## Claims

1. A method for the cleavage of a solid phase-bound polypeptide from the solid phase, the method comprising contacting the solid phase, to which the polypeptide is bound, with a composition consisting essentially of trifluoroacetic acid and 1,2-ethanedithiol, at a temperature in the range of 23 °C to 29°C, wherein the composition is contacted for 3 to 5 h with the solid phase to which the polypeptide is bound, and wherein the solid phase comprises a Rink amide resin.

~~2. The method of claim 1, wherein the solid phase comprises a Rink amide resin.~~

~~3.~~2. The method of claim 1 ~~or 2~~, wherein the polypeptide is bound to the Rink amide resin by a linker.

~~4.~~3. The method of any one of the preceding claims, wherein the composition comprises trifluoroacetic acid in an amount of 95 to 99 % v/v, and 1,2-ethanedithiol in an amount of 1 to 5 % v/v.

~~5.~~4. The method of any one of the preceding claims, wherein the composition essentially consists of trifluoroacetic acid in an amount of 97 % v/v, and 1,2-ethanedithiol in an amount of 3 % v/v.

~~6.~~5. The method of any one of the preceding claims, wherein the composition is contacted with the solid phase to which the polypeptide is bound, at a temperature of 25°C to 27°C, preferably at a temperature of 26°C.

6. The method of any one of the preceding claims, wherein the polypeptide is a GLP-1 agonist selected from GLP-1, exendin-3, liraglutide, albiglutide, dulaglutide, semaglutide, exendin-4 and analogues of exendin-4 selected from the group consisting of:~~selected from GLP-1, analogs and derivatives thereof, exendin-3, analogs and derivatives thereof, and exendin-4, analogs and derivatives thereof~~

H-desPro$^{36}$-exendin-4-Lys$_6$-NH$_2$,
H-des(Pro$^{36,37}$)-exendin-4-Lys$_4$-NH$_2$,
H-des(Pro$^{36,37}$)-exendin-4-Lys$_5$-NH$_2$,
desPro$^{36}$[Asp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[IsoAsp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Met(O)$^{14}$,IsoAsp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Met(O)$_{14}$Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39),
desPro$^{36}$[Met(O)$_{14}$Trp(O2)$^{25}$,IsoAsp$^{28}$]exendin-4(1-39)
desPro$^{36}$[Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Met(O)$^{14}$,IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Met(O)$^{14}$Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,
desPro$^{36}$[Met(O)$^{14}$Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
desAsp$^{28}$Pro$^{36}$,Pro$^{37}$,Pro$^{38}$exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
H-desAsp$^{28}$ Pro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$]exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,

H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
desMet(O)$^{14}$ Asp$^{28}$ Pro$^{36}$, Pro$^{37}$, Pro$^{38}$exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$] exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$] exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
desAsp$^{28}$Pro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$]exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
~~7.~~ and pharmaceutically acceptable salts thereof.

~~8.~~7. The method of claim ~~7~~6, wherein the polypeptide is selected from exendin-4, lixisenatide, albiglutide, dulaglutide and semaglutide.

~~9.~~8. A method for the solid-phase synthesis of a polypeptide comprising a pre-determined amino acid sequence, said method comprising:

(a) coupling an amino acid building block, comprising an unprotected C-terminal carboxyl group and a protected N-terminal amino group, C-terminally to a solid phase comprising~~, such as~~ a Rink amide resin,

(b) de-protecting the N-terminal amino group of the amino acid building block,

(c) coupling an amino acid building block, comprising an unprotected C-terminal carboxyl group and a protected N-terminal amino group, C-terminally to the unprotected N-terminal amino of step (b),

(d) optionally repeating steps (b) and (c), and

(e) cleaving the polypeptide from the solid phase by the method of any one of the claims 1 to ~~8~~7.

9. The method of claim ~~9~~8, wherein the polypeptide is a GLP-1 agonist selected from GLP-1, exendin-3, liraglutide, albiglutide, dulaglutide, semaglutide, exendin-4 and analogues of exendin-4 selected from the group consisting of:

H-desPro$^{36}$-exendin-4-Lys$_6$-NH$_2$,

H-des(Pro$^{36,37}$)-exendin-4-Lys$_4$-NH$_2$,

H-des(Pro$^{36,37}$)-exendin-4-Lys$_5$-NH$_2$,

desPro$^{36}$[Asp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[IsoAsp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Met(O)$^{14}$,IsoAsp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Met(O)$_{14}$Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39),

desPro$^{36}$[Met(O)$_{14}$Trp(O2)$^{25}$,IsoAsp$^{28}$]exendin-4(1-39)

desPro$^{36}$[Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Met(O)$^{14}$,IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Met(O)$^{14}$Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4 (1-39)-Lys$_6$-NH$_2$,

desPro$^{36}$[Met(O)$^{14}$Trp(O$_2$)$^{25}$,IsoAsp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,

H-(Lys)$_6$-desPro$^{36}$[Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,

desAsp$^{28}$Pro$^{36}$,Pro$^{37}$,Pro$^{38}$exendin-4(1-39)-NH$_2$,

H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-NH$_2$,

H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-NH$_2$,

desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
H-desAsp$^{28}$ Pro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$]exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
desMet(O)$^{14}$ Asp$^{28}$ Pro$^{36}$, Pro$^{37}$, Pro$^{38}$exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$] exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$] exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-Lys$_6$-NH$_2$,
desAsp$^{28}$Pro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$]exendin-4(1-39)-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Asp$^{28}$]exendin-4(1-39)-NH$_2$,
desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$, Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-(Lys)$_6$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,
H-Asn-(Glu)$_5$-desPro$^{36}$,Pro$^{37}$,Pro$^{38}$[Met(O)$^{14}$,Trp(O$_2$)$^{25}$,Asp$^{28}$]exendin-4(1-39)-(Lys)$_6$-NH$_2$,

10. and pharmaceutically acceptable salts thereof ~~selected from GLP-1, analogs and derivatives thereof, exendin-3, analogs and derivatives thereof, and exendin-4, analogs and derivatives thereof~~.

~~11.~~10. The method of claim ~~9~~ 8 or ~~10~~9, wherein the polypeptide is selected from exendin-4, lixisenatide, albiglutide, dulaglutide and semaglutide.

~~12. Composition, consisting essentially of trifluoroacetic acid and 1,2-ethanedithiol, wherein the composition comprises trifluoroacetic acid in an amount of 97 to 99 % v/v, and 1,2-ethanedithiol in an amount of 1 to 3 % v/v.~~

~~13. Composition of claim 12, essentially consisting of trifluoroacetic acid in an amount of 97 % v/v, and 1,2-ethanedithiol in an amount of 3 % v/v.~~

~~14.~~11. Use of the composition consisting essentially of trifluoroacetic acid and 1,2-ethanedithiol, wherein the composition comprises trifluoroacetic acid in an amount of 97% to 99% v/v, and 1,2-ethanedithiol in an amount of 1% to 3% v/v, or the composition comprises trifluoroacetic acid in an amount of 97% v/v and 1,2-ethanedithiol in an amount of 3% v/v, in a solid phase synthesis of a polypeptide, wherein the composition is in particular used to cleave the polypeptide from the solid phase~~of claim 12 or 13 in a solid phase synthesis of a polypeptide, wherein the composition is in particular used to cleave the polypeptide from the solid phase~~.