

eolf-seql
SEQUENCE LISTING

<110> Sanofi
<120> Exendin-4 Derivatives as Selective Glucagon Receptor Agonists
<130> DE2014/055
<160> 36
<170> PatentIn version 3.5
<210> 1
<211> 39
<212> PRT
<213> Heloderma suspectum

<220>
<221> MOD_RES
<222> (39)..(39)
<223> Amidated C-terminus

<400> 1

His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 2
<211> 29
<212> PRT
<213> Homo sapiens

<400> 2

His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Ser
1 5 10 15

eolf-seql

Arg Arg Ala Gln Asp Phe Val Gln Trp Leu Met Asn Thr
20 25

<210> 3
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
<221> MOD_RES
<222> (14)..(14)
<223> Xaa is L-Norleucine (Nle)

<400> 3

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 4
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES

eolf-seql

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 4

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Leu	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

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

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 5

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 5

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Tyr	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

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

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 6

<211> 39

<212> PRT

eolf-seql

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 6

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 7

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 7

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

eolf-seql

Ser Gly Ala Pro Pro Pro Ser
35

<210> 8
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 8

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Ile Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 9
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 9

eolf-seql

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Val Ser Lys Gln Leu Glu Ser
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

<210> 10
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Xaa is L-Phenylglycine (Phg)

<400> 10

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 11
<211> 39

eolf-seql

<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
<221> MOD_RES
<222> (10)..(10)
<223> Xaa is L-1-Naphthylalanine (1NaI)

<400> 11

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 12
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<220>
<221> MOD_RES
<222> (1)..(1)
<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 12

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Leu	Ser	Lys	Gln	Leu	Glu	Ser
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

eolf-seql

1	5	10	15
---	---	----	----

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu

	20	25	30
--	----	----	----

Ser Gly Ala Pro Pro Pro Ser

35

<210> 13
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
 <221> MOD_RES
 <222> (14)..(14)
 <223> Xaa is L-Norleucine (Nle)

<400> 13

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Phe Ser Lys Gln Xaa Glu Ser				
<table border="0" style="width: 100%;"> <tr> <td style="width: 25%;">1</td> <td style="width: 25%;">5</td> <td style="width: 25%;">10</td> <td style="width: 25%;">15</td> </tr> </table>	1	5	10	15
1	5	10	15	

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu

	20	25	30
--	----	----	----

Ser Gly Ala Pro Pro Pro Ser

35

<210> 14
 <211> 39
 <212> PRT
 <213> Artificial Sequence

eolf-seql

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 14

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Ile	Ser	Lys	Gln	Xaa	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 15

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<400> 15

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Leu	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

eolf-seql

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
 20 25 30

Ser Gly Ala Pro Pro Pro Ser
 35

<210> 16
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
 <221> MOD_RES
 <222> (14)..(14)
 <223> Xaa is L-Norleucine (Nle)

<400> 16

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Ser
 1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
 20 25 30

Ser Gly Ala Pro Pro Pro Ser
 35

<210> 17
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>

eolf-seql

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 17

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Gln Xaa Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 18

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-2-Fluorophenylglycine (2FPhg)

<220>

<221> MOD_RES

eolf-seql

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 18

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Xaa	Glu	Ser
1				5				10						15	

Arg	Arg	Ala	Gln	Asp	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20				25						30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 19

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-1-Naphthylalanine (1Nal)

<220>

<221> MOD_RES

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 19

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Xaa	Glu	Ser
1				5				10						15	

Arg	Arg	Ala	Gln	Asp	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

eolf-seq1

20

25

30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 20

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-Cyclohexylglycine (Chg)

<220>

<221> MOD_RES

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 20

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Xaa Glu Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 21

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-2-Fluorophenylglycine (2FPhg)

<400> 21

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Asp	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 22

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-1-Naphthylalanine (1Nal)

eolf-seql

<400> 22

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 23

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (1)..(1)

<223> Xaa is L-4-Thiazolylalanine (Tza)

<220>

<221> MOD_RES

<222> (10)..(10)

<223> Xaa is L-Cyclohexylglycine (Chg)

<400> 23

Xaa Ser Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

eolf-seql

<210> 24
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (1)..(1)
 <223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
 <221> MOD_RES
 <222> (10)..(10)
 <223> Xaa is L-Cyclohexylglycine (Chg)

<220>
 <221> MOD_RES
 <222> (14)..(14)
 <223> Xaa is L-Norleucine (Nle)

<400> 24

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Xaa	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
		20					25						30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
		35				

<210> 25
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>

eolf-seql

<221> MOD_RES
 <222> (1)..(1)
 <223> Xaa is L-4-Thiazolylalanine (Tza)

<220>
 <221> MOD_RES
 <222> (10)..(10)
 <223> Xaa is L-tert-Leucine (Tle)

<220>
 <221> MOD_RES
 <222> (14)..(14)
 <223> Xaa is L-Norleucine (Nle)

<400> 25

Xaa	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Xaa	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 26
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (14)..(14)
 <223> Xaa is L-Norleucine (Nle)

<400> 26

His	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Leu	Ser	Lys	Gln	Xaa	Glu	Ser
1				5					10					15	

eolf-seql

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 27

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<400> 27

His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Ser
1 5 10 15

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

Ser Gly Ala Pro Pro Pro Ser
35

<210> 28

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<400> 28

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

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

eolf-seql

Ser Gly Ala Pro Pro Pro Ser
35

<210> 29
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<400> 29

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

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 30
<211> 39
<212> PRT
<213> Artificial Sequence

<220>
<223> Artificial polypeptide

<400> 30

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

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

eolf-seql

<210> 31
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<400> 31

His Ser Gln Gly Thr Phe Thr Ser Asp Ile Ser Lys Gln Leu Glu Ser
 1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
 20 25 30

Ser Gly Ala Pro Pro Pro Ser
 35

<210> 32
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (10)..(10)
 <223> Xaa is L-Phenylglycine (Phg)

<400> 32

His Ser Gln Gly Thr Phe Thr Ser Asp Xaa Ser Lys Gln Leu Glu Ser
 1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
 20 25 30

Ser Gly Ala Pro Pro Pro Ser
 35

eolf-seql

<210> 33
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<220>
 <221> MOD_RES
 <222> (10)..(10)
 <223> Xaa is L-1-Naphthylalanine (1Nal)

<400> 33

His	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Xaa	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

Ser	Gly	Ala	Pro	Pro	Pro	Ser
			35			

<210> 34
 <211> 39
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Artificial polypeptide

<400> 34

His	Ser	Gln	Gly	Thr	Phe	Thr	Ser	Asp	Leu	Ser	Lys	Gln	Leu	Glu	Ser
1				5					10					15	

Arg	Arg	Ala	Gln	Glu	Phe	Ile	Glu	Trp	Leu	Leu	Ala	Thr	Gly	Pro	Glu
			20					25					30		

eolf-seql

Ser Gly Ala Pro Pro Pro Ser
35

<210> 35

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<400> 35

His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Leu Glu Ser
1 5 10 15

Arg Arg Ala Gln Asp Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 36

<211> 39

<212> PRT

<213> Artificial Sequence

<220>

<223> Artificial polypeptide

<220>

<221> MOD_RES

<222> (14)..(14)

<223> Xaa is L-Norleucine (Nle)

<400> 36

His Ser Gln Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Xaa Glu Ser
1 5 10 15

Arg Arg Ala Gln Glu Phe Ile Glu Trp Leu Leu Ala Thr Gly Pro Glu
20 25 30

eolf-seql

Ser Gly Ala Pro Pro Pro Ser
35