

SEQUENCE LISTING

<110> Biocompatibles UK Limited
 <120> Treatment of vascular diseases using encapsulated cells encoding and secreting GLP-1 peptides or analogs thereof
 <130> BI07P010EP
 <160> 48
 <170> PatentIn version 3.5
 <210> 1
 <211> 31
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: synthetic peptide corresponding to GLP-1(7-37)

<400> 1

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 2
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: full-length IP-2 sequence having all 15 amino acids of the naturally occurring IP-2 sequence, human;

<400> 2

Arg Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly
 1 5 10 15

<210> 3
 <211> 15
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: full-length IP-2 sequence having all 15 amino acids of the naturally occurring IP-2 sequence, murine;

<400> 3

Arg Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly
 1 5 10 15

<210> 4
 <211> 35
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: murine isoform of GLP-2

<400> 4

His Ala Asp Gly Ser Phe Ser Asp Glu Met Asn Thr Ile Leu Asp Asn
1 5 10 15

Leu Ala Ala Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr
20 25 30

Asp Arg Lys
35

<210> 5

<211> 35

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: human isoform of GLP-2

<400> 5

His Ala Asp Gly Ser Phe Ser Asp Glu Met Ser Thr Ile Leu Asp Asn
1 5 10 15

Leu Ala Thr Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr
20 25 30

Asp Lys Lys
35

<210> 6

<211> 79

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: SEQ ID No: 6 (ID6syn, CM1) corresponds to GLP-1(7-37)-IP2-RR-GLP1(7-37), 79 aa, 8,7 kD

<400> 6

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly Arg Arg
35 40 45

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
50 55 60

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
65 70 75

<210> 7

<211> 83
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: SEQ ID No: 7 (ID7rec, CM2) corresponds to GLP-1(7-37)-IP2-RR-GLP2, 83 aa, 9,4 kD

<400> 7

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly Arg Arg
35 40 45

His Ala Asp Gly Ser Phe Ser Asp Glu Met Ser Thr Ile Leu Asp Asn
50 55 60

Leu Ala Thr Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr
65 70 75 80

Asp Lys Lys

<210> 8
<211> 46
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: SEQ ID No:8 (ID8 syn, CM3) corresponds to GLP-1(7-37)-IP2, 46 aa, 5,1 kD;

<400> 8

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly
35 40 45

<210> 9
<211> 97
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: artificial

<400> 9

Met Ala Pro Ala Ala Trp Leu Arg Ser Ala Ala Ala Arg Ala Leu Leu
1 5 10 15

Pro Pro Met Leu Leu Leu Leu Leu Gln Pro Pro Pro Leu Leu Ala Arg
20 25 30
Ala Leu Pro Pro Asp Val His His Leu His Ala Glu Arg Arg Gly Pro
35 40 45
Gln Pro Trp His Ala Ala Leu Pro Ser Ser Pro Ala Pro Ala Pro Ala
50 55 60
Thr Gln Glu Ala Pro Arg Pro Ala Ser Ser Leu Arg Pro Pro Arg Cys
65 70 75 80
Gly Val Pro Asp Pro Ser Asp Gly Leu Ser Ala Arg Asn Arg Gln Lys
85 90 95

Arg

<210> 10
<211> 79
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: SEQ ID No: 10
(N-GLP-1(7-37)-IP2(human)-RR-GLP-1(7-37)-C, also designated human
CM1)

<400> 10

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30
Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly Arg Arg
35 40 45
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
50 55 60
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
65 70 75

<210> 11
<211> 83
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: SEQ ID No: 11
(N-GLP-1(7-37)-IP2(human)-RR-GLP-2-C), also designated human CM2
herein)

<400> 11

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly Arg Arg
35 40 45

His Ala Asp Gly Ser Phe Ser Asp Glu Met Asn Thr Ile Leu Asp Asn
50 55 60

Leu Ala Ala Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr
65 70 75 80

Asp Arg Lys

<210> 12
<211> 46
<212> PRT
<213> Artificial

<220>
<223> Description of sequence: SEQ ID No: 12, GLP-1(7-37) linked
without any linker sequence via its C-terminus to human IP2

<400> 12

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly
35 40 45

<210> 13
<211> 815
<212> DNA
<213> Artificial

<220>
<223> Description of sequence: (SEQ ID No:13) represents the translated
peptide sequence of the construct according to Fig. 1k (SEQ ID
No: 14)

<220>
<221> CDS
<222> (11)..(118)

<220>
<221> CDS
<222> (387)..(809)

<400> 13
gatatccacc atg gcc ccc gcc gcc tgg ctg agg agc gcc gcc gcc agg

	Met	Ala	Pro	Ala	Ala	Trp	Leu	Arg	Ser	Ala	Ala	Ala	Arg	
	1				5					10				
gcc ctg ctg cca ccc atg ctg ctg ctg ctg ctg cag ccc cca cct ctg														97
Ala Leu Leu Pro Pro Met Leu Leu Leu Leu Leu Gln Pro Pro Pro Leu														
	15					20				25				
ctg gcc cgg gcc ctg ccc ccg gtgagtgccc gccactcgcc gtccgctcct														148
Leu Ala Arg Ala Leu Pro Pro						35								
	30													
cgctgagggg gcgccgggca cgcgggctgg gcccagcggc gtatccggac gccaaagaaac														208
cagagagcca gccagatgcc aaagggccct gccatgtgcc ggtgcccttt ccctctccat														268
ttgccctgcc acacagtggg ctgggggttg acgtgtgttt gctgacaggc cacatctcta														328
actgtggggc atgtggacct taggcctgac cagaccctca tgtcttcctc cttcccag														386
gac gtg cac cac ctg cac gcc gag agg cgc ggc cct cag ccc tgg cac														434
Asp Val His His Leu His Ala Glu Arg Arg Gly Pro Gln Pro Trp His														
				40				45				50		
gcc gcc ctg cca agc agc cct gcc cct gcc cca gcc acc cag gag gcc														482
Ala Ala Leu Pro Ser Ser Pro Ala Pro Ala Pro Ala Thr Gln Glu Ala														
		55					60					65		
ccc agg cct gcc agc agc ctg agg cca ccc agg tgc ggc gtg cct gat														530
Pro Arg Pro Ala Ser Ser Leu Arg Pro Pro Arg Cys Gly Val Pro Asp														
	70					75				80				
ccc tcc gat ggc ctg agc gct cgg aat cgg cag aag agg cac gcc gag														578
Pro Ser Asp Gly Leu Ser Ala Arg Asn Arg Gln Lys Arg His Ala Glu														
	85					90				95				100
ggc acc ttc acc tcc gac gtg agc agc tac ctg gag ggc cag gcc gcc														626
Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala														
				105					110				115	
aag gag ttc atc gcc tgg ctg gtg aag ggc agg ggc cgc agg gac ttc														674
Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg Asp Phe														
			120					125				130		
cct gag gag gtg gcc atc gtg gag gag ctg ggc cgg cga cac gcc gag														722
Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly Arg Arg His Ala Glu														
			135					140			145			
ggc acc ttc acc tcc gac gtg agc agc tac ctg gag ggc cag gcc gcc														770
Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala														
	150					155				160				
aag gag ttc atc gcc tgg ctg gtg aag ggc agg ggc tga gcgcgc														815
Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly														
	165					170			175					

<210> 14
 <211> 815
 <212> DNA
 <213> Artificial

<220>
 <223> Description of sequence: DNA sequence of the construct according to Fig. 1k

<400> 14	
gatatccacc atggcccccg ccgcctggct gaggagcgcc gccgccaggg ccctgctgcc	60
acccatgctg ctgctgctgc tgcagcccc acctctgctg gcccgggccc tgccccgggt	120

gagtgtcccg	cactcgccgt	ccgctcctcg	ctgagggggc	gccgggcacg	cgggctgggc	180
ccagcggcgt	atccggacgc	caagaaacca	gagagccagc	cagatgccaa	agggccctgc	240
catgtgccgg	tgccctttcc	ctctccattt	gccctgccac	acagtgggct	ggggttgcac	300
gtgtgtttgc	tgacaggcca	catctctaac	tgtgggcat	gtggacctta	ggcctgacca	360
gacctcatg	tcttcctcct	tcccaggacg	tgcaccacct	gcacgccgag	aggcgcggcc	420
ctcagccctg	gcacgccgcc	ctgccaagca	gccctgcccc	tgccccagcc	acccaggagg	480
cccccaggcc	tgccagcagc	ctgaggccac	ccagggtgcg	cgtgcctgat	ccctccgatg	540
gcctgagcgc	tcggaatcgg	cagaagaggc	acgccgaggg	caccttcacc	tccgacgtga	600
gcagctacct	ggagggccag	gccgccaagg	agttcatcgc	ctggctgggtg	aagggcaggg	660
gccgcagggg	cttccctgag	gaggtggcca	tcgtggagga	gctgggcccgg	cgacacgccg	720
agggcacctt	cacctccgac	gtgagcagct	acctggaggg	ccaggccgcc	aaggagtcca	780
tcgcctggct	ggtgaagggc	aggggctgag	cgcgc			815

<210> 15
 <211> 834
 <212> DNA
 <213> Artificial

<220>
 <223> Description of sequence: DNA sequence and sequence of the translated peptide according to the construct Fig. 1h

<220>
 <221> CDS
 <222> (11)..(118)

<220>
 <221> CDS
 <222> (387)..(821)

gatatccacc	atg gcc ccc gcc gcc tgg ctg agg agc gcc gcc gcc agg	49
	Met Ala Pro Ala Ala Trp Leu Arg Ser Ala Ala Ala Arg	
	1 5 10	
gcc ctg ctg cca ccc atg ctg ctg ctg ctg ctg cag ccc cca cct ctg	97	
Ala Leu Leu Pro Pro Met Leu Leu Leu Leu Leu Gln Pro Pro Pro Leu		
15 20 25		
ctg gcc cgg gcc ctg ccc ccg gtgagtgccc gccactcgcc gtccgctcct	148	
Leu Ala Arg Ala Leu Pro Pro		
30 35		
cgctgagggg gcgccgggca cgcgggctgg gcccagcggc gtatccggac gccaaagaac	208	
cagagagcca gccagatgcc aaagggccct gccatgtgcc ggtgcccttt ccctctccat	268	
ttgccctgcc acacagtggg ctgggggttg acgtgtgttt gctgacaggc cacatctcta	328	
actgtggggc atgtggacct taggcctgac cagaccctca tgtcttcctc cttcccag	386	
gac gtg cac cac ctg cac gcc gag agg cgc ggc cct cag ccc tgg cac	434	
Asp Val His His Leu His Ala Glu Arg Arg Gly Pro Gln Pro Trp His		
40 45 50		

gcc gcc ctg cca agc agc cct gcc cct gcc cca gcc acc cag gag gcc Ala Ala Leu Pro Ser Ser Pro Ala Pro Ala Pro Ala Thr Gln Glu Ala 55 60 65	482
ccc agg cct gcc agc agc ctg agg cca ccc agg tgc ggc gtg cct gat Pro Arg Pro Ala Ser Ser Leu Arg Pro Pro Arg Cys Gly Val Pro Asp 70 75 80	530
ccc tcc gat ggc ctg agc gct cgg aat cgg cag aag agg cac gcc gag Pro Ser Asp Gly Leu Ser Ala Arg Asn Arg Gln Lys Arg His Ala Glu 85 90 95 100	578
ggc acc ttc acc tcc gac gtg agc agc tac ctg gag ggc cag gcc gcc Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala 105 110 115	626
aag gag ttc atc gcc tgg ctg gtg aag ggc agg ggc cgc agg gac ttc Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg Arg Asp Phe 120 125 130	674
cct gag gag gtg gcc atc gtg gag gag ctg ggc cgg cga cac gcc gac Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly Arg Arg His Ala Asp 135 140 145	722
ggc agc ttc agc gac gag atg aac acc atc ctg gac aac ctg gcc gcg Gly Ser Phe Ser Asp Glu Met Asn Thr Ile Leu Asp Asn Leu Ala Ala 150 155 160	770
cgc gac ttc atc aac tgg ctg atc cag acc aag atc acc gat cgg aag Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr Asp Arg Lys 165 170 175 180	818
tga gcgcgctgat atc	834

<210> 16

<211> 834

<212> DNA

<213> Artificial

<220>

<223> Description of sequence: DNA sequence of the construct according to Fig. 1h

<400> 16

gatatccacc atggccccg ccgcctggct gaggagcgcc gccgccaggg ccctgctgcc	60
acccatgctg ctgctgctgc tgcagcccc acctctgctg gcccgggccc tgccccgggt	120
gagtgtccgc cactcgccgt ccgctcctcg ctgagggggc gccgggcacg cgggctgggc	180
ccagcggcgt atccggacgc caagaaacca gagagccagc cagatgccaa agggccctgc	240
catgtgccgg tgccctttcc ctctccattt gccctgccac acagtgggct ggggttgac	300
gtgtgtttgc tgacaggcca catctctaac tgtgggcat gtggacctta ggctgacca	360
gacctcatg tcttctcct tccaggacg tgcaccacct gcacgccgag aggcgcggcc	420
ctcagccctg gcacgccgcc ctgccaagca gccctgcccc tgccccagcc acccaggagg	480
ccccaggcc tgccagcagc ctgaggccac ccagggtgcgg cgtgcctgat ccctccgatg	540
gcctgagcgc tcggaatcgg cagaagaggc acgccgaggg caccttcacc tccgacgtga	600
gcagctacct ggagggccag gccgccaagg agttcatcgc ctggctggtg aagggcaggg	660
gccgcaggga cttccctgag gaggtggcca tcgtggagga gctgggccgg cgacacgccg	720

acggcagctt cagcgacgag atgaacacca tcctggacaa cctggccgcg cgcgacttca 780
tcaactggct gatccagacc aagatcaccg atcgggaagtg agcgcgctga tatc 834

<210> 17
<211> 780
<212> DNA
<213> Artificial

<220>
<223> Description of sequence: DNA sequence sequence and translated peptide sequence of the construct according to Fig. 11,

<220>
<221> CDS
<222> (11)..(118)

<220>
<221> CDS
<222> (387)..(776)

<400> 17
gatatccacc atg gcc ccc gcc gcc tgg ctg agg agc gcc gcc gcc agg 49
Met Ala Pro Ala Ala Trp Leu Arg Ser Ala Ala Ala Arg
1 5 10

gcc ctg ctg cca ccc atg ctg ctg ctg ctg ctg cag ccc cca cct ctg 97
Ala Leu Leu Pro Pro Met Leu Leu Leu Leu Leu Gln Pro Pro Pro Leu
15 20 25

ctg gcc cgg gcc ctg ccc ccg gtgagtgcc gccactcgcc gtccgctcct 148
Leu Ala Arg Ala Leu Pro Pro
30 35

cgctgagggg gcgccgggca cgcgggctgg gcccagcggc gtatccggac gccaagaaac 208

cagagagcca gccagatgcc aaagggccct gccatgtgcc ggtgcccttt ccctctccat 268

ttgccctgcc acacagtggg ctgggggtgc acgtgtgttt gctgacaggc cacatctcta 328

actgtgggcc atgtggacct taggcctgac cagaccctca tgtcttcctc cttcccag 386

gac gtg cac cac ctg cac gcc gag agg cgc ggc cct cag ccc tgg cac 434
Asp Val His His Leu His Ala Glu Arg Arg Gly Pro Gln Pro Trp His
40 45 50

gcc gcc ctg cca agc agc cct gcc cct gcc cca gcc acc cag gag gcc 482
Ala Ala Leu Pro Ser Ser Pro Ala Pro Ala Pro Ala Thr Gln Glu Ala
55 60 65

ccc agg cct gcc agc agc ctg agg cca ccc agg tgc ggc gtg cct gat 530
Pro Arg Pro Ala Ser Ser Leu Arg Pro Pro Arg Cys Gly Val Pro Asp
70 75 80

ccc tcc gat ggc ctg agc gct cgg aat cgg cag aag agg cac gcc gag 578
Pro Ser Asp Gly Leu Ser Ala Arg Asn Arg Gln Lys Arg His Ala Glu
85 90 95 100

ggc acc ttc acc tcc gac gtg agc agc tac ctg gag ggc cag gcc gcc 626
Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala
105 110 115

aag gag ttc atc gcc tgg ctg gtg aag ggc agg ggc cgc agg gac ttc 674
Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg Arg Asp Phe
120 125 130

cct gag gag gtg gcc atc gtg gag gag ctg ggc cgg cga cac gcc gac 722

Pro	Glu	Glu	Val	Ala	Ile	Val	Glu	Glu	Leu	Gly	Arg	Arg	His	Ala	Asp	
		135					140					145				
ggc	agc	ttc	agc	gac	gag	atg	aac	acc	atc	ctg	gac	aac	ctg	gcc	gcg	770
Gly	Ser	Phe	Ser	Asp	Glu	Met	Asn	Thr	Ile	Leu	Asp	Asn	Leu	Ala	Ala	
	150					155					160					

cgc	tga	tatc														780
Arg																
165																

<210> 18
 <211> 720
 <212> DNA
 <213> Artificial

<220>
 <223> Description of sequence: DNA sequence of the construct according to Fig. 1l

<400> 18																
gatatccacc	atggcccccg	ccgcctggct	gaggagcgcc	gccgccaggg	ccctgctgcc											60
acccatgctg	ctgctgctgc	tgacagcccc	acctctgctg	gcccggggccc	tgcccccggt											120
gagtgtccgc	cactcgccgt	ccgctcctcg	ctgaggggggc	gccggggcacg	cgggctgggc											180
ccagcggcgt	atccggacgc	caagaaacca	gagagccagc	cagatgccaa	agggccctgc											240
catgtgccgg	tgccctttcc	ctctccattt	gccctgccac	acagtgggct	ggggttgcac											300
gtgtgtttgc	tgacaggcca	catctctaac	tgtggggccat	gtggacctta	ggcctgacca											360
gacctcatg	tcttcctcct	tcccaggacg	tgaccacct	gcacgccgag	aggcgcggcc											420
ctcagccctg	gcacgccgcc	ctgccaagca	gccctgcccc	tgccccagcc	accaggagg											480
cccccaggcc	tgccagcagc	ctgaggccac	ccagggtgcg	cgtgcctgat	ccctccgatg											540
gcctgagcgc	tcggaatcgg	cagaagaggc	acgccgaggg	caccttcacc	tccgacgtga											600
gcagctacct	ggagggccag	gccccaagg	agttcatcgc	ctggctgggtg	aagggcaggg											660
acggcagctt	cagcgacgag	atgaacacca	tcctggacaa	cctggccgcg	cgctgatatc											720

<210> 19
 <211> 716
 <212> DNA
 <213> Artificial

<220>
 <223> Description of sequence: DNA sequence and sequence of the translated peptide according to Fig. 1m

<220>
 <221> CDS
 <222> (11)..(118)

<220>
 <221> CDS
 <222> (387)..(710)

<400> 19																
gatatccacc	atg	gcc	ccc	gcc	gcc	tgg	ctg	agg	agc	gcc	gcc	gcc	agg			49
	Met	Ala	Pro	Ala	Ala	Trp	Leu	Arg	Ser	Ala	Ala	Ala	Arg			
	1				5					10						

gcc ctg ctg cca ccc atg ctg ctg ctg ctg ctg cag ccc cca cct ctg Ala Leu Leu Pro Pro Met Leu Leu Leu Leu Leu Gln Pro Pro Pro Leu 15 20 25	97
ctg gcc cgg gcc ctg ccc ccg gtgagtgccc gccactcgcc gtccgctcct Leu Ala Arg Ala Leu Pro Pro 30 35	148
cgctgagggg gcgccgggca cgcgggctgg gcccagcggc gtatccggac gccaagaaac	208
cagagagcca gccagatgcc aaagggccct gccatgtgcc ggtgcccttt ccctctccat	268
ttgccctgcc acacagtggg ctgggggtgc acgtgtgttt gctgacaggc cacatctcta	328
actgtggggc atgtggacct taggcctgac cagaccctca tgtcttcctc cttcccag	386
gac gtg cac cac ctg cac gcc gag agg cgc ggc cct cag ccc tgg cac Asp Val His His Leu His Ala Glu Arg Arg Gly Pro Gln Pro Trp His 40 45 50	434
gcc gcc ctg cca agc agc cct gcc cct gcc cca gcc acc cag gag gcc Ala Ala Leu Pro Ser Ser Pro Ala Pro Ala Pro Ala Thr Gln Glu Ala 55 60 65	482
ccc agg cct gcc agc agc ctg agg cca ccc agg tgc ggc gtg cct gat Pro Arg Pro Ala Ser Ser Leu Arg Pro Pro Arg Cys Gly Val Pro Asp 70 75 80	530
ccc tcc gat ggc ctg agc gct cgg aat cgg cag aag agg cac gcc gag Pro Ser Asp Gly Leu Ser 90 Ala Arg Asn Arg Gln Lys Arg His Ala Glu 85 95 100	578
ggc acc ttc acc tcc gac gtg agc agc tac ctg gag ggc cag gcc gcc Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala 105 110 115	626
aag gag ttc atc gcc tgg ctg gtg aag ggc agg ggc cgc agg gac ttc Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg Arg Asp Phe 120 125 130	674
cct gag gag gtg gcc atc gtg gag gag ctg ggc tga gcgcgc Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly 135 140	716

<210> 20
 <211> 716
 <212> DNA
 <213> Artificial

<220>
 <223> Description of sequence: DNA sequence of the construct according to Fig. 1m

<400> 20 gatatccacc atggccccg ccgcctggct gaggagcgcc gccgccaggg ccctgctgcc	60
acctatgctg ctgctgctgc tgcagcccc acctctgctg gcccgggccc tgccccggt	120
gagtgtccgc cactcgccgt ccgctcctcg ctgagggggc gccgggcacg cgggctgggc	180
ccagcggcgt atccggacgc caagaaacca gagagccagc cagatgccaa agggccctgc	240
catgtgccgg tgccctttcc ctctccattt gccctgccac acagtgggct ggggttgac	300
gtgtgtttgc tgacaggcca catctctaac tgtgggcat gtggacctta ggcctgacca	360
gaccctcatg tcttctcct tcccaggacg tgcaccacct gcacgccgag aggcgcggcc	420

ctcagccctg gcacgccgcc ctgccaagca gccctgcccc tgccccagcc acccaggagg 480
 cccccaggcc tgccagcagc ctgaggccac ccagggtgcgg cgtgcctgat ccctccgatg 540
 gcctgagcgc tcggaatcgg cagaagaggc acgccgaggg caccttcacc tccgacgtga 600
 gcagctacct ggagggccag gccgccaagg agttcatcgc ctggctggtg aagggcaggg 660
 gccgcaggga cttccctgag gaggtggcca tcgtggagga gctgggctga gcgcgc 716

<210> 21
 <211> 31
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: artificial

<400> 21

His Gly Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
 20 25 30

<210> 22
 <211> 10
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: sequence contained in component (II) of
 a GLP-1 fusion peptide

<400> 22

Arg Arg Asp Phe Pro Glu Glu Val Ala Ile
 1 5 10

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

<220>
 <223> Description of sequence: sequence contained in component (II) of
 a GLP-1 fusion peptide

<400> 23

Arg Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu
 1 5 10

<210> 24
 <211> 14
 <212> PRT
 <213> Artificial

<220>
 <223> Description of sequence: sequence contained in component (II) of
 a GLP-1 fusion peptide

<400> 24

Arg Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu
1 5 10

<210> 25

<211> 31

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: sequence according to formula (I)

<220>

<221> misc_feature

<222> (31)..(31)

<223> Xaa = NH₂, when sequence is GLP-1(7-36) amide, or Xaa = Gly-OH,
when sequence is GLP-1(7-37) amide,

<400> 25

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Xaa
20 25 30

<210> 26

<211> 584

<212> DNA

<213> Artificial

<220>

<223> Description of sequence: GLP-1 fusion peptide corresponding to
Figure 1 e #217

<220>

<221> CDS

<222> (31)..(561)

<400> 26

aattcagata attcgatagc cccgggcacc atg gct ccc gct gca tgg ctg aga 54
Met Ala Pro Ala Ala Trp Leu Arg
1 5

tct gcg gcc gcg cgc gcc ctc ctg ccc ccg atg ctg ctg ctg ctg ctc 102
Ser Ala Ala Ala Arg Ala Leu Leu Pro Pro Met Leu Leu Leu Leu
10 15 20

cag ccg ccg ccg ctg ctg gcc cgg gct ctg ccg ccg gac gtc cac cac 150
Gln Pro Pro Pro Leu Leu Ala Arg Ala Leu Pro Pro Asp Val His His
25 30 35 40

ctc cat gcc gag agg agg ggg cca cag ccc tgg cat gca gcc ctg ccc 198
Leu His Ala Glu Arg Arg Gly Pro Gln Pro Trp His Ala Ala Leu Pro
45 50 55

agt agc ccg gca cct gcc cct gcc acg cag gaa gcc ccc ccg cct gcc 246
Ser Ser Pro Ala Pro Ala Pro Ala Thr Gln Glu Ala Pro Arg Pro Ala
60 65 70

agc agc ctc agg cct ccc cgc tgt ggc gtg ccc gac cca tct gat ggg 294
Ser Ser Leu Arg Pro Pro Arg Cys Gly Val Pro Asp Pro Ser Asp Gly
75 80 85

ctg agt gcc cgc aac cga cag aag agg cat gcc gaa ggg acc ttt acc	342
Leu Ser Ala Arg Asn Arg Gln Lys Arg His Ala Glu Gly Thr Phe Thr	
90 95 100	
agc gat gtg agc tct tat ctg gaa ggc cag gct gcc aag gag ttc att	390
Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile	
105 110 115 120	
gct tgg ctg gtg aaa ggc cgg gga agg cgg gat ttc cca gag gag gtg	438
Ala Trp Leu Val Lys Gly Arg Gly Arg Arg Asp Phe Pro Glu Glu Val	
125 130 135	
gcc atc gtg gag gag ctg ggc cgg cga cat gcc gaa ggg acc ttt acc	486
Ala Ile Val Glu Glu Leu Gly Arg Arg His Ala Glu Gly Thr Phe Thr	
140 145 150	
agc gat gtg agc tct tat ctg gaa ggc cag gct gcc aag gag ttc att	534
Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile	
155 160 165	
gct tgg ctg gtg aaa ggc cgg gga tga attgcccaagg gcgaattatc agg	584
Ala Trp Leu Val Lys Gly Arg Gly	
170 175	

<210> 27
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence contained in component (II) of a GLP-1 fusion peptide

<400> 27
 Asp Phe Pro Glu Glu Val Ala Ile
 1 5

<210> 28
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence contained in component (II) of a GLP-1 fusion peptide

<400> 28
 Arg Asp Phe Pro Glu Glu Val Ala
 1 5

<210> 29
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence contained in component (II) of a GLP-1 fusion peptide

<400> 29
 Arg Arg Asp Phe Pro Glu Glu Val
 1 5

<210> 30
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 30

Ala Ala Asp Phe Pro Glu Glu Val Ala Ile
1 5 10

<210> 31
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 31

Ala Asp Phe Pro Glu Glu Val Ala
1 5

<210> 32
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 32

Ala Ala Asp Phe Pro Glu Glu Val
1 5

<210> 33
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 33

Ala Ala Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu
1 5 10

<210> 34
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence contained in component (II) of
Seite 15

a GLP-1 fusion peptide

<400> 34

Ala Ala Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu
1 5 10

<210> 35

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 35

Ala Ala Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly
1 5 10 15

<210> 36

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of sequence: sequence contained in component (II) of
a GLP-1 fusion peptide

<400> 36

Ala Ala Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly
1 5 10 15

<210> 37

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 37

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Ala
20 25 30

Ala Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly
35 40 45

<210> 38

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 38

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Ala
20 25 30

Ala Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly
35 40 45

<210> 39
<211> 46
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide
<400> 39

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Ala Glu Glu Val Ala Ile Ala Glu Glu Leu Gly
35 40 45

<210> 40
<211> 46
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide
<400> 40

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Ala Ala Ala Ala Val Ala Ile Ala Glu Glu Leu Gly
35 40 45

<210> 41
<211> 46
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide
<400> 41

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Ala
20 25 30

Ala Asp Ala Ala Ala Val Ala Ile Ala Ala Ala Leu Gly
35 40 45

<210> 42
<211> 36
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 42

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro
35

<210> 43
<211> 40
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 43

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala
35 40

<210> 44
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 44

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
Seite 18

20

25

30

Arg Asp Phe Pro Glu Glu Val Ala Ile Ala Glu Glu Leu Gly Arg Arg
 35 40 45

His Ala Cys
 50

<210> 45
 <211> 46
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 45

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
 20 25 30

Arg Asp Phe Ala Glu Glu Val Ala Ile Val Glu Glu Leu Gly
 35 40 45

<210> 46
 <211> 46
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 46

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
 20 25 30

Arg Asp Ala Ala Ala Ala Val Ala Ile Val Glu Glu Leu Gly
 35 40 45

<210> 47
 <211> 46
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 47

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Ala
20 25 30

Ala Asp Ala Ala Ala Ala Val Ala Ile Val Ala Ala Leu Gly
35 40 45

<210> 48
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of sequence: sequence of a GLP-1 fusion peptide

<400> 48

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly Arg
20 25 30

Arg Asp Phe Pro Glu Glu Val Ala Ile Val Glu Glu Leu Gly Arg Arg
35 40 45

His Ala Cys
50