

Phenylalanine

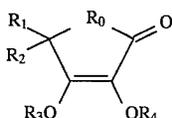
(x i) SEQUENCE DESCRIPTION: SEQ ID NO: 116:

Xaa Gln Trp Ala Val Gly His Leu Leu
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What is claimed is:

1. A peptide derivative consisting of:

a biologically active peptide moiety having a free amino group, and at least one substituent attached to said peptide moiety, wherein said substituent is selected from the group consisting of Compounds I, II, and III, wherein Compound I is:



wherein:

R₀ is O, S, or NR₅, wherein R₅ is H or (C₁-C₆) alkyl;

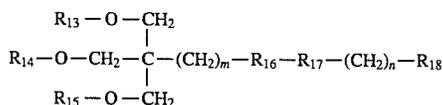
each R₁ and R₂, independently, is H, (CH₂)_mOR₆, or CH(OR₇)CH₂OR₈, wherein R₆ is H or (C₂-C₇) acyl, and each R₇ and R₈, independently, is H, (C₂-C₇) acyl, or C(R₉)(R₁₀), wherein each R₉ and R₁₀, independently, is H or C₁-C₆ alkyl;

or R₁ and R₂ in combination are =CHCH₂OR₁₁, R₁₁ is H or (C₂-C₇) acyl, and m is an integer between 1 and 5, inclusive; and

one of R₃ and R₄ is (CH₂)_nR₁₂ or (CH₂)_nCH(OH)R₁₂, wherein R₁₂ is CO, CH₂ or SO₂, and n is an integer between 1 and 5, inclusive;

and the other of R₃ and R₄ is H, (C₁-C₆) hydroxyalkyl, or (C₂-C₇) acyl; and

Compound II is:



wherein:

each R₁₃, R₁₄, and R₁₅, independently, is H or (C₂-C₂₄) acyl;

R₁₆ is NH or absent;

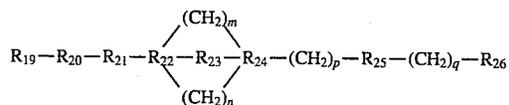
R₁₇ is CO, O, or absent;

R₁₈ is CO, CH₂, SO₂, or absent;

m is an integer between 1 and 5, inclusive;

n is an integer between 1 and 5, inclusive; and

Compound III is:



wherein:

R₁₉ is H, NH₂, an aromatic functional group, OH, (C₁-C₆) hydroxyalkyl, H(R₂₇)(R₂₈), SO₃H, or absent; wherein each R₂₇ and R₂₈, independently, is H or (C₁-C₆) alkyl;

R₂₀ is O or absent;

R₂₁ is (C₁-C₆) alkyl or absent;

R₂₂ is N, O, C, or CH;

R₂₃ is (C₁-C₆) alkyl or absent;

R₂₄ is N, CH, or C;

R₂₅ is NH, O, or absent;

R₂₆ is SO₂, CO, or CH₂;

m is an integer between 0 and 5, inclusive;

n is an integer between 0 and 5, inclusive;

p is an integer between 0 and 5, inclusive; and

q is an integer between 0 and 5, inclusive;

wherein said peptide moiety is attached to said substituent at R₁₂, R₁₈, or R₂₆ by a CO—N, CH₂—N, or SO₂—N bond between said substituent and said free amino group.

2. The peptide derivative of claim 1, wherein said substituent is Compound I.

3. The peptide derivative of claim 1, wherein said substituent is Compound II.

4. The peptide derivative of claim 1, wherein said substituent is Compound III.

5. The peptide derivative of claim 2, wherein R₀ is O, R₁ is CH(OH)CH₂OH, R₂ is H, and one of R₃ and R₄ is (CH₂)_nR₁₂ and the other of R₃ and R₄ is H or (C₁-C₆) hydroxyalkyl.

6. The peptide derivative of claim 3, wherein R₁₃, R₁₄, and R₁₅ are H, R₁₆ is NH, R₁₇ is CO or absent, and m is O.

7. The peptide derivative of claim 3, wherein R₁₃, R₁₄, and R₁₅ are H, R₁₆ is absent, R₁₇ is absent, and m is O.

8. The peptide derivative of claim 4, wherein R₂₃ is (C₁-C₆) alkyl, R₂₂ is N, C, or CH, R₂₄ is C, and each of m and n is an integer between 2 and 5, inclusive.

9. The peptide derivative of claim 4, wherein R₂₃ is absent, R₂₄ is N or CH, R₂₂ is N, O, or C, and each of m and n is an integer between 2 and 5, inclusive.

10. The peptide derivative of claim 9, wherein R₂₄ is N, R₂₂ is O, and each of R₁₉, R₂₀, and R₂₁ is absent.

11. The peptide derivative of claim 9, wherein each of R₂₂ and R₂₄ is N.

12. The peptide derivative of claim 11, wherein each of R₂₀ and R₂₅ is absent.

13. The peptide derivative of claim 12, wherein R₁₉ is OH, R₂₁ is (C₁-C₆) alkyl, and p is O.

14. The peptide derivative of claim 5, wherein said peptide moiety is selected from the group consisting of: somatostatin, bombesin, calcitonin, calcitonin gene related peptide, amylin, parathyroid hormone, gastrin releasing peptide, melanocyte stimulating hormone, adrenocorticotrophic hormone, parathyroid related peptide, luteinizing hormone-releasing hormone, growth hormone releasing factor, growth hormone releasing peptide, cholecystokinin, glucagon, bradykinin, glucagon-like peptide, gastrin enkephalin, neuropeptides, endothelin, substance P, neuropeptide Y, peptide YY, vasoactive intestinal peptide, guanylin, pituitary adenylate cyclase activating polypeptide, beta-cell tropin, adrenomedullin, and a derivative, a fragment, or an analog thereof.

15. The peptide derivative of claim 14, wherein said peptide moiety is somatostatin or a derivative, a fragment, or an analog thereof.