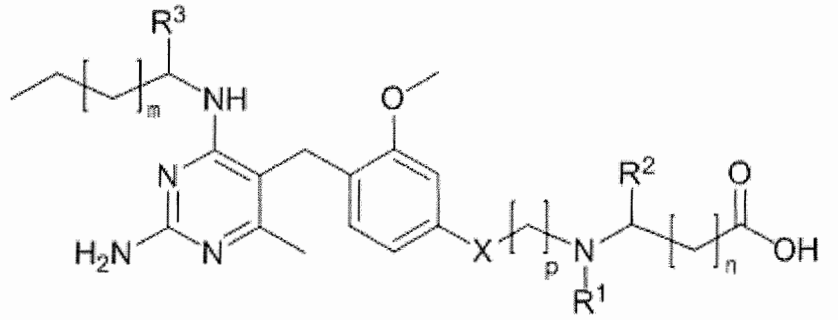
CLAIMS

1. A compounds of Formula (I):



(I)

wherein:

n is 0, 1, or 2;

m is 1 or 2;

p is 1, 2, or 3, provided that when X is oxygen, p is 2 or 3, and when X is a single bond, p is 1;

X is oxygen or a single bond;

R^1 is chosen from hydrogen, C_{1-4} alkyl groups, C_{1-3} alkyl-(CH_2)- groups wherein C_{1-3} alkyl moiety is substituted by 1, 2, or 3 fluorine atoms, C_{1-4} alkyl groups substituted by cyano, C_{1-3} alkoxy-C_{2-4} alkyl groups, C_{3-6} cycloalkyl groups, C_{1-4} alkylcarbonyl groups, and formyl;

R^2 is chosen from hydrogen and C_{1-4} alkyl groups; or

R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom chosen from N, O, and S, wherein said N heteroatom may be optionally substituted by C_{1-3} alkyl;

R^3 is chosen from hydrogen, hydroxymethyl, and 2-hydroxyethyl;

and pharmaceutically acceptable salts thereof.

2. The compound according to claim 1, wherein m is 1, or a pharmaceutically acceptable salt thereof.

3. The compound according to claim 1 or 2, wherein R^3 is 2-hydroxyethyl, or a pharmaceutically acceptable salt thereof.

4. The compound according to any one of claims 1 to 3, wherein R^2 is hydrogen or C_{1-4} alkyl, or a pharmaceutically acceptable salt thereof.

5. The compound according to claim 4, wherein R^2 is hydrogen, or a pharmaceutically acceptable salt thereof.

6. The compound according to claim 4 or 5, wherein X is single bond and p is 1, or a pharmaceutically acceptable salt thereof.

7. The compound according to any one of claims 4 or 5, wherein X is oxygen and p is 3, or a pharmaceutically acceptable salt thereof.

8. The compound according to any one of claims 4 to 7, wherein n is 0 or 1, or a pharmaceutically acceptable salt thereof.

9. The compound according to any one of claims 1 to 3, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

10. The compound according to claim 9, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

11. The compound according to claim 10, wherein the saturated

4- to 6-membered heterocyclyl ring is pyrrolidine, piperidine, morpholine, or piperazine; or a pharmaceutically acceptable salt thereof.

12. The compound according to claim 9, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form an unsaturated 5- or 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

13. The compound according to claim 12, wherein the unsaturated 5- or 6-membered heterocyclyl ring is imidazole; or a pharmaceutically acceptable salt thereof.

14. The compound according to any one of claims 9 to 13, wherein n is 0, or a pharmaceutically acceptable salt thereof.

15. The compound according to any one of claims 9 to 14, wherein X is oxygen and p is 3, or a pharmaceutically acceptable salt thereof.

16. The compound according to any one of claims 9 to 14, wherein X is a single bond and p is 1.

17. The compound according to any one of claims 1 to 16, wherein R^1 is C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl, or a pharmaceutically acceptable salt thereof.

18. The compound according to claim 17, wherein R^1 is ethyl, 2-monofluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl or acetyl, or a pharmaceutically acceptable salt thereof.

19. The compound according to claim 18, wherein R^1 is ethyl,

2,2-difluoroethyl, 2,2,2-trifluoroethyl or acetyl, or a pharmaceutically acceptable salt thereof.

20. The compound according to any one of claims 1 to 19, wherein m is 1, or a pharmaceutically acceptable salt thereof.

21. At least one entity chosen from compounds according to any one of claims 1 to 20.

22. A pharmaceutical composition comprising

at least one entity chosen from compounds according to any one of claims 1 to 20 and pharmaceutically acceptable salts thereof, and

at least one pharmaceutically acceptable diluent or carrier.

23. A method of treating a disease or medical condition mediated alone or in part by TLR7 in a subject in need thereof comprising:

administering to said subject a therapeutically effective amount of at least one entity chosen from compounds according to any one of claims 1 to 20 and pharmaceutically acceptable salts thereof.

24. The method according to claim 23, wherein the disease or medical condition mediated alone or in part by TLR7 is cancer.

25. The method according to claim 24, wherein the cancer is chosen from bladder cancer, head and neck cancer, prostate cancer, breast cancer, lung cancer, uterus cancer, pancreatic cancer, liver cancer, renal cancer, ovarian cancer, colon cancer, stomach cancer, skin cancer, cerebral tumor, malignant myeloma, and lymphoproliferative tumors.

26. The method according to claim 23, wherein the disease or medical condition mediated alone or in part by TLR7 is asthma, COPD, allergic rhinitis, allergic conjunctivitis, atopic

dermatitis, hepatitis B, hepatitis C, HIV, HPV, bacterial infections, or dermatosis.

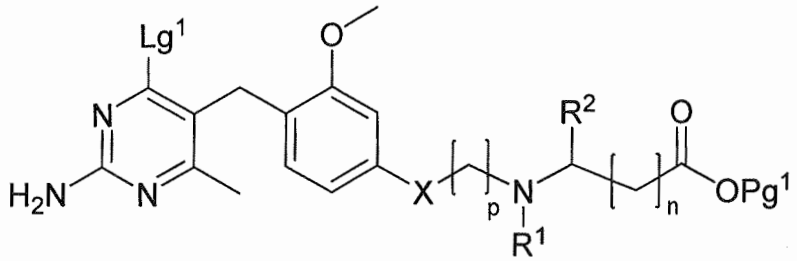
27. A compound according to any one of claims 1 to20, or a pharmaceutically acceptable salt thereof, for use as a medicament.

28. A compound according to any one of claims 1 to 20, or a pharmaceutically acceptable salt thereof, for use in the treatment of cancer.

29. Use of a compound according to any one of claims 1 to 20, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for use in the treatment of cancer.

30. A method of preparing a compound according to any one of claims 1 to 20 or a pharmaceutical salt thereof comprising a step of (1) and (2):

(1) contacting a compound of Formula (II):



(II)

wherein

n is 0, 1 or 2;

p is 1, 2 or 3 , provided that p is 2 or 3 when X is oxygen and p is 1 when X is a single bond;

X is oxygen or a single bond;

R^1 is hydrogen, C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl;

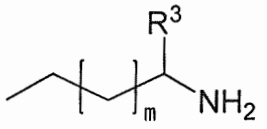
R^2 is hydrogen or C_{1-4} alkyl; or

R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4 to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl;

LG^1 is a leaving group; and

PG^1 is a protective group of carboxylic acid;

with a compound of Formula (III):



(III)

wherein

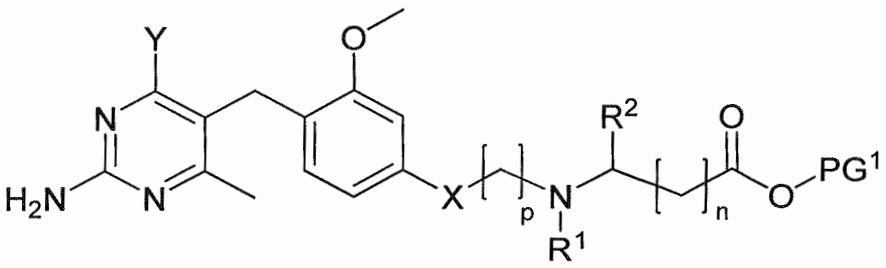
m is 1 or 2; and R^3 is hydrogen, hydroxymethyl or 2-hydroxyethyl;

in the presence of a base, and

(2) removing the protective group of the compound obtained in step (1), and

(3) forming a pharmaceutically acceptable salt if necessary.

31. A compound of Formula (IV):



(IV)

wherein:

n is 0, 1 or 2;

p is 1, 2 or 3 , provided that p is 2 or 3 when X is oxygen

and p is 1 when X is a single bond;

X is oxygen or a single bond;

R^1 is hydrogen, C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl;

R^2 is hydrogen or C_{1-4} alkyl; or

R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4 to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl;

Y is hydroxy or a leaving group; and

PG^1 is a protective group of carboxylic acid;

or a salt thereof.

32. The compound according to claim 1, selected from a group consisting of:

2-((4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(ethyl)amino)acetic acid;

2-((4-((2-amino-4-(butylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(ethyl) amino)acetic acid;

2-((4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(2,2-difluoroethyl)amino)acetic acid;

2-((4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(2,2,2-trifluoroethyl)amino)acetic acid;

3-((4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(ethyl)amino)propanoic acid;

3-((4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)(2,2-difluoroethyl)amino)propanoic acid;

2-(N-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)acetamido)acetic

acid;

1-(3-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxyphenoxy)propyl)pyrrolidine-2-carboxylic acid;

3-((3-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxyphenoxy)propyl)(ethyl)amino)propanoic acid;

2-((3-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxyphenoxy)propyl)(ethyl)amino)acetic acid;

2-((3-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxyphenoxy)propyl)(2,2-difluoroethyl)amino)acetic acid;

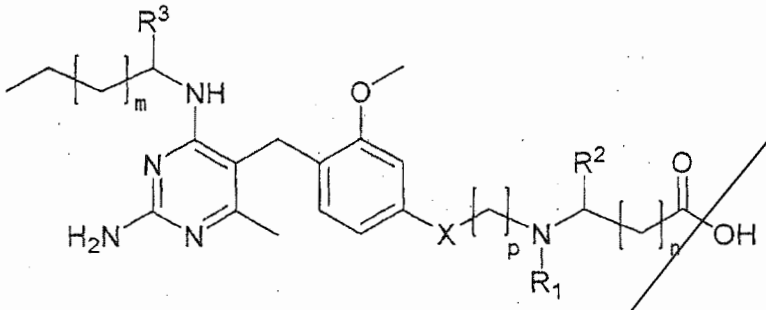
1-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)pyrrolidine-2-carboxylic acid;

1-(4-((2-amino-4-(1-hydroxyhexan-3-ylamino)-6-methylpyrimidin-5-yl)methyl)-3-methoxybenzyl)-1H-imidazole-5-carboxylic acid;

and pharmaceutically acceptable salts thereof.

CLAIMS

1. At least one entity chosen from compounds of Formula (I):



(I)

wherein:

n is 0, 1, or 2;

m is 1 or 2;

p is 1, 2, or 3, provided that when X is oxygen, p is 2 or 3, and when X is a single bond, p is 1;

X is oxygen or a single bond;

R^1 is chosen from hydrogen, C_{1-4} alkyl groups, C_{1-3} alkyl-(CH_2)- groups wherein C_{1-3} alkyl moiety is substituted by 1, 2, or 3 fluorine atoms, C_{1-4} alkyl groups substituted by cyano, C_{1-3} alkoxy-C_{2-4} alkyl groups, C_{3-6} cycloalkyl groups, C_{1-4} alkylcarbonyl groups, and formyl;

R^2 is chosen from hydrogen and C_{1-4} alkyl groups;

or R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further

heteroatom chosen from N, O, and S, wherein said N heteroatom may be optionally substituted by C_{1-3} alkyl;

R^3 is chosen from hydrogen, hydroxymethyl, and 2-hydroxyethyl; and pharmaceutically acceptable salts thereof.

2. The compound according to claim 1, wherein m is 1, or a pharmaceutically acceptable salt thereof.

3. The compound according to claim 1 or 2, wherein R^3 is 2-hydroxyethyl, or a pharmaceutically acceptable salt thereof.

4. The compound according to any one of claims 1 to 3, wherein R^2 is hydrogen or C_{1-4} alkyl, or a pharmaceutically acceptable salt thereof.

5. The compound according to claim 4, wherein R^2 is hydrogen, or a pharmaceutically acceptable salt thereof.

6. The compound according to claim 4 or 5, wherein X is single bond and p is 1, or a pharmaceutically acceptable salt thereof.

7. The compound according to any one of claims 4 or 5, wherein X is oxygen and p is 3, or a pharmaceutically acceptable salt thereof.

8. The compound according to any one of claims 4 to 7, wherein n is 0 or 1, or a pharmaceutically acceptable salt thereof.

9. The compound according to any one of claims 1 to 3, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom

may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

10. The compound according to claim 9, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

11. The compound according to claim 10, wherein the saturated 4- to 6-membered heterocyclyl ring is pyrrolidine, piperidine, or morpholine; or a pharmaceutically acceptable salt thereof.

12. The compound according to claim 9, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form an unsaturated 5- or 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl; or a pharmaceutically acceptable salt thereof.

13. The compound according to claim 12, wherein the unsaturated 5- or 6-membered heterocyclyl ring is imidazole; or a pharmaceutically acceptable salt thereof.

14. The compound according to any one of claims 9 to 13, wherein n is 0, or pharmaceutically acceptable salt thereof.

15. The compound according to any one of claims 9 to 14, wherein X is oxygen and p is 3, or a pharmaceutically acceptable

salt thereof.

16. The compound according to any one of claims 9 to 14, wherein X is single bond and p is 1.

17. The compound according to any one of claims 1 to 16, wherein R^1 is C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl, or a pharmaceutically acceptable salt thereof.

18. The compound according to claim 17, wherein R^1 is ethyl, 2-monofluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl or acetyl, or a pharmaceutically acceptable salt thereof.

19. The compound according to claim 18, wherein R^1 is ethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl or acetyl, or a pharmaceutically acceptable salt thereof.

20. The compound according to any one of claims 1 to 19, wherein m is 1, or a pharmaceutically acceptable salt thereof.

21. The at least one entity according to claim 1, wherein m is 1.

22. The at least one entity according to claim 1, wherein R^3 is 2-hydroxyethyl.

23. The at least one entity according to claim 1, wherein R^2 is chosen from C_{1-4} alkyl groups.

24. The at least one entity according to claim 1, wherein R^2 is hydrogen.

25. The at least one entity according to claim 1, wherein X

is single bond and p is 1.

26. The at least one entity according to claim 1, wherein X is oxygen and p is 3.

27. The at least one entity according to claim 1, wherein n is 0 or 1.

28. The at least one entity according to claim 1, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom chosen from N, O, and S, wherein said N heteroatom may be optionally substituted by C_{1-3} alkyl.

29. The at least one entity according to claim 28, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form a saturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom chosen from N, O, and S, wherein said N heteroatom may be optionally substituted by C_{1-3} alkyl.

30. The at least one entity according to claim 29, wherein the saturated 4- to 6-membered heterocyclyl ring is pyrrolidinyl, piperidinyl, morpholino, or piperazinyl.

31. The at least one entity according to claim 28, wherein R^1 and R^2 together with the nitrogen atom and carbon atoms to which they are attached form an unsaturated 5- or 6-membered heterocyclyl ring optionally containing a further heteroatom chosen from N, O, and S, wherein said N heteroatom may be

optionally substituted by C_{1-3} alkyl.

32. The at least one entity according to claim 31, wherein the unsaturated 5- or 6-membered heterocyclyl ring is imidazolyl.

33. The at least one entity according to claim 1, wherein n is 0.

34. The at least one entity according to claim 1, wherein X is oxygen and p is 3.

35. The at least one entity according to claim 1, wherein X is single bond and p is 1.

36. The at least one entity according to claim 1, wherein R^1 is chosen from C_{1-4} alkyl groups, C_{1-3} alkyl-(CH_2)- groups wherein C_{1-3} alkyl moiety is substituted by 1, 2, or 3 fluorine atoms, C_{1-4} alkyl groups substituted by cyano, C_{1-3} alkoxy-C_{2-4} alkyl groups, C_{3-6} cycloalkyl groups, C_{1-4} alkylcarbonyl groups, and formyl.

37. The at least one entity according to claim 36, wherein R^1 is chosen from ethyl, 2-monofluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, and acetyl.

38. The at least one entity according to claim 37, wherein R^1 is chosen from ethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, and acetyl.

39. A pharmaceutical composition comprising

at least one entity chosen from compounds according to any one of claims 1 to 38 and pharmaceutically acceptable salts thereof,

and

at least one pharmaceutically acceptable diluent or carrier.

40. A method of treating a disease or medical condition mediated alone or in part by TLR7 in a subject in need thereof comprising: administering to said subject a therapeutically effective amount of at least one entity chosen from compounds according to any one of claims 1 to 38 and pharmaceutically acceptable salts thereof.

41. The method according to claim 40, wherein the disease or medical condition mediated alone or in part by TLR7 is cancer.

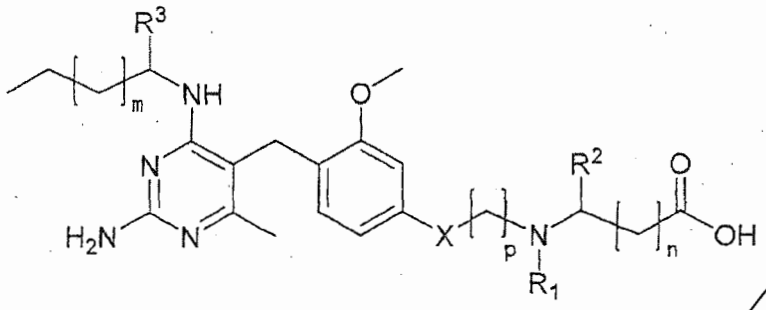
42. The method according to claim 41, wherein the cancer is chosen from bladder cancer, head and neck cancer, prostate cancer, breast cancer, lung cancer, uterus cancer, pancreatic cancer, liver cancer, renal cancer, ovarian cancer, colon cancer, stomach cancer, skin cancer, cerebral tumor, malignant myeloma, and lymphoproliferative tumors.

43. The method according to claim 40, wherein the disease or medical condition mediated alone or in part by TLR7 is asthma, COPD, allergic rhinitis, allergic conjunctivitis, atopic dermatitis, hepatitis B, hepatitis C, HIV, HPV, bacterial infections, or dermatosis.

44. A method of treating cancer in a subject in need thereof comprising:

administering to said subject a therapeutically effective amount of at least one entity chosen from compounds of Formula

(I) and pharmaceutically acceptable salts thereof,



(I)

wherein:

n is 0, 1, or 2;

m is 1 or 2;

p is 1, 2, or 3, provided that when X is oxygen, p is 2 or 3, and when X is a single bond, p is 1;

X is oxygen or a single bond;

R^1 is chosen from hydrogen, C_{1-4} alkyl groups, C_{1-3} alkyl-(CH_2)- groups wherein C_{1-3} alkyl moiety is substituted by 1, 2, or 3 fluorine atoms, C_{1-4} alkyl groups substituted by cyano, C_{1-3} alkoxy-C_{2-4} alkyl groups, C_{3-6} cycloalkyl groups, C_{1-4} alkylcarbonyl groups, and formyl;

R^2 is chosen from hydrogen and C_{1-4} alkyl groups;

or R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4- to 6-membered heterocyclyl ring optionally containing a further heteroatom chosen from N, O, and S, wherein said N heteroatom may be optionally substituted by C_{1-3} alkyl; and

R^3 is chosen from hydrogen, hydroxymethyl, and 2-hydroxyethyl.

45. A compound according to any one of claims 1 to 38, or a pharmaceutically acceptable salt thereof, for use as a medicament.

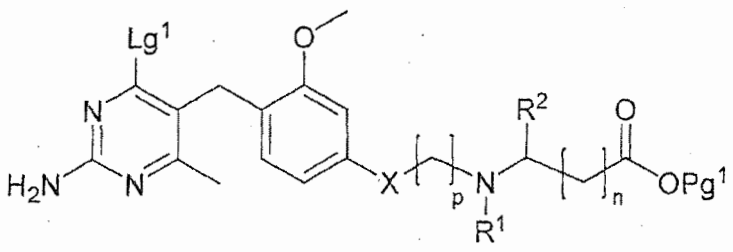
46. A compound according to any one of claims 1 to 38, or a pharmaceutically acceptable salt thereof, for use in the treatment of cancer.

47. Use of a compound according to any one of claims 1 to 38, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for use in the treatment of cancer.

48. A method of treating cancer in a warm blooded animal, such as man, in need of such treatment which comprises administering to said animal an effective amount of a compound of the Formula (I), or a pharmaceutically acceptable salt thereof, as defined in any one of claims 1 to 38.

49. A method of preparing a compound according to any one of claims 1 to 38 or a pharmaceutical salt thereof comprising a step of (1) and (2):

(1) contacting a compound of Formula (II):



(II)

wherein n is 0, 1 or 2;

p is 1, 2 or 3 , provided that p is 2 or 3 when X is oxygen and p is 1 when X is a single bond;

X is oxygen or a single bond;

R^1 is hydrogen, C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl;

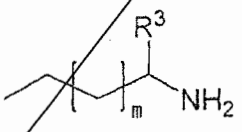
R^2 is hydrogen or C_{1-4} alkyl;

or R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4 to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl;

LG^1 is a leaving group; and

PG^1 is a protective group of carboxylic acid;

with a compound of Formula (III):



(III)

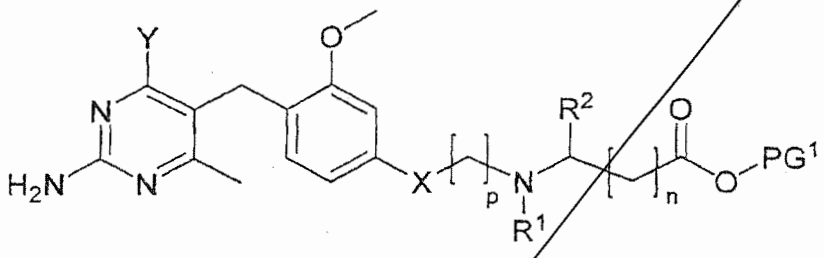
wherein m is 1 or 2; and R^3 is hydrogen, hydroxymethyl or 2-hydroxyethyl;

in the presence of base, and

(2) removing the protective group of the compound obtained in step (1), and

(3) Forming a pharmaceutically acceptable salt if necessary.

50. A compound of Formula (IV):



(IV)

wherein:

n is 0, 1 or 2;

p is 1, 2 or 3 , provided that p is 2 or 3 when X is oxygen and p is 1 when X is a single bond;

X is oxygen or a single bond;

R^1 is hydrogen, C_{1-4}alkyl, C_{1-3}alkyl-(CH_2)- wherein C_{1-3}alkyl is substituted by 1, 2 or 3 fluorine atoms, C_{1-4}alkyl substituted by cyano, C_{1-3}alkoxyC_{2-4}alkyl, C_{3-6}cycloalkyl, C_{1-4}alkylcarbonyl or formyl;

R^2 is hydrogen or C_{1-4} alkyl;

or R^1 and R^2 together with the nitrogen and carbon atoms to which they are attached form a saturated or unsaturated 4 to 6-membered heterocyclyl ring optionally containing a further heteroatom selected from N, O and S, wherein said N heteroatom may be optionally substituted by C_{1-3}alkyl;

Y is hydroxy or a leaving group; and

PG^1 is a protective group of carboxylic acid;

or a salt thereof.

5