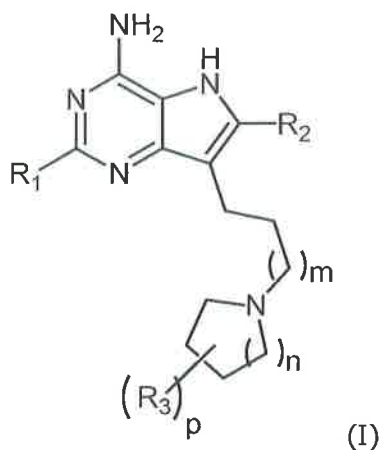


Claims

1. A compound of formula (I), or a salt thereof:



wherein:

R_1 is n -C₄₋₆alkyl or C₁₋₂alkoxyC₁₋₂alkyl-;

R_2 is hydrogen or methyl;

each R_3 is hydroxy, halo or n -C₁₋₃alkyl;

m is an integer having a value of 2 to 4;

n is an integer having a value of 0 to 3;

p is an integer having a value of 0 to 2.

2. A compound according to claim 1, or a salt thereof, wherein R_1 is n -butyl.

3. A compound according to claim 1, or a salt thereof, wherein R_1 is ethoxymethyl.

4. A compound according to claim 1, or a salt thereof, wherein R_1 is 2-methoxyethyl.

5. A compound according to any of claims 1-4, or a salt thereof, wherein R_2 is hydrogen.

6. A compound according to any of claims 1-4, or a salt thereof, wherein R_2 is methyl.

7. A compound according to any of claims 1-6, or a salt thereof, wherein m is an integer having a value of 2, 3 or 4.

8. A compound according to any of claims 1-7, or a salt thereof, wherein n is an integer having a value of 1 or 2.

5 9. A compound according to any of claims 1-8, or a salt thereof, wherein p is 0.

10. A compound according to any of claims 1-8, or a salt thereof, wherein R₃ is hydroxy or halo.

10 11. A compound according to any of claims 1-8, or a salt thereof, wherein p is 1 and R₃ is hydroxy or fluoro.

12. A compound according to any of claims 1-8, or a salt thereof, wherein p is 2 and R₃ is fluoro.

15 13. A compound according to claim 1, or a salt thereof, selected from the group consisting of:

2-Butyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(piperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

20 2-Butyl-7-(4-(piperidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-(Ethoxymethyl)-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-(2-Methoxyethyl)-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(5-(piperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

25 2-Butyl-6-methyl-7-(4-(piperidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(pyrrolidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(6-(pyrrolidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Pentyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(Azepan-1-yl)pentyl)-2-butyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

30 7-(4-(Azepan-1-yl)butyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(6-(pyrrolidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(6-(Azetidin-1-yl)hexyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(5-(pyrrolidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(Azetidin-1-yl)pentyl)-2-butyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

35 7-(5-(Azetidin-1-yl)pentyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(4-(pyrrolidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(4,4-difluoropiperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(4-fluoropiperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(4-Fluoropiperidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)piperidin-4-ol;

(*R*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

5 (*S*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-7-(5-(3-Fluoropyrrolidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*S*)-7-(5-(3-Fluoropyrrolidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

10 (*S*)-1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)pyrrolidin-3-ol;

1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)azetidin-3-ol;

7-(6-(Azepan-1-yl)hexyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(6-(4-fluoropiperidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(6-(3-fluoropyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

15 (*S*)-2-Butyl-7-(6-(3-fluoropyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*S*)-2-Butyl-7-(5-(2-methylpyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(5-(2-methylpyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

20 2-Butyl-7-(5-(3-methylazetidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(3-fluoroazetidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(6-(pyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(4-fluoropiperidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

25 (*S*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(3-fluoroazetidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine; and

30 2-(2-Methoxyethyl)-7-(5-(pyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine.

14. A compound according to any of claims 1-13, which is in the form of a pharmaceutically acceptable salt.

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15. A compound according to any of claims 1-13, which is in the form of a free base.

16. A pharmaceutical composition comprising a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, and one or more pharmaceutically acceptable excipients.

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17. A vaccine composition comprising a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, and an antigen or antigen composition.

18. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in therapy.

19. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of allergic diseases and other inflammatory conditions, infectious diseases, and cancer.

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20. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of allergic rhinitis.

21. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of asthma.

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22. Use of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment of allergic diseases and other inflammatory conditions, infectious diseases, and cancer.

25

23. Use of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment of allergic rhinitis.

24. Use of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment of asthma.

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25. A method of treatment of allergic diseases and other inflammatory conditions, infectious diseases and cancer, which method comprises administering to a human subject in need thereof, a therapeutically effective amount of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof.

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26. A method of treatment of allergic rhinitis, which method comprises administering to a human subject in need thereof, a therapeutically effective amount of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof.

27. A method of treatment of asthma, which method comprises administering to a human subject in need thereof, a therapeutically effective amount of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof.

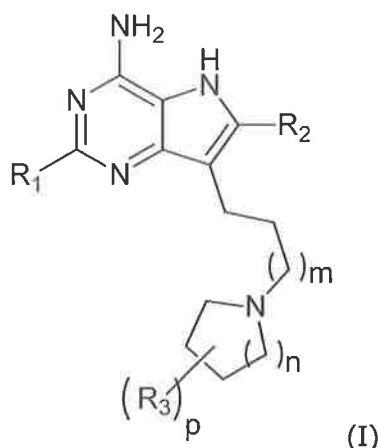
28. A vaccine composition as defined in claim 17, for use in therapy.

29. A method of treating or preventing disease comprising the administration to a human subject suffering from or susceptible to disease, a vaccine composition as defined in claim 17.

30. Use of a vaccine composition as defined in claim 17 for the manufacture of a medicament for therapy.

Claims

1. A compound of formula (I), or a salt thereof:



wherein:

R₁ is *n*-C₄₋₆alkyl or C₁₋₂alkoxyC₁₋₂alkyl-;

R₂ is hydrogen or methyl;

each R₃ is hydroxy, halo or *n*-C₁₋₃alkyl;

m is an integer having a value of 2 to 4;

n is an integer having a value of 0 to 3;

p is an integer having a value of 0 to 2.

2. A compound according to claim 1, or a salt thereof, wherein R₁ is *n*-butyl.

3. A compound according to claim 1, or a salt thereof, wherein R₁ is ethoxymethyl.

4. A compound according to claim 1, or a salt thereof, wherein R₁ is 2-methoxyethyl.

5. A compound according to any of claims 1-4, or a salt thereof, wherein R₂ is hydrogen.

6. A compound according to any of claims 1-4, or a salt thereof, wherein R₂ is methyl.

7. A compound according to any of claims 1-6, or a salt thereof, wherein m is an integer having a value of 2, 3 or 4.

8. A compound according to any of claims 1-7, or a salt thereof, wherein n is an integer having a value of 1 or 2.

9. A compound according to any of claims 1-8, or a salt thereof, wherein p is 0.

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10. A compound according to any of claims 1-8, or a salt thereof, wherein R₃ is hydroxy or halo.

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11. A compound according to any of claims 1-8, or a salt thereof, wherein p is 1 and R₃ is hydroxy or fluoro.

12. A compound according to any of claims 1-8, or a salt thereof, wherein p is 2 and R₃ is fluoro.

15

13. A compound according to claim 1, or a salt thereof, selected from the group consisting of:

2-Butyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(piperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(4-(piperidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

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2-(Ethoxymethyl)-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-(2-Methoxyethyl)-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(5-(piperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(4-(piperidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

25

2-Butyl-7-(5-(pyrrolidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(6-(pyrrolidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Pentyl-7-(6-(piperidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(Azepan-1-yl)pentyl)-2-butyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(4-(Azepan-1-yl)butyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

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2-Butyl-6-methyl-7-(6-(pyrrolidin-1-yl)hexyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(6-(Azetidin-1-yl)hexyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(5-(pyrrolidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(Azetidin-1-yl)pentyl)-2-butyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(Azetidin-1-yl)pentyl)-2-butyl-6-methyl-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

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2-Butyl-6-methyl-7-(4-(pyrrolidin-1-yl)butyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(4,4-difluoropiperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

2-Butyl-7-(5-(4-fluoropiperidin-1-yl)pentyl)-5H-pyrrolo[3,2-d]pyrimidin-4-amine;

7-(5-(4-Fluoropiperidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)piperidin-4-ol;

(*R*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

5 (*S*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-7-(5-(3-Fluoropyrrolidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*S*)-7-(5-(3-Fluoropyrrolidin-1-yl)pentyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

10 (*S*)-1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)pyrrolidin-3-ol;

1-(5-(4-Amino-2-butyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-7-yl)pentyl)azetidin-3-ol;

7-(6-(Azepan-1-yl)hexyl)-2-(2-methoxyethyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(6-(4-fluoropiperidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(6-(3-fluoropyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

15 (*S*)-2-Butyl-7-(6-(3-fluoropyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*S*)-2-Butyl-7-(5-(2-methylpyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(5-(2-methylpyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

20 2-Butyl-7-(5-(3-methylazetidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(3-fluoroazetidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-6-methyl-7-(6-(pyrrolidin-1-yl)hexyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(4-fluoropiperidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

25 (*S*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

(*R*)-2-Butyl-7-(5-(3-fluoropyrrolidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine;

2-Butyl-7-(5-(3-fluoroazetidin-1-yl)pentyl)-6-methyl-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine; and

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2-(2-Methoxyethyl)-7-(5-(pyrrolidin-1-yl)pentyl)-5*H*-pyrrolo[3,2-*d*]pyrimidin-4-amine.

14. A compound according to any of claims 1-13, which is in the form of a pharmaceutically acceptable salt.

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15. A compound according to any of claims 1-13, which is in the form of a free base.

16. A pharmaceutical composition comprising a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, and one or more pharmaceutically acceptable excipients.
- 5 17. A vaccine composition comprising a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, and an antigen or antigen composition.
18. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in therapy.
- 10 19. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of allergic diseases and other inflammatory conditions, infectious diseases, and cancer.
- 15 20. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of allergic rhinitis.
21. A compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, for use in the treatment of asthma.
- 20 22. Use of a compound as defined in any of claims 1-13, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment of allergic diseases and other inflammatory conditions, infectious diseases, and cancer.