Claims

1. A composition comprising:
    a. 0.01 to 2 wt% peptide;
    b. 0.01 to 4 wt% saccharide or sugar alcohol;
    c. 35 to 50 wt% petrolatum; and
    d. 40 to 60 wt% isopropyl myristate,

    with the proviso that the sum of the components of the total composition does not exceed 100 wt%.

2. The composition according to claim 1, wherein the composition comprises particles comprising, or consisting essentially of the peptide and the saccharide or sugar alcohol.

3. The composition according to any one of the preceding claims, wherein the composition further comprises 1 to 8 wt% thickener.

4. The composition according to claim 3, wherein the thickener is selected from the group consisting of glyceryl behenate and carnauba wax.

5. The composition according to any one of the preceding claims, wherein the composition further comprises 2 to 10 wt% surfactant.

6. The composition according to claim 5, wherein the surfactant is sorbitan laurate.

7. The composition according to any one of the preceding claims, wherein the saccharide or sugar alcohol is selected from the group consisting of sucrose, mannitol and glucose.

8. The composition according to any one of the preceding claims, wherein the composition comprises or consists essentially of:
    a. 0.01 to 2 wt% peptide;
    b. 0.01 to 4 wt% sucrose, mannitol or glucose;
    c. 1 to 8 wt% glyceryl behenate or carnauba wax;
    d. 35 to 45 wt% petrolatum;

e. 40 to 60 wt% isopropyl myristate; and
f. 2 to 10 wt% surfactant, such as sorbitan laurate.

9. The composition according to any one of the preceding claims, wherein the weight ratio of saccharide or sugar alcohol and peptide in the composition is 5:1 to 1:5, such as 2:1 or 1:1.

10. The composition according to any one of the preceding claims, wherein the composition comprises isopropyl myristate and petrolatum in the weight ratio of 2:1 to 1:2, such as 3:2 to 2:3, such as about 1:1.

11. The composition according to any one of the preceding claims, wherein the composition comprises or consists essentially of:

a. 0.01 to 2 wt% peptide;
b. 0.01 to 4 wt% sucrose;
c. 3 wt% glyceryl behenate;
d. 42.4 wt% petrolatum;
e. 50 wt% isopropyl myristate; and
f. 4 wt% sorbitan laurate.

12. The composition according to any one of the preceding claims, wherein the composition comprises or consists essentially of:

a. 0.2 wt% peptide;
b. 0.4 wt% sucrose;
c. 3 wt% glyceryl behenate;
d. 42.4 wt% petrolatum;
e. 50 wt% isopropyl myristate; and
f. 4 wt% sorbitan laurate.

13. The composition according to any one of the preceding claims, wherein the composition is essentially water free.

14. The composition according to claim 2, wherein at least 50% of the particles have an average particle diameter of between 0.1 and 50 µm, for example between 0.1 and 15 µm, such as between 0.1 and 10 µm, such as between 0.1 and 2 µm.

15. The composition according to any one of the preceding claims, wherein the peptide comprises no more than 50 amino acid residues.

16. The composition according to any one of the preceding claims, wherein the peptide comprises or consists of from 3 to 50 amino acid residues, such as from 3 to 40 amino acid residues, such as 5 to 30 amino acid residues, such as 10 to 25 amino acid residues.

17. The composition according to any one of claims 1 to 14, wherein the peptide comprises:

    i) an amino acid sequence of the general formula:
    VDTYDGZ$_7$Z$_8$SVVYGLR (SEQ ID NO: 165)
    wherein:
    Z$_7$ is D or G;
    Z$_8$ is I or G;

    ii) an amino acid sequence of the general formula:
    KX$_2$LAX$_5$X$_6$X$_7$X$_8$IX$_{10}$LX$_{12}$YGIK (SEQ ID NO: 140)
    wherein:
    X$_2$ is C, P or G;
    X$_5$ is E or G;
    X$_6$ is C, D or I;
    X$_7$ is D, I, S or G;
    X$_8$ is S, D or G;
    X$_{10}$ is E or G;
    X$_{12}$ is S or T;

    with the proviso that if X$_{12}$ is T, the peptide comprises no more than 25 amino acid residues; and

    with the proviso that if X$_2$ is P, X$_5$ is E, X$_6$ is I, X$_7$ is D, X$_8$ is S, X$_{10}$ is E and X$_{12}$ is S, the peptide comprises no more than 85 amino acid residues;

    iii) an amino acid sequence of the general formula:
    X$_{10}$LX$_{12}$YGIK (SEQ ID NO: 177)
    wherein:

X_{10} is E or G;

$X1_2$ is S or T;

with the proviso that if X_{12} is T, the peptide comprises no more than 25 amino acids; and

with the proviso that if X_{10} is E and X_{12} is S, the peptide comprises no more than 85 amino acid residues;

iv) an amino acid sequence of the general formula:

$VDVPZ_5GDISLAYZ_{13}LR$ (SEQ ID NO: 164)

wherein:

Z_5 is E or N;

Z_{13} is R or G;

v) an amino acid sequence of the general formula:

$VDTYDGZ_7Z_8SVVYGLR$ (SEQ ID NO: 165)

wherein:

Z_7 is D or G;

Z_8 is I or G;

vi) an amino acid sequence of the general formula:

$GDPNZ_5Z_6Z_7Z_8Z_9SVVYGLR$ (SEQ ID NO: 166)

wherein:

Z_5 is D or G;

Z_6 is D or G

Z_7 is I or R;

Z_8 is G or absent;

Z_9 is D or absent;

vii) an amino acid sequence of the general formula:

$KX_2LAX_5X_6X_7X_8IX_{10}LSYGIK$ (SEQ ID NO: 162)

wherein:

X_2 is C, P or G;

X_5 is E or G;

X_6 is C, I or absent;

X_7 is D, G or absent;

X_8 is S, G or absent;

X_{10} is E or G;

viii) an amino acid sequence of the general formula:

$KX_2LAX_5IX_{10}LSYGIK$ (SEQ ID NO: 163)

wherein:

X_2 is C, P or G;

X_5 is E or G;

X_{10} is E or G;

i) an amino acid sequence of the general formula:

$Z_7Z_8SZ_{10}Z_{11}YGLR$ (SEQ ID NO: 178)

wherein:

Z_7 is D or G;

Z_8 is I or G;

Z_{10} is V or L;

Z_{11} is V or A;

or

ix) an amino acid sequence of the general formula:

$VDZ_3Z_4Z_5GZ_7Z_8SZ_{10}Z_{11}YGLR$ (SEQ ID NO: 68)

wherein:

Z_3 is T or V;

Z_4 is Y or P;

Z_5 is D or N;

Z_7 is D or G;

Z_8 is I or G;

Z_{10} is V or L;

Z_{11} is V or A.

18. The composition according to claim 1, wherein the peptide comprises or consists of the amino acid sequence of VDTYDGDISVVYGLR (SEQ ID NO: 1; FOL-005).

19. The composition according to claim 1, wherein the peptide comprises or consists of the amino acid sequence of KPLAEIDSIELSYGIK (SEQ ID NO: 136, FOL-014).

20. The composition according to claim 1, wherein the peptide comprises or consists of the amino acid sequence of VDVPNGDISLAYGLR (SEQ ID NO: 69, FOL-004).

21. The composition according to claim 1, wherein the peptide comprises or consists of an amino acid sequence selected from the group consisting of GDPNDGRGDSVVYGLR (SEQ ID NO: 137), VDTYDGGISVVYGLR (SEQ ID NO: 138), and VDTYDGDGSVVYGLR (SEQ ID NO: 139). VDVPEGDISLAYGLR (SEQ ID NO: 157), LDGLVRAYDNISPVG (SEQ ID NO: 158), GDPNGDISVVYGLR (SEQ ID NO: 159), VDVPNGDISLAYRLR (SEQ ID NO: 160), and VDVPEGDISLAYRLR (SEQ ID NO: 161).

22. The composition according to claim 1, wherein the peptide comprises or consists of an amino acid sequence selected from the group consisting of GDPNDGRGDSVVYGLR (SEQ ID NO: 137), VDTYDGGISVVYGLR (SEQ ID NO: 138), and VDTYDGDGSVVYGLR (SEQ ID NO: 139). VDVPEGDISLAYGLR (SEQ ID NO: 157), LDGLVRAYDNISPVG (SEQ ID NO: 158), GDPNGDISVVYGLR (SEQ ID NO: 159), VDVPNGDISLAYRLR (SEQ ID NO: 160) VDVPEGDISLAYRLR (SEQ ID NO: 161), V(beta-D)TYDGDISVVYGLR (SEQ ID NO:167), VDTY(beta-D)GDISVVYGLR (SEQ ID NO: 168), and VDTYDG(beta-D)ISVVYGLR (SEQ ID NO:169).

23. The composition according to claim 1, wherein the peptide comprises or consists of an amino acid sequence selected from the group consisting of KCLAECDSIELSYGIK (SEQ ID NO: 141), CLAEIDSC (SEQ ID NO: 142), CFKPLAEIDSIECSYGIK (SEQ ID NO: 143), KPLAEDISIELSYGIK (SEQ ID NO: 145), KPLAEIGDIELSYGIK (SEQ ID NO: 146), KPLAEGDIELSYGIK (SEQ ID NO: 147), KPLAEIELSYGIK (SEQ ID NO: 148), KPLAEIDSIELTYGIK (SEQ ID NO: 149), KPLAEIDGIELSYGIK (SEQ ID NO: 150), KPLAEIDGIELTYGIK (SEQ ID NO: 151), KPLAEIGSIELSYGIK (SEQ ID NO: 152), KGLAEIDSIELSYGIK (SEQ ID NO: 153), KPLAGIDSIGLSYGIK (SEQ ID NO: 154), KCLAEIDSCELSYGIK (SEQ ID NO: 155) and CFKPLAEIDSIEC (SEQ ID NO: 156).

24. The composition according to claim 1, wherein the peptide comprises or consists of an amino acid sequence selected from the group consisting of LAEIDSIELSYGIK (SEQ ID NO: 170), AEIDSIELSYGIK (SEQ ID NO: 171), EIDSIELSYGIK (SEQ ID NO: 172), IDSIELSYGIK (SEQ ID NO: 173), DSIELSYGIK (SEQ ID NO: 174), SIELSYGIK (SEQ ID NO: 175), and IELSYGIK (SEQ ID NO: 176).

25. The composition according to claim 1, wherein the peptide comprises or consists of an amino acid sequence selected from the group consisting of KPLAEIDSIELSYGI (SEQ ID NO: 179), KPLAEIDSIELSYG (SEQ ID NO: 180), KPLAEIDSIELSY (SEQ ID NO: 181), KPLAEIDSIELS (SEQ ID NO: 182), KPLAEIDSIEL (SEQ ID NO: 183), and KPLAEIDSIE (SEQ ID NO: 184).

26. The composition according to claim 1, wherein the peptide is selected from the group consisting of GHK (SEQ ID NO: 188), oxytocin (SEQ ID NO: 186), polymyxin B, LL37 (SEQ ID NO: 187), FOL-199 (SEQ ID NO: 185) and becaplermin.

27. The composition according to any one of the preceding claims, wherein the peptide or is an antimicrobial peptide.

28. The composition according to any one of the preceding claims, wherein the peptide is an anti-inflammatory peptide.

29. The composition according to any one of the preceding claims, wherein the peptide is conjugated to a moiety, such as a moiety selected from the group consisting of polyethylene glycol (PEG), monosaccharides, fluorophores, chromophores, radioactive compounds, and cell-penetrating peptides.

30. The composition according to any one of the preceding claims, wherein the peptide is modified by being glycosylated or by PEGylation, amidation, esterification, acylation, acetylation and/or alkylation.

31. The composition according to any one of the preceding claims, wherein the peptide is fused to another polypeptide, such as a polypeptide selected from the group consisting of glutathione-S-transferase (GST) and protein A, or to a tag.

32. The composition according to any one of the preceding claims, wherein the composition is in the form of an ointment, a powder, a spray, a lotion, a gel, foam, a cream, a make-up or a shampoo.

33. The composition according to any one of the preceding claims for use as a medicament.

34. The composition according to claim 18 for use in the treatment or prevention of a disease or condition selected from the group consisting of alopecia and hair loss which is induced by radiotherapy and/or chemotherapy agents.

35. Use of the composition according to claim 18 in the manufacture of a medicament for treatment or prevention of a disease or condition selected from the group consisting of alopecia and hair loss which is induced by radiotherapy and/or chemotherapy agents.

36. The composition for use according to claim 34 or the use according to claim 35, wherein the alopecia is selected from the group consisting of:
    a. androgenic alopecia (also known as androgenetic alopecia, alopecia androgenetica, male pattern baldness or female pattern baldness);
    b. traction alopecia;
    c. anagen effluvium;
    d. telogen effluvium;
    e. alopecia areata;
    f. alopecia totalis;
    g. alopecia universalis;
    h. alopecia barbae;
    i. alopecia mucinosa;
    j. alopecia neoplastica;
    k. cicatricial alopecia; and
    l. scarring alopecia.

37. A method of manufacturing the composition according to any one of claims 1 to 32 comprising the following steps:
    a) mixing the peptide with a saccharide or sugar alcohol;
    b) freeze drying the mixture of a);
    c) mixing b) with isopropyl myristate and a surfactant;
    d) grinding the mixture of c); and
    e) mixing the mixture of d) with petrolatum and a thickener.