

SEQUENCE LISTING

<110> Regenerative Medicine iPS Gateway Center Co.,Ltd.

<120> Method for producing negative-sense RNA virus vector and the produced netagive-sense RNA virus vector

<130> PI67-9002WO

<150> JP2021-108757

<151> 2021-06-30

<160> 42

<170> PatentIn version 3.5

<210> 1

<211> 1179

<212> DNA

<213> Artificial Sequence

<220>

<223> EF1alpha

<400> 1

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gtagtcgccg tgaacgttct ttttcgcaac gggtttgccg ccagaacaca ggtaagtgcc

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300

acttcacct ggctgcagta cgtgattctt gatcccgagc ttcgggttgg aagtgggtgg

360

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420

cctgggcgct ggggccgccg cgtgcgaatc tgggtggcacc ttcgcgcctg tctcgctgct

480

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540

caagatagtc ttgtaaagtc gggccaagat ctgcacactg gtatttcggt ttttggggcc

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660

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780

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840

acgcggcgct cgggagagcg ggcgggtgag tcacccacac aaaggaaaag ggcctttccg
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1020

gagtttcccc aactgagtg ggtggagact gaagttaggc cagcttggca cttgatgtaa
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1179

<210> 2

<211> 1676

<212> DNA

<213> Artificial Sequence

<220>

<223> CAG promoter

<400> 2

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120

acgacccccg cccattgacg tcaataatga cgtatgttcc catagtaacg ccaataggga
180

ctttccattg acgtcaatgg gtggagtatt tacggtaaac tgcccacttg gcagtacatc
240

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gcgtgggggg gtgagcaggg ggtgtgggcg cgtcggtcgg gctgcaacct cccctgcacc
1140

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ggccgcctcg ggccggggag ggctcggggg aggggcgcgg cgccccccgg agcgccggcg
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agggaacttc tttgtccaa atctgtgcgg agccgaaatc tgggagggcg cgccgcaccc
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1560

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1676

<210> 3
<211> 732
<212> DNA
<213> Artificial Sequence

<220>
<223> EmGFP

<400> 3
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120

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180

ctcgtgacca ccttgacctt cggcgtgcag tgcttcgccc gctaccccga ccacatgaag
240

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300

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360

gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac
420

aagctggagt acaactacaa cagccacaag gtctatatca ccgccgacaa gcagaagaac
480

ggcatcaagg tgaacttcaa gaccgcccac aacatcgagg acggcagcgt gcagctcgcc
540

gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac
600

tacctgagca ccagtcctgc cctgagcaaa gaccccaacg agaagcgga tcacatggtc
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tgataaccct ga
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<210> 4
<211> 708

<212> RNA
 <213> Artificial Sequence

<220>
 <223> EBV EBER

<400> 4
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 420
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 480
 uacggguucgc uacaucaaac aggacagccg uugcccuagu gguuucggac acaccgcaa
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 600
 cgccuagagc auuugcaagu caggauucuc uaaucccucu gggagaaggg uauucggcuu
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 708

<210> 5
 <211> 57
 <212> RNA
 <213> Artificial Sequence

<220>
 <223> HIV TAR

<400> 5
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 57

<210> 6

<211> 149
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Polio virus 2Apro

<400> 6

Gly Phe Gly His Gln Asn Lys Ala Val Tyr Thr Ala Gly Tyr Lys Ile
 1 5 10 15

Cys Asn Tyr His Leu Ala Thr Gln Asp Asp Leu Gln Asn Ala Val Asn
 20 25 30

Val Met Trp Ser Arg Asp Leu Leu Val Thr Glu Ser Arg Ala Gln Gly
 35 40 45

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

Glu Ser Arg Arg Lys Tyr Tyr Pro Val Ser Phe Val Gly Pro Thr Phe
 65 70 75 80

Gln Tyr Met Glu Ala Asn Asn Tyr Tyr Pro Ala Arg Tyr Gln Ser His
 85 90 95

Met Leu Ile Gly His Gly Phe Ala Ser Pro Gly Asp Cys Gly Gly Ile
 100 105 110

Leu Arg Cys His His Gly Val Ile Gly Ile Ile Thr Ala Gly Gly Glu
 115 120 125

Gly Leu Val Ala Phe Ser Asp Ile Arg Asp Leu Tyr Ala Tyr Glu Glu
 130 135 140

Glu Ala Met Glu Gln
 145

<210> 7
 <211> 190
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Vaccinia virus E3L

<400> 7

Met Ser Lys Ile Tyr Ile Asp Glu Arg Ser Asn Ala Glu Ile Val Cys
 1 5 10 15

Glu Ala Ile Lys Thr Ile Gly Ile Glu Gly Ala Thr Ala Ala Gln Leu
 20 25 30

Thr Arg Gln Leu Asn Met Glu Lys Arg Glu Val Asn Lys Ala Leu Tyr
 35 40 45

Asp Leu Gln Arg Ser Ala Met Val Tyr Ser Ser Asp Asp Ile Pro Pro
 50 55 60

Arg Trp Phe Met Thr Thr Glu Ala Asp Glu Ala Asp Ala Asp Ala Met
 65 70 75 80

Ser Asp Val Ile Ile Asp Asp Val Ser Arg Glu Lys Ser Met Arg Glu
 85 90 95

Asp His Lys Ser Phe Asp Asp Val Ile Pro Ala Lys Lys Ile Ile Asp
 100 105 110

Trp Lys Gly Ala Asn Pro Val Thr Val Ile Asn Glu Tyr Cys Gln Ile
 115 120 125

Thr Arg Arg Asp Trp Ser Phe Arg Ile Glu Ser Val Gly Pro Ser Asn
 130 135 140

Ser Pro Thr Phe Tyr Ala Cys Val Asp Ile Asp Gly Arg Val Phe Asp
 145 150 155 160

Lys Ala Asp Gly Lys Ser Lys Arg Asp Ala Lys Asn Asn Ala Ala Lys
 165 170 175

Leu Ala Val Asp Lys Leu Leu Gly Tyr Val Ile Ile Arg Phe
 180 185 190

<210> 8
 <211> 365
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Reovirus sigma 3

<400> 8

Met	Glu	Val	Cys	Leu	Pro	Asn	Gly	His	Gln	Val	Val	Asp	Leu	Ile	Asn	1	5	10	15
Asn	Ala	Phe	Glu	Gly	Arg	Val	Ser	Ile	Tyr	Ser	Ala	Gln	Glu	Gly	Trp	20	25	30	
Asp	Lys	Thr	Ile	Ser	Ala	Gln	Pro	Asp	Met	Met	Val	Cys	Gly	Gly	Ala	35	40	45	
Val	Val	Cys	Met	His	Cys	Leu	Gly	Val	Val	Gly	Ser	Leu	Gln	Arg	Lys	50	55	60	
Leu	Lys	His	Leu	Pro	His	His	Arg	Cys	Asn	Gln	Gln	Ile	Arg	His	Gln	65	70	75	80
Asp	Tyr	Val	Asp	Val	Gln	Phe	Ala	Asp	Arg	Val	Thr	Ala	His	Trp	Lys	85	90	95	
Arg	Gly	Met	Leu	Ser	Phe	Val	Ala	Gln	Met	His	Glu	Met	Met	Asn	Asp	100	105	110	
Val	Ser	Pro	Asp	Asp	Leu	Asp	Arg	Val	Arg	Thr	Glu	Gly	Gly	Ser	Leu	115	120	125	
Val	Glu	Leu	Asn	Trp	Leu	Gln	Val	Asp	Pro	Asn	Ser	Met	Phe	Arg	Ser	130	135	140	
Ile	His	Ser	Ser	Trp	Thr	Asp	Pro	Leu	Gln	Val	Val	Asp	Asp	Leu	Asp	145	150	155	160
Thr	Lys	Leu	Asp	Gln	Tyr	Trp	Thr	Ala	Leu	Asn	Leu	Met	Ile	Asp	Ser	165	170	175	
Ser	Asp	Leu	Ile	Pro	Asn	Phe	Met	Met	Arg	Asp	Pro	Ser	His	Ala	Phe	180	185	190	
Asn	Gly	Val	Lys	Leu	Gly	Gly	Asp	Ala	Arg	Gln	Thr	Gln	Phe	Ser	Arg	195	200	205	
Thr	Phe	Asp	Ser	Arg	Ser	Ser	Leu	Glu	Trp	Gly	Val	Met	Val	Tyr	Asp	210	215	220	
Tyr	Ser	Glu	Leu	Glu	His	Asp	Pro	Ser	Lys	Gly	Arg	Ala	Tyr	Arg	Lys				

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Asp Gly Asp Pro Asp Asn Tyr Ile Ala Tyr Tyr Arg Arg Ala Thr Val				
65		70	75	80
Phe Leu Ala Met Gly Lys Ser Lys Ala Ala Leu Pro Asp Leu Thr Lys				
	85	90		95
Val Ile Gln Leu Lys Met Asp Phe Thr Ala Ala Arg Leu Gln Arg Gly				
	100	105		110
His Leu Leu Leu Lys Gln Gly Lys Leu Asp Glu Ala Glu Asp Asp Phe				
	115	120	125	
Lys Lys Val Leu Lys Ser Asn Pro Ser Glu Asn Glu Glu Lys Glu Ala				
	130	135	140	
Gln Ser Gln Leu Ile Lys Ser Asp Glu Met Gln Arg Leu Arg Ser Gln				
145	150	155		160
Ala Leu Asn Ala Phe Gly Ser Gly Asp Tyr Thr Ala Ala Ile Ala Phe				
	165	170		175
Leu Asp Lys Ile Leu Glu Val Cys Val Trp Asp Ala Glu Leu Arg Glu				
	180	185		190
Leu Arg Ala Glu Cys Phe Ile Lys Glu Gly Glu Pro Arg Lys Ala Ile				
	195	200	205	
Ser Asp Leu Lys Ala Ala Ser Lys Leu Lys Asn Asp Asn Thr Glu Ala				
	210	215	220	
Phe Tyr Lys Ile Ser Thr Leu Tyr Tyr Gln Leu Gly Asp His Glu Leu				
225	230	235		240
Ser Leu Ser Glu Val Arg Glu Cys Leu Lys Leu Asp Gln Asp His Lys				
	245	250		255
Arg Cys Phe Ala His Tyr Lys Gln Val Lys Lys Leu Asn Lys Leu Ile				
	260	265		270
Glu Ser Ala Glu Glu Leu Ile Arg Asp Gly Arg Tyr Thr Asp Ala Thr				
	275	280	285	

Ser Lys Tyr Glu Ser Val Met Lys Thr Glu Pro Ser Ile Ala Glu Tyr
 290 295 300

Thr Val Arg Ser Lys Glu Arg Ile Cys His Cys Phe Ser Lys Asp Glu
 305 310 315 320

Lys Pro Val Glu Ala Ile Arg Val Cys Ser Glu Val Leu Gln Met Glu
 325 330 335

Pro Asp Asn Val Asn Ala Leu Lys Asp Arg Ala Glu Ala Tyr Leu Ile
 340 345 350

Glu Glu Met Tyr Asp Glu Ala Ile Gln Asp Tyr Glu Thr Ala Gln Glu
 355 360 365

His Asn Glu Asn Asp Gln Gln Ile Arg Glu Gly Leu Glu Lys Ala Gln
 370 375 380

Arg Leu Leu Lys Gln Ser Gln Lys Arg Asp Tyr Tyr Lys Ile Leu Gly
 385 390 395 400

Val Lys Arg Asn Ala Lys Lys Gln Glu Ile Ile Lys Ala Tyr Arg Lys
 405 410 415

Leu Ala Leu Gln Trp His Pro Asp Asn Phe Gln Asn Glu Glu Glu Lys
 420 425 430

Lys Lys Ala Glu Lys Lys Phe Ile Asp Ile Ala Ala Ala Lys Glu Val
 435 440 445

Leu Ser Asp Pro Glu Met Arg Lys Lys Phe Asp Asp Gly Glu Asp Pro
 450 455 460

Leu Asp Ala Glu Ser Gln Gln Gly Gly Gly Gly Asn Pro Phe His Arg
 465 470 475 480

Ser Trp Asn Ser Trp Gln Gly Phe Asn Pro Phe Ser Ser Gly Gly Pro
 485 490 495

Phe Arg Phe Lys Phe His Phe Asn
 500

<211> 88
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Vaccinia virus K3L

<400> 10

Met Leu Ala Phe Cys Tyr Ser Leu Pro Asn Ala Gly Asp Val Ile Lys
 1 5 10 15

Gly Arg Val Tyr Glu Lys Asp Tyr Ala Leu Tyr Ile Tyr Leu Phe Asp
 20 25 30

Tyr Pro His Ser Glu Ala Ile Leu Ala Glu Ser Val Lys Met His Met
 35 40 45

Asp Arg Tyr Val Glu Tyr Arg Asp Lys Leu Val Gly Lys Thr Val Lys
 50 55 60

Val Lys Val Ile Arg Val Asp Tyr Thr Lys Gly Tyr Ile Asp Val Asn
 65 70 75 80

Tyr Lys Arg Met Cys Arg His Gln
 85

<210> 11
 <211> 86
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HIV Tat

<400> 11

Met Glu Pro Val Asp Pro Arg Leu Glu Pro Trp Lys His Pro Gly Ser
 1 5 10 15

Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe
 20 25 30

His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly
 35 40 45

Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr
 50 55 60

His Gln Val Ser Leu Ser Lys Gln Pro Thr Ser Gln Pro Arg Gly Asp
 65 70 75 80

Pro Thr Gly Pro Lys Glu
 85

<210> 12
 <211> 248
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HSV ICP34.5

<400> 12

Met Ala Arg Arg Arg Arg His Arg Gly Pro Arg Arg Pro Arg Pro Pro
 1 5 10 15

Gly Pro Thr Gly Ala Val Pro Thr Ala Gln Ser Gln Val Thr Ser Thr
 20 25 30

Pro Asn Ser Glu Pro Ala Val Arg Ser Ala Pro Ala Ala Ala Pro Pro
 35 40 45

Pro Pro Pro Ala Gly Gly Pro Pro Pro Ser Cys Ser Leu Leu Leu Arg
 50 55 60

Gln Trp Leu His Val Pro Glu Ser Ala Ser Asp Asp Asp Asp Asp Asp
 65 70 75 80

Asp Trp Pro Asp Ser Pro Pro Pro Glu Pro Ala Pro Glu Ala Arg Pro
 85 90 95

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

Gly Gly Gly Ala Asp Pro Ser His Pro Pro Ser Arg Pro Phe Arg Leu
 115 120 125

Pro Pro Arg Leu Ala Leu Arg Leu Arg Val Thr Ala Glu His Leu Ala
 130 135 140

Arg Leu Arg Leu Arg Arg Ala Gly Gly Glu Gly Ala Pro Glu Pro Pro
 145 150 155 160

Ala Thr Pro Ala Thr Pro Ala Thr Pro Ala Thr Pro Ala Thr Pro Ala
165 170 175

Arg	Val	Arg	Phe	Ser	Pro	His	Val	Arg	Val	Arg	His	Leu	Val	Val	Trp
			180					185				190			

Ala Ser Ala Ala Arg Leu Ala Arg Arg Gly Ser Trp Ala Arg Glu Arg
195 200 205

Ala Asp Arg Ala Arg Phe Arg Arg Arg Val Ala Glu Ala Glu Ala Val
210 215 220

Ile	Gly	Pro	Cys	Leu	Gly	Pro	Glu	Ala	Arg	Ala	Arg	Ala	Leu	Ala	Arg
225					230					235					240

Gly Ala Gly Pro Ala Asn Ser Val
245

<210>	13
<211>	108
<212>	RNA
<213>	Artificial Sequence

<220>
<223> nc866

<400> 13
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ugugcugggg uucgagacc gcgggugcuu acugacccuu uuaugcaa
108

<210>	14
<211>	272
<212>	RNA
<213>	Artificial Sequence

<220>
<223> Long nc886

<400> 14
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gagagccugu aagccggguc ggaguuagcu caagcgguaa ccuccucaug ccggacuuuc
120

uaucugucca ucucugugcu gggguucgag acccgcgggg gcuuacugac ccuuuuavgc
180

aacuuccagg cgcggcggcu gcugcgguag cuuuuuuggc cacuggccgc gcgcggcgua
240

agcgguuagg cuggaaagcg aaagcauuaa gu
272

<210> 15

<211> 447

<212> PRT

<213> Artificial Sequence

<220>

<223> NS5A

<400> 15

Ser Gly Ser Trp Leu Arg Asp Val Trp Asp Trp Ile Cys Thr Val Leu
1 5 10 15

Ala Asp Phe Lys Thr Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro
20 25 30

Gly Val Pro Phe Phe Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg
35 40 45

Gly Asp Gly Ile Met Tyr Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr
50 55 60

Gly His Val Lys Asn Gly Ser Met Arg Ile Val Gly Pro Arg Thr Cys
65 70 75 80

Ser Asn Thr Trp His Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly
85 90 95

Pro Cys Thr Pro Ser Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg
100 105 110

Val Ala Ala Glu Glu Tyr Val Glu Val Thr Arg Val Gly Asp Phe His
115 120 125

Tyr Val Thr Gly Met Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val
130 135 140

Pro Ala Pro Glu Phe Phe Thr Glu Leu Asp Gly Val Arg Leu His Arg
145 150 155 160

Tyr Ala Pro Ala Cys Lys Pro Leu Leu Arg Asp Glu Val Thr Phe Gln
 165 170 175

Val Gly Leu Asn Gln Tyr Thr Val Gly Ser Gln Leu Pro Cys Glu Pro
 180 185 190

Glu Pro Asp Val Thr Val Val Thr Ser Met Leu Thr Asp Pro Ser His
 195 200 205

Ile Thr Ala Glu Ala Ala Arg Arg Arg Leu Ala Arg Gly Ser Pro Pro
 210 215 220

Ser Leu Ala Ser Ser Ser Ala Ser Gln Leu Ser Ala Leu Ser Leu Lys
 225 230 235 240

Ala Thr Cys Thr Thr His His Gly Ala Pro Asp Thr Asp Leu Ile Glu
 245 250 255

Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn Ile Thr Arg Val
 260 265 270

Glu Ser Glu Asn Lys Ile Val Ile Leu Asp Ser Phe Glu Pro Leu Arg
 275 280 285

Ala Glu Glu Asp Glu Arg Glu Val Ser Val Ala Ala Glu Ile Leu Arg
 290 295 300

Lys Thr Arg Lys Phe Pro Ala Ala Met Pro Val Trp Ala Arg Pro Asp
 305 310 315 320

Tyr Asn Pro Pro Leu Leu Glu Ser Trp Lys Asn Pro Asp Tyr Val Pro
 325 330 335

Pro Val Val His Gly Cys Pro Leu Pro Pro Thr Lys Ala Pro Pro Ile
 340 345 350

Pro Pro Pro Arg Arg Lys Arg Thr Val Val Leu Thr Glu Ser Thr Val
 355 360 365

Ser Ser Ala Leu Ala Glu Leu Ala Thr Lys Thr Phe Gly Ser Ser Gly
 370 375 380

Ser Ser Ala Val Asp Ser Gly Thr Ala Thr Gly Pro Pro Asp Gln Ala
 385 390 395 400

Ser Ala Glu Gly Asp Ala Gly Ser Asp Ala Glu Ser Tyr Ser Ser Met
 405 410 415

Pro Pro Leu Glu Gly Glu Pro Gly Asp Pro Asp Leu Ser Asp Gly Ser
 420 425 430

Trp Ser Thr Val Ser Glu Glu Ala Ser Glu Asp Val Val Cys Cys
 435 440 445

<210> 16

<211> 148

<212> PRT

<213> Artificial Sequence

<220>

<223> NS5A (1-148)

<400> 16

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 1 5 10 15

Ala Asp Phe Lys Thr Trp Leu Gln Ser Lys Leu Leu Pro Arg Leu Pro
 20 25 30

Gly Val Pro Phe Phe Ser Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg
 35 40 45

Gly Asp Gly Ile Met Tyr Thr Thr Cys Pro Cys Gly Ala Gln Ile Thr
 50 55 60

Gly His Val Lys Asn Gly Ser Met Arg Ile Val Gly Pro Arg Thr Cys
 65 70 75 80

Ser Asn Thr Trp His Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly
 85 90 95

Pro Cys Thr Pro Ser Pro Ala Pro Asn Tyr Ser Arg Ala Leu Trp Arg
 100 105 110

Val Ala Ala Glu Glu Tyr Val Glu Val Thr Arg Val Gly Asp Phe His
 115 120 125

Tyr Val Thr Gly Met Thr Thr Asp Asn Val Lys Cys Pro Cys Gln Val
 130 135 140

Pro Ala Pro Glu
145

<210> 17
<211> 172
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI RNA

<400> 17
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uucgaacccc ggauccggcc guccgccgug auccaugcgg uuaccgcccg cgugucgaac
120

ccaggugugc gacgucagac aacggggggag cgcuccuuuu ggcuuccuuc ca
172

<210> 18
<211> 172
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI (c.74U>V)

<400> 18
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uucgaacccc ggavccggcc guccgccgug auccaugcgg uuaccgcccg cgugucgaac
120

ccaggugugc gacgucagac aacggggggag cgcuccuuuu ggcuuccuuc ca
172

<210> 19
<211> 330
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI long

<400> 19
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gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucg
120

gcggacgacc gggguucgaa ccccggaucc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgcucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgcuaagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 20
<211> 330
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI long (c.74>V)

<400> 20
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gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucg
120

gcggacgacc gggguucgaa ccccggaavcc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgcucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgcuaagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 21
<211> 478
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI-VAII

<400> 21
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uggucuggug gauaaaauuc caaggguauc auggcggacg accggggguuc gaacccccga
120

uccggccguc cgccgugauc caugcgguua ccgcccgcgu gucgaacca ggugugcgac
180

gucagacaac gggggagcgc uccuuuuggc uccuuccag gcgcggcggc ugcugcgua
240

gcuuuuuugg ccacuggccg cgcgcgccgu aagcgguuag gcuggaaagc gaaagcaua
300

aguggcucgc ucccuguagc cggaggguua uuuuccaagg guugagucgc aggacccccg
360

guucgagucu cgggccggcc ggacugcggc gaacgggggu uugccucccc gucaugcaag
420

accccguug caaaauccuc cggaaacagg gacgagcccc uuuuuugcuu uucccaga
478

<210> 22

<211> 172

<212> RNA

<213> Artificial Sequence

<220>

<223> VAI (c.74U>M)

<400> 22

gggcacucu cgguggucug guggauaaa ucgcaagggu aucauggcgg acgaccggg
60

uucgaacccc ggamccggcc guccgccgug auccaugcgg uuaccgccc cgugucgaac
120

ccaggugugc gacgucagac aacgggggag cgcuccuuuu ggcuuccuuc ca
172

<210> 23

<211> 330

<212> RNA

<213> Artificial Sequence

<220>

<223> VAI long (c.74U>M)

<400> 23

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60

gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucg
120

gcggacgacc gggguucgaa ccccggamcc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccagggu gugcgacguc agacaacggg ggagcgcucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgcuagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 24
<211> 330
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI long (c.191C>D)

<400> 24
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60

gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucaug
120

gcggacgacc gggguucgaa ccccggaucc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgduagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 25
<211> 330
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI long (c.74U>V, c.191C>D)

<400> 25
gucgggacgc ucuggccggu gaggcgugcg cagucguuga cgcucuagac cgugcaaaag
60

gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucaug
120

gcggacgacc gggguucgaa ccccggavcc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgduagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 26
<211> 330
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI long (c.74U>M, c.191C>G)

<400> 26
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60

gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucg
120

gcggacgacc gggguucgaa ccccggamcc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgucc uuuuggcuuc
240

cuuccaggcg cggcggcugc ugcgguagcu uuuuuggcca cuggccgcgc gcggcguaag
300

cgguuaggcu ggaaagcgaa agcauaaagu
330

<210> 27
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> SeV 106 aa of the C-terminal of C protein

<400> 27

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Glu	Leu	Val	Gln	Thr	Leu	Tyr	Leu	Arg	Ile	Trp	Ala	Met	Glu	Glu	Thr
			20					25					30		

Pro	Glu	Ser	Leu	Lys	Ile	Leu	Gln	Met	Arg	Glu	Asp	Ile	Arg	Asp	Gln
		35				40						45			

Val Leu Lys Met Lys Thr Glu Arg Trp Leu Arg Thr Leu Ile Arg Gly

50 55 60
 Glu Lys Thr Lys Leu Lys Asp Phe Gln Lys Arg Tyr Glu Glu Val His
 65 70 75 80
 Pro Tyr Leu Met Lys Glu Lys Val Glu Gln Val Ile Met Glu Glu Ala
 85 90 95
 Trp Ser Leu Ala Ala His Ile Val Gln Glu
 100 105
 <210> 28
 <211> 230
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Influenza virus NS1
 <400> 28
 Met Asp Ser Asn Thr Val Ser Ser Phe Gln Val Asp Cys Phe Leu Trp
 1 5 10 15
 His Ile Arg Lys Gln Val Val Asp Gln Glu Leu Ser Asp Ala Pro Phe
 20 25 30
 Leu Asp Arg Leu Arg Arg Asp Gln Arg Ser Leu Arg Gly Arg Gly Asn
 35 40 45
 Thr Leu Gly Leu Asp Ile Lys Ala Ala Thr His Val Gly Lys Gln Ile
 50 55 60
 Val Glu Lys Ile Leu Lys Glu Glu Ser Asp Glu Ala Leu Lys Met Thr
 65 70 75 80
 Met Ala Ser Thr Pro Ala Ser Arg Tyr Ile Thr Asp Met Thr Ile Glu
 85 90 95
 Glu Leu Ser Arg Asn Trp Phe Met Leu Met Pro Lys Gln Lys Val Glu
 100 105 110
 Gly Pro Leu Cys Ile Arg Met Asp Gln Ala Ile Met Glu Lys Asn Ile
 115 120 125
 Met Leu Lys Ala Asn Phe Ser Val Ile Phe Asp Arg Leu Glu Thr Leu

130 135 140
 Val Leu Leu Arg Ala Phe Thr Glu Glu Gly Ala Ile Val Gly Glu Ile
 145 150 155 160
 Ser Pro Leu Pro Ser Phe Pro Gly His Thr Ile Glu Asp Val Lys Asn
 165 170 175
 Ala Ile Gly Val Leu Ile Gly Gly Leu Glu Trp Asn Asp Asn Thr Val
 180 185 190
 Arg Val Ser Lys Asn Leu Gln Arg Phe Ala Trp Arg Ser Ser Asn Glu
 195 200 205
 Asn Gly Gly Pro Pro Leu Thr Pro Lys Gln Lys Arg Lys Met Ala Arg
 210 215 220
 Thr Ala Arg Pro Lys Val
 225 230

 <210> 29
 <211> 149
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> HSV Us11

 <400> 29

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

 Val Tyr Leu Lys Gly Val Pro Ser Ala Gly Met His Pro Arg Gly Val
 20 25 30

 His Ala Pro Arg Gly His Pro Arg Met Ile Ser Gly Pro Pro Gln Arg
 35 40 45

 Gly Asp Asn Asp Gln Ala Ala Gly Gln Cys Gly Asp Ser Gly Leu Leu
 50 55 60

 Arg Val Gly Ala Asp Thr Thr Ile Ser Lys Pro Ser Glu Ala Val Arg
 65 70 75 80

 Pro Pro Thr Ile Pro Arg Thr Pro Arg Val Pro Arg Glu Pro Arg Val

85

90

95

Pro Arg Pro Pro Arg Glu Pro Arg Glu Pro Arg Val Pro Arg Ala Pro
 100 105 110

Arg Asp Pro Arg Val Pro Arg Asp Pro Arg Asp Pro Arg Gln Pro Arg
 115 120 125

Ser Pro Arg Glu Pro Arg Thr Pro Arg Thr Pro Arg Glu Pro Arg Thr
 130 135 140

Ala Arg Gly Ser Val
 145

<210> 30
 <211> 213
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> E3K3 fusion protein

<400> 30

Met Ile Ile Asp Asp Val Ser Arg Glu Lys Ser Met Arg Glu Asp His
 1 5 10 15

Lys Ser Phe Asp Asp Val Ile Pro Ala Lys Lys Ile Ile Asp Trp Lys
 20 25 30

Asp Ala Asn Pro Val Thr Val Ile Asn Glu Tyr Cys Gln Ile Thr Lys
 35 40 45

Arg Asp Trp Ser Phe Arg Ile Glu Ser Val Gly Pro Ser Asn Ser Pro
 50 55 60

Thr Phe Tyr Ala Cys Val Asp Ile Asp Gly Arg Val Phe Asp Lys Ala
 65 70 75 80

Asp Gly Lys Ser Lys Arg Asp Ala Lys Asn Asn Ala Ala Lys Leu Ala
 85 90 95

Val Asp Lys Leu Leu Gly Tyr Val Ile Ile Arg Phe Glu Gly Arg Gly
 100 105 110

Ser Leu Leu Thr Cys Gly Asp Val Glu Glu Asn Pro Gly Pro Leu Ala

115 120 125
 Phe Cys Tyr Ser Leu Pro Asn Ala Gly Asp Val Ile Lys Gly Arg Val
 130 135 140
 Tyr Glu Asn Asp Tyr Ala Leu Tyr Ile Tyr Leu Phe Asp Tyr Pro His
 145 150 155 160
 Ser Glu Ala Ile Leu Ala Glu Ser Val Lys Met His Met Asp Arg Tyr
 165 170 175
 Val Glu Tyr Arg Asp Lys Leu Val Gly Lys Thr Val Lys Val Lys Val
 180 185 190
 Ile Arg Val Asp Tyr Thr Lys Gly Tyr Ile Asp Val Asn Tyr Lys Arg
 195 200 205
 Met Cys Arg His Gln
 210
 <210> 31
 <211> 231
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> E3Y3 fusion protein
 <400> 31
 Met Ile Ile Asp Asp Val Ser Arg Glu Lys Ser Met Arg Glu Asp His
 1 5 10 15
 Lys Ser Phe Asp Asp Val Ile Pro Ala Lys Lys Ile Ile Asp Trp Lys
 20 25 30
 Asp Ala Asn Pro Val Thr Val Ile Asn Glu Tyr Cys Gln Ile Thr Lys
 35 40 45
 Arg Asp Trp Ser Phe Arg Ile Glu Ser Val Gly Pro Ser Asn Ser Pro
 50 55 60
 Thr Phe Tyr Ala Cys Val Asp Ile Asp Gly Arg Val Phe Asp Lys Ala
 65 70 75 80
 Asp Gly Lys Ser Lys Arg Asp Ala Lys Asn Asn Ala Ala Lys Leu Ala

ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgctgcc ctggcccacc
180

ctcgtgacca ccttgaccta cggcgtgcag tgcttcgccc gctaccccgga ccacatgaag
240

cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc
300

ttcaaggacg acggcaacta caagaccgcg gccgaggtga agttcgaggg cgacaccctg
360

gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac
420

aagctggagt acaactacaa cagccacaag gtctatatca ccgccgacaa gcagaagaac
480

ggcatcaagg tgaacttcaa gaccgcgccac aacatcgagg acggcagcgt gcagctcgcc
540

gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac
600

tacctgagca ccagtcctgc cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc
660

ctgctggagt tcgtgaccgc cgccgggatc actctcgga tggacgagct gtacaagtaa
720

tgataaccct gactgtaagc gggcactctt ccgtgggtctg gtggataaat tcgcaaggg
780

atcatggcgg acgaccgggg ttccaacccc ggaaccggcc gtccgccgtg atccatgcgg
840

ttaccgcccg cgtgtcgaac ccaggtgtgc gacgtcagac aacgggggag cgctcctttt
900

ggcttccttc ca
912

<210> 33

<211> 1062

<212> DNA

<213> Artificial Sequence

<220>

<223> EmGFP-VAI L (c.74U>A)

<400> 33

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ggcgacgtaa acggccacaa gttcagcgtg tccggcgagg gcgagggcga tgccacctac
120

ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc
180

ctcgtgacca ccttgacctt cggcgtgcag tgcttcgccc gctaccccga ccacatgaag
240

cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc
300

ttcaaggacg acggcaacta caagacccgc gccgaggtga agttcgaggg cgacaccctg
360

gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac
420

aagctggagt acaactacaa cagccacaag gtctatatca ccgccgacaa gcagaagaac
480

ggcatcaagg tgaacttcaa gacccgccac aacatcgagg acggcagcgt gcagctcgcc
540

gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac
600

tacctgagca cccagtccgc cctgagcaaa gaccccaacg agaagcgcgga tcacatggtc
660

ctgctggagt tcgtgaccgc cgccgggatc actctcgga tggacgagct gtacaagtaa
720

tgataaccct gagtccggac gctctggccg gtgaggcgtg cgcagtcgtt gacgctctag
780

accgtgcaaa aggagagcct gtaagcgggc actcttcctg ggtctggtgg ataaattcgc
840

aagggtatca tggcggacga ccgggggttcg aaccccgga ccggccgtcc gccgtgatcc
900

atgcggttac cgcccgctg tcgaacccag gtgtgcgacg tcagacaacg ggggagcgct
960

ccttttggct tccttccagg cgcgcggtg gctgcggtag cttttttggc cactggccgc
1020

gcgcggcgta agcggttagg ctggaaagcg aaagcattaa gt
1062

<210> 34

<211> 264

<212> RNA

<213> Artificial Sequence

<220>

<223> VAI (264bp) 74c3p

<400> 34

cuguaagcgg gcacucuucc guggucuggu ggauaaaauuc gcaagggauu cauggcggac
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gaccggggguu cgaacccccg acccggccgu ccgccgugau ccaugcgguu accgcccgcg
120

ugucgaaccc aggugugcga cgucagacaa cgggggagcg cuccuuuugg cuuccuucca
180

ggcgcgggcg cugcugcggu agcuuuuuug gccacuggcc gcgcgcggcg uaagcgguua
240

ggcuggaaaag cgaaagcauu aagu
264

<210> 35
<211> 246
<212> RNA
<213> Artificial Sequence

<220>
<223> VAI (246bp) 74c5p

<400> 35
gucgggacgc ucuggccggu gaggcgugcg cagucguuga cgcucuagac cgugcaaaag
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gagagccugu aagcgggcac ucuuccgugg ucugguggau aaauucgcaa ggguaucaug
120

gcggacgacc gggguucgaa ccccggaacc ggccguccgc cgugauccau gcgguuaccg
180

cccgcguguc gaaccaggu gugcgacguc agacaacggg ggagcgcucc uuuuggcuuc
240

cuucca
246

<210> 36
<211> 46
<212> RNA
<213> Artificial Sequence

<220>
<223> Hh-Rbz

<400> 36
uuggucugau gaguccguga ggacgaaacg gagucuagac uccguc
46

<210> 37
<211> 90
<212> RNA
<213> Artificial Sequence

<220>
<223> HDV-Rbz

<400> 37
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 60

cguccacucg gauggcuaag ggagagccac
 90

<210> 38
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> T7 terminator

<400> 38
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 48

<210> 39
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Forward primer for L gene amplification

<400> 39
 tgggtcattc cctgaccaga
 20

<210> 40
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Reverse primer for L gene amplification

<400> 40
 cagcttcgat cgttctgcac
 20

<210> 41
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Forward primer for VAI amplification

<400> 41

atcgagcctt atgacagc
18

<210> 42

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Reverse primer for VAI amplification

<400> 42

gatacccttg cgaatttatc cacc

24