

Claims

1. A peptide or a pharmaceutical or cosmeceutical acceptable salt thereof, which is selected from:

(a) a peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO:

5 1 or 2:

(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_m-(Arg)_n-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_p-(Pro)_q (SEQ ID NO: 2)

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wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

15 a C-terminal end corresponding to -C(O)R₄;

a N-terminal end corresponding to -NHR₅;

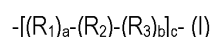
R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -

20 SO₂R₁₁, and -CO₂R₁₂; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

25 the peptide further including a linker biradical "L" of formula (I)



which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom

30 of an amino acid located at position "i+4" or "i+7" in the peptide sequence

wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

35 R₁ and R₃ are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted

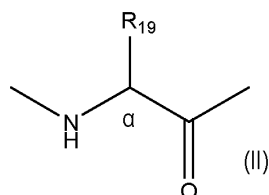
by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

5 R₂ is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

10 each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and
the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-
15 O-; and

R₆, R₇, R₈, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅, and R₁₆ are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

20 the amino acids which are connected by the linker being of formula (II)



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wherein

R₁₉ is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

30 each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and

(b) a peptide consisting of an amino acid sequence with at least 85% of identity with respect sequence SEQ
35 ID NO: 1 or 2:

(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_m-(Arg)_n-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_p-(Pro)_q (SEQ ID NO: 2)

wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

5 "m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to $-\text{C}(\text{O})\text{R}_4$;

a N-terminal end corresponding to $-\text{NHR}_5$;

R₄ is a radical selected from the group consisting of $-\text{OH}$ and $-\text{NR}_{17}\text{R}_{18}$;

R₅ is a radical selected from the group consisting of $-\text{H}$, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or

10 more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: $-\text{H}$, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$;

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provided that the peptide is other than a peptide consisting of sequence SEQ ID NO: 24, 25 or 26.

2. The peptide according to claim 1, which has an identity of 100% with respect to sequence SEQ ID NO: 1 or 2.

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3. The peptide according to any of the previous claims, wherein the linker biradical of formula (I) is between an alpha carbon atom of an amino acid located at position "i" in the peptide sequence of sequence SEQ ID NO: 1 and an alpha carbon atom of an amino acid located at position "i+7" in the peptide sequence SEQ ID NO: 1; or, alternatively, is between an alpha carbon atom of an amino acid located at position "i" in the peptide sequence of sequence SEQ ID NO: 2 and an alpha carbon atom of an amino acid located at position "i+7" in the peptide sequence SEQ ID NO: 2.

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4. The peptide according to any one of the previous claims, wherein $a=b=c=1$.

30 5. The peptide according to any one of the previous claims, wherein

R₁ and R₃ are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₂-C₁₀)alkenyl; and (C₂-C₁₀)alkynyl;

R₂ is a biradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, and (C₂-C₁₀)alkynyl; and

R₁₉ is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, and (C₂-C₁₀)alkynyl.

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6. The peptide according to any one of the previous claims, wherein R₁, R₃ and R₁₉ are (C₁-C₁₀)alkyl; and R₂ is (C₂-C₁₀)alkenyl.

7. The peptide according to any one of the previous claims, wherein the C-terminal end corresponds

to -C(O)OH or -C(O)NH₂, and the N-terminal end corresponds to -NH₂.

8. The peptide according to any one of the previous claims, which has at least a 85%, at least 90%, at least 95% or it is 100% identical to a peptide sequence SEQ ID NO: 3 to 16, wherein "L", "R19", "m", "n", "p", "q",
5 "mx", "nx", "px" and "qx" are as defined in any of the preceding claims.

9. The peptide according to any one of the previous claims, which is a peptide with an amino acid having at least 85%, at least 90%, at least 95% or is 100% identical to an amino acid sequence selected from the group consisting of: SEQ ID NO: 17 to 23.

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10. The peptide according to any one of the previous claims, which is conjugated to a label, drug, a cell penetrating peptide or a PROTAC.

11. A pharmaceutical or cosmetical composition comprising a therapeutically or cosmetically effective amount
15 of a peptide or a pharmaceutical or cosmetical acceptable salt thereof, the peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

- 20 (Arg)_{mx}-(Arg)_{nx}-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_{px}-(Pro)_{qx} (SEQ ID NO: 2)

wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

- 25 "mx", "nx", "px", and "qx" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to -C(O)R₄;

a N-terminal end corresponding to -NHR₅;

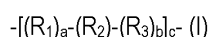
R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or

- 30 more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; the peptide optionally including a linker biradical "L" of

- 35 formula (I)



which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom

of an amino acid located at position "i+4" or "i+7" in the peptide sequence

wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

5

R_1 and R_3 are biradicals independently selected from the group consisting of: (C_1-C_{10}) alkyl; (C_1-C_{10}) alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C_1-C_{10}) alkyl, $-OR_6$, $-NR_7R_8$, $-SR_9$, $-SOR_{10}$, $-SO_2R_{11}$, and $-CO_2R_{12}$; (C_2-C_{10}) alkenyl; (C_2-C_{10}) alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C_1-C_{10}) alkyl, $-OR_6$, $-NR_7R_8$, $-SR_9$, $-SOR_{10}$, $-SO_2R_{11}$, and $-CO_2R_{12}$; (C_2-C_{10}) alkynyl; and (C_2-C_{10}) alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C_1-C_{10}) alkyl, $-OR_6$, $-NR_7R_8$, $-SR_9$, $-SOR_{10}$, $-SO_2R_{11}$, and $-CO_2R_{12}$;

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R_2 is a biradical selected from the group consisting of: $-O-$, $C(=O)$, $C(=O)NR_{13}$, $C(=O)O$, $S(=O)$, $S(=O)_2$, NR_{14} , (C_1-C_{10}) alkyl, (C_2-C_{10}) alkenyl, (C_2-C_{10}) alkynyl, $-NR_{15}-NR_{16}-$, $-N=N-$, $-S-S-$, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

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each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: $-CH-$, $-CH_2-$, $-NH-$, $-N-$, $-SH-$, $-S-$, and $-O-$; and
the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, $-OH$, $-NO_2$, (C_1-C_{10}) alkyl, (C_1-C_{10}) haloalkyl, and (C_1-C_{10}) alkyl-
O-; and

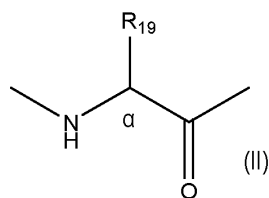
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R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} , R_{15} , and R_{16} are radicals independently selected from the group consisting of: $-H$ and (C_1-C_{10}) alkyl; and

30

the amino acids which are connected by the linker being of formula (II)

35



wherein

R_{19} is a monoradical selected from the group consisting of: (C_1-C_{10}) alkyl, (C_2-C_{10}) alkenyl, (C_2-C_{10}) alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;
 the rings are isolated, partially or totally fused,
 each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-
 , -NH-, -N-, -SH-, -S-, and -O-, together with acceptable pharmaceutical or cosmeceutical excipients and/or
 5 carriers.

12. The pharmaceutical or cosmeceutical composition according to claim 11, wherein the peptide, pharmaceutical
 or cosmeceutical salt thereof is one as defined in any one of the claims 1-10.

10 13. The pharmaceutical or cosmeceutical composition according to any one of the claims 11-12, which is a topical
 composition.

14. A peptide or a salt thereof, the peptide having an amino acid sequence with at least 85% of identity with
 respect sequence SEQ ID NO: 1 or 2:

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(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_{m_x}-(Arg)_{n_x}-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_{p_x}-(Pro)_{q_x} (SEQ ID NO: 2)

20 wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to -C(O)R₄;

25 a N-terminal end corresponding to -NHR₅;

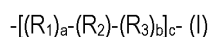
R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or
 more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -
 SO₂R₁₁, and -CO₂R₁₂; and

30 R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-
 C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -
 OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

the peptide optionally including a linker biradical "L" of formula (I)

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which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom
 of an amino acid located at position "i+4" or "i+7" in the peptide sequence
 wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

5 R_1 and R_3 are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

10 R_2 is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

15 each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and
20 the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-O-; and

25 R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} , R_{15} , and R_{16} are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

the amino acids which are connected by the linker being of formula (II)



wherein

35 R_{19} is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-;; or

- a composition as defined in any one of the claims 11-13 for use in regulating melanogenesis, particularly for reducing or increasing the production of melanin.

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15. The peptide for use as claimed in claim 14, wherein the peptide or salt thereof is as defined in any one of the claims 1-10.

16. The peptide or composition for use as claimed in any one of the claims 14-15 for the treatment of
10 hyperpigmentation or hypopigmentation.

17. A peptide or pharmaceutical salt thereof, the peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

15 (Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_{m_x}-(Arg)_{n_x}-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_{p_x}-(Pro)_{q_x} (SEQ ID NO: 2)

wherein

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"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to -C(O)R₄;

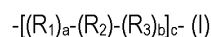
a N-terminal end corresponding to -NHR₅;

25 R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-
30 C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

the peptide optionally including a linker biradical "L" of formula (I)



35

which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom of an amino acid located at position "i+4" or "i+7" in the peptide sequence

wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

R_1 and R_3 are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

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R_2 is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

15

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and

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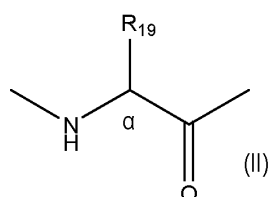
the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-O-; and

25

R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} , R_{15} , and R_{16} are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

the amino acids which are connected by the linker being of formula (II)

30



wherein

35

R_{19} is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-

, -NH-, -N-, -SH-, -S-, and -O-; or a pharmaceutical composition as defined in any one of the claims 11-13 for use as a medicament.

18. The peptide or pharmaceutical salt thereof for use as claimed in claim 17, wherein the peptide is as
5 defined in any one of the claims 1-10.

19. A peptide or a pharmaceutical salt thereof, the peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

10 (Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_{m_x}-(Arg)_{n_x}-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_{p_x}-(Pro)_{q_x} (SEQ ID NO: 2)

wherein

15

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to -C(O)R₄;

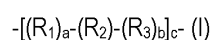
a N-terminal end corresponding to -NHR₅;

20 R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

25 the peptide optionally including a linker biradical "L" of formula (I)



30

which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom of an amino acid located at position "i+4" or "i+7" in the peptide sequence

wherein

"a" and "b" are the same or different and are 0 or 1;

35 "c" is comprised from 1 to 10;

R₁ and R₃ are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl

substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

5

R₂ is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

10

each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and
the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-O-; and

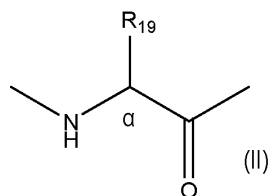
15

20

R₆, R₇, R₈, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅, and R₁₆ are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

the amino acids which are connected by the linker being of formula (II)

25



wherein

30

R₁₉ is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; or the pharmaceutical composition as defined in any one of the claims 11-13, for use in the treatment and/or prevention of cancer, particularly a melanoma cancer, such as a metastatic melanoma cancer.

35

20. The peptide or pharmaceutical salt thereof for use as claimed in claim 19, wherein the peptide or salt

thereof is as defined in any one of the claims 1-10.

21. A peptide or pharmaceutical salt thereof, the peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

5

$(\text{Trp})_m(\text{Asn})_n\text{-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)}_p(\text{Gln})_q$ (SEQ ID NO: 1)

$(\text{Arg})_{m_x}(\text{Arg})_{n_x}\text{-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)}_{p_x}(\text{Pro})_{q_x}$ (SEQ ID NO: 2)

10 wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

a C-terminal end corresponding to $-\text{C(O)}\text{R}_4$;

15 a N-terminal end corresponding to $-\text{NHR}_5$;

R₄ is a radical selected from the group consisting of $-\text{OH}$ and $-\text{NR}_{17}\text{R}_{18}$;

R₅ is a radical selected from the group consisting of $-\text{H}$, $(\text{C}_1\text{-C}_{20})\text{alkyl}$ and $(\text{C}_1\text{-C}_{10})\text{alkyl}$ substituted by one or more radicals selected from the group consisting of: halogen, $(\text{C}_1\text{-C}_{10})\text{alkyl}$, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$; and

20 R₁₇ and R₁₈ are radicals independently selected from the group consisting of: $-\text{H}$, $(\text{C}_1\text{-C}_{10})\text{alkyl}$ and $(\text{C}_1\text{-C}_{10})\text{alkyl}$ substituted by one or more radicals selected from the group consisting of: halogen, $(\text{C}_1\text{-C}_{10})\text{alkyl}$, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$;

the peptide optionally including a linker biradical "L" of formula (I)

25
$$-[(\text{R}_1)_a-(\text{R}_2)-(\text{R}_3)_b]_c-$$
 (I)

which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom of an amino acid located at position "i+4" or "i+7" in the peptide sequence

wherein

30 "a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

R₁ and R₃ are biradicals independently selected from the group consisting of: $(\text{C}_1\text{-C}_{10})\text{alkyl}$; $(\text{C}_1\text{-C}_{10})\text{alkyl}$ substituted by one or more radicals selected from the group consisting of: halogen, $(\text{C}_1\text{-C}_{10})\text{alkyl}$, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$; $(\text{C}_2\text{-C}_{10})\text{alkenyl}$; $(\text{C}_2\text{-C}_{10})\text{alkenyl}$

35 substituted by one or more radicals selected from the group consisting of: halogen, $(\text{C}_1\text{-C}_{10})\text{alkyl}$, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$; $(\text{C}_2\text{-C}_{10})\text{alkynyl}$; and $(\text{C}_2\text{-C}_{10})\text{alkynyl}$ substituted by one or more radicals selected from the group consisting of: halogen, $(\text{C}_1\text{-C}_{10})\text{alkyl}$, $-\text{OR}_6$, $-\text{NR}_7\text{R}_8$, $-\text{SR}_9$, $-\text{SOR}_{10}$, $-\text{SO}_2\text{R}_{11}$, and $-\text{CO}_2\text{R}_{12}$;

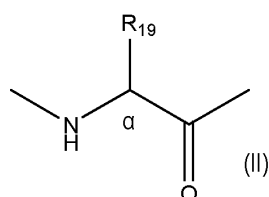
5 R_2 is a biradical selected from the group consisting of: $-O-$, $C(=O)$, $C(=O)NR_{13}$, $C(=O)O$, $S(=O)$, $S(=O)_2$, NR_{14} , $(C_1-C_{10})alkyl$, $(C_2-C_{10})alkenyl$, $(C_2-C_{10})alkynyl$, $-NR_{15}-NR_{16}-$, $-N=N-$, $-S-S-$, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
each one of the members forming the known ring system is selected from the group consisting of: $-CH-$, $-CH_2-$, $-NH-$, $-N-$, $-SH-$, $-S-$, and $-O-$; and
10 the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, $-OH$, $-NO_2$, $(C_1-C_{10})alkyl$, $(C_1-C_{10})haloalkyl$, and $(C_1-C_{10})alkyl-O-$; and

15 R_6 , R_7 , R_8 , R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} , R_{15} , and R_{16} are radicals independently selected from the group consisting of: $-H$ and $(C_1-C_{10})alkyl$; and

the amino acids which are connected by the linker being of formula (II)

20



wherein

25 R_{19} is a monoradical selected from the group consisting of: $(C_1-C_{10})alkyl$, $(C_2-C_{10})alkenyl$, $(C_2-C_{10})alkynyl$, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;
the rings are isolated, partially or totally fused,
30 each one of the members forming the known ring system is selected from the group consisting of: $-CH-$, $-CH_2-$, $-NH-$, $-N-$, $-SH-$, $-S-$, and $-O-$; or the pharmaceutical composition as defined in any one of the claims 11-13, for use in the treatment and/or prevention of a disease related to the dysregulation of melanogenesis, particularly by inhibiting cancer melanocytes proliferation.

35 22. The peptide or pharmaceutical salt thereof for use as claimed in claim 21, wherein the peptide or salt is as defined in any of the claims 1-10.

23. A depigmenting composition comprising a peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

(Arg)_{m_x}-(Arg)_{n_x}-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_{p_x}-(Pro)_{q_x} (SEQ ID NO: 2)

5

wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

"m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;

10 a C-terminal end corresponding to -C(O)R₄;

a N-terminal end corresponding to -NHR₅;

R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;

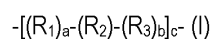
R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -

15 SO₂R₁₁, and -CO₂R₁₂; and

R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

the peptide optionally including a linker biradical "L" of formula (I)

20



which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom of an amino acid located at position "i+4" or "i+7" in the peptide sequence

25 wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

30

R₁ and R₃ are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

35

R₂ is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings,

where:

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

5 each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and

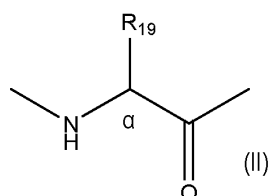
the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-O-; and

10

R₆, R₇, R₈, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅, and R₁₆ are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

the amino acids which are connected by the linker being of formula (II)

15



20 wherein

R₁₉ is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

each one of the rings is saturated, partially unsaturated, or aromatic;

25 the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-,

and one or more cosmetically acceptable excipients.

30 24. A pigmenting composition comprising a peptide having an amino acid sequence with at least 85% of identity with respect sequence SEQ ID NO: 1 or 2:

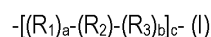
(Trp)_m-(Asn)_n-Lys-Gly-Thr-Ile-Leu-Lys-Ala-Ser-Val-Asp-Tyr-Ile-Arg-Lys-(Leu)_p-(Gln)_q (SEQ ID NO: 1)

35 (Arg)_m-(Arg)_n-Arg-Arg-Phe-Asn-Ile-Asn-Asp-Arg-Ile-Lys-Glu-Leu-Gly-Thr-Leu-(Ile)_p-(Pro)_q (SEQ ID NO: 2)

wherein

"m", "n", "p", and "q" represent integers and are selected from 0 and 1;

- "m_x", "n_x", "p_x", and "q_x" represent integers and are selected from 0 and 1;
 a C-terminal end corresponding to -C(O)R₄;
 a N-terminal end corresponding to -NHR₅;
 R₄ is a radical selected from the group consisting of -OH and -NR₁₇R₁₈;
 5 R₅ is a radical selected from the group consisting of -H, (C₁-C₂₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; and
 R₁₇ and R₁₈ are radicals independently selected from the group consisting of: -H, (C₁-C₁₀)alkyl and (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -
 10 OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;
 the peptide optionally including a linker biradical "L" of formula (I)



- 15 which is connecting an alpha carbon atom of an amino acid located at position "i" with an alpha carbon atom of an amino acid located at position "i+4" or "i+7" in the peptide sequence
 wherein

"a" and "b" are the same or different and are 0 or 1;

"c" is comprised from 1 to 10;

20

R₁ and R₃ are biradicals independently selected from the group consisting of: (C₁-C₁₀)alkyl; (C₁-C₁₀)alkyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkenyl; (C₂-C₁₀)alkenyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -
 25 OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂; (C₂-C₁₀)alkynyl; and (C₂-C₁₀)alkynyl substituted by one or more radicals selected from the group consisting of: halogen, (C₁-C₁₀)alkyl, -OR₆, -NR₇R₈, -SR₉, -SOR₁₀, -SO₂R₁₁, and -CO₂R₁₂;

30

R₂ is a biradical selected from the group consisting of: -O-, C(=O), C(=O)NR₁₃, C(=O)O, S(=O), S(=O)₂, NR₁₄, (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, -NR₁₅-NR₁₆-, -N=N-, -S-S-, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

35

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-; and

the ring system is optionally substituted by one or more radicals independently selected from the group consisting of halogen, -OH, -NO₂, (C₁-C₁₀)alkyl, (C₁-C₁₀)haloalkyl, and (C₁-C₁₀)alkyl-

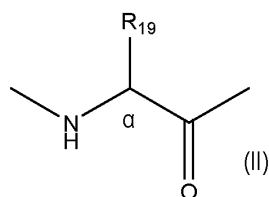
O-; and

R₆, R₇, R₈, R₉, R₁₀, R₁₁, R₁₂, R₁₃, R₁₄, R₁₅, and R₁₆ are radicals independently selected from the group consisting of: -H and (C₁-C₁₀)alkyl; and

5

the amino acids which are connected by the linker being of formula (II)

10



wherein

R₁₉ is a monoradical selected from the group consisting of: (C₁-C₁₀)alkyl, (C₂-C₁₀)alkenyl, (C₂-C₁₀)alkynyl, and a known ring system comprising from 3 to 14 members, the system comprising from 1 to 3 rings, where:

15

each one of the rings is saturated, partially unsaturated, or aromatic;

the rings are isolated, partially or totally fused,

each one of the members forming the known ring system is selected from the group consisting of: -CH-, -CH₂-, -NH-, -N-, -SH-, -S-, and -O-,

20 and one or more cosmetically acceptable excipients.

25. The composition as claimed in any one of the claims 23-24, wherein the composition is a topical composition.

25 26. The composition as claimed in any one of the claims 23-25, wherein the peptide is as defined in any one of the claims 1-10.