttggtgc tgagttgcaa atcttcctgt 60
agtgtcggat gtgatctgcc tcaaaccac agtctgggat ctaggagaac actgatgctg 120
ttggcacaga tgaggagaat tagcctcttt tcctgcctga aggatagaca tgacttcggc 180
tttccccaag aggagttagg caatcagttc cagaaagcgg aaacgattcc cgttctgcac 240
gagatgatcc agcagatctt caacctcttt tcaaccaaag acagctcagc agcctgggat 300

gagacactgc tggacaaatt ctacacagaa ctgtatcagc agcttaacga tctggaggca	360
tgcgtgatcc aaggggttgg tgtgactgaa actccgctta tgaaggagga ctccattctg	420
gctgtacgga agtacttcca gagaataacc ctctatctga aggagaagaa gtactcacca	480
tgtgcttggg aagtcgtgag agccgaaatc atgagatcct tcagccttag caccaatctc	540
caggaatctc tgagaagcaa agagtgatga	570

<210> 22
 <211> 570
 <212> RNA
 <213> Homo sapiens

<400> 22	
auggccuuga ccuuugcuuu acugguggcc cuccuggugc ucagcugcaa gucaagcugc	60
ucugugggcu gugaucugcc ucaaaccac agccugggua gcaggaggac cuugaugcuc	120
cuggcacaga ugaggagaau cucucuuuuc uccugcuuga aggacagaca ugacuuugga	180
uuuccccagg aggaguuugg caaccaguuc caaaaggcug aaaccauucc uguccuccau	240
gagaugaucc agcagaucuu caaccuuuuc agcacaaagg acucaucugc ugcuugggau	300
gagaccucc uagacaaaau cuacacugaa cucuaccagc agcugaauga ccuggaagcc	360
ugugugauac aggggguggg ggugacagag acuccccuga ugaaggagga cuccauucug	420
gcugugagga aauacuucca aagaaucacu cucuauauga aagagaagaa auacagcccu	480
ugugccuggg agguugucag agcagaaauc augagaucuu uuucuuuguc aacaaacuug	540
caagaaaguu uaagaagua ggaaugauga	570

<210> 23
 <211> 570
 <212> RNA
 <213> Artificial sequence

<220>
 <223> Human optimized IFN-alpha-2b

<400> 23	
auggccuuga cuuuugcccu ucucguggcu uuguuggugc ugaguugcaa aucuuccugu	60
agugucggau gugaucugcc ucaaaccac agucugggau cuaggagaac acugaugcug	120
uuggcacaga ugaggagaau uagccucuuu uccugccuga aggauagaca ugacuucggc	180
uuuccccaag aggaguuugg caaucaguuc cagaaagcgg aaacgauucc cguucugcac	240

gagaugaucc agcagaucuu caaccucuuu ucaaccaaag acagcucagc agccugggau 300
 gagacacugc uggacaaaau cuacacagaa cuguauacagc agcuuaacga ucuggaggca 360
 ugcgugauc aagggguugg ugugacugaa acuccgcuua ugaaggagga cuccaucug 420
 gcuguacgga aguacuucca gagaauaacc cucuauauga aggagaagaa guacucacca 480
 ugugcuuggg aagucgugag agccgaauc augagaucuu ucagccuuag caccaaucuc 540
 caggaaucuc ugagaagcaa agagugauga 570

<210> 24
 <211> 241
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Human IL-15 sushi

<400> 24

Met Ala Pro Arg Arg Ala Arg Gly Cys Arg Thr Leu Gly Leu Pro Ala
1 5 10 15

Leu Leu Leu Leu Leu Leu Leu Arg Pro Pro Ala Thr Arg Gly Ile Thr
20 25 30

Cys Pro Pro Pro Met Ser Val Glu His Ala Asp Ile Trp Val Lys Ser
35 40 45

Tyr Ser Leu Tyr Ser Arg Glu Arg Tyr Ile Cys Asn Ser Gly Phe Lys
50 55 60

Arg Lys Ala Gly Thr Ser Ser Leu Thr Glu Cys Val Leu Asn Lys Ala
65 70 75 80

Thr Asn Val Ala His Trp Thr Thr Pro Ser Leu Lys Cys Ile Arg Asp
85 90 95

Pro Ala Leu Val His Gln Arg Pro Ala Pro Pro Gly Gly Gly Ser Gly
100 105 110

Gly Gly Gly Ser Gly Gly Gly Ser Gly Gly Gly Gly Ser Leu Gln Asn
115 120 125

Trp Val Asn Val Ile Ser Asp Leu Lys Lys Ile Glu Asp Leu Ile Gln
130 135 140

Ser Met His Ile Asp Ala Thr Leu Tyr Thr Glu Ser Asp Val His Pro
145 150 155 160

Ser Cys Lys Val Thr Ala Met Lys Cys Phe Leu Leu Glu Leu Gln Val
165 170 175

Ile Ser Leu Glu Ser Gly Asp Ala Ser Ile His Asp Thr Val Glu Asn
180 185 190

Leu Ile Ile Leu Ala Asn Asn Ser Leu Ser Ser Asn Gly Asn Val Thr
195 200 205

Glu Ser Gly Cys Lys Glu Cys Glu Glu Leu Glu Glu Lys Asn Ile Lys
210 215 220

Glu Phe Leu Gln Ser Phe Val His Ile Val Gln Met Phe Ile Asn Thr
225 230 235 240

Ser

<210> 25
<211> 729
<212> DNA
<213> Artificial sequence

<220>
<223> Human IL-15 sushi

<400> 25
atggcccgcg gcggggcgcg cggctgccgg accctcggtc tcccggcgct gctactgctg 60
ctgctgctcc ggccgccggc gacgcggggc atcacgtgcc ctcccccat gtccgtggaa 120
cacgcagaca tctgggtcaa gagctacagc ttgtactcca gggagcggta catttgtaac 180
tctggtttca agcgtaaagc cggcacgtcc agcctgacgg agtgcgtgtt gaacaaggcc 240
acgaatgtcg ccactggac aacccccagt ctcaaatgca ttagagaccc tgccctggtt 300
caccaaaggc cagcgccacc cgggggagga tctggcggcg gtgggtctgg cgggggatct 360

ggcggaggag gaagcttaca gaactgggtg aatgtaataa gtgatttgaa aaaaattgaa	420
gatcttattc aatctatgca tattgatgct actttatata cggaaagtga tgttcacccc	480
agttgcaaag taacagcaat gaagtgcctt ctcttgaggt tacaagttat ttcacttgag	540
tccggagatg caagtattca tgatacagta gaaaatctga tcatcctagc aaacaacagt	600
ttgtcttcta atgggaatgt aacagaatct ggatgcaaag aatgtgagga actggaggaa	660
aaaaatatta aagaatTTTT gcagagTTTT gtacatatgt tccaaatgtt catcaacact	720
tcttgatga	729

<210> 26
 <211> 729
 <212> RNA
 <213> Artificial sequence

<220>
 <223> Human IL-15 sushi

<400> 26	
auggccccgc ggcgggcgcg cggcugccgg acccucgguc ucccggcgcu gcuacugcug	60
cugcugcucc ggccgccggc gacgcggggc aucacugcc cccccccau guccguggaa	120
cacgcagaca ucugggucaa gagcuacagc uuguacucca gggagcggua cauuuguaac	180
ucugguuuca agcguaaagc cggcacgucc agccugacgg agugcguguu gaacaaggcc	240
acgaaugucg cccacuggac aacccccagu cucaaaugca uuagagacct ugcccugguu	300
caccaaaggc cagcgccacc cgggggagga ucuggcggcg gugggucugg cgggggaucu	360
ggcggaggag gaagcuuaca gaacugggug aauguaauaa gugauuugaa aaaaauugaa	420
gaucuuauuc aaucuaugca uauugaugcu acuuuauaua cggaaaguga uguucacccc	480
aguugcaaag uaacagcaau gaagugcuuu cucuuggagu uacaaguau uucacuugag	540
uccggagaug caaguauuca ugauacagua gaaaaucuga ucauccuagc aaacaacagu	600
uugucuucua augggaaugu aacagaaucu ggaugcaaag aaugugagga acuggaggaa	660
aaaaauauua aagaauuuuu gcagaguuuu guacauauug uccaaauguu caucaacacu	720
ucuugauga	729

<210> 27
 <211> 144

<212> PRT
<213> Homo sapiens

<400> 27

Met Trp Leu Gln Ser Leu Leu Leu Leu Gly Thr Val Ala Cys Ser Ile
1 5 10 15

Ser Ala Pro Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His
20 25 30

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

Thr Ala Ala Glu Met Asn Glu Thr Val Glu Val Ile Ser Glu Met Phe
50 55 60

Asp Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg Leu Glu Leu Tyr Lys
65 70 75 80

Gln Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro Leu Thr Met
85 90 95

Met Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser
100 105 110

Cys Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys
115 120 125

Asp Phe Leu Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu
130 135 140

<210> 28
<211> 438
<212> DNA
<213> Homo sapiens

<400> 28

atgtggctcc agagcctgct gctcttgggc actgtggcct gctccatctc tgcacccgcc 60
cgctcgccca gccccagcac gcagccctgg gagcatgtga atgccatcca ggaggcccg 120
cgtctgctga acctgagtag agacactgct gctgagatga atgaaacagt agaagtcac 180
tcagaaatgt ttgacctcca ggagccgacc tgcctacaga cccgcctgga gctgtacaag 240

cagggcctgc ggggcagcct caccaagctc aagggcccct tgaccatgat ggccagccac 300
tacaagcagc actgccctcc aaccccggaa acttcctgtg caaccagat tatcaccttt 360
gaaagtttca aagagaacct gaaggacttt ctgcttgtca tcccctttga ctgctgggag 420
ccagtccagg agtgatga 438

<210> 29
<211> 438
<212> RNA
<213> Homo sapiens

<400> 29
auguggcucc agagccugcu gcucuugggc acuguggccu gcuccaucuc ugcacccgcc 60
cgcucgccc a gccccagcac gcagcccugg gagcauguga augccaacca ggaggcccgg 120
cgucugcuga accugaguag agacacugcu gcugagauga augaaacagu agaagucauc 180
ucagaaaugu uugaccucca ggagccgacc ugccuacaga cccgccugga gcuguacaag 240
cagggccugc ggggcagccu caccaagcuc aagggccccc ugaccaugau ggccagccac 300
uacaagcagc acugcccucc aaccccggaa acuuccugug caaccagau uaucacuuu 360
gaaaguuuca aagagaaccu gaaggacuuu cugcuuguca uccccuuuga cugcugggag 420
ccaguccagg agugauga 438

<210> 30
<211> 161
<212> PRT
<213> Artificial sequence

<220>
<223> ModA IL-2 (human IL-2 in combination with a mouse optimized
secretion sequence)

<400> 30

Met Arg Val Thr Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala
1 5 10 15

Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser Gly Ser Ala Pro Thr Ser
20 25 30

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
35 40 45

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
50 55 60

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
65 70 75 80

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
85 90 95

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
100 105 110

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
115 120 125

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
130 135 140

Phe Leu Asn Arg Trp Ile Thr Phe Cys Gln Ser Ile Ile Ser Thr Leu
145 150 155 160

Thr

<210> 31
<211> 959
<212> DNA
<213> Artificial sequence

<220>
<223> ModA IL-2 (5'UTR-CDS-3'UTR)

<400> 31
gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgagagt 60
gaccgcccc agaaccctga tcctgctgct gtctggcgcc ctggccctga cagagacatg 120
ggccggaagc ggatccgcac ctacttcaag ttctacaaag aaaacacagc tacaactgga 180
gcatttactt ctggatttac agatgatttt gaatggaatt aataattaca agaatcccaa 240
actcaccagg atgctcacat ttaagtttta catgcccag aaggccacag aactgaaaca 300
tcttcagtgt ctagaagaag aactcaaacc tctggaggaa gtgctaaatt tagctcaaag 360

caaaaacttt cacttaagac ccagggactt aatcagcaat atcaacgtaa tagttctgga	420
actaaaggga tctgaaacaa cattcatgtg tgaatatgct gatgagacag caaccattgt	480
agaatttctg aacagatgga ttaccttttg tcaaagcatc atctcaacac tgacttgact	540
cgagagctcg ctttcttgct gtccaatttc tattaaggt tcctttgttc cctaagtcca	600
actactaaac tgggggatata tatgaagggc cttgagcatc tggattctgc ctaataaaaa	660
acatttattt tcattgctgc gtcgagagct cgctttcttg ctgtccaatt tctattaaag	720
gttcctttgt tccctaagtc caactactaa actgggggat attatgaagg gccttgagca	780
tctggattct gcctaataaa aaacatttat tttcattgct gcgtcgagac ctggtccaga	840
gtcgctagca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa catatgacta aaaaaaaaaa	900
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	959

<210> 32
 <211> 959
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA IL-2

<400> 32	
gggcgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca ccaugagagu	60
gaccgcccc agaaccuga uccugcugcu gucuggcgcc cuggcccuga cagagacaug	120
ggccggaagc ggauccgcac cuacucaag uucuacaaag aaaacacagc uacaacugga	180
gcauuuacuu cuggauuuac agaugauuuu gaauggaauu aauaauuaca agaaucccaa	240
acucaccagg augcucacau uuaaguuuuu caugcccaag aaggccacag aacugaaaca	300
ucuucagugu cuagaagaag aacucaaaacc ucuggaggaa gugcuaaaau uagcucaaag	360
caaaaacuuu cacuuuagac ccagggacuu aaucagcaau aucaacguua uaguucugga	420
acuaaaaggga ucugaaacaa cauucaugug ugaauaugcu gaugagacag caaccauugu	480
agaauuucug aacagaugga uuaccuuuug ucaaagcauc aucucaacac ugacuugacu	540
cgagagcucg cuuucuugcu guccaauuuc uauuaaaggu uccuuuguuc ccuaagucca	600
acuacuaaac uggggggauau uaugaagggc cuugagcauc uggauucugc cuaauaaaaa	660
acauuuauuu ucauugcugc gucgagagcu cgcuuucuug cuguccaauu ucuauuaaag	720

guuccuuugu ucccuaaguc caacuacuaa acugggggau auuaugaagg gccuugagca 780
ucuggauucu gccuaauaaa aaacauuuau uuucauugcu gcgucgagac cugguccaga 840
gucgcuagca aaaaaaaaaa aaaaaaaaaa aaaaaaaaag cauugacua aaaaaaaaaa 900
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 959

<210> 33
<211> 161
<212> PRT
<213> Artificial sequence

<220>
<223> ModB IL-2

<400> 33

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ala Ala Ala
1 5 10 15

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser Ala Pro Thr Ser
20 25 30

Ser Ser Thr Lys Lys Thr Gln Leu Gln Leu Glu His Leu Leu Leu Asp
35 40 45

Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn Pro Lys Leu
50 55 60

Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr Glu
65 70 75 80

Leu Lys His Leu Gln Cys Leu Glu Glu Glu Leu Lys Pro Leu Glu Glu
85 90 95

Val Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp
100 105 110

Leu Ile Ser Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu
115 120 125

Thr Thr Phe Met Cys Glu Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu
130 135 140

Phe	Leu	Asn	Arg	Trp	Ile	Thr	Phe	Cys	Gln	Ser	Ile	Ile	Ser	Thr	Leu
145					150					155					160

Thr

<210> 34
 <211> 1039
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModB IL-2 (5'UTR-CDS-3'UTR)

<400> 34

ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat	60
tctacttcta ttgcagcaat ttaaatacatt tcttttaaag caaaagcaat tttctgaaaa	120
ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct	180
gctggccgct gccctggccc ctacacagac aagagctgga cctggatccg cacctacttc	240
aagttctaca aagaaaacac agctacaact ggagcattta cttctggatt tacagatgat	300
tttgaatgga attaataatt acaagaatcc caaactcacc aggatgctca catttaagtt	360
ttacatgccc aagaaggcca cagaactgaa acatcttcag tgtctagaag aagaactcaa	420
acctctggag gaagtgctaa atttagctca aagcaaaaac tttcacttaa gaccagggga	480
cttaatcagc aatatcaacg taatagttct ggaactaaag ggatctgaaa caacattcat	540
gtgtgaatat gctgatgaga cagcaacat tgtagaattt ctgaacagat ggattacctt	600
ttgtcaaagc atcatctcaa cactgacttg actcgacgtc ctggtactgc atgcacgcaa	660
tgctagctgc ccctttcccg tcctgggtac ccgagtcctc ccccgacctc ggggtcccagg	720
tatgctccca cctccacctg cccactcac cacctctgct agttccagac acctcccaag	780
cacgcagcaa tgcagctcaa aacgcttagc ctagccacac cccacggga aacagcagtg	840
attaaccttt agcaataaac gaaagtttaa ctaagctata ctaaccccag ggttgggtcaa	900
tttcgtgccca gccacaccct cgagctagca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	960
catatgacta aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1020
aaaaaaaaaa aaaaaaaaaa	1039

<210> 35
<211> 1039
<212> RNA
<213> Artificial sequence

<220>
<223> ModB IL-2

<400> 35
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaUCAagcau 60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa 120
uuuucaccau uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu 180
gcuggccgcu gcccuggccc cuacacagac aagagcugga ccuggauccg caccuacuuc 240
aaguucuaca aagaaaacac agcuacaacu ggagcauuua cuucuggauu uacagaugau 300
uuugaaugga auuaauauu acaagaaucc caaacucacc aggaugcuca cauuuaaguu 360
uuacaugccc aagaaggcca cagaacugaa acaucuucag ugucuagaag aagaacucua 420
accucuggag gaagugcuua auuuagcuca aagcaaaaac uuucacuuaa gacccaggga 480
cuuaaucagc aaaucaacg uaauaguucu ggaacuaaag ggaucugaaa caacauucau 540
gugugaauau gcugaugaga cagcaaccau uguagaauuu cugaacagau ggauuaccuu 600
uugucaaaagc aucaucuaa cacugacuug acucgacguc cugguacugc augcacgcaa 660
ugcuagcugc cccuuucccg uccuggguac cccgagucuc ccccgaccuc gggucccagg 720
uaugcuccca ccuccaccug ccccacucac caccucugcu aguuccagac accucccaag 780
cacgcagcaa ugcagcucaa aacgcuuagc cuagccacac cccacggga aacagcagug 840
auuaaccuuu agcaauaaac gaaaguuuua cuaagcuaua cuaaccccag gguuggucaa 900
uuucgugcca gccacacccu cgagcuagca aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 960
cauauagcua aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaaaaaaaaa aaaaaaaaaa 1039

<210> 36
<211> 544
<212> PRT
<213> Artificial sequence

<220>

<223> ModA murine IL-12

<400> 36

Met Arg Val Thr Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala
1 5 10 15

Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser Gly Ser Met Trp Glu Leu
20 25 30

Glu Lys Asp Val Tyr Val Val Glu Val Asp Trp Thr Pro Asp Ala Pro
35 40 45

Gly Glu Thr Val Asn Leu Thr Cys Asp Thr Pro Glu Glu Asp Asp Ile
50 55 60

Thr Trp Thr Ser Asp Gln Arg His Gly Val Ile Gly Ser Gly Lys Thr
65 70 75 80

Leu Thr Ile Thr Val Lys Glu Phe Leu Asp Ala Gly Gln Tyr Thr Cys
85 90 95

His Lys Gly Gly Glu Thr Leu Ser His Ser His Leu Leu Leu His Lys
100 105 110

Lys Glu Asn Gly Ile Trp Ser Thr Glu Ile Leu Lys Asn Phe Lys Asn
115 120 125

Lys Thr Phe Leu Lys Cys Glu Ala Pro Asn Tyr Ser Gly Arg Phe Thr
130 135 140

Cys Ser Trp Leu Val Gln Arg Asn Met Asp Leu Lys Phe Asn Ile Lys
145 150 155 160

Ser Ser Ser Ser Ser Pro Asp Ser Arg Ala Val Thr Cys Gly Met Ala
165 170 175

Ser Leu Ser Ala Glu Lys Val Thr Leu Asp Gln Arg Asp Tyr Glu Lys
180 185 190

Tyr Ser Val Ser Cys Gln Glu Asp Val Thr Cys Pro Thr Ala Glu Glu
195 200 205

Thr Leu Pro Ile Glu Leu Ala Leu Glu Ala Arg Gln Gln Asn Lys Tyr
210 215 220

Glu Asn Tyr Ser Thr Ser Phe Phe Ile Arg Asp Ile Ile Lys Pro Asp
225 230 235 240

Pro Pro Lys Asn Leu Gln Met Lys Pro Leu Lys Asn Ser Gln Val Glu
245 250 255

Val Ser Trp Glu Tyr Pro Asp Ser Trp Ser Thr Pro His Ser Tyr Phe
260 265 270

Ser Leu Lys Phe Phe Val Arg Ile Gln Arg Lys Lys Glu Lys Met Lys
275 280 285

Glu Thr Glu Glu Gly Cys Asn Gln Lys Gly Ala Phe Leu Val Glu Lys
290 295 300

Thr Ser Thr Glu Val Gln Cys Lys Gly Gly Asn Val Cys Val Gln Ala
305 310 315 320

Gln Asp Arg Tyr Tyr Asn Ser Ser Cys Ser Lys Trp Ala Cys Val Pro
325 330 335

Cys Arg Val Arg Ser Val Pro Gly Val Gly Val Pro Gly Val Gly Arg
340 345 350

Val Ile Pro Val Ser Gly Pro Ala Arg Cys Leu Ser Gln Ser Arg Asn
355 360 365

Leu Leu Lys Thr Thr Asp Asp Met Val Lys Thr Ala Arg Glu Lys Leu
370 375 380

Lys His Tyr Ser Cys Thr Ala Glu Asp Ile Asp His Glu Asp Ile Thr
385 390 395 400

Arg Asp Gln Thr Ser Thr Leu Lys Thr Cys Leu Pro Leu Glu Leu His
405 410 415

Lys Asn Glu Ser Cys Leu Ala Thr Arg Glu Thr Ser Ser Thr Thr Arg
420 425 430

Gly Ser Cys Leu Pro Pro Gln Lys Thr Ser Leu Met Met Thr Leu Cys
435 440 445

Leu Gly Ser Ile Tyr Glu Asp Leu Lys Met Tyr Gln Thr Glu Phe Gln
450 455 460

Ala Ile Asn Ala Ala Leu Gln Asn His Asn His Gln Gln Ile Ile Leu
465 470 475 480

Asp Lys Gly Met Leu Val Ala Ile Asp Glu Leu Met Gln Ser Leu Asn
485 490 495

His Asn Gly Glu Thr Leu Arg Gln Lys Pro Pro Val Gly Glu Ala Asp
500 505 510

Pro Tyr Arg Val Lys Met Lys Leu Cys Ile Leu Leu His Ala Phe Ser
515 520 525

Thr Arg Val Val Thr Ile Asn Arg Val Met Gly Tyr Leu Ser Ser Ala
530 535 540

<210> 37
<211> 2111
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine IL-12 (5'UTR-CDS-3'UTR)

<400> 37
gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgagagt 60
gaccgcccc agaaccctga tcctgctgct gtctggcgcc ctggccctga cagagacatg 120
ggccggaagc ggatccatgt gggagctgga gaaagacgtt tatgtttag aggtggactg 180
gactcccgat gccctggag aaacagtga cctcacctgt gacacgcctg aagaagatga 240
catcacctgg acctcagacc agagacatgg agtcataggc tctggaaaga ccctgaccat 300
cactgtcaaa gagtttctag atgctggcca gtacacctgc cacaaggag gcgagactct 360
gagccactca catctgctgc tccacaagaa ggaaaatgga atttggtcca ctgaaatttt 420

aaaaaatttc aaaaacaaga ctttcctgaa gtgtgaagca ccaaattact ccggacggtt	480
cacgtgctca tggctggtgc aaagaaacat ggacttgaag ttcaacatca agagcagtag	540
cagttcccct gactctcggg cagtgcacatg tggaatggcg tctctgtctg cagagaaggt	600
cacactggac caaagggact atgagaagta ttcagtgtcc tgccaggagg atgtcacctg	660
cccaactgcc gaggagacct tgcccattga actggcggtg gaagcacggc agcagaataa	720
atatgagaac tacagcacca gcttcttcat cagggacatc atcaaaccag acccgcccaa	780
gaacttgcag atgaagcctt tgaagaactc acaggtggag gtcagctggg agtaccctga	840
ctcctggagc actccccatt cctacttctc cctcaagttc tttgttcgaa tccagcgcaa	900
gaaagaaaag atgaaggaga cagaggaggg gtgtaaccag aaaggtgcgt tcctcgtaga	960
gaagacatct accgaagtcc aatgcaaagg cgggaatgtc tgcgtgcaag ctcaggatcg	1020
ctattacaat tcctcatgca gcaagtgggc atgtgttccc tgcagagtcc gatcggttcc	1080
tggagtaggg gtacctggag tgggcagggt cataccggtc tctggacctg ccaggtgtct	1140
tagccagtcc cgaaacctgc tgaagaccac agatgacatg gtgaagacgg ccagagaaaa	1200
gctgaaacat tattcctgca ctgctgaaga catcgatcat gaagacatca cacgggacca	1260
aaccagcaca ttgaagacct gtttaccact ggaactacac aagaacgaga gttgcctggc	1320
tactagagag acttcttcca caacaagagg gagctgcctg cccccacaga agacgtcttt	1380
gatgatgacc ctgtgccttg gtagcatcta tgaggacttg aagatgtacc agacagagtt	1440
ccaggccatc aacgcagcac ttcagaatca caaccatcag cagatcattc tagacaaggg	1500
catgctggtg gccatcgatg agctgatgca gtctctgaat cataatggcg agactctgcg	1560
ccagaaacct cctgtgggag aagcagacct ttacagagtg aaaatgaagc tctgcatcct	1620
gcttcacgcc ttcagcaccg gcgtcgtgac catcaacagg gtgatgggct atctgtccag	1680
cgctaataag ctcgagagct cgctttcttg ctgtccaatt tctattaaag gttcctttgt	1740
tccctaagtc caactactaa actgggggat attatgaagg gccttgagca tctggattct	1800
gcctaataaa aaacatttat tttcattgct gcgtcgagag ctcgctttct tgctgtccaa	1860
tttctattaa aggttccttt gttccctaag tccaactact aaactggggg atattatgaa	1920
gggccttgag catctggatt ctgcctaata aaaaacattt attttcattg ctgcgtcgag	1980
acctggtcca gagtgcctag caaaaaaaaa aaaaaaaaaa aaaaaaaaaa agcatatgac	2040

taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	2100
aaaaaaaaaa a	2111

<210> 38
 <211> 2111
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA murine IL-12

<400> 38	
gggcgaacua guauucuucu gguccccaca gacucagaga gaacccgccca ccaugagagu	60
gaccgcccc agaaccuga uccugcugcu gucuggcgcc cuggcccuga cagagacaug	120
ggccggaagc ggauccaugu gggagcugga gaaagacguu uauguuguag agguggacug	180
gacucccgau gccccuggag aaacagugaa ccucaccugu gacacgccug aagaagauga	240
caucaccugg accucagacc agagacaugg agucauaggc ucuggaaaga cccugaccau	300
cacugucaaa gaguuucuag augcuggcca guacaccugc cacaaggag gcgagacucu	360
gagccacuca caucugcugc uccacaagaa ggaaaaugga auuuggucca cugaaauuu	420
aaaaaaauuc aaaaacaaga cuuuccugaa gugugaagca ccaaauuacu ccggacgguu	480
cacgugcuca uggcuggugc aaagaaacau ggacuugaag uucaacauca agagcaguag	540
caguucccu gacucucggg cagugacaug uggaauggcg ucucugucug cagagaaggu	600
cacacuggac caaaggga cu augagaagua uucagugucc ugccaggagg augucaccug	660
cccaacugcc gaggagaccc ugcccuauga acuggcguug gaagcacggc agcagaauaa	720
auaugagaac uacagcacca gcuucuuc au cagggacauc aucaaaccag acccgcccaa	780
gaacuugcag augaagccuu ugaagaacuc acagguggag gucagcuggg aguaccuga	840
cuccuggagc acucccauu ccuacuuc ccucaaguuc uuuguucgaa uccagcgcaa	900
gaaagaaaag augaaggaga cagaggaggg guguaaccag aaaggugcgu uccucguaga	960
gaagacau cu accgaagucc aaugcaaagg cgggaauugc ugcgugcaag cucaggau cg	1020
cuauuaca au uccucaugca gcaagugggc auguguucc ugcagagucc gaucgguucc	1080
uggaguaggg guaccuggag ugggcagggu cauaccgguc ucuggaccug ccaggugucu	1140
uagccagucc cgaaaccugc ugaagaccac agaugacaug gugaagacgg ccagagaaaa	1200

gcugaaacau uauuccugca cugcugaaga caucgaucau gaagacauca cacgggacca	1260
aaccagcaca uugaagaccu guuuaccacu ggaacuacac aagaacgaga guugccuggc	1320
uacuagagag acuucuucca caacaagagg gagcugccug cccccacaga agacgucuuu	1380
gaugaugacc cugugccuug guagcaucua ugaggacuug aagauguacc agacagaguu	1440
ccaggccauc aacgcagcac uucagaauc caaccaucag cagaucuuu uagacaaggg	1500
caugcuggug gccaucgaug agcugaugca gucucugaau cauaauggcg agacucugcg	1560
ccagaaaccu ccugugggag aagcagaccc uuacagagug aaaaugaagc ucugcauccu	1620
gcuucacgcc uucagcaccg gcgucgugac caucaacagg gugaugggcu aucuguccag	1680
cgccuaauag cucgagagcu cgcuuucuug cuguccaauu ucuauuaaag guuccuuugu	1740
ucccuaguc caacuacuaa acugggggau auuaugaagg gccuugagca ucuggauucu	1800
gccuaauaaa aaacauuuau uuucuuugcu gcgucgagag cucgcuucu ugcuguccaa	1860
uuucuaauaa agguuccuuu guucccuag uccaacuacu aaacuggggg auauuaugaa	1920
gggccuugag caucuggauu cugccuaaua aaaaacauuu auuuucauug cugcgucgag	1980
accuggucca gagucgcuag caaaaaaaaa aaaaaaaaaa aaaaaaaaaa agcauugac	2040
uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	2100
aaaaaaaaaa a	2111

<210> 39
 <211> 544
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModB murine IL-12

<400> 39

Met	Gly	Ala	Met	Ala	Pro	Arg	Thr	Leu	Leu	Leu	Leu	Leu	Ala	Ala	Ala
1				5				10					15		

Leu	Ala	Pro	Thr	Gln	Thr	Arg	Ala	Gly	Pro	Gly	Ser	Met	Trp	Glu	Leu
			20					25					30		

Glu	Lys	Asp	Val	Tyr	Val	Val	Glu	Val	Asp	Trp	Thr	Pro	Asp	Ala	Pro
		35					40					45			

Gly Glu Thr Val Asn Leu Thr Cys Asp Thr Pro Glu Glu Asp Asp Ile
50 55 60

Thr Trp Thr Ser Asp Gln Arg His Gly Val Ile Gly Ser Gly Lys Thr
65 70 75 80

Leu Thr Ile Thr Val Lys Glu Phe Leu Asp Ala Gly Gln Tyr Thr Cys
85 90 95

His Lys Gly Gly Glu Thr Leu Ser His Ser His Leu Leu Leu His Lys
100 105 110

Lys Glu Asn Gly Ile Trp Ser Thr Glu Ile Leu Lys Asn Phe Lys Asn
115 120 125

Lys Thr Phe Leu Lys Cys Glu Ala Pro Asn Tyr Ser Gly Arg Phe Thr
130 135 140

Cys Ser Trp Leu Val Gln Arg Asn Met Asp Leu Lys Phe Asn Ile Lys
145 150 155 160

Ser Ser Ser Ser Ser Pro Asp Ser Arg Ala Val Thr Cys Gly Met Ala
165 170 175

Ser Leu Ser Ala Glu Lys Val Thr Leu Asp Gln Arg Asp Tyr Glu Lys
180 185 190

Tyr Ser Val Ser Cys Gln Glu Asp Val Thr Cys Pro Thr Ala Glu Glu
195 200 205

Thr Leu Pro Ile Glu Leu Ala Leu Glu Ala Arg Gln Gln Asn Lys Tyr
210 215 220

Glu Asn Tyr Ser Thr Ser Phe Phe Ile Arg Asp Ile Ile Lys Pro Asp
225 230 235 240

Pro Pro Lys Asn Leu Gln Met Lys Pro Leu Lys Asn Ser Gln Val Glu
245 250 255

Val Ser Trp Glu Tyr Pro Asp Ser Trp Ser Thr Pro His Ser Tyr Phe
260 265 270

Ser Leu Lys Phe Phe Val Arg Ile Gln Arg Lys Lys Glu Lys Met Lys
275 280 285

Glu Thr Glu Glu Gly Cys Asn Gln Lys Gly Ala Phe Leu Val Glu Lys
290 295 300

Thr Ser Thr Glu Val Gln Cys Lys Gly Gly Asn Val Cys Val Gln Ala
305 310 315 320

Gln Asp Arg Tyr Tyr Asn Ser Ser Cys Ser Lys Trp Ala Cys Val Pro
325 330 335

Cys Arg Val Arg Ser Val Pro Gly Val Gly Val Pro Gly Val Gly Arg
340 345 350

Val Ile Pro Val Ser Gly Pro Ala Arg Cys Leu Ser Gln Ser Arg Asn
355 360 365

Leu Leu Lys Thr Thr Asp Asp Met Val Lys Thr Ala Arg Glu Lys Leu
370 375 380

Lys His Tyr Ser Cys Thr Ala Glu Asp Ile Asp His Glu Asp Ile Thr
385 390 395 400

Arg Asp Gln Thr Ser Thr Leu Lys Thr Cys Leu Pro Leu Glu Leu His
405 410 415

Lys Asn Glu Ser Cys Leu Ala Thr Arg Glu Thr Ser Ser Thr Thr Arg
420 425 430

Gly Ser Cys Leu Pro Pro Gln Lys Thr Ser Leu Met Met Thr Leu Cys
435 440 445

Leu Gly Ser Ile Tyr Glu Asp Leu Lys Met Tyr Gln Thr Glu Phe Gln
450 455 460

Ala Ile Asn Ala Ala Leu Gln Asn His Asn His Gln Gln Ile Ile Leu
465 470 475 480

Asp Lys Gly Met Leu Val Ala Ile Asp Glu Leu Met Gln Ser Leu Asn
485 490 495

His Asn Gly Glu Thr Leu Arg Gln Lys Pro Pro Val Gly Glu Ala Asp
500 505 510

Pro Tyr Arg Val Lys Met Lys Leu Cys Ile Leu Leu His Ala Phe Ser
515 520 525

Thr Arg Val Val Thr Ile Asn Arg Val Met Gly Tyr Leu Ser Ser Ala
530 535 540

<210> 40
<211> 2191
<212> DNA
<213> Artificial sequence

<220>
<223> ModB murine IL-12 (5'UTR-CDS-3'UTR)

<400> 40
ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
tctacttcta ttgcagcaat ttaaatcatt tcttttaaag caaaagcaat tttctgaaaa 120
ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct 180
gctggccgct gccctggccc ctacacagac aagagctgga cctggatcca tgtgggagct 240
ggagaaagac gtttatgttg tagaggtgga ctggactccc gatgcccctg gagaaacagt 300
gaacctcacc tgtgacacgc ctgaagaaga tgacatcacc tggacctcag accagagaca 360
tggagtcata ggctctggaa agaccctgac catcactgtc aaagagtttc tagatgctgg 420
ccagtacacc tgccacaaag gaggcgagac tctgagccac tcacatctgc tgctccacaa 480
gaaggaaaat ggaatttggc ccactgaaat tttaaaaaat ttcaaaaaca agactttcct 540
gaagtgtgaa gcaccaaatt actccggacg gttcacgtgc tcatggctgg tgcaaagaaa 600
catggacttg aagttcaaca tcaagagcag tagcagttcc cctgactctc gggcagtgac 660
atgtggaatg gcgtctctgt ctgcagagaa ggtcacactg gaccaaaggg actatgagaa 720
gtattcagtg tcctgccagg aggatgtcac ctgcccact gccgaggaga ccctgcccac 780
tgaactggcg ttggaagcac ggcagcagaa taaatatgag aactacagca ccagcttctt 840

catcaggac atcatcaaac cagacccgcc caagaacttg cagatgaagc ctttgaagaa	900
ctcacagggtg gaggtcagct gggagtaccc tgactcctgg agcactcccc attcctactt	960
ctccctcaag ttctttgttc gaatccagcg caagaaagaa aagatgaagg agacagagga	1020
ggggtgtaac cagaaagggtg cgttcctcgt agagaagaca tctaccgaag tccaatgcaa	1080
aggcgggaat gtctgcgtgc aagctcagga tcgctattac aattcctcat gcagcaagtg	1140
ggcatgtgtt ccctgcagag tccgatcggg tcctggagta ggggtacctg gagtgggcag	1200
ggtcataacc gtctctggac ctgccagggt tcttagccag tcccgaacc tgctgaagac	1260
cacagatgac atggtgaaga cggccagaga aaagctgaaa cattattcct gcactgctga	1320
agacatcgat catgaagaca tcacacggga ccaaaccagc acattgaaga cctgtttacc	1380
actggaacta cacaagaacg agagttgcct ggctactaga gagacttctt ccacaacaag	1440
agggagctgc ctgccccac agaagacgtc tttgatgatg accctgtgcc ttggtagcat	1500
ctatgaggac ttgaagatgt accagacaga gttccaggcc atcaacgcag cacttcagaa	1560
tcacaacat cagcagatca ttctagacaa gggcatgctg gtggccatcg atgagctgat	1620
gcagtctctg aatcataatg gcgagactct gcgccagaaa cctcctgtgg gagaagcaga	1680
cccttacaga gtgaaaatga agctctgcat cctgcttcac gccttcagca cccgcgtcgt	1740
gaccatcaac aggggtgatgg gctatctgtc cagcgcctaa tagctcgacg tcctgggtact	1800
gcatgcacgc aatgctagct gcccctttcc cgtcctgggt accccgagtc tccccgacc	1860
tcgggtccca ggtatgctcc cacctccacc tgccccactc accacctctg ctagttccag	1920
acacctccca agcacgcagc aatgcagctc aaaacgctta gcctagccac acccccacgg	1980
gaaacagcag tgattaacct ttagcaataa acgaaagttt aactaagcta tactaacccc	2040
agggttggtc aatttcgtgc cagccacacc ctcgagctag caaaaaaaaaa aaaaaaaaaa	2100
aaaaaaaaaa agcatatgac taaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	2160
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a	2191

<210> 41

<211> 2191

<212> RNA

<213> Artificial sequence

<220>

<223> ModB murine IL-12

<400> 41

ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau	60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccau uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu	180
gcuggccgcu gcccuiggccc cuacacagac aagagcugga ccuggaucca ugugggagcu	240
ggagaaagac guuuauuguu uagaggugga cuggacuccc gaugccccug gagaaacagu	300
gaaccucacc ugugacacgc cugaagaaga ugacaucacc uggaccucag accagagaca	360
uggagucaua ggcucuggaa agaccucgac caucacuguc aaagaguuuu uagaugcugg	420
ccaguacacc ugccacaaag gaggcgagac ucugagccac ucacaucugc ugcuccacaa	480
gaaggaaaau ggaauuuggu ccacugaaau uuuaaaaau uucaaaaaca agacuuuccu	540
gaagugugaa gcaccaaauu acuccggacg guucacgugc ucauggcugg ugcaaagaaa	600
cauggacuug aaguucaaca ucaagagcag uagcaguucc ccugacucuc gggcagugac	660
auguggaug gcgucucugu cugcagagaa ggucacacug gaccaaaggg acuaugagaa	720
guauucagug uccugccagg aggaugucac cugcccaacu gccgaggaga ccugcccau	780
ugaacuggcg uuggaagcac ggcagcagaa uaaauaugag aacuacagca ccagcuucuu	840
caucagggac aucauaaac cagacccgcc caagaacuug cagaugaagc cuuugaagaa	900
cucacaggug gaggucagcu gggaguacct ugacuccugg agcacucccc auuccuacuu	960
cucccucaag uucuuuguuc gaauccagcg caagaaagaa aagaugaagg agacagagga	1020
gggguguaac cagaaaggug cguuccucgu agagaagaca ucuaccgaag uccaaugcaa	1080
aggcgggaau gucugcgugc aagcucagga ucgcuaauac aaauccucau gcagcaagug	1140
ggcauguguu ccugcagag uccgaucggu uccuggagua gggguaccug gagugggcag	1200
ggucauaccg gucucuggac cugccaggug ucuuagccag ucccgaacc ugcugaagac	1260
cacagaugac auggugaaga cggccagaga aaagcugaaa cauuauuccu gcacugcuga	1320
agacaucgau caugaagaca ucacacggga ccaaaccagc acauugaaga ccuguuuacc	1380
acuggaacua cacaagaacg agaguugccu ggcuacuaga gagacuucuu ccacaacaag	1440
agggagcugc cugccccac agaagacguc uuugaugaug acccugugcc uugguagcau	1500
cuaugaggac uugaagaugu accagacaga guuccaggcc aucaacgcag cacuucagaa	1560

```

ucacaaccau cagcagauca uucuagacaa gggcaugcug guggccaucg augagcugau      1620
gcagucucug aaucauaaug gcgagacucu gcgccagaaa ccuccugugg gagaagcaga      1680
cccuuacaga gugaaaauga agcucugcau ccugcuucac gccuucagca cccgcgucgu      1740
gaccaucaac agggugaugg gcuaucuguc cagcgccuaa uagcucgacg uccugguacu      1800
gcaugcacgc aaugcuagcu gccccuuucc cguccugggg accccgaguc uccccgacc      1860
ucggguccca gguaugcucc caccuccacc ugccccacuc accaccucug cuaguuccag      1920
acaccucca agcacgcagc aaugcagcuc aaaacgcuua gccuagccac acccccacgg      1980
gaaacagcag ugauuaaccu uuagcaauaa acgaaaguuu aacuaagcua uacuaacccc      2040
agggguugguc aauuucgugc cagccacacc cucgagcuag caaaaaaaaa aaaaaaaaaa      2100
aaaaaaaaaa agcauauagc uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa      2160
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a                                2191

```

```

<210> 42
<211> 190
<212> PRT
<213> Artificial sequence

```

```

<220>
<223> ModA murine IFN-alpha-4

```

```

<400> 42

```

```

Met Arg Val Thr Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala
1           5           10          15

```

```

Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser Gly Ser Cys Asp Leu Pro
          20          25          30

```

```

His Thr Tyr Asn Leu Gly Asn Lys Arg Ala Leu Thr Val Leu Glu Glu
          35          40          45

```

```

Met Arg Arg Leu Pro Pro Leu Ser Cys Leu Lys Asp Arg Lys Asp Phe
          50          55          60

```

```

Gly Phe Pro Leu Glu Lys Val Asp Asn Gln Gln Ile Gln Lys Ala Gln
65          70          75          80

```

Ala Ile Leu Val Leu Arg Asp Leu Thr Gln Gln Ile Leu Asn Leu Phe
85 90 95

Thr Ser Lys Asp Leu Ser Ala Thr Trp Asn Ala Thr Leu Leu Asp Ser
100 105 110

Phe Cys Asn Asp Leu His Gln Gln Leu Asn Asp Leu Lys Ala Cys Val
115 120 125

Met Gln Glu Pro Pro Leu Thr Gln Glu Asp Ser Leu Leu Ala Val Arg
130 135 140

Thr Tyr Phe His Arg Ile Thr Val Tyr Leu Arg Lys Lys Lys His Ser
145 150 155 160

Leu Cys Ala Trp Glu Val Ile Arg Ala Glu Val Trp Arg Ala Leu Ser
165 170 175

Ser Ser Thr Asn Leu Leu Ala Arg Leu Ser Glu Glu Lys Glu
180 185 190

<210> 43
<211> 1049
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine IFN-alpha-4 (5'UTR-CDS-3'UTR)

<400> 43
gggcgaacta gtattcttct ggtccccaca gactcagaga gaaccgcga ccatgagagt 60
gaccgcccc agaaccctga tcctgctgct gtctggcgcc ctggccctga cagagacatg 120
ggccggaagc ggatcctgtg acctgcctca cacttataac ctcgggaaca agagggcctt 180
gacagtcctg gaagaaatga gaagactccc ccctctttcc tgcctgaagg acaggaagga 240
ttttggattc cccttggaaga aggtggataa ccaacagatc cagaaggctc aagccatcct 300
tgtgctaaga gatcttacc agcagatctt gaacctcttc acatcaaaag acttgtctgc 360
tacttggaat gcaactctcc tagactcatt ctgcaatgac ctccatcagc agctcaatga 420
tctcaaagcc tgtgtgatgc aggaacctcc tctgaccag gaagactccc tgctggctgt 480
gaggacatac ttccacagga tctactgtgta cctgagaaag aagaaacaca gcctctgtgc 540

ctgggaggtg atcagagcag aagtctggag agccctctct tcctcaacca acttgctggc	600
aagactgagt gaggagaagg agtgataact cgagagctcg ctttcttgct gtccaatttc	660
tattaaaggt tcctttgttc cctaagtcca actactaaac tgggggatat tatgaagggc	720
cttgagcatc tggattctgc ctaataaaaa acattttattt tcattgctgc gtcgagagct	780
cgctttcttg ctgtccaatt tctattaaag gttcctttgt tccctaagtc caactactaa	840
actgggggat attatgaagg gccttgagca tctggattct gcctaataaa aaacatttat	900
tttcattgct gcgtcgagac ctggtccaga gtcgctagca aaaaaaaaaa aaaaaaaaaa	960
aaaaaaaaag catatgacta aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1020
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1049

<210> 44
 <211> 1049
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA murine IFN-alpha-4

<400> 44	
gggcgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca ccaugagagu	60
gaccgcccc agaaccuga uccugcugcu gucuggcgcc cuggcccuga cagagacaug	120
ggccggaagc ggauccugug accugccuca cacuuauaac cucgggaaca agagggccuu	180
gacaguccug gaagaaauga gaagacuccc ccucuuucc ugccugaagg acaggaagga	240
uuuuggauuc ccuuggaga agguggauaa ccaacagauc cagaaggcuc aagccauccu	300
ugugcuaaga gaucuuaccc agcagauuuu gaaccucuuc acaucaaag acuugucugc	360
uacuuggaau gcaacucucc uagacucauu cugcaaugac cuccaucagc agcucaauga	420
ucucaaagcc ugugugaugc aggaaccucc ucugaccag gaagacuccc ugcuggcugu	480
gaggacauac uuccacagga ucacugugua ccugagaaag aagaaacaca gccucugugc	540
cugggaggug aucagagcag aagucuggag agcccucucu uccucaacca acuugcuggc	600
aagacugagu gaggagaagg agugauaacu cgagagcucg cuuucuugcu guccaauuuc	660
uauuaaaggu uccuuuguuc ccuaagucca acuacuaaac ugggggauau uaugaagggc	720
cuugagcauc uggauucugc cuaauaaaaa acauuuauuu ucauugcugc gucgagagcu	780

cgcuuucuug cuguccaauu ucuauuaaag guuccuuugu ucccuaaguc caacuacuaa	840
acuggggggau auuaugaagg gccuugagca ucuggauucu gccuaauaaa aaacauuuau	900
uuucauugcu gcgucgagac cugguccaga gucgcuagca aaaaaaaaaa aaaaaaaaaa	960
aaaaaaaaaag cauaugacua aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1020
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1049

<210> 45
 <211> 190
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModB murine IFN-alpha-4

<400> 45

Met	Gly	Ala	Met	Ala	Pro	Arg	Thr	Leu	Leu	Leu	Leu	Ala	Ala	Ala
1				5				10				15		

Leu	Ala	Pro	Thr	Gln	Thr	Arg	Ala	Gly	Pro	Gly	Ser	Cys	Asp	Leu	Pro
			20					25					30		

His	Thr	Tyr	Asn	Leu	Gly	Asn	Lys	Arg	Ala	Leu	Thr	Val	Leu	Glu	Glu
		35					40					45			

Met	Arg	Arg	Leu	Pro	Pro	Leu	Ser	Cys	Leu	Lys	Asp	Arg	Lys	Asp	Phe
	50					55					60				

Gly	Phe	Pro	Leu	Glu	Lys	Val	Asp	Asn	Gln	Gln	Ile	Gln	Lys	Ala	Gln
65					70				75					80	

Ala	Ile	Leu	Val	Leu	Arg	Asp	Leu	Thr	Gln	Gln	Ile	Leu	Asn	Leu	Phe
			85						90					95	

Thr	Ser	Lys	Asp	Leu	Ser	Ala	Thr	Trp	Asn	Ala	Thr	Leu	Leu	Asp	Ser
			100					105					110		

Phe	Cys	Asn	Asp	Leu	His	Gln	Gln	Leu	Asn	Asp	Leu	Lys	Ala	Cys	Val
		115				120						125			

Met Gln Glu Pro Pro Leu Thr Gln Glu Asp Ser Leu Leu Ala Val Arg
130 135 140

Thr Tyr Phe His Arg Ile Thr Val Tyr Leu Arg Lys Lys Lys His Ser
145 150 155 160

Leu Cys Ala Trp Glu Val Ile Arg Ala Glu Val Trp Arg Ala Leu Ser
165 170 175

Ser Ser Thr Asn Leu Leu Ala Arg Leu Ser Glu Glu Lys Glu
180 185 190

<210> 46
<211> 1129
<212> DNA
<213> Artificial sequence

<220>
<223> ModB murine IFN-alpha-4 (5'UTR-CDS-3'UTR)

<400> 46
ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
tctacttcta ttgcagcaat ttaaattcatt tcttttaaag caaaagcaat tttctgaaaa 120
ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct 180
gctggccgct gccctggccc ctacacagac aagagctgga cctggatcct gtgacctgcc 240
tcacacttat aacctcgga acaagagggc cttgacagtc ctggaagaaa tgagaagact 300
ccccctctt tcctgcctga aggacaggaa ggattttgga ttccccttg agaaggtgga 360
taaccaacag atccagaagg ctcaagccat ctttgtgcta agagatctta cccagcagat 420
tttgaacctc ttacatcaa aagacttgct tgctacttgg aatgcaactc tcctagactc 480
attctgcaat gacctccatc agcagctcaa tgatctcaaa gcctgtgtga tgcaggaacc 540
tcctctgacc caggaagact ccctgctggc tgtgaggaca tacttccaca ggatcactgt 600
gtacctgaga aagaagaaac acagcctctg tgcctgggag gtgatcagag cagaagtctg 660
gagagccctc tcttcctcaa ccaacttgct ggcaagactg agtgaggaga aggagtgata 720
actcgacgtc ctgggtactgc atgcacgcaa tgctagctgc ccctttcccg tcctgggtac 780
cccgagtctc ccccgacctc gggtcccagg tatgctccca cctccacctg cccactcac 840
cacctctgct agttccagac acctcccaag cacgcagcaa tgcagctcaa aacgcttagc 900

ctagccacac	ccccacggga	aacagcagtg	attaaccttt	agcaataaac	gaaagtttaa	960
ctaagctata	ctaaccacag	ggttgggtcaa	tttcgtgcc	gccacaccct	cgagctagca	1020
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaag	catatgacta	aaaaaaaaaa	aaaaaaaaaa	1080
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa		1129

<210> 47
 <211> 1129
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine IFN-alpha-4

<400> 47	
ggaauaaacu	agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau 60
ucuacuucua	uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa 120
uuuucaccau	uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu 180
gcuggccgcu	gcccuggccc cuacacagac aagagcugga ccuggauccu gugaccugcc 240
ucacacuuau	aaccucggga acaagagggc cuugacaguc cuggaagaaa ugagaagacu 300
ccccccucuu	uccugccuga aggacaggaa ggauuuugga uuccccuugg agaaggugga 360
uaaccaacag	auccagaagg cucaagccau ccuugugcua agagaucuaa cccagcagau 420
uuugaaccuc	uucacaucaa aagacuuguc ugcuaucugg aaugcaacuc uccuagacuc 480
auucugcaau	gaccuccauc agcagcucaa ugaucaaaa gccuguguga ugcaggaacc 540
uccucugacc	caggaagacu cccugcuggc ugugaggaca uacuuccaca ggaucaacug 600
guaccugaga	aagaagaaac acagccucug ugccuggggag gugaucagag cagaagucug 660
gagagcccuc	ucuuccucaa ccaacuugcu ggcaagacug agugaggaga aggagugaua 720
acucgacguc	cugguacugc augcacgcaa ugcuaugcug cccuuucccg uccuggguac 780
cccgagucuc	ccccgaccuc gggucccagg uaugcuccca ccuccaccug cccacucac 840
caccucugcu	aguuccagac accucccaag cacgcagcaa ugcagcucaa aacgcuuagc 900
cuagccacac	ccccacggga aacagcagug auuaaccuuu agcaauaaac gaaaguuuua 960
cuaagcuaua	cuaaccacag gguuggucaa uuucgugcca gccacaccu cgagcuagca 1020
aaaaaaaaaa	aaaaaaaaaa aaaaaaaaag cauauagcua aaaaaaaaaa aaaaaaaaaa 1080

aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

1129

<210> 48
<211> 232
<212> PRT
<213> Artificial sequence

<220>
<223> ModA murine IL-15 sushi

<400> 48

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ala Ala Ala
1 5 10 15

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser Thr Thr Cys Pro
20 25 30

Pro Pro Val Ser Ile Glu His Ala Asp Ile Arg Val Lys Asn Tyr Ser
35 40 45

Val Asn Ser Arg Glu Arg Tyr Val Cys Asn Ser Gly Phe Lys Arg Lys
50 55 60

Ala Gly Thr Ser Thr Leu Ile Glu Cys Val Ile Asn Lys Asn Thr Asn
65 70 75 80

Val Ala His Trp Thr Thr Pro Ser Leu Lys Cys Ile Arg Asp Pro Ser
85 90 95

Leu Ala Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
100 105 110

Ser Gly Gly Ser Gly Gly Asn Trp Ile Asp Val Arg Tyr Asp Leu Glu
115 120 125

Lys Ile Glu Ser Leu Ile Gln Ser Ile His Ile Asp Thr Thr Leu Tyr
130 135 140

Thr Asp Ser Asp Phe His Pro Ser Cys Lys Val Thr Ala Met Asn Cys
145 150 155 160

Phe Leu Leu Glu Leu Gln Val Ile Leu His Glu Tyr Ser Asn Met Thr
165 170 175

Leu Asn Glu Thr Val Arg Asn Val Leu Tyr Leu Ala Asn Ser Thr Leu
180 185 190

Ser Ser Asn Lys Asn Val Ala Glu Ser Gly Cys Lys Glu Cys Glu Glu
195 200 205

Leu Glu Glu Lys Thr Phe Thr Glu Phe Leu Gln Ser Phe Ile Arg Ile
210 215 220

Val Gln Met Phe Ile Asn Thr Ser
225 230

<210> 49
<211> 1162
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine IL-15 sushi (5'UTR-CDS-3'UTR)

<400> 49
gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgggcgcg 60
catggcccct agaacattgc tcctgctgct ggccgctgcc ctggccccta cacagacaag 120
agctggacct ggatccacca cgtgtccacc tcccgtatct attgagcatg ctgacatccg 180
ggatcaagaat tacagtgtga actccaggga gaggtatgtc tgtaactctg gctttaagcg 240
gaaagctgga acatccaccc tgattgagtg tgtgatcaac aagaacacaa atgttgccca 300
ctggacaact cccagcctca agtgcatacag agaccctcc ctagctggag ggagcggagg 360
ctctggcgga agcggcggggt ctggaggctc cgggggaagc ggcggaaatt ggatcgacgt 420
gcgctacgac ctggaaaaga tcgagagcct gatccagagc atccacatcg acaccacct 480
gtacaccgac agcgacttcc accccagctg caaagtgacc gctatgaact gcttcctgct 540
ggaactgcaa gtgatcctgc acgagtacag caacatgacc ctgaacgaga cagtgcggaa 600
cgtgctgtac ctggccaaca gcaccctgag cagcaacaag aacgtggccg agagcggctg 660
caaagagtgc gaggaactgg aagaaaagac cttcaccgag tttctgcaga gcttcacatg 720
gatcgtgcag atgttcatca acacctcttg atgagtcgac gtcctggtac tgcatgcacg 780

caatgctagc tgcccccttc ccgtcctggg taccccgagt ctccccgac ctcgggtccc	840
aggtatgctc ccacctccac ctgccccact caccacctct gctagttcca gacacctccc	900
aagcacgcag caatgcagct caaaacgctt agcctagcca cccccccacg ggaaacagca	960
gtgattaacc tttagcaata aacgaaagtt taactaagct atactaacc cagggttggt	1020
caatttcgtg ccagccacac cctcgagcta gcaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1080
aagcatatga ctaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1140
aaaaaaaaaa aaaaaaaaaa aa	1162

<210> 50
 <211> 1162
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA murine IL-15 sushi

<400> 50	
gggcgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca ccaugggcgc	60
cauggccccc agaacauugc uccugcugcu ggccgcugcc cuggcccccua cacagacaag	120
agcuggaccu ggauccacca cguguccacc ucccguaucu auugagcaug cugacauccg	180
ggucaagaau uacaguguga acuccaggga gagguauguc uguaacucug gcuuaagcg	240
gaaagcugga acauccaccc ugauugagug ugugaucaac aagaacacaa auguugccca	300
cuggacaacu cccagccuca agugcaucag agacccucc cuagcuggag ggagcggagg	360
cucuggcgga agcggcgggg cuggaggcuc cgggggaagc ggcggaaau ggaucgacgu	420
gcgcuacgac cuggaaaaga ucgagagccu gauccagagc auccacaucg acaccacccu	480
guacaccgac agcgacuucc accccagcug caaagugacc gcuaugaacu gcuuccugcu	540
ggaacugcaa gugauccugc acgaguacag caacaugacc cugaacgaga cagugcggaa	600
cgugcuguac cuggccaaca gcaccugag cagcaacaag aacguggccg agagcggcug	660
caaagagugc gaggaacugg aagaaaagac cuucaccgag uuucugcaga gcuucaucag	720
gaucgugcag auguucauca acaccucuug augagucgac guccugguac ugcaugcacg	780
caaugcuagc ugccccuuuc ccguccuggg uaccccgagu ccccccgac cucggguccc	840
agguaugcuc ccaccuccac cugccccacu caccaccucu gcuaguucca gacaccuccc	900

aagcacgcag caaugcagcu caaaacgcuu agccuagcca cacccccacg ggaaacagca 960
gugauuaacc uuuagcaua aacgaaaguu uaacuaagcu auacuaaccc caggguuggu 1020
caauuucgug ccagccacac ccucgagcua gcaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080
aagcauauga cuaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1140
aaaaaaaaaa aaaaaaaaaa aa 1162

<210> 51
<211> 232
<212> PRT
<213> Artificial sequence

<220>
<223> ModB murine IL-15 sushi

<400> 51

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Ala Ala Ala
1 5 10 15

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser Thr Thr Cys Pro
20 25 30

Pro Pro Val Ser Ile Glu His Ala Asp Ile Arg Val Lys Asn Tyr Ser
35 40 45

Val Asn Ser Arg Glu Arg Tyr Val Cys Asn Ser Gly Phe Lys Arg Lys
50 55 60

Ala Gly Thr Ser Thr Leu Ile Glu Cys Val Ile Asn Lys Asn Thr Asn
65 70 75 80

Val Ala His Trp Thr Thr Pro Ser Leu Lys Cys Ile Arg Asp Pro Ser
85 90 95

Leu Ala Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
100 105 110

Ser Gly Gly Ser Gly Gly Asn Trp Ile Asp Val Arg Tyr Asp Leu Glu
115 120 125

Lys Ile Glu Ser Leu Ile Gln Ser Ile His Ile Asp Thr Thr Leu Tyr
130 135 140

Thr Asp Ser Asp Phe His Pro Ser Cys Lys Val Thr Ala Met Asn Cys
145 150 155 160

Phe Leu Leu Glu Leu Gln Val Ile Leu His Glu Tyr Ser Asn Met Thr
165 170 175

Leu Asn Glu Thr Val Arg Asn Val Leu Tyr Leu Ala Asn Ser Thr Leu
180 185 190

Ser Ser Asn Lys Asn Val Ala Glu Ser Gly Cys Lys Glu Cys Glu Glu
195 200 205

Leu Glu Glu Lys Thr Phe Thr Glu Phe Leu Gln Ser Phe Ile Arg Ile
210 215 220

Val Gln Met Phe Ile Asn Thr Ser
225 230

<210> 52
<211> 1255
<212> DNA
<213> Artificial sequence

<220>
<223> ModB murine IL-15 sushi (5'UTR-CDS-3'UTR)

<400> 52
ggaataaaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
tctactttcta ttgcagcaat ttaaattcatt tctttttaag caaaagcaat tttctgaaaa 120
ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct 180
gctggccgct gccctggccc ctacacagac aagagctgga cctggatcca ccacgtgtcc 240
acctcccgta tctattgagc atgctgacat ccgggtcaag aattacagtg tgaactccag 300
ggagaggtat gtctgtaact ctggctttta gcggaaagct ggaacatcca ccctgattga 360
gtgtgtgatc aacaagaaca caaatgttgc cactggaca actcccagcc tcaagtgcatt 420
cagagacccc tccctagctg gagggagcgg aggctctggc ggaagcggcg ggtctggagg 480
ctccggggga agcggcggaa attggatcga cgtgcgctac gacctggaaa agatcgagag 540

cctgatccag agcatccaca tcgacaccac cctgtacacc gacagcgact tccaccccag	600
ctgcaaagtg accgctatga actgcttcct gctggaactg caagtgatcc tgcacgagta	660
cagcaacatg accctgaacg agacagtgcg gaacgtgctg tacctggcca acagcacctt	720
gagcagcaac aagaacgtgg ccgagagcgg ctgcaaagag tgcgaggaac tggaagaaaa	780
gaccttcacc gagtttctgc agagcttcat caggatcgtg cagatgttca tcaacacctc	840
ttgatgagtc gacgtcctgg tactgcatgc acgcaatgct agctgcccct ttcccgtcct	900
gggtaccccg agtctcccc gacctcgggt cccaggtatg ctcccacctc cacctgcccc	960
actcaccacc tctgctagtt ccagacacct cccaagcacg cagcaatgca gctcaaaacg	1020
cttagcctag ccacaccccc acgggaaaca gcagtgatta acctttagca ataaacgaaa	1080
gtttaactaa gctatactaa ccccagggtt ggtcaatttc gtgccagcca caccctcgag	1140
ctagcaaaaa aaaaaaaaaa aaaaaaaaaa aaaaagcata tgactaaaaa aaaaaaaaaa	1200
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa	1255

<210> 53
 <211> 1255
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine IL-15 sushi

<400> 53	
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau	60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccuau uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu	180
gcuggccgcu gcccuggccc cuacacagac aagagcugga ccuggaucca ccacgugucc	240
accucccgua ucuauugagc augcugacau ccgggucaag aaauacagug ugaacuccag	300
ggagagguau gucuguaacu cuggcuuuua gcggaaagcu ggaacaacca ccugauuga	360
gugugugauc aacaagaaca caaanguugc ccacuggaca acucccagcc ucaagugcau	420
cagagacccc ucccuagcug gagggagcgg aggcucuggc ggaagcggcg ggucuggagg	480
cuccggggga agcggcgga auuggaucga cgugcgcuac gaccuggaaa agaucgagag	540
ccugauccag agcauccaca ucgacaccac ccuguacacc gacagcgacu uccaccccag	600

cugcaaagug accgcuauga acugcuuccu gcuggaacug caagugaucc ugcacgagua	660
cagcaacaug acccugaacg agacagugcg gaacgugcug uaccuggcca acagcacccu	720
gagcagcaac aagaacgugg ccgagagcgg cugcaaagag ugcgaggaac uggaagaaaa	780
gaccuucacc gaguuucugc agagcuucau caggauugug cagauguuca ucaacaccuc	840
uugaugaguc gacguccugg uacugcaugc acgcaaugcu agcugccccc uucccguccu	900
ggguaccccc agucuccccc gaccucgggu cccagguaug cuccaccuc caccugcccc	960
acucaccacc ucugcuaguu ccagacaccu cccaagcacg cagcaaugca gcucaaaacg	1020
cuuagccuag ccacaccccc acgggaaaca gcagugauua accuuuagca auaaacgaaa	1080
guuuuacuaa gcuauacuaa ccccaggguu ggucauuuc gugccagcca caccucgag	1140
cuagcaaaaa aaaaaaaaaa aaaaaaaaaa aaaaagcaua ugacuaaaaa aaaaaaaaaa	1200
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaa	1255

<210> 54
 <211> 141
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModA murine GM-CSF

<400> 54

Met	Trp	Leu	Gln	Asn	Leu	Leu	Phe	Leu	Gly	Ile	Val	Val	Tyr	Ser	Leu
1				5					10					15	

Ser	Ala	Pro	Thr	Arg	Ser	Pro	Ile	Thr	Val	Thr	Arg	Pro	Trp	Lys	His
			20					25					30		

Val	Glu	Ala	Ile	Lys	Glu	Ala	Leu	Asn	Leu	Leu	Asp	Asp	Met	Pro	Val
		35					40					45			

Thr	Leu	Asn	Glu	Glu	Val	Glu	Val	Val	Ser	Asn	Glu	Phe	Ser	Phe	Lys
	50					55					60				

Lys	Leu	Thr	Cys	Val	Gln	Thr	Arg	Leu	Lys	Ile	Phe	Glu	Gln	Gly	Leu
65					70					75				80	

Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu Asn Met Thr Ala Ser
85 90 95

Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu Thr Asp Cys Glu Thr
100 105 110

Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser Leu Lys Thr Phe Leu
115 120 125

Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro Gly Gln Lys
130 135 140

<210> 55
<211> 908
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine GM-CSF (5'UTR-CDS-3'UTR)

<400> 55
gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgtggct 60
gcagaacctg ctgttcctgg gcatcgtggg gtacagcctg agcgccccca ccaggagccc 120
catcaccgtg accaggccct ggaagcacgt ggaggccatc aaggaggccc tgaacctgct 180
ggacgacatg cccgtgaccc tgaacgagga ggtggagggt gtgagcaacg agttcagctt 240
caagaagctg acctgcgtgc agaccaggct gaagatcttc gagcagggcc tgagggggcaa 300
cttcaccaag ctgaagggcg ccctgaacat gaccgccagc tactaccaga cctactgccc 360
ccccaccccc gagaccgact gcgagacca ggtgaccacc tacgccgact tcatcgacag 420
cctgaagacc ttctgaccg acatcccctt cgagtgaag aagcccggcc agaagtgatg 480
actcgagctg gtactgcatg cacgcaatgc tagctgcccc tttcccgtcc tgggtacccc 540
gagtctcccc cgacctcggg tcccaggtat gctccacct ccacctgccc cactcaccac 600
ctctgctagt tccagacacc tccaagcac gcagcaatgc agctcaaaac gcttagccta 660
gccacacccc cacgggaaac agcagtgatt aacctttagc aataaacgaa agtttaacta 720
agctatacta accccagggg tgggtcaattt cgtgccagcc acaccgagac ctgggtccaga 780
gtcgctagcc gcgtcgctaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagc atatgactaa 840
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900

aaaaaaaaa 908

<210> 56
<211> 908
<212> RNA
<213> Artificial sequence

<220>
<223> ModA murine GM-CSF

<400> 56
gggcgaacua guauucuucu ggucccccaca gacucagaga gaacccgccca ccauguggcu 60
gcagaaccug cuguuccugg gcaucguggu guacagccug agcgccccca ccaggagccc 120
caucaccgug accaggcccu ggaagcacgu ggaggccauc aaggaggccc ugaaccugcu 180
ggacgacaug cccgugaccc ugaacgagga gguggaggug gugagcaacg aguucagcuu 240
caagaagcug accugcgugc agaccaggcu gaagauucuuc gagcagggcc ugaggggcaa 300
cuucaccaag cugaagggcg cccugaacau gaccgccagc uacuaccaga ccuacugccc 360
ccccaccccc gagaccgacu gcgagaccga ggugaccacc uacgccgacu ucaucgacag 420
ccugaagacc uuccugaccg acauccccuu cgagugcaag aagcccggcc agaagugaug 480
acucgagcug guacugcaug cacgcaaugc uagcugcccc uuucccgucc ugguuacccc 540
gagucucucc cgaccucggg ucccagguau gcucccaccu ccaccugccc cacucaccac 600
cucugcuagu uccagacacc uccaagcac gcagcaaugc agcucaaaac gcuuagccua 660
gccacacccc cacgggaaac agcagugauu aaccuuuagc aaauaacgaa aguuuaacua 720
agcuauacua accccagggu uggucauuu cgugccagcc acaccgagac cugguccaga 780
gucgcuagcc gcgucgcuaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagc auaugacuaa 840
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900
aaaaaaaaa 908

<210> 57
<211> 141
<212> PRT
<213> Artificial sequence

<220>
<223> ModB murine GM-CSF

<400> 57

Met Trp Leu Gln Asn Leu Leu Phe Leu Gly Ile Val Val Tyr Ser Leu
1 5 10 15

Ser Ala Pro Thr Arg Ser Pro Ile Thr Val Thr Arg Pro Trp Lys His
20 25 30

Val Glu Ala Ile Lys Glu Ala Leu Asn Leu Leu Asp Asp Met Pro Val
35 40 45

Thr Leu Asn Glu Glu Val Glu Val Val Ser Asn Glu Phe Ser Phe Lys
50 55 60

Lys Leu Thr Cys Val Gln Thr Arg Leu Lys Ile Phe Glu Gln Gly Leu
65 70 75 80

Arg Gly Asn Phe Thr Lys Leu Lys Gly Ala Leu Asn Met Thr Ala Ser
85 90 95

Tyr Tyr Gln Thr Tyr Cys Pro Pro Thr Pro Glu Thr Asp Cys Glu Thr
100 105 110

Gln Val Thr Thr Tyr Ala Asp Phe Ile Asp Ser Leu Lys Thr Phe Leu
115 120 125

Thr Asp Ile Pro Phe Glu Cys Lys Lys Pro Gly Gln Lys
130 135 140

<210> 58

<211> 1001

<212> DNA

<213> Artificial sequence

<220>

<223> ModB murine GM-CSF (5'UTR-CDS-3'UTR)

<400> 58

ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60

tctacttcta ttgcagcaat ttaaattcatt tcttttaaag caaaagcaat tttctgaaaa 120

ttttcaccat ttacgaacga tagccatgtg gctgcagaac ctgctgttcc tgggcatcgt 180

ggtgtacagc ctgagcgccc ccaccaggag ccccatcacc gtgaccaggc cctggaagca 240

cgtggaggcc atcaaggagg ccctgaacct gctggacgac atgcccgtga ccctgaacga	300
ggagggtggag gtggtgagca acgagttcag cttcaagaag ctgacctgcg tgcagaccag	360
gctgaagatc ttcgagcagg gcctgagggg caacttcacc aagctgaagg gcgccctgaa	420
catgaccgcc agctactacc agacctactg cccccccacc cccgagaccg actgcgagac	480
ccaggtgacc acctacgccg acttcatcga cagcctgaag accttcctga ccgacatccc	540
cttcgagtgc aagaagcccc gccagaagtg atgactcgag ctggtactgc atgcacgcaa	600
tgctagctgc ccctttcccg tcctgggtac cccgagtctc ccccgacctc ggggtcccagg	660
tatgctccca cctccacctg ccccaactcac cacctctgct agttccagac acctcccaag	720
cacgcagcaa tgcagctcaa aacgcttagc ctagccacac ccccacggga aacagcagtg	780
attaaccttt agcaataaac gaaagtttaa ctaagctata ctaaccccag ggttggtcaa	840
tttcgtgcca gccacaccga gacctggtcc agagtcgcta gccgcgtcgc taaaaaaaaa	900
aaaaaaaaaa aaaaaaaaaa agcatatgac taaaaaaaaa aaaaaaaaaa aaaaaaaaaa	960
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a	1001

<210> 59
 <211> 1001
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine GM-CSF

<400> 59	
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau	60
ucuacuucua uugcagcaau uuaaucauu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccau uuacgaacga uagccaugug gcugcagaac cugcuguucc ugggcaucgu	180
gguguacagc cugagcgccc ccaccaggag ccccaucacc gugaccaggc ccuggaagca	240
cguggaggcc aucaaggagg ccugaaaccu gcuggacgac augcccguga ccugaacga	300
ggagguggag guggugagca acgaguucag cuucaagaag cugaccugcg ugcagaccag	360
gcugaagauc uucgagcagg gccugagggg caacuucacc aagcugaagg gcgcccugaa	420
caugaccgcc agcuacuacc agaccuacug cccccccacc cccgagaccg acugcgagac	480
ccaggugacc accuacgccg acuucaucga cagccugaag accuuccuga ccgacaucac	540

```

cuucgagugc aagaagcccg gccagaagug augacucgag cugguacugc augcacgcaa      600
ugcuagcugc ccuuuucccg uccuggguac cccgagucuc ccccgaccuc gggucccagg      660
uauugcucca ccuccaccug ccccacucac caccucugcu aguuccagac accucccaag      720
cacgcagcaa ugcagcucaa aacgcuuagc cuagccacac ccccacggga aacagcagug      780
auuaaccuuu agcaauaaac gaaaguuuua cuaagcuaua cuaaccccag gguuggucaa      840
uuucgugcca gccacaccga gaccugggucc agagucgcua gccgcgucgc uaaaaaaaaa      900
aaaaaaaaaa aaaaaaaaaa agcauauagc uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa      960
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a                                1001

```

<210> 60
 <211> 187
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModA FLT3L (human FLT3L in combination with a mouse optimized
 secretion sequence)

<400> 60

```

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ala Ala Ala
1           5           10          15

```

```

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser Thr Gln Asp Cys
          20          25          30

```

```

Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val Lys Ile Arg
          35          40          45

```

```

Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr Val Ala Ser
50          55          60

```

```

Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg Leu Val Leu
65          70          75          80

```

```

Ala Gln Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly Ser Lys Met
          85          90          95

```

```

Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe Val Thr Lys

```

100

105

110

Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val Gln Thr Asn
 115 120 125

Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val Ala Leu Lys
 130 135 140

Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu Leu Gln Cys
 145 150 155 160

Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro Arg Pro Leu
 165 170 175

Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro Pro
 180 185

<210> 61
 <211> 1027
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModA FLT3L (5'UTR-CDS-3'UTR)

<400> 61
 gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgggctgc 60
 catggcccct agaacattgc tcctgctgct ggccgctgcc ctggccccta cacagacaag 120
 agctggacct ggatccaccc aggactgcag cttccagcac tcccctatct cctccgactt 180
 cgccgtgaag atccgggagc tgtccgatta cctgctgcag gactaccctg tgaccgtggc 240
 cagcaacctg caggacgaag aactgtgtgg cggcctgtgg cggctggtgc tggcccagcg 300
 gtggatggaa cggctgaaaa ccgtggccgg ctccaagatg cagggcctgc tcgagcgggt 360
 gaacaccgag atccacttcg tgaccaagtg cgccttcag cctcctcctt cctgcctgcg 420
 gttcgtgcag accaacaatct cccggctgct gcaggaaacc tccgagcagc tggtcgcctt 480
 gaagccttgg atcaccgggc agaacttctc ccggtgtctg gaactccagt gtcagcccga 540
 ctctccacc ctgcctcctc cctgggtccc caggcctctg gaagccaccg cccctaccgc 600
 cccacagcct ccttgatagg tcgacgtcct ggtactgcat gcacgcaatg ctagctgccc 660

ctttcccgtc ctgggtaccc cgagtctccc ccgacctcgg gtcccaggta tgctcccacc	720
tccacctgcc ccactcacca cctctgctag ttccagacac ctcccaagca cgcagcaatg	780
cagctcaaaa cgcttagcct agccacaccc ccacgggaaa cagcagtgat taacctttag	840
caataaacga aagtttaact aagctatact aaccccaggg ttggtcaatt tcgtgccagc	900
cacaccctcg agctagcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagca tatgactaaa	960
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1020
aaaaaaa	1027

<210> 62
 <211> 1027
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA FLT3L

<400> 62	
gggcgaacua guauucuucu gguccccaca gacucagaga gaacccgcca ccaugggcgc	60
cauggccccc agaacauugc uccugcugcu ggccgcugcc cuggcccccua cacagacaag	120
agcuggaccu ggauccaccc aggacugcag cuuccagcac uccccuau cuuccgacuu	180
cgccgugaag auccgggagc uguccgauua ccugcugcag gacuaccug ugaccguggc	240
cagcaaccug caggacgaag aacugugugg cggccugugg cggcuggugc uggcccagcg	300
guggauggaa cggcugaaaa ccguggccgg cuccaagaug cagggccugc ucgagcgggu	360
gaacaccgag auccacuucg ugaccaagug cgccuuccag ccuccuccuu ccugccugcg	420
guucgugcag accaacaucu cccggcugcu gcaggaaacc uccgagcagc uggucgccc	480
gaagccuugg aucacccggc agaacuucuc ccggugucug gaacuccagu gucagcccga	540
cuccuccacc cugccuccuc ccuggucccc caggccucug gaagccaccg cccuaccgc	600
cccacagccu ccuugauagg ucgacguccu gguacugcau gcacgcaaug cuagcugccc	660
cuuucccguc cuggguaccc cgagucuccc ccgaccucgg gucccaggua ugcucccacc	720
uccaccugcc ccacucacca ccucugcuag uuccagacac cuccaagca cgcagcaa	780
cagcucaaaa cgcuuagccu agccacaccc ccacgggaaa cagcagugau uaaccuuuag	840
caauaaacga aaguuuuacu aagcuauacu aaccccaggg uuggucauu ucgugccagc	900

cacacccucg agcuagcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagca uaugacuaaa 960
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
 aaaaaaa 1027

<210> 63
 <211> 187
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModB FLT3L (human FLT3L in combination with a mouse optimized
 secretion sequence)

<400> 63

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ala Ala Ala
 1 5 10 15

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser Thr Gln Asp Cys
 20 25 30

Ser Phe Gln His Ser Pro Ile Ser Ser Asp Phe Ala Val Lys Ile Arg
 35 40 45

Glu Leu Ser Asp Tyr Leu Leu Gln Asp Tyr Pro Val Thr Val Ala Ser
 50 55 60

Asn Leu Gln Asp Glu Glu Leu Cys Gly Gly Leu Trp Arg Leu Val Leu
 65 70 75 80

Ala Gln Arg Trp Met Glu Arg Leu Lys Thr Val Ala Gly Ser Lys Met
 85 90 95

Gln Gly Leu Leu Glu Arg Val Asn Thr Glu Ile His Phe Val Thr Lys
 100 105 110

Cys Ala Phe Gln Pro Pro Pro Ser Cys Leu Arg Phe Val Gln Thr Asn
 115 120 125

Ile Ser Arg Leu Leu Gln Glu Thr Ser Glu Gln Leu Val Ala Leu Lys
 130 135 140

Pro Trp Ile Thr Arg Gln Asn Phe Ser Arg Cys Leu Glu Leu Gln Cys
 145 150 155 160

Gln Pro Asp Ser Ser Thr Leu Pro Pro Pro Trp Ser Pro Arg Pro Leu
 165 170 175

Glu Ala Thr Ala Pro Thr Ala Pro Gln Pro Pro
 180 185

<210> 64
 <211> 1120
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModB FLT3L (5'UTR-CDS-3'UTR)

<400> 64
 ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
 tctacttcta ttgcagcaat ttaaattcatt tcttttaaag caaaagcaat tttctgaaaa 120
 ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct 180
 gctggccgct gccctggccc ctacacagac aagagctgga cctggatcca cccaggactg 240
 cagcttccag cactccccta tctcctccga cttcgccgtg aagatccggg agctgtccga 300
 ttacctgctg caggactacc ctgtgaccgt ggccagcaac ctgcaggacg aagaactgtg 360
 tggcggcctg tggcggctgg tgctggccca gcggtggatg gaacggctga aaaccgtggc 420
 cggctccaag atgcagggcc tgctcgagcg ggtgaacacc gagatccact tcgtgaccaa 480
 gtgcgccttc cagcctcctc cttcctgcct gcggttcgtg cagaccaaca tctcccggct 540
 gctgcaggaa acctccgagc agctggtcgc cctgaagcct tggatcacc ggcagaactt 600
 ctcccgggtg ctggaactcc agtgtcagcc cgactcctcc accctgcctc ctccctggtc 660
 ccccaggcct ctggaagcca ccgcccctac cgccccacag cctccttgat aggtcgacgt 720
 cctgggtactg catgcacgca atgctagctg cccctttccc gtcctgggta ccccgagtct 780
 ccccgacct cgggtcccag gtatgctccc acctccacct gcccactca ccacctctgc 840
 tagttccaga cacctcccaa gcacgcagca atgcagctca aaacgcttag cctagccaca 900
 cccccacggg aaacagcagt gattaacctt tagcaataaa cgaaagttaa actaagctat 960
 actaacccca gggttggtca atttcgtgcc agccacaccc tcgagctagc aaaaaaaaaa 1020

aaaaaaaaa aaaaaaaaaa gcatatgact aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1080
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1120

<210> 65
 <211> 1120
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine FLT3L

<400> 65	
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaUCAagcau	60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccau uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu	180
gcuggccgcu gcccuuggccc cuacacagac aagagcugga ccuggaucca cccaggacug	240
cagcuuccag cacuccccua ucuccuccga cuucgccgug aagauccggg agcuguccga	300
uuaccugcug caggacuacc cugugaccgu ggccagcaac cugcaggacg aagaacugug	360
uggcggccug uggcggcugg ugcuggccca gcgguggaug gaacggcuga aaaccguggc	420
cggcucaaag augcagggcc ugcucgagcg ggugaacacc gagauccacu ucgugaccaa	480
gugcgccuuc cagccuccuc cuuccugccu gcgguucgug cagaccaaca ucucccggu	540
gcugcaggaa accuccgagc agcuggucgc ccugaagccu uggaucaccc ggcagaacuu	600
cucccgguugu cuggaacucc agugucagcc cgacuccucc acccugccuc cucccguguc	660
ccccaggccu cuggaagcca ccgccccuac cgccccacag ccuccuugau aggucgacgu	720
ccugguacug caugcacgca augcuagcug ccccuuuccc guccugggua ccccgagucu	780
ccccgaccu cgggucccag guaUGCuccc accuccaccu gccccacuca ccaccucugc	840
uaguuccaga caccucccaa gcacgcagca augcagcuca aaacgcuuag ccuagccaca	900
ccccacggg aaacagcagu gauuaaccuu uagcaauaaa cgaaaguuuu acuaagcuau	960
acuaacccca ggguugguca auuucgugcc agccacaccc ucgagcuagc aaaaaaaaaa	1020
aaaaaaaaa aaaaaaaaaa gcauagacu aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1080
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1120

<210> 66
<211> 309
<212> PRT
<213> Artificial sequence

<220>

<223> ModA murine 41BBL

<400> 66

Met Asp Gln His Thr Leu Asp Val Glu Asp Thr Ala Asp Ala Arg His
1 5 10 15

Pro Ala Gly Thr Ser Cys Pro Ser Asp Ala Ala Leu Leu Arg Asp Thr
20 25 30

Gly Leu Leu Ala Asp Ala Ala Leu Leu Ser Asp Thr Val Arg Pro Thr
35 40 45

Asn Ala Ala Leu Pro Thr Asp Ala Ala Tyr Pro Ala Val Asn Val Arg
50 55 60

Asp Arg Glu Ala Ala Trp Pro Pro Ala Leu Asn Phe Cys Ser Arg His
65 70 75 80

Pro Lys Leu Tyr Gly Leu Val Ala Leu Val Leu Leu Leu Leu Ile Ala
85 90 95

Ala Cys Val Pro Ile Phe Thr Arg Thr Glu Pro Arg Pro Ala Leu Thr
100 105 110

Ile Thr Thr Ser Pro Asn Leu Gly Thr Arg Glu Asn Asn Ala Asp Gln
115 120 125

Val Thr Pro Val Ser His Ile Gly Cys Pro Asn Thr Thr Gln Gln Gly
130 135 140

Ser Pro Val Phe Ala Lys Leu Leu Ala Lys Asn Gln Ala Ser Leu Cys
145 150 155 160

Asn Thr Thr Leu Asn Trp His Ser Gln Asp Gly Ala Gly Ser Ser Tyr
165 170 175

Leu Ser Gln Gly Leu Arg Tyr Glu Glu Asp Lys Lys Glu Leu Val Val
180 185 190

Asp Ser Pro Gly Leu Tyr Tyr Val Phe Leu Glu Leu Lys Leu Ser Pro
195 200 205

Thr Phe Thr Asn Thr Gly His Lys Val Gln Gly Trp Val Ser Leu Val
210 215 220

Leu Gln Ala Lys Pro Gln Val Asp Asp Phe Asp Asn Leu Ala Leu Thr
225 230 235 240

Val Glu Leu Phe Pro Cys Ser Met Glu Asn Lys Leu Val Asp Arg Ser
245 250 255

Trp Ser Gln Leu Leu Leu Lys Ala Gly His Arg Leu Ser Val Gly
260 265 270

Leu Arg Ala Tyr Leu His Gly Ala Gln Asp Ala Tyr Arg Asp Trp Glu
275 280 285

Leu Ser Tyr Pro Asn Thr Thr Ser Phe Gly Leu Phe Leu Val Lys Pro
290 295 300

Asp Asn Pro Trp Glu
305

<210> 67
<211> 1393
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine 41BBL (5'UTR-CDS-3'UTR)

<400> 67
gggcgaacta gtattcttct ggtccccaca gactcagaga gaaccgcga ccatggacca 60
gcacacactt gatgtggagg ataccgcgga tgccagacat ccagcaggta cttcgtgccc 120
ctcggatgcg gcgctcctca gagataccgg gctcctcgcg gacgctgcmc tcctctcaga 180
tactgtgcmc cccacaaatg ccgcgctccc cacggatgct gcctaccctg cggttaatgt 240
tcgggatcmc gaggccgcmg gccgcctgc actgaacttc tgttcccgcc acccaaagct 300

ctatggccta gtcgctttgg ttttgctgct tctgatcgcc gcctgtgttc ctatcttcac	360
ccgcaccgag cctcggccag cgctcacaat caccacctcg cccaacctgg gtacccgaga	420
gaataatgca gaccaggtca cccctgtttc ccacattggc tgccccaaca ctacacaaca	480
gggctctcct gtgttcgcca agctactggc taaaaaccaa gcatcgttgt gcaatacaac	540
tctgaactgg cacagccaag atggagctgg gagctcatac ctatctcaag gtctgaggta	600
cgaagaagac aaaaaggagt tgggtggtaga cagtcccggg ctctactacg tatttttgga	660
actgaagctc agtccaacat tcacaaacac aggccacaag gtgcagggtt gggctctctt	720
tgttttgcaa gcaaagcctc aggtagatga ctttgacaac ttggccctga cagtggaact	780
gttcccttgc tccatggaga acaagttagt ggaccgttcc tggagtcaac tgttgctcct	840
gaaggctggc caccgcctca gtgtgggtct gagggcttat ctgcatggag cccaggatgc	900
atacagagac tgggagctgt cttatcccaa caccaccagc tttggactct ttcttgtgaa	960
acccgacaac ccatgggaat gatagggatc cgatctggta ctgcatgcac gcaatgctag	1020
ctgccccctt cccgtcctgg gtaccccgag tctccccga cctcgggtcc caggtatgct	1080
cccacctcca cctgccccac tcaccacctc tgctagtctc agacacctcc caagcacgca	1140
gcaatgcagc tcaaaacgct tagcctagcc acacccccac gggaacagc agtgattaac	1200
ctttagcaat aaacgaaagt ttaactaagc tatactaacc ccagggttgg tcaatttcgt	1260
gccagccaca ccctcgagct agcaaaaaa aaaaaaaaaa aaaaaaaaaa aaagcatatg	1320
actaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1380
aaaaaaaaaa aaa	1393

<210> 68
 <211> 1393
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA murine 41BBL

<400> 68	
gggcgaacua guauucuucu ggucccccaca gacucagaga gaacccgcca ccauggacca	60
gcacacacuu gauguggagg auaccgcgga ugccagacau ccagcaggua cuucgugccc	120
cucggaugcg gcgcuccuca gagauaccgg gcuccucgcg gacgcugcgc uccucucaga	180

uacugugcgc	cccacaaaug	ccgcgcucucc	cacggaugcu	gccuaccug	cgguuaaugu	240
ucggggaucgc	gaggccgcgu	ggccgccugc	acugaacuuc	uguucccgcc	acccaaagcu	300
cuauggccua	gucgcuuugg	uuuugcugcu	ucugaucgcc	gccuguguuc	cuaucuucac	360
ccgcaccgag	ccucggccag	cgcucacaau	caccaccucg	cccaaccugg	guacccgaga	420
gaauaaugca	gaccagguca	ccccuguuuc	ccacauuggc	ugccccaaca	cuacacaaca	480
gggcucuccu	guguucgcc	agcuacuggc	uaaaaaacaa	gcaucguugu	gcaauacaac	540
ucugaacugg	cacagccaag	auggagcugg	gagcucauac	cuaucucaag	gucugaggua	600
cgaagaagac	aaaaaggagu	uggugguaga	cagucccggg	cucuacuacg	uaauuuugga	660
acugaagcuc	aguccaaca	ucacaaacac	aggccacaag	gugcagggcu	gggucucucu	720
uguuuugcaa	gcaaagccuc	agguagauga	cuuugacaac	uuggcccuga	caguggaacu	780
guucccuugc	uccauggaga	acaaguua	ggaccguucc	uggagucaac	uguugcuccu	840
gaaggcuggc	caccgccuca	gugugggucu	gaggggcuau	cugcauggag	cccaggau	900
auacagagac	ugggagcugu	cuuauccaa	caccaccagc	uuuggacucu	uucuugugaa	960
acccgacaac	ccaugggaau	gauagggauc	cgaucuggua	cugcaugcac	gcaaugcuag	1020
cugcccccuu	cccguccugg	guaccccag	ucucucccg	ccucgggucc	cagguaugcu	1080
cccaccucca	ccugccccc	ucaccaccuc	ugcuaguucc	agacaccucc	caagcacgca	1140
gcaaugcagc	uacaaacgc	uagccuagcc	acacccccac	gggaaacagc	agugauuaac	1200
cuuuagcaau	aaacgaaagu	uuaacuaagc	uauacuaacc	ccaggguugg	ucaauuucgu	1260
gccagccaca	cccucgagcu	agcaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaagcauau	1320
acuaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	1380
aaaaaaaaaa	aaa					1393

<210> 69
 <211> 309
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModB murine 41BBL

<400> 69

Met Asp Gln His Thr Leu Asp Val Glu Asp Thr Ala Asp Ala Arg His
1 5 10 15

Pro Ala Gly Thr Ser Cys Pro Ser Asp Ala Ala Leu Leu Arg Asp Thr
20 25 30

Gly Leu Leu Ala Asp Ala Ala Leu Leu Ser Asp Thr Val Arg Pro Thr
35 40 45

Asn Ala Ala Leu Pro Thr Asp Ala Ala Tyr Pro Ala Val Asn Val Arg
50 55 60

Asp Arg Glu Ala Ala Trp Pro Pro Ala Leu Asn Phe Cys Ser Arg His
65 70 75 80

Pro Lys Leu Tyr Gly Leu Val Ala Leu Val Leu Leu Leu Leu Ile Ala
85 90 95

Ala Cys Val Pro Ile Phe Thr Arg Thr Glu Pro Arg Pro Ala Leu Thr
100 105 110

Ile Thr Thr Ser Pro Asn Leu Gly Thr Arg Glu Asn Asn Ala Asp Gln
115 120 125

Val Thr Pro Val Ser His Ile Gly Cys Pro Asn Thr Thr Gln Gln Gly
130 135 140

Ser Pro Val Phe Ala Lys Leu Leu Ala Lys Asn Gln Ala Ser Leu Cys
145 150 155 160

Asn Thr Thr Leu Asn Trp His Ser Gln Asp Gly Ala Gly Ser Ser Tyr
165 170 175

Leu Ser Gln Gly Leu Arg Tyr Glu Glu Asp Lys Lys Glu Leu Val Val
180 185 190

Asp Ser Pro Gly Leu Tyr Tyr Val Phe Leu Glu Leu Lys Leu Ser Pro
195 200 205

Thr Phe Thr Asn Thr Gly His Lys Val Gln Gly Trp Val Ser Leu Val
210 215 220

Leu Gln Ala Lys Pro Gln Val Asp Asp Phe Asp Asn Leu Ala Leu Thr
 225 230 235 240

Val Glu Leu Phe Pro Cys Ser Met Glu Asn Lys Leu Val Asp Arg Ser
 245 250 255

Trp Ser Gln Leu Leu Leu Leu Lys Ala Gly His Arg Leu Ser Val Gly
 260 265 270

Leu Arg Ala Tyr Leu His Gly Ala Gln Asp Ala Tyr Arg Asp Trp Glu
 275 280 285

Leu Ser Tyr Pro Asn Thr Thr Ser Phe Gly Leu Phe Leu Val Lys Pro
 290 295 300

Asp Asn Pro Trp Glu
 305

<210> 70
 <211> 1486
 <212> DNA
 <213> Artificial sequence

<220>
 <223> ModB murine 41BBL (5'UTR-CDS-3'UTR)

<400> 70
 ggaataaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
 tctacttcta ttgcagcaat ttaaattcatt tcttttaaag caaaagcaat tttctgaaaa 120
 ttttcacat ttacgaacga tagccatgga ccagcacaca cttgatgtgg aggataccgc 180
 ggatgccaga catccagcag gtacttcgtg cccctcggat gcggcgctcc tcagagatac 240
 cgggctcctc gcggacgctg cgctcctctc agatactgtg cgccccacaa atgccgcgct 300
 cccacggat gctgcctacc ctgcggttaa tgttcgggat cgcgaggccg cgtggccgcc 360
 tgcactgaac ttctgttccc gccacccaaa gctctatggc ctagtgcgtt tggttttgct 420
 gcttctgatc gccgcctgtg ttcctatctt caccgcacc gagcctcggc cagcgctcac 480
 aatcaccacc tcgccaacc tgggtacccg agagaataat gcagaccagg tcaccctgt 540
 ttccacatt ggctgcccc aactacaca acagggtctt cctgtgttcg ccaagctact 600

ggctaaaaac caagcatcgt tgtgcaatac aactctgaac tggcacagcc aagatggagc	660
tgggagctca tacctatctc aaggtctgag gtacgaagaa gacaaaaagg agttggtggt	720
agacagtccc gggctctact acgtatTTTT ggaactgaag ctCagTccaa cattcacaaa	780
cacaggccac aaggtgcagg gctgggtctc tcttgTTTTg caagcaaagc ctCaggtaga	840
tgactttgac aacttggccc tgacagtgga actgttccct tgctccatgg agaacaagtt	900
agtggaccgt tcctggagtc aactgttgct cctgaaggct ggccaccgcc tcagtgtggg	960
tctgagggct tatctgcatg gagcccagga tgcatacaga gactgggagc tgtcttatcc	1020
caacaccacc agctttggac tctttcttgt gaaacccgac aaccatggg aatgataggg	1080
atccgatctg gtactgcatg cacgcaatgc tagctgcccc tttcccgtcc tgggtacccc	1140
gagtctcccc cgacctcggg tcccaggtat gctcccacct ccacctgccc cactcaccac	1200
ctctgctagt tccagacacc tccaagcac gcagcaatgc agtcaaaac gcttagccta	1260
gccacacccc cacgggaaac agcagtgatt aacctttagc aataaacgaa agtttaacta	1320
agctatacta accccagggt tgggtcaattt cgtgccagcc acaccctcga gctagcaaaa	1380
aaaaaaaaaa aaaaaaaaaa aaaaaagcat atgactaaaa aaaaaaaaaa aaaaaaaaaa	1440
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa	1486

<210> 71
 <211> 1486
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine 41BBL

<400> 71	
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaucaagcau	60
ucuacuucua uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccau uuacgaacga uagccaugga ccagcacaca cuugaugugg aggauaccgc	180
ggaugccaga cauccagcag guacuucgug cccucggau gcggcgcuucc ucagagauac	240
cgggcuccuc gcggacgcug gcguccucuc agauacugug cgccccacaa augccgcgcu	300
ccccacggau gcugccuacc cugcgguuaa uguucgggau cgcgaggccg cguggccgcc	360
ugcacugaac uucuguuccc gccacccaaa gcucuauggc cuagucguu ugguuuugcu	420

gcuucugauc gccgccugug uuccuauuu caccgcacc gagccucggc cagcgcucac 480
 aaucaccacc ucgcccaacc ugguuacccg agagaauauu gcagaccagg ucacccucgu 540
 uucccacauu ggugcccca acacuacaca acagggcucu ccuguguucg ccaagcuacu 600
 ggcuaaaaac caagcaucgu ugugcaauac aacucugaac uggcacagcc aagauggagc 660
 ugaggagcuca uaccuauuc aaggucugag guacgaagaa gacaaaaagg aguugguggu 720
 agacaguccc gggcucuacu acguauuuu ggaacugaag cucaguccaa cauucacaaa 780
 cacaggccac aaggugcagg gcugggucuc ucuuguuuug caagcaaagc cucagguaga 840
 ugacuuugac aacuuggccc ugacagugga acuguucccu ugcuccaagg agaacaaguu 900
 aguggaccgu uccuggaguc aacuguugcu ccugaaggcu ggccaccgcc ucaguguggg 960
 ucugagggcu uaucugcaug gagcccagga ugcauacaga gacugggagc ugucuaucc 1020
 caacaccacc agcuuuggac ucuuucuugu gaaacccgac aaccauggg aaugauaggg 1080
 auccgaucug guacugcaug cacgcaaugc uagcugcccc uuucccgucc ugguuacccc 1140
 gagucucucc cgaccucggg ucccagguau gcuccaccu ccaccugccc cacucaccac 1200
 cucugcuagu uccagacacc uccaagcac gcagcaaugc agcucaaac gcuuagccua 1260
 gccacacccc cacgggaaac agcagugauu aaccuuuagc aauaaacgaa aguuuacua 1320
 agcuauacua accccagggg uggucauuu cgugccagcc acaccucga gcuagcaaaa 1380
 aaaaaaaaaa aaaaaaaaaa aaaaaagcau augacuaaaa aaaaaaaaaa aaaaaaaaaa 1440
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 1486

<210> 72
 <211> 935
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModA murine CD27L-CD40L

<400> 72

Met Arg Val Thr Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala
 1 5 10 15

Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser Gly Ser His Pro Glu Pro
 20 25 30

His Thr Ala Glu Leu Gln Leu Asn Leu Thr Val Pro Arg Lys Asp Pro
35 40 45

Thr Leu Arg Trp Gly Ala Gly Pro Ala Leu Gly Arg Ser Phe Thr His
50 55 60

Gly Pro Glu Leu Glu Glu Gly His Leu Arg Ile His Gln Asp Gly Leu
65 70 75 80

Tyr Arg Leu His Ile Gln Val Thr Leu Ala Asn Cys Ser Ser Pro Gly
85 90 95

Ser Thr Leu Gln His Arg Ala Thr Leu Ala Val Gly Ile Cys Ser Pro
100 105 110

Ala Ala His Gly Ile Ser Leu Leu Arg Gly Arg Phe Gly Gln Asp Cys
115 120 125

Thr Val Ala Leu Gln Arg Leu Thr Tyr Leu Val His Gly Asp Val Leu
130 135 140

Cys Thr Asn Leu Thr Leu Pro Leu Leu Pro Ser Arg Asn Ala Asp Glu
145 150 155 160

Thr Phe Phe Gly Val Gln Trp Ile Cys Pro Gly Gly Gly Ser Gly Gly
165 170 175

Gly His Pro Glu Pro His Thr Ala Glu Leu Gln Leu Asn Leu Thr Val
180 185 190

Pro Arg Lys Asp Pro Thr Leu Arg Trp Gly Ala Gly Pro Ala Leu Gly
195 200 205

Arg Ser Phe Thr His Gly Pro Glu Leu Glu Glu Gly His Leu Arg Ile
210 215 220

His Gln Asp Gly Leu Tyr Arg Leu His Ile Gln Val Thr Leu Ala Asn
225 230 235 240

Cys Ser Ser Pro Gly Ser Thr Leu Gln His Arg Ala Thr Leu Ala Val
245 250 255

Gly Ile Cys Ser Pro Ala Ala His Gly Ile Ser Leu Leu Arg Gly Arg
260 265 270

Phe Gly Gln Asp Cys Thr Val Ala Leu Gln Arg Leu Thr Tyr Leu Val
275 280 285

His Gly Asp Val Leu Cys Thr Asn Leu Thr Leu Pro Leu Leu Pro Ser
290 295 300

Arg Asn Ala Asp Glu Thr Phe Phe Gly Val Gln Trp Ile Cys Pro Gly
305 310 315 320

Gly Gly Ser Gly Gly Gly His Pro Glu Pro His Thr Ala Glu Leu Gln
325 330 335

Leu Asn Leu Thr Val Pro Arg Lys Asp Pro Thr Leu Arg Trp Gly Ala
340 345 350

Gly Pro Ala Leu Gly Arg Ser Phe Thr His Gly Pro Glu Leu Glu Glu
355 360 365

Gly His Leu Arg Ile His Gln Asp Gly Leu Tyr Arg Leu His Ile Gln
370 375 380

Val Thr Leu Ala Asn Cys Ser Ser Pro Gly Ser Thr Leu Gln His Arg
385 390 395 400

Ala Thr Leu Ala Val Gly Ile Cys Ser Pro Ala Ala His Gly Ile Ser
405 410 415

Leu Leu Arg Gly Arg Phe Gly Gln Asp Cys Thr Val Ala Leu Gln Arg
420 425 430

Leu Thr Tyr Leu Val His Gly Asp Val Leu Cys Thr Asn Leu Thr Leu
435 440 445

Pro Leu Leu Pro Ser Arg Asn Ala Asp Glu Thr Phe Phe Gly Val Gln
450 455 460

Trp Ile Cys Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
465 470 475 480

Gly Gly Ser Gly Asp Glu Asp Pro Gln Ile Ala Ala His Val Val Ser
485 490 495

Glu Ala Asn Ser Asn Ala Ala Ser Val Leu Gln Trp Ala Lys Lys Gly
500 505 510

Tyr Tyr Thr Met Lys Ser Asn Leu Val Met Leu Glu Asn Gly Lys Gln
515 520 525

Leu Thr Val Lys Arg Glu Gly Leu Tyr Tyr Val Tyr Thr Gln Val Thr
530 535 540

Phe Cys Ser Asn Arg Glu Pro Ser Ser Gln Arg Pro Phe Ile Val Gly
545 550 555 560

Leu Trp Leu Lys Pro Ser Ser Gly Ser Glu Arg Ile Leu Leu Lys Ala
565 570 575

Ala Asn Thr His Ser Ser Ser Gln Leu Cys Glu Gln Gln Ser Val His
580 585 590

Leu Gly Gly Val Phe Glu Leu Gln Ala Gly Ala Ser Val Phe Val Asn
595 600 605

Val Thr Glu Ala Ser Gln Val Ile His Arg Val Gly Phe Ser Ser Phe
610 615 620

Gly Leu Leu Lys Leu Gly Gly Gly Ser Gly Gly Gly Gly Asp Glu Asp
625 630 635 640

Pro Gln Ile Ala Ala His Val Val Ser Glu Ala Asn Ser Asn Ala Ala
645 650 655

Ser Val Leu Gln Trp Ala Lys Lys Gly Tyr Tyr Thr Met Lys Ser Asn
660 665 670

Leu Val Met Leu Glu Asn Gly Lys Gln Leu Thr Val Lys Arg Glu Gly
675 680 685

Leu Tyr Tyr Val Tyr Thr Gln Val Thr Phe Cys Ser Asn Arg Glu Pro
690 695 700

Ser Ser Gln Arg Pro Phe Ile Val Gly Leu Trp Leu Lys Pro Ser Ser
705 710 715 720

Gly Ser Glu Arg Ile Leu Leu Lys Ala Ala Asn Thr His Ser Ser Ser
725 730 735

Gln Leu Cys Glu Gln Gln Ser Val His Leu Gly Gly Val Phe Glu Leu
740 745 750

Gln Ala Gly Ala Ser Val Phe Val Asn Val Thr Glu Ala Ser Gln Val
755 760 765

Ile His Arg Val Gly Phe Ser Ser Phe Gly Leu Leu Lys Leu Gly Gly
770 775 780

Gly Ser Gly Gly Gly Gly Asp Glu Asp Pro Gln Ile Ala Ala His Val
785 790 795 800

Val Ser Glu Ala Asn Ser Asn Ala Ala Ser Val Leu Gln Trp Ala Lys
805 810 815

Lys Gly Tyr Tyr Thr Met Lys Ser Asn Leu Val Met Leu Glu Asn Gly
820 825 830

Lys Gln Leu Thr Val Lys Arg Glu Gly Leu Tyr Tyr Val Tyr Thr Gln
835 840 845

Val Thr Phe Cys Ser Asn Arg Glu Pro Ser Ser Gln Arg Pro Phe Ile
850 855 860

Val Gly Leu Trp Leu Lys Pro Ser Ser Gly Ser Glu Arg Ile Leu Leu
865 870 875 880

Lys Ala Ala Asn Thr His Ser Ser Ser Gln Leu Cys Glu Gln Gln Ser
885 890 895

Val His Leu Gly Gly Val Phe Glu Leu Gln Ala Gly Ala Ser Val Phe
900 905 910

Val Asn Val Thr Glu Ala Ser Gln Val Ile His Arg Val Gly Phe Ser
915 920 925

Ser Phe Gly Leu Leu Lys Leu
930 935

<210> 73
<211> 3281
<212> DNA
<213> Artificial sequence

<220>
<223> ModA murine CD27L-CD40L (5'UTR-CDS-3'UTR)

<400> 73
gggcgaacta gtattcttct ggtccccaca gactcagaga gaacccgcca ccatgagagt 60
gaccgcccc agaaccctga tcctgctgct gtctggcgcc ctggccctga cagagacatg 120
ggccggaagc ggatcccacc ccgagcccca caccgccgaa ctgcagctga acctgaccgt 180
gcccagaaag gacccaccc tgagatgggg agctggccct gctctgggca gatcctttac 240
acacggcccc gagctggaag aaggccacct gagaatccac caggacggcc tgtacagact 300
gcacatccaa gtgaccctgg ccaactgcag cagccctggc tctaccctgc agcacagagc 360
cacactggcc gtgggcatct gtagccctgc tgctcacgga atcagcctgc tgagaggcag 420
attcggccag gactgtaccg tggccctgca gaggctgacc tatctggtgc atggcgacgt 480
gctgtgcacc aacctgacac tgcctctgct gcccagcaga aacgccgacg aaacattctt 540
tggagtgcag tggatttgtc ctggcggagg gtccggggga ggacaccag aacctcatac 600
agctgaactg cagctgaacc tgaccgtgcc cagaaaggac cccaccctga gatggggagc 660
tggccctgct ctgggcagat cctttacaca cggccccgag ctggaagaag gccacctgag 720
aatccaccag gacggcctgt acagactgca catccaagt accctggcca actgcagcag 780
ccctggctct accctgcagc acagagccac actggccgtg ggcatctgta gccctgctgc 840
tcacggaatc agcctgctga gaggcagatt cggccaggac tgtaccgtgg ccctgcagag 900
gctgacctat ctggtgcatg gcgacgtgct gtgcaccaac ctgacactgc ctctgctgcc 960

cagcagaaac gccgacgaaa cattcttttg agtgcagtgg atttgtcctg ggggaggctc	1020
cggaggcgga caccctgaac ctcatcacgc tgaactgcag ctgaacctga ccgtgcccag	1080
aaaggacccc accctgagat ggggagctgg ccctgctctg ggcagatcct ttacacacgg	1140
ccccgagctg gaagaaggcc acctgagaat ccaccaggac ggcctgtaca gactgcacat	1200
ccaagtgacc ctggccaact gcagcagccc tggctctacc ctgcagcaca gagccacact	1260
ggccgtgggc atctgtagcc ctgctgctca cggaatcagc ctgctgagag gcagattcgg	1320
ccaggactgt accgtggccc tgcagaggct gacctatctg gtgcatggcg acgtgctgtg	1380
caccaacctg aactgcctc tgctgcccag cagaaacgcc gacgagacct tcttcggcgt	1440
ccagtggatc tgccccggag gcggtggtag tggagggtggc ggggtccggtg gaggtggaag	1500
cggcgacgag gacccccaga tcgccgccca cgtggtgtct gaggccaaca gcaacgccgc	1560
ctctgtgctg cagtgggcca agaaaggcta ctacaccatg aagtccaacc tcgtgatgct	1620
ggaaaacggc aagcagctga ccgtgaagcg cgagggcctg tactatgtgt acaccaagt	1680
gacattctgc agcaaccgcg agcccagcag ccagaggcct tttatcgtgg gcctgtggct	1740
gaagcctagc agcggcagcg agagaatcct gctgaaggcc gccaacaccc acagcagctc	1800
tcagctgtgc gagcagcagt ctgtgcacct gggaggcgtg ttcgagctgc aagctggcgc	1860
ttccgtgttc gtgaacgtga ccgaggccag ccaagtgatc cacagagtgg gcttcagcag	1920
ctttggactg ctcaaactgg gcggagggtc cggcggaggc ggagatgaag atcctcagat	1980
tgctgcccac gtggtgtctg aggccaacag caacgccgcc tctgtgctgc agtgggccaa	2040
gaaaggctac tacaccatga agtccaacct cgtgatgctg gaaaacggca agcagctgac	2100
cgtgaagcgc gagggcctgt actatgtgta cacccaagtg acattctgca gcaaccgcga	2160
gcccagcagc cagaggcctt ttatcgtggg cctgtggctg aagcctagca gcggcagcga	2220
gagaatcctg ctgaaggccg ccaacaccca cagcagctct cagctgtgcg agcagcagtc	2280
tgtgcacctg ggaggcgtgt tcgagctgca agctggcgct tccgtgttcg tgaacgtgac	2340
cgaggccagc caagtgatcc acagagtggg cttcagcagc tttggactgc tcaaactggg	2400
aggcggctcc ggaggcggag gagatgaaga tcctcagatt gctgcccacg tgggtgtctga	2460
ggccaacagc aacgccgcct ctgtgctgca gtgggccaag aaaggctact acaccatgaa	2520
gtccaacctc gtgatgctgg aaaacggcaa gcagctgacc gtgaagcgcg agggcctgta	2580

ctatgtgtac acccaagtga cattctgcag caaccgagag cccagcagcc agaggccttt	2640
tatcgtgggc ctgtggctga agcctagcag cggcagcag agaatcctgc tgaaggccgc	2700
caacaccac agcagctctc agctgtgcga gcagcagtct gtgcacctgg gaggcgtgtt	2760
cgagctgcaa gctggcgctt ccgtgttcgt gaacgtgacc gaggccagcc aagtgatcca	2820
cagagtgggc ttctcctcct tcggcctcct gaagctgtga ctcgagagct cgctttcttg	2880
ctgtccaatt tctattaaag gttcctttgt tccctaagtc caactactaa actgggggat	2940
attatgaagg gccttgagca tctggattct gcctaataaa aaacatttat ttccattgct	3000
gcgtcgagag ctgcctttct tgctgtccaa tttctattaa aggttccttt gttccctaag	3060
tccaactact aaactggggg atattatgaa gggccttgag catctggatt ctgcctaata	3120
aaaaacattt attttcattg ctgcgtcgag acctgggtcca gagtcgctag caaaaaaaaa	3180
aaaaaaaaaa aaaaaaaaaa agcatatgac taaaaaaaaa aaaaaaaaaa aaaaaaaaaa	3240
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a	3281

<210> 74
 <211> 3281
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModA murine CD27L-CD40L

<400> 74	
gggcgaacua guauucuucu ggucgccaca gacucagaga gaacccgcca ccaugagagu	60
gaccgcccc agaaccuga uccugcugcu gucuggcgcc cuggcccuga cagagacaug	120
ggccggaagc ggaucccacc ccgagcccc caccgccgaa cugcagcuga accugaccgu	180
gcccagaaag gacccaccc ugagaugggg agcuggcccu gcucugggca gauccuuuac	240
acacggcccc gagcuggaag aaggccaccu gagaauccac caggacggcc uguacagacu	300
gcacauccea gugaccugc ccaacugcag cagcccuggc ucuaccugc agcacagagc	360
cacacuggcc gugggcaucu guagcccugc ugcucacgga aucagccugc ugagaggcag	420
auucggccag gacuguaccg uggcccugca gaggcugacc uaucuggugc auggcgacgu	480
gcugugcacc aaccugacac ugccucugcu gcccagcaga aacgccgacg aaacauucuu	540
uggagugcag uggauuuguc cuggcggagg guccggggga ggacaccag aaccucauac	600

agcugaacug cagcugaacc ugaccgugcc cagaaaggac cccaccucuga gauggggagc	660
uggcccugcu cugggcagau ccuuuacaca cggccccgag cuggaagaag gccaccugag	720
aauccaccag gacggccugu acagacugca cauccaagug acccuggcca acugcagcag	780
cccuggcucu acccugcagc acagagccac acuggccgug ggcaucugua gcccugcugc	840
ucacggaauc agccugcuga gaggcagauu cggccaggac uguaccgugg cccugcagag	900
gcugaccuau cuggugcaug gcgacgugcu gugcaccaac cugacacugc cucugcugcc	960
cagcagaaac gccgacgaaa cauucuuugg agugcagugg auuuguccug ggggaggcuc	1020
cggaggcgga caccucgaac cucauacagc ugaacugcag cugaaccuga ccgugcccag	1080
aaaggacccc acccugagau ggggagcugg cccugcucug ggcagauccu uuacacacgg	1140
ccccgagcug gaagaaggcc accugagaau ccaccaggac ggccuguaca gacugcacau	1200
ccaagugacc cuggccaacu gcagcagccc uggcucuacc cugcagcaca gagccacacu	1260
ggccgugggc aucuguagcc cugcugcuca cggaaucagc cugcugagag gcagauucgg	1320
ccaggacugu accguggccc ugcagaggcu gaccuauucug gugcauggcg acgugcugug	1380
caccaaccug acacugccuc ugcugcccag cagaaacgcc gacgagaccu ucuucggcgu	1440
ccaguggauc ugccccggag gcggugguag uggagguggc ggguccggug gagguggaag	1500
cggcgacgag gacccccaga ucgccgccc augggugucu gaggccaaca gcaacgccgc	1560
cucugugcug caguggggcca agaaaggcua cuacaccaug aaguccaacc ucgugaugcu	1620
ggaaaacggc aagcagcuga ccgugaagcg cgagggccug uacuaugugu acaccaagu	1680
gacauucugc agcaaccgcg agcccagcag ccagaggccu uuuaucgugg gccuguggcu	1740
gaagccuagc agcggcagcg agagaauccu gcugaaggcc gccaacaccc acagcagcuc	1800
ucagcugugc gagcagcagu cugugcaccu gggaggcgug uucgagcugc aagcuggcgc	1860
uuccguguuc gugaacguga ccgaggccag ccaagugauc cacagagugg gcuucagcag	1920
cuuuggacug cucaaacugg gcggaggggc cggcgagggc ggagaugaag auccucagau	1980
ugcugcccac guggugucug aggccaacag caacgccgcc ucugugcugc aguggggcaa	2040
gaaaggcuac uacaccauga aguccaaccu cgugaugcug gaaaacggca agcagcugac	2100
cgugaagcgc gagggccugu acuaugugua cacccaagug acauucugca gcaaccgcga	2160
gcccagcagc cagaggccuu uuauucgugg ccuguggcug aagccuagca gcggcagcga	2220

gagaauccug cugaaggccg ccaacaccca cagcagcucu cagcugugcg agcagcaguc 2280
 ugugcaccug ggaggcgugu ucgagcugca agcuggcgcu uccguguucg ugaacgugac 2340
 cgaggccagc caagugaucc acagaguggg cuucagcagc uuuggacugc ucaaacuggg 2400
 aggcggcucc ggaggcggag gagaugaaga uccucagauu gcugcccacg uggugucuga 2460
 ggccaacagc aacgccgccu cugugcugca gugggccaaag aaaggcuacu acaccaugaa 2520
 guccaaccuc gugaugcugg aaaacggcaa gcagcugacc gugaagcgcg agggccugua 2580
 cuauguguac acccaaguga cauucugcag caaccgcgag cccagcagcc agaggccuuu 2640
 uaucgugggc cuguggcuga agccuagcag cggcagcgag agaauccugc ugaaggccgc 2700
 caacacccac agcagcucuc agcugugcga gcagcagucu gugcaccugg gaggcguguu 2760
 cgagcugcaa gcuggcgcuu ccguguucgu gaacgugacc gaggccagcc aagugaucca 2820
 cagagugggc uucuccuccu ucggccuccu gaagcuguga cucgagagcu cgcuuucuug 2880
 cuguccaauu ucuauuaag guuccuuugu ucccuaaguc caacuacuaa acugggggau 2940
 auuaugaagg gccuugagca ucuggauucu gccuaauaaa aaacauuuau uuucauugcu 3000
 gcgucgagag cucgcuuucu ugcuguccaa uuucuauuaa agguuccuuu guucccuaag 3060
 uccaacuacu aaacuggggg auauuaugaa gggccuugag caucuggauu cugccuaaua 3120
 aaaaacauuu auuuucauug cugcgucgag accuggucca gagucgcuag caaaaaaaaa 3180
 aaaaaaaaaa aaaaaaaaaa agcauugac uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3240
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 3281

<210> 75
 <211> 935
 <212> PRT
 <213> Artificial sequence

<220>
 <223> ModB murine CD27L-CD40L

<400> 75

Met Gly Ala Met Ala Pro Arg Thr Leu Leu Leu Leu Leu Ala Ala Ala
 1 5 10 15

Leu Ala Pro Thr Gln Thr Arg Ala Gly Pro Gly Ser His Pro Glu Pro
 20 25 30

His Thr Ala Glu Leu Gln Leu Asn Leu Thr Val Pro Arg Lys Asp Pro
35 40 45

Thr Leu Arg Trp Gly Ala Gly Pro Ala Leu Gly Arg Ser Phe Thr His
50 55 60

Gly Pro Glu Leu Glu Glu Gly His Leu Arg Ile His Gln Asp Gly Leu
65 70 75 80

Tyr Arg Leu His Ile Gln Val Thr Leu Ala Asn Cys Ser Ser Pro Gly
85 90 95

Ser Thr Leu Gln His Arg Ala Thr Leu Ala Val Gly Ile Cys Ser Pro
100 105 110

Ala Ala His Gly Ile Ser Leu Leu Arg Gly Arg Phe Gly Gln Asp Cys
115 120 125

Thr Val Ala Leu Gln Arg Leu Thr Tyr Leu Val His Gly Asp Val Leu
130 135 140

Cys Thr Asn Leu Thr Leu Pro Leu Leu Pro Ser Arg Asn Ala Asp Glu
145 150 155 160

Thr Phe Phe Gly Val Gln Trp Ile Cys Pro Gly Gly Gly Ser Gly Gly
165 170 175

Gly His Pro Glu Pro His Thr Ala Glu Leu Gln Leu Asn Leu Thr Val
180 185 190

Pro Arg Lys Asp Pro Thr Leu Arg Trp Gly Ala Gly Pro Ala Leu Gly
195 200 205

Arg Ser Phe Thr His Gly Pro Glu Leu Glu Glu Gly His Leu Arg Ile
210 215 220

His Gln Asp Gly Leu Tyr Arg Leu His Ile Gln Val Thr Leu Ala Asn
225 230 235 240

Cys Ser Ser Pro Gly Ser Thr Leu Gln His Arg Ala Thr Leu Ala Val
245 250 255

Gly Ile Cys Ser Pro Ala Ala His Gly Ile Ser Leu Leu Arg Gly Arg
260 265 270

Phe Gly Gln Asp Cys Thr Val Ala Leu Gln Arg Leu Thr Tyr Leu Val
275 280 285

His Gly Asp Val Leu Cys Thr Asn Leu Thr Leu Pro Leu Leu Pro Ser
290 295 300

Arg Asn Ala Asp Glu Thr Phe Phe Gly Val Gln Trp Ile Cys Pro Gly
305 310 315 320

Gly Gly Ser Gly Gly Gly His Pro Glu Pro His Thr Ala Glu Leu Gln
325 330 335

Leu Asn Leu Thr Val Pro Arg Lys Asp Pro Thr Leu Arg Trp Gly Ala
340 345 350

Gly Pro Ala Leu Gly Arg Ser Phe Thr His Gly Pro Glu Leu Glu Glu
355 360 365

Gly His Leu Arg Ile His Gln Asp Gly Leu Tyr Arg Leu His Ile Gln
370 375 380

Val Thr Leu Ala Asn Cys Ser Ser Pro Gly Ser Thr Leu Gln His Arg
385 390 395 400

Ala Thr Leu Ala Val Gly Ile Cys Ser Pro Ala Ala His Gly Ile Ser
405 410 415

Leu Leu Arg Gly Arg Phe Gly Gln Asp Cys Thr Val Ala Leu Gln Arg
420 425 430

Leu Thr Tyr Leu Val His Gly Asp Val Leu Cys Thr Asn Leu Thr Leu
435 440 445

Pro Leu Leu Pro Ser Arg Asn Ala Asp Glu Thr Phe Phe Gly Val Gln
450 455 460

Trp Ile Cys Pro Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
465 470 475 480

Gly Gly Ser Gly Asp Glu Asp Pro Gln Ile Ala Ala His Val Val Ser
485 490 495

Glu Ala Asn Ser Asn Ala Ala Ser Val Leu Gln Trp Ala Lys Lys Gly
500 505 510

Tyr Tyr Thr Met Lys Ser Asn Leu Val Met Leu Glu Asn Gly Lys Gln
515 520 525

Leu Thr Val Lys Arg Glu Gly Leu Tyr Tyr Val Tyr Thr Gln Val Thr
530 535 540

Phe Cys Ser Asn Arg Glu Pro Ser Ser Gln Arg Pro Phe Ile Val Gly
545 550 555 560

Leu Trp Leu Lys Pro Ser Ser Gly Ser Glu Arg Ile Leu Leu Lys Ala
565 570 575

Ala Asn Thr His Ser Ser Ser Gln Leu Cys Glu Gln Gln Ser Val His
580 585 590

Leu Gly Gly Val Phe Glu Leu Gln Ala Gly Ala Ser Val Phe Val Asn
595 600 605

Val Thr Glu Ala Ser Gln Val Ile His Arg Val Gly Phe Ser Ser Phe
610 615 620

Gly Leu Leu Lys Leu Gly Gly Gly Ser Gly Gly Gly Gly Asp Glu Asp
625 630 635 640

Pro Gln Ile Ala Ala His Val Val Ser Glu Ala Asn Ser Asn Ala Ala
645 650 655

Ser Val Leu Gln Trp Ala Lys Lys Gly Tyr Tyr Thr Met Lys Ser Asn
660 665 670

Leu Val Met Leu Glu Asn Gly Lys Gln Leu Thr Val Lys Arg Glu Gly
675 680 685

Leu Tyr Tyr Val Tyr Thr Gln Val Thr Phe Cys Ser Asn Arg Glu Pro
690 695 700

Ser Ser Gln Arg Pro Phe Ile Val Gly Leu Trp Leu Lys Pro Ser Ser
705 710 715 720

Gly Ser Glu Arg Ile Leu Leu Lys Ala Ala Asn Thr His Ser Ser Ser
725 730 735

Gln Leu Cys Glu Gln Gln Ser Val His Leu Gly Gly Val Phe Glu Leu
740 745 750

Gln Ala Gly Ala Ser Val Phe Val Asn Val Thr Glu Ala Ser Gln Val
755 760 765

Ile His Arg Val Gly Phe Ser Ser Phe Gly Leu Leu Lys Leu Gly Gly
770 775 780

Gly Ser Gly Gly Gly Gly Asp Glu Asp Pro Gln Ile Ala Ala His Val
785 790 795 800

Val Ser Glu Ala Asn Ser Asn Ala Ala Ser Val Leu Gln Trp Ala Lys
805 810 815

Lys Gly Tyr Tyr Thr Met Lys Ser Asn Leu Val Met Leu Glu Asn Gly
820 825 830

Lys Gln Leu Thr Val Lys Arg Glu Gly Leu Tyr Tyr Val Tyr Thr Gln
835 840 845

Val Thr Phe Cys Ser Asn Arg Glu Pro Ser Ser Gln Arg Pro Phe Ile
850 855 860

Val Gly Leu Trp Leu Lys Pro Ser Ser Gly Ser Glu Arg Ile Leu Leu
865 870 875 880

Lys Ala Ala Asn Thr His Ser Ser Ser Gln Leu Cys Glu Gln Gln Ser
885 890 895

Val His Leu Gly Gly Val Phe Glu Leu Gln Ala Gly Ala Ser Val Phe
900 905 910

Val Asn Val Thr Glu Ala Ser Gln Val Ile His Arg Val Gly Phe Ser
915 920 925

Ser Phe Gly Leu Leu Lys Leu
930 935

<210> 76
<211> 3361
<212> DNA
<213> Artificial sequence

<220>
<223> ModB murine CD27L-CD40L (5'UTR-CDS-3'UTR)

<400> 76
ggaataaaact agtctcaaca caacatatac aaaacaaacg aatctcaagc aatcaagcat 60
tctactttcta ttgcagcaat ttaaattcatt tctttttaag caaaagcaat tttctgaaaa 120
ttttcaccat ttacgaacga tagccatggg cgccatggcc cctagaacat tgctcctgct 180
gctggccgct gccctggccc ctacacagac aagagctgga cctggatccc accccgagcc 240
ccacaccgcc gaactgcagc tgaacctgac cgtgcccaga aaggaccca ccctgagatg 300
gggagctggc cctgctctgg gcagatcctt tacacacggc cccgagctgg aagaaggcca 360
cctgagaatc caccaggacg gcctgtacag actgcacatc caagtgacct tggccaactg 420
cagcagccct ggctctacct tgcagcacag agccacactg gccgtgggca tctgtagccc 480
tgctgctcac ggaatcagcc tgctgagagg cagattcggc caggactgta ccgtggccct 540
gcagaggctg acctatctgg tgcatggcga cgtgctgtgc accaacctga cactgcctct 600
gctgcccagc agaaacgccg acgaaacatt ctttggagtg cagtggattt gtcctggcgg 660
aggggtccggg ggaggacacc cagaacctca tacagctgaa ctgcagctga acctgaccgt 720
gcccagaaaag gacccacccc tgagatgggg agctggccct gctctgggca gatacctttac 780
acacggcccc gagctggaag aaggccacct gagaatccac caggacggcc tgtacagact 840
gcacatccaa gtgaccctgg ccaactgcag cagccctggc tctaccctgc agcacagagc 900
cacactggcc gtgggcatct gtagccctgc tgctcacgga atcagcctgc tgagaggcag 960

attcggccag gactgtaccg tggccctgca gaggctgacc tatctggtgc atggcgacgt	1020
gctgtgcacc aacctgacac tgcctctgct gcccagcaga aacgccgacg aaacattctt	1080
tggagtgcag tggatttgtc ctgggggagg ctccggaggc ggacaccctg aacctcatac	1140
agctgaactg cagctgaacc tgaccgtgcc cagaaaggac cccaccctga gatggggagc	1200
tggccctgct ctgggcagat cctttacaca cggccccgag ctggaagaag gccacctgag	1260
aatccaccag gacggcctgt acagactgca catccaagt accctggcca actgcagcag	1320
ccctggctct accctgcagc acagagccac actggccgtg ggcatctgta gccctgctgc	1380
tcacggaatc agcctgctga gaggcagatt cggccaggac tgtaccgtgg ccctgcagag	1440
gctgacctat ctggtgcatg gcgacgtgct gtgcaccaac ctgacactgc ctctgctgcc	1500
cagcagaaac gccgacgaga ccttcttcgg cgtccagtgg atctgccccg gaggcggtgg	1560
tagtggaggt ggcggtccg gtggaggtgg aagcggcgac gaggacccc agatcgccgc	1620
ccacgtggtg tctgaggcca acagcaacgc cgcctctgtg ctgcagtggg ccaagaaagg	1680
ctactacacc atgaagtcca acctcgtgat gctggaaaac ggcaagcagc tgaccgtgaa	1740
gcgcgagggc ctgtactatg tgtacacca agtgacattc tgcagcaacc gcgagcccag	1800
cagccagagg ccttttatcg tgggcctgtg gctgaagcct agcagcggca gcgagagaat	1860
cctgctgaag gccgccaaca cccacagcag ctctcagctg tgcgagcagc agtctgtgca	1920
cctgggaggc gtgttcgagc tgcaagctgg cgcttccgtg ttcgtgaacg tgaccgaggc	1980
cagccaagt atccacagag tgggcttcag cagctttgga ctgctcaaac tgggcggagg	2040
gtccggcgga ggcgagatg aagatcctca gattgctgcc cacgtggtgt ctgaggccaa	2100
cagcaacgcc gcctctgtgc tgcaagtggc caagaaaggc tactacacca tgaagtccaa	2160
cctcgtgatg ctggaaaacg gcaagcagct gaccgtgaag cgcgagggcc tgtactatgt	2220
gtacacccaa gtgacattct gcagcaaccg cgagcccagc agccagaggc cttttatcgt	2280
gggcctgtgg ctgaagccta gcagcggcag cgagagaatc ctgctgaagg ccgccaacac	2340
ccacagcagc tctcagctgt gcgagcagca gtctgtgcac ctgggaggcg tgttcagact	2400
gcaagctggc gcttccgtgt tcgtgaacgt gaccgaggcc agccaagtga tccacagagt	2460
gggcttcagc agctttggac tgctcaaact gggaggcggc tccggaggcg gaggagatga	2520
agatcctcag attgctgccc acgtggtgtc tgaggccaac agcaacgccg cctctgtgct	2580

gcagtgggcc aagaaaggct actacaccat gaagtccaac ctcgtgatgc tggaaaacgg	2640
caagcagctg accgtgaagc gcgagggcct gtactatgtg tacaccaag tgacattctg	2700
cagcaaccgc gagcccagca gccagaggcc ttttatcgtg ggccctgtggc tgaagcctag	2760
cagcggcagc gagagaatcc tgctgaaggc cgccaacacc cacagcagct ctcagctgtg	2820
cgagcagcag tctgtgcacc tgggaggcgt gttcgagctg caagctggcg cttccgtgtt	2880
cgtgaacgtg accgaggcca gccaaagtgat ccacagagtg ggcttctcct ctttcggcct	2940
cctgaagctg tgactcgacg tcctgggtact gcatgcacgc aatgctagct gcccctttcc	3000
cgtcctgggt accccgagtc tccccgacc tcgggtccca ggtatgctcc cacctccacc	3060
tgccccactc accacctctg ctagttccag acacctccca agcacgcagc aatgcagctc	3120
aaaacgctta gcctagccac acccccacgg gaaacagcag tgattaacct ttagcaataa	3180
acgaaagttt aactaagcta tactaaccac agggttggtc aatttcgtgc cagccacacc	3240
ctcgagctag caaaaaaaaaa aaaaaaaaaa aaaaaaaaaa agcatatgac taaaaaaaaa	3300
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	3360
a	3361

<210> 77
 <211> 3361
 <212> RNA
 <213> Artificial sequence

<220>
 <223> ModB murine CD27L-CD40L

<400> 77	
ggaauaaacu agucucaaca caacauauac aaaacaaacg aaucucaagc aaUCAAGCAU	60
UCUACUUCUA uugcagcaau uuaaaucuu uuuuuuaag caaaagcaau uuucugaaaa	120
uuuucaccau uuacgaacga uagccauggg cgccauggcc ccuagaacau ugcuccugcu	180
gcuggccgcu gcccuggccc cuacacagac aagagcugga ccuggauccc accccgagcc	240
ccacaccgcc gaacugcagc ugaaccugac cgugcccaga aaggaccca cccugagaug	300
gggagcuggc ccugcucugg gcagaucuu uacacacggc cccgagcugg aagaaggcca	360
ccugagaauC caccaggacg gccuguacag acugcacauC caagugaccc uggccaacug	420
cagcagcccu ggcucuaccc ugcagcacag agccacacug gccgugggca ucuguagccc	480

ugcugcucac ggaaucagcc ugcugagagg cagauucggc caggacugua ccguggcccu	540
gcagaggcug accuauucugg ugcauggcga cgugcugugc accaaccuga cacugccucu	600
gcugcccagc agaaacgccg acgaaacauu cuuuggagug caguggauuu guccuggcgg	660
aggguccggg ggaggacacc cagaaccuca uacagcugaa cugcagcuga accugaccgu	720
gcccagaaag gacccaccc ugagaugggg agcuggcccu gcucugggca gauccuuuac	780
acacggcccc gagcuggaag aaggccaccu gagaauccac caggacggcc uguacagacu	840
gcacauccaa gugaccucgg ccaacugcag cagcccuggc ucuaccugc agcacagagc	900
cacacuggcc gugggcaucu guagcccugc ugcucacgga aucagccugc ugagaggcag	960
auucggccag gacuguaccg uggcccugca gaggcugacc uaucuggugc auggcgacgu	1020
gcugugcacc aaccugacac ugccucugcu gcccagcaga aacgccgacg aaacauucuu	1080
uggagugcag uggauuuguc cuggggggagg cuccggaggc ggacaccug aaccucauac	1140
agcugaacug cagcugaacc ugaccgugcc cagaaaggac cccaccugc gauggggagc	1200
uggcccugcu cugggcagau ccuuuacaca cggccccgag cuggaagaag gccaccugag	1260
aauccaccag gacggccugu acagacugca cauccaagug acccuggcca acugcagcag	1320
cccuggcucu acccugcagc acagagccac acuggccgug ggcaucugua gccugcugc	1380
ucacggaauc agccugcuga gaggcagauu cggccaggac uguaccugg cccugcagag	1440
gcugaccuau cuggugcaug gcgacugcu gugcaccaac cugacacugc cucugcugcc	1500
cagcagaaac gccgacgaga ccuucuucgg cguccagugg aucugccccg gaggcggugg	1560
uaguggaggu ggcggguccg guggaggugg aagcggcgac gaggaccccc agaucgccgc	1620
ccacguggug ucugaggcca acagcaacgc cgccucugug cugcaguggg ccaagaaagg	1680
cuacuacacc augaagucca accucgugau gcuggaaaac ggcaagcagc ugaccugaa	1740
gcgcgagggc cuguacuaug uguacacca agugacauuc ugcagcaacc gcgagcccag	1800
cagccagagg ccuuuuuucg ugggccugug gcugaagccu agcagcggca gcgagagaau	1860
ccugcugaag gccgccaaca cccacagcag cucucagcug ugcgagcagc agucugugca	1920
ccugggaggc guguucgagc ugcaagcugg cgcuuccgug uucgugaacg ugaccgaggc	1980
cagccaagug auccacagag ugggcuucag cagcuuugga cugcucaaac ugggcggagg	2040
guccggcggg ggcgggagug aagauccuca gauugcugcc cacguggugu cugaggccaa	2100

cagcaacgcc gccucugugc ugcagugggc caagaaaggc uacuacacca ugaaguccaa	2160
ccucgugaug cuggaaaacg gcaagcagcu gaccgugaag cgcgagggcc uguacuauugu	2220
guacacccaa gugacauucu gcagcaaccg cgagcccagc agccagaggc cuuuuauugu	2280
gggccugugg cugaagccua gcagcggcag cgagagaauc cugcugaagg ccgccaacac	2340
ccacagcagc ucucagcugu gcgagcagca gucugugcac cugggaggcg uguucgagcu	2400
gcaagcuggc gcuuccgugu ucgugaacgu gaccgaggcc agccaaguga uccacagagu	2460
gggcuucagc agcuuuggac ugcuaaacu gggaggcggc uccggaggcg gaggagauga	2520
agauccucag auugcugccc acgugguguc ugaggccaac agcaacgccg ccucugugcu	2580
gcagugggcc aagaaaggcu acuacaccau gaaguccaac cucgugaugc uggaaaacgg	2640
caagcagcug accgugaagc gcgagggccu guacuauug uacaccaag ugacauucug	2700
cagcaaccgc gagcccagca gccagaggcc uuuuauugug ggccuguggc ugaagccuag	2760
cagcggcagc gagagaaucc ugcugaaggc cgccaacacc cacagcagcu cucagcugug	2820
cgagcagcag ucugugcacc ugggaggcgu guucgagcug caagcuggcg cuuccguguu	2880
cgugaacgug accgaggcca gccaaugau ccacagagug ggcuucuccu ccuucggccu	2940
ccugaagcug ugacucgacg uccugguacu gcaugcacgc aaugcuagcu gccccuucc	3000
cguccugggu accccgaguc uccccgacc ucggguccca gguaugcucc caccuccacc	3060
ugccccacuc accaccucug cuaguuccag acaccuccca agcacgcagc aaugcagcuc	3120
aaaacgcuua gccuagccac acccccacgg gaaacagcag ugauuaaccu uuagcaauaa	3180
acgaaaguuu aacuaagcua uacuaacccc agggguugguc aauuucgugc cagccacacc	3240
cucgagcuag caaaaaaaaa aaaaaaaaaa aaaaaaaaaa agcauauagac uaaaaaaaaa	3300
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	3360
a	3361

<210> 78
 <211> 110
 <212> RNA
 <213> Artificial sequence

<220>
 <223> Poly-A

<400> 78
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa gcauauagacu aaaaaaaaaa aaaaaaaaaa 60
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 110

<210> 79
 <211> 444
 <212> PRT
 <213> Artificial sequence

<220>
 <223> Anti-PD1 Mab heavy chain

<400> 79

Glu Val Gln Leu Leu Glu Ser Gly Gly Val Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Phe
 20 25 30

Gly Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ser Gly Ile Ser Gly Gly Gly Arg Asp Thr Tyr Phe Ala Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
 65 70 75 80

Leu Gln Met Asn Ser Leu Lys Gly Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Val Lys Trp Gly Asn Ile Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu
 100 105 110

Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 115 120 125

Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys
 130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro
210 215 220

Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
225 230 235 240

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
245 250 255

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
260 265 270

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
275 280 285

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
290 295 300

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
305 310 315 320

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
325 330 335

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
340 345 350

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
355 360 365

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
370 375 380

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
385 390 395 400

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
405 410 415

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
420 425 430

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440

<210> 80
<211> 214
<212> PRT
<213> Artificial sequence

<220>
<223> Anti-PD1 Mab light chain

<400> 80

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Ser Ile Thr Ile Thr Cys Arg Ala Ser Leu Ser Ile Asn Thr Phe
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Ser Leu His Gly Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Arg Thr Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Asn Thr Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Val Val Asp Phe Arg Arg Thr Val Ala Ala
100 105 110

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

<210> 81
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> HCDR1

<400> 81

Gly Phe Thr Phe Ser Asn Phe Gly
1 5

<210> 82
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> HCDR2

<400> 82

Ile Ser Gly Gly Gly Arg Asp Thr
1 5

<210> 83

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> HCDR3

<400> 83

Val Lys Trp Gly Asn Ile Tyr Phe Asp Tyr
1 5 10

<210> 84

<211> 6

<212> PRT

<213> Artificial sequence

<220>

<223> LCDR1

<400> 84

Leu Ser Ile Asn Thr Phe
1 5

<210> 85

<211> 3

<212> PRT

<213> Artificial sequence

<220>

<223> LCDR2

<400> 85

Ala Ala Ser
1

<210> 86

<211> 9

<212> PRT

<213> Artificial sequence

<220>

<223> LCDR3

<400> 86

Gln Gln Ser Ser Asn Thr Pro Phe Thr
1 5

<210> 87

<211> 117

<212> PRT

<213> Artificial sequence

<220>

<223> Anti-PD1 Mab VH

<400> 87

Glu Val Gln Leu Leu Glu Ser Gly Gly Val Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Phe
20 25 30

Gly Met Thr Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ser Gly Ile Ser Gly Gly Gly Arg Asp Thr Tyr Phe Ala Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Gly Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Val Lys Trp Gly Asn Ile Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Leu
100 105 110

Val Thr Val Ser Ser
115

<210> 88

<211> 107

<212> PRT

<213> Artificial sequence

<220>

<223> Anti-PD1 Mab VL

<400> 88

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Ser Ile Thr Ile Thr Cys Arg Ala Ser Leu Ser Ile Asn Thr Phe
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Asn Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Ser Leu His Gly Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Arg Thr Leu Gln Pro
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Ser Asn Thr Pro Phe
85 90 95

Thr Phe Gly Pro Gly Thr Val Val Asp Phe Arg
100 105