

CU01P052W01\_ST25  
SEQUENCE LISTING

<110> CureVac GmbH

<120> Transfection of complexed RNA

<130> CU01P052W01

<150> PCT/EP2007/007702

<151> 2007-09-04

<160> 44

<170> PatentIn version 3.5

<210> 1

<211> 8

<212> PRT

<213> Artificial

<220>

<223> Inventive oligopeptide having the general formula:  
(Arg)<sub>1</sub>(Lys(m)(His)n(Orn)o(Xaa)<sub>x</sub> according to formula I;

<400> 1

Arg Arg Arg Arg Arg Arg Arg Arg  
1 5

<210> 2

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Inventive oligopeptide having the general formula:  
(Arg)<sub>1</sub>(Lys(m)(His)n(Orn)o(Xaa)<sub>x</sub> according to formula I;

<400> 2

Arg Arg Arg Arg Arg Arg Arg Arg Arg  
1 5

<210> 3

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Inventive oligopeptide having the general formula:  
(Arg)<sub>1</sub>(Lys(m)(His)n(Orn)o(Xaa)<sub>x</sub> according to formula I;

<400> 3

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
1 5 10

<210> 4

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Inventive oligopeptide having the general formula:  
(Arg)<sub>1</sub>(Lys(m)(His)n(Orn)o(Xaa)<sub>x</sub> according to formula I;

&lt;400&gt; 4

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
 1 5 10

&lt;210&gt; 5

&lt;211&gt; 12

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

&lt;400&gt; 5

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
 1 5 10

&lt;210&gt; 6

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

&lt;400&gt; 6

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
 1 5 10

&lt;210&gt; 7

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

&lt;400&gt; 7

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
 1 5 10

&lt;210&gt; 8

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

&lt;400&gt; 8

Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg Arg  
 1 5 10 15

&lt;210&gt; 9

<211> 8  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 9

Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5

<210> 10  
 <211> 9  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 10

Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5

<210> 11  
 <211> 10  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 11

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10

<210> 12  
 <211> 11  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 12

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10

<210> 13  
 <211> 12  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

&lt;400&gt; 13

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10

&lt;210&gt; 14

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

&lt;400&gt; 14

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10

&lt;210&gt; 15

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

&lt;400&gt; 15

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10

&lt;210&gt; 16

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

&lt;400&gt; 16

Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys  
 1 5 10 15

&lt;210&gt; 17

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

&lt;400&gt; 17

His His His His His His His His  
 1 5

&lt;210&gt; 18

&lt;211&gt; 9

<212> PRT  
<213> Artificial

<220>  
<223> Inventive oligopeptide having the general formula:  
(Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 18

His His His His His His His His His  
1 5

<210> 19  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Inventive oligopeptide having the general formula:  
(Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 19

His His His His His His His His His His  
1 5 10

<210> 20  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Inventive oligopeptide having the general formula:  
(Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 20

His His His His His His His His His His His  
1 5 10

<210> 21  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Inventive oligopeptide having the general formula:  
(Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 21

His His His His His His His His His His His His  
1 5 10

<210> 22  
<211> 13  
<212> PRT  
<213> Artificial

<220>  
<223> Inventive oligopeptide having the general formula:  
(Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 22

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His His His His His His His His His His His His His His  
 1 5 10

<210> 23  
 <211> 14  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 23

His His His His His His His His His His His His His His His  
 1 5 10

<210> 24  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<400> 24

His His His His His His His His His His His His His His His His  
 1 5 10 15

<210> 25  
 <211> 8  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(8)  
 <223> Xaa can be any naturally occurring amino acid

<400> 25

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5

<210> 26  
 <211> 9  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(9)  
 <223> Xaa can be any naturally occurring amino acid

<400> 26

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5

<210> 27  
 <211> 10  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(10)  
 <223> Xaa can be any naturally occurring amino acid

<400> 27

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10

<210> 28  
 <211> 11  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(11)  
 <223> Xaa can be any naturally occurring amino acid

<400> 28

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10

<210> 29

<211> 12  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(12)  
 <223> Xaa can be any naturally occurring amino acid

<400> 29

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10

<210> 30  
 <211> 13  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(13)  
 <223> Xaa can be any naturally occurring amino acid

<400> 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10

<210> 31  
 <211> 14  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)<sub>1</sub>(Lys(m))(His)<sub>n</sub>(Orn)<sub>o</sub>(Xaa)<sub>x</sub> according to formula I;

<220>  
 <221> misc\_feature  
 <222> (1)..(14)  
 <223> Xaa can be any naturally occurring amino acid

<400> 31

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10

<210> 32  
 <211> 15  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Inventive oligopeptide having the general formula:  
 (Arg)l(Lys(m)(His)n(Orn)o(Xaa)x according to formula I;

<220>  
 <221> misc\_feature  
 <223> Xaa = Ornithine

<220>  
 <221> misc\_feature  
 <222> (1)..(15)  
 <223> Xaa can be any naturally occurring amino acid

<400> 32

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
 1 5 10 15

<210> 33  
 <211> 13  
 <212> RNA  
 <213> Artificial

<220>  
 <223> Beschreibung der Sequenz: Koszak-Sequenz (s. Beschreibung S. 31)

<400> 33  
 gccgccacca ugg

13

<210> 34  
 <211> 15  
 <212> RNA  
 <213> Artificial

<220>  
 <223> Beschreibung der Sequenz: generische Sequenz einer  
 Stabilisierungssequenz (s. Beschreibung S. 32)

<220>  
 <221> misc\_feature  
 <222> (1)..(1)  
 <223> n = C oder U

<220>  
 <221> misc\_feature  
 <222> (5)..(5)  
 <223> n = jedes natuerlich auftretende Nukleotid oder ein Analog davon

<220>  
 <221> repeat\_unit  
 <222> (5)..(5)  
 <223> x = beliebig

<220>  
 <221> misc\_feature  
 <222> (9)..(9)  
 <223> n = U oder A

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<220>  
 <221> repeat\_unit  
 <222> (10)..(10)  
 <223> x = beliebig  
  
 <220>  
 <221> modified\_base  
 <222> (10)..(10)  
 <223> n = pyrimidine  
  
 <220>  
 <221> misc\_feature  
 <222> (10)..(10)  
 <223> n is a, c, g, or u  
  
 <220>  
 <221> misc\_feature  
 <222> (13)..(13)  
 <223> n = C oder U  
  
 <400> 34  
 nccancccn ucnc

15

<210> 35  
 <211> 1882  
 <212> RNA  
 <213> Artificial

<220>  
 <223> description of sequence: construct CAP-Ppluc(wt)-muag-A70-C30

<400> 35  
 gggagaaagc uuggcauucc gguacuguug guaaagccac cauggaagac gccaaaaaca 60  
 uaaagaaagg cccggcgcca uucuauccgc uggaagaugg aaccgcugga gagcaacugc 120  
 auaaggcuau gaagagauac gccugguuc cuggaacaau ugcuuuuaca gaugcacaua 180  
 ucgaggugga caucacuuac gcugaguacu ucgaaauguc cguucgguug gcagaagcua 240  
 ugaaacgaa ugggcugaau acaaaucaca gaaucgucgu augcagugaa aacucucuuc 300  
 aaauuuuuau gccgguguug ggcgcguuau uuaucggagu ugcaguugcg cccgcgaacg 360  
 acauuuuaua ugaacgugaa uugcucaaca guaugggcau uucgcagccu accguggugu 420  
 ucguuuccaa aaagggguug caaaaaauu ugaacgugca aaaaagcuc ccaaucaucc 480  
 aaaaaauuau uaucauggau ucuaaaacgg auuaccaggg auuucagucg auguacacgu 540  
 ucgucacauc ucaucuaccu cccgguuuua augaaucga uuugugcca gaguccuucg 600  
 auagggacaa gacaauugca cugaucauga acuccucugg aucuacuggu cugccuaaag 660  
 gugucgcucu gccucauaga acugccugcg ugagauucuc gcaugccaga gauccauuu 720  
 uuggcaauca aaucuuuccg gauacugcga uuuuaagugu uguuccauuc caucacgguu 780  
 uuggaanguu uacuacacuc ggauuuuga uauguggauu ucgagucguc uuaauguaua 840  
 gauuugaaga agagcuguuu cugaggagcc uucaggauua caagauuca agugcgcugc 900  
 uggugccaac ccuauucucc uucuucgcca aaagcacucu gauugacaaa uacgauuuau 960  
 cuaauuuaca cgaaauugcu ucugguggcg cuccccucuc uaaggaaguc ggggaagcgg 1020

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uugccaagag guuccaucug ccagguauc	ggcaaggaua ugggcucacu gagacuacau	1080
cagcuauucu gauuacaccc gagggggaug	auaaaccggg cgcgguccgu aaaguuguuc	1140
cauuuuuuga agcgaagguu guggaucug	auaccgggaa aacgcugggc guuaaucaaa	1200
gaggcgaacu gugugugaga gguccuau	gaauguccgg uuauguaaac aauccggaag	1260
cgaccaacgc cuugauugac aaggauugg	au ggcuacauuc uggagacaua gcuuacugg	1320
acgaagacga acacuucuc aucguugacc	gccugaaguc ucugauuaag uacaaaggcu	1380
aucagguggc ucccgcugaa uuggaauc	ca ucuugcucca acacccaac aucuucgac	1440
caggugucgc aggucuucc gacgaugac	g ccggugaacu ucccgccgcc guuguuguu	1500
uggagcacgg aaagacgaug acggaaaa	ag agaucgugga uuacgucgcc agucaagua	1560
caaccgcgaa aaaguugcgc ggaggagu	ug uguuugugga cgaaguaccg aaaggucu	1620
ccggaaaacu cgacgcaaga aaaaucag	ag agauccucau aaaggccaag aagggcg	1680
agaucgccgu guaaauucuag uuauaag	acu gacuagcccc augggccucc caacggg	1740
uccuccccuc cuugcaccga gauuaau	aaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaa	1800
aaaaaaaaaa aaaaaaaaaa aaaaaaaaa	aa auauuccccc cccccccccc ccccccccc	1860
ccccucucag acaauuggaa uu		1882

<210> 36  
 <211> 1857  
 <212> RNA  
 <213> Artificial

<220>  
 <223> description of sequence: construct CAP-Ppluc(GC)-muag-A70-C30

<400> 36			
gggagaaagc uugaggau	gg aggacgccaa gaacaucaag aagggcccg	cgcccuucua	60
cccguggag gacgggacc	g ccggcgagca gcuccacaag gccaugaagc	gguacgcccu	120
ggugccgggc acgaucgcc	u ucaccgacgc ccacaucgag gucgacauca	ccuacgcgga	180
guacuucgag augagcgug	c gccuggccga ggccaugaag cgguacggcc	ugaacaccaa	240
ccaccggauc guggugugc	u cggagaacag ccugcaguuc uucaugccg	ugcugggcgc	300
ccucuucauc ggcguggcc	g ucgccccggc gaacgacauc uacaacgagc	gggagcugcu	360
gaacagcaug gggauagcc	g agccgaccgu gguguucgug agcaagaagg	gccugcagaa	420
gauccugaac gugcagaag	a agcugcccau cauccagaag aucaucauca	uggacagcaa	480
gaccgacuac caggguucc	g agucgaugua cacguucgug accagccacc	ucccgccggg	540
cuucaacgag uacgacuuc	g ucccggagag cuucgaccgg gacaagacca	ucgcccugau	600
caugaacagc agcggcagc	a ccggccugcc gaagggggug gccugccgc	accggaccgc	660
cugcgugcgc uucucgcac	g cccgggaccc caucuucggc aaccagauca	ucccggaac	720
cgccauccug agcguggug	c cguuccacca cggcuucggc auguucacga	cccugggcua	780
ccucaucugc ggcuuccgg	g ugguccugau guaccgguuc gaggaggagc	uguuccugcg	840

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gagccugcag gacuacaaga uccagagcgc gcugcucgug ccgacccugu ucagcuucuu	900
cgccaagagc acccugaucg acaaguacga ccugucgaac cugcacgaga ucgccagcgg	960
gggcgccccg cugagcaagg agggugggcga ggccguggcc aagcgguucc accucccggg	1020
cauccgccag ggcuacggcc ugaccgagac cacgagcgcg auccugauca cccccgaggg	1080
ggacgacaag ccgggcgccg ugggcaaggu ggucccguuc uucgaggcca agguggugga	1140
ccuggacacc ggcaagaccc ugggcgugaa ccagcggggc gagcugugcg ugcggggggcc	1200
gaugaucaug agcggcuacg ugaacaaccc ggaggccacc aacgcccua ucgacaagga	1260
cggcuggcug cacagcggcg acaucgccua cugggacgag gacgagcacu ucuucaucgu	1320
cgaccggcug aagucgcuga ucaaguacaa gggcuaccag guggcgccgg ccgagcugga	1380
gagcauccug cuccagcacc ccaacauuu cgacgccggc guggccgggc ugccggacga	1440
cgacgccggc gagcugccgg ccgcgguggu ggugcuggag cacggcaaga ccaugacgga	1500
gaaggagauc gucgacuacg uggccagcca ggugaccacc gccaagaagc ugcggggcg	1560
cgugguguuc guggacgagg ucccgaagg ccugaccggg aagcucgacg cccggaagau	1620
ccgcgagauc cugaucaagg ccaagaagg cggaagauc gccguguaag acuaguuaua	1680
agacugacua gcccgauggg ccucccaacg ggcccuccuc cccuccuugc accgagauua	1740
auaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	1800
aaaaaaauuu cccccccccc cccccccccc cccccccccc ucuagacaau uggaauu	1857

<210> 37  
 <211> 1653  
 <212> RNA  
 <213> Artificial

<220>  
 <223> description of sequence: coding sequence of the sequence  
 according to SEQ ID NO: 35

<400> 37	
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accgcuggag agcaacugca uaaggcuau aagagauacg ccugguucc uggaacaauu	120
gcuuuuacag augcacauau cgagguggac aucacuuacg cugaguacuu cgaaaugucc	180
guucgguuug cagaagcuau gaaacgauau gggcugaaua caaaucacag aaucgucgua	240
ugcagugaaa acucucuua auucuuuau ccgguguugg gcgcguuauu uaucggaguu	300
gcaguugcgc ccgcgaacga cauuuauau gaacgugaau ugcucaacag uaugggcauu	360
ucgcagccua ccgugguguu cguuuccaaa aagggguugc aaaaauuuu gaacgugcaa	420
aaaaagcucc caaucaucca aaaaauuuu aucauggauu cuaaaacgga uuaccagga	480
uuucagucga uguacacguu cgucacauu caucuaccuc ccgguuuuaa ugaauacgau	540
uuugugccag aguccuucga uagggacaag acaauugcac ugaucaugaa cuccucugga	600
ucuacugguc ugccuaaagg ugucgcucug ccucauagaa cugccugcgu gagauucucg	660
caugccagag auccuuuuu uggcaaucaa aucauuccgg auacugcgau uuuaguguu	720

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guuccauucc	aucacgguuu	uggaauguuu	acuacacucg	gauauuugau	auguggauuu	780
cgagucgucu	uaauguauag	auuugaagaa	gagcuguuuc	ugaggagccu	ucaggauuac	840
aagauucaa	gugcgcugcu	ggugccaacc	cuauucuccu	ucuucgcaa	aagcacucug	900
auugacaaau	acgauuuau	uaauuuacac	gaaauugcuu	cugguggcgc	uccccucucu	960
aaggaagucg	gggaagcggu	ugccaagagg	uuccaucugc	cagguaucag	gcaaggauau	1020
gggcucacug	agacuacauc	agcuauucug	auuacacccg	agggggauga	uaaaccgggc	1080
gcggucggua	aaguuguucc	auuuuuugaa	gcgaagguug	uggaucugga	uaccgggaaa	1140
acgcugggcg	uuaucaaaag	aggcgaacug	ugugugagag	guccuaugau	uauguccggu	1200
uauguaaaca	auccggaagc	gaccaacgcc	uugauugaca	aggauggaug	gcuacauucu	1260
ggagacauag	cuuacuggga	cgaagacgaa	cacuucuuca	ucguugaccg	ccugaagucu	1320
cugauuaagu	acaagggcua	ucagguggcg	cccgcugaau	uggaauccau	cuugcuccaa	1380
cacccaaca	ucuucgacgc	aggugucgca	ggucuucccg	acgaugacgc	cggugaacuu	1440
cccgccgccg	uuguuguuuu	ggagcacgga	aagacgauga	cggaaaaaga	gaucguggau	1500
uacgucgcca	gucaaguaac	aaccgcgaaa	aaguugcgcg	gaggaguugu	guuuguggac	1560
gaaguaccga	aaggucuua	cggaaaacuc	gacgcaagaa	aaaucaagaga	gauccucaua	1620
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<210> 38  
 <211> 1653  
 <212> RNA  
 <213> Artificial

<220>  
 <223> description of sequence: the GC-optimized coding sequence of the sequence according to SEQ ID NO: 36

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gccuucaccg	acgcccacau cgaggucgac aucaccuacg cggaguacuu cgagaugagc 180
gugcgccugg	ccgaggccau gaagcgguac ggccugaaca ccaaccaccg gaucguggug 240
ugcucggaga	acagccugca guucuuaug ccggugcugg gcgcccucuu caucggcgug 300
gccgucgccc	cggcgaacga caucuacaac gagcgggagc ugcugaacag cauggggauc 360
agccagccga	ccgugguguu cgugagcaag aagggccugc agaagauccu gaacgugcag 420
aagaagcugc	ccaucaucca gaagaucauc aucauggaca gcaagaccga cuaccagggc 480
uuccagucga	uguacacguu cgugaccagc caccucccg cgggcuucaa cgaguacgac 540
uucgucccg	agagcuucga ccgggacaag accaucgcc ugaucaugaa cagcagcggc 600
agcaccggcc	ugccgaaggg gguggcccug ccgcaccgga ccgccugcgu gcgcuucucg 660
cacgcccggg	acccaucuu cggcaaccag aucaucccg acaccgccau ccugagcgug 720

## CU01P052W01\_ST25

gugccguucc accacggcuu cggcauguuc acgaccucgg gcuaccucau cugcgguuc 780  
 cgggugguucc ugauguaccg guucgaggag gagcuguucc ugcgagaccu gcaggacuac 840  
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 gccgugggca aggugguucc guucuucgag gccaaaggugg uggaccugga caccggcaag 1140  
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 uacgugaaca acccggaggc caccaacgcc cucaucgaca aggacggcug gcugcacagc 1260  
 ggcgacaucg ccuacuggga cgaggacgag cacuucuua ucgucgaccg gcugaagucg 1320  
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 uacguggcca gccaggugac caccgccaag aagcugcggg gcggcguggu guucguggac 1560  
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<210> 39  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of sequence: exemplary oligopeptide according to generic formula (I)

<400> 39

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<210> 40  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of sequence: exemplary oligopeptide according to generic formula (I)

<400> 40

His His His Arg Arg Arg Arg Arg Arg Arg Arg Arg His His His  
 1 5 10 15

<210> 41  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

CU01P052W01\_ST25

<220>  
 <223> Description of sequence: exemplary oligopeptide according to  
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<400> 41

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<210> 42  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
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 generic formula (I)

<400> 42

His His His Arg Arg Arg Arg Arg Arg Arg Arg Arg Ser Ser Tyr  
 1 5 10 15

<210> 43  
 <211> 12  
 <212> PRT  
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<220>  
 <223> Description of sequence: exemplary oligopeptide according to  
 generic formula (I)

<400> 43

Arg Lys His Arg Lys His Arg Lys His Arg Lys His  
 1 5 10

<210> 44  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of sequence: exemplary oligopeptide according to  
 generic formula (I)

<400> 44

Tyr Arg Lys His Arg Lys His Arg  
 1 5