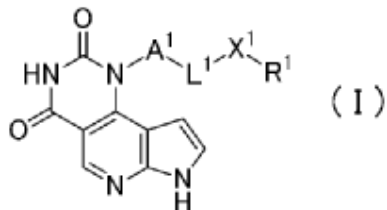


CLAIMS

1. A compound represented by the formula (I):



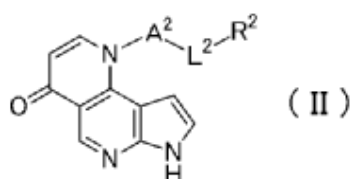
wherein A¹ is a C₃₋₇ cycloalkylene group,

- 5 L¹ is a C₁₋₆ alkylene group,
 X¹ is O or NH, and
 when X¹ is O, R¹ is a C₁₋₆ haloalkyl group, a cyano C₁₋₆ haloalkyl group or a cyano C₁₋₆ alkyl group, and
 when X¹ is NH, R¹ is a cyano C₁₋₄ haloalkyl group, a tautomer or pharmaceutically
 10 acceptable salt of the compound or a solvate thereof.
2. The compound according to Claim 1, wherein L¹ is a methylene group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
3. The compound according to Claim 1 or 2, wherein A¹ is a cyclohexanediyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
- 15 4. The compound according to any one of Claims 1 to 3, wherein X¹ is O, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
5. The compound according to Claim 4, wherein R¹ is a C₁₋₄ haloalkyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
6. The compound according to Claim 4, wherein R¹ is a 3,3,3-trifluoropropyl group, a
 20 tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
7. 1-{trans-4-[(3,3,3-Trifluoropropoxy)methyl]cyclohexyl}-1H-pyrrolo[3',2':5,6]pyrido[4,3-d]pyrimidine-2,4(3H,7H)-dione, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
8. The compound according to any one of Claims 1 to 3, wherein X¹ is NH, a
 25 tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
9. The compound according to Claim 8, wherein R¹ is a 3-cyano-1,1,1-trifluoropropan-2-yl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
10. 3-({[trans-4-(2,4-Dioxo-2,3,4,7-tetrahydro-1H-pyrrolo[3',2':5,6]pyrido[4,3-

d]pyrimidin-1-yl)cyclohexyl)methyl}amino)-4,4,4-trifluorobutanenitrile, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

11. (R)-3-({[trans-4-(2,4-Dioxo-2,3,4,7-tetrahydro-1H-pyrrolo[3',2':5,6]pyrido[4,3-d]pyrimidin-1-yl)cyclohexyl)methyl}amino)-4,4,4-trifluorobutanenitrile, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

12. A compound represented by the formula (II):



wherein A^2 is a C_{3-7} cycloalkylene group,

L^2 is a C_{1-6} alkylene group, and

10 R^2 is a 5 to 10-membered aromatic heterocyclic group (the heterocyclic group may be substituted with one or two identical or different substituents independently selected from the group consisting of halogen atoms, C_{1-4} alkyl groups and C_{1-4} haloalkyl groups), a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

13. The compound according to Claim 12, wherein L^2 is a methylene group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

14. The compound according to Claim 12 or 13, wherein A^2 is a cyclohexanedyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

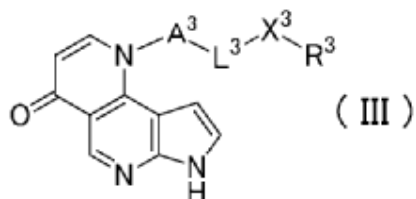
15. The compound according to any one of Claims 12 to 14, wherein R^2 is a 5 to 6-membered nitrogen-containing aromatic heterocyclic group the heterocyclic group may be substituted with one or two identical or different substituents independently selected from the group consisting of halogen atoms, methyl groups and trifluoromethyl groups, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

16. The compound according to any one of Claims 12 to 15, wherein R^2 is a pyrazolyl group the pyrazolyl group may be substituted with one or two identical or different substituents independently selected from the group consisting of halogen atoms, methyl groups and trifluoromethyl groups, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

17. 1-{trans-4-[(4-Methyl-1H-pyrazol-1-yl)methyl]cyclohexyl}-1H-pyrrolo[2,3-

h][1,6]naphthyridin-4(7H)-one, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

18. A compound represented by the formula (III):



- 5 wherein A³ is a C₃₋₇ cycloalkylene group,
 L³ is a C₁₋₆ alkylene group,
 X³ is O or NH, and
 when X³ is O, R³ is a C₁₋₆ haloalkyl group, a cyano C₁₋₆ haloalkyl group or a cyano C₁₋₆ alkyl group, and
- 10 when X³ is NH, R³ is a cyano C₁₋₆ haloalkyl group or a cyano C₁₋₆ alkyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
19. The compound according to Claim 18, wherein L³ is a methylene group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
20. The compound according to Claim 18 or 19, wherein A³ is a cyclohexanediyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
21. The compound according to any one of Claims 18 to 20, wherein X³ is O, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
22. The compound according to Claim 21, wherein R³ is a C₁₋₄ haloalkyl group or a cyano C₁₋₄ haloalkyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
- 20 23. The compound according to Claim 21, wherein R³ is a 2,2,2-trifluoroethyl group or a 3,3,3-trifluoropropyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
24. The compound according to Claim 21, wherein R³ is a 3-cyano-1,1,1-trifluoropropan-2-yl group or a 2-cyano-1,1,1-trifluoropropan-2-yl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.
- 25 25. 1-{trans-4-[(2,2,2-Trifluoroethoxy)methyl]cyclohexyl}-1H-pyrrolo[2,3-h][1,6]naphthyridin-4(7H)-one, a tautomer or pharmaceutically acceptable salt of the

compound or a solvate thereof.

26. 1-{trans-4-[(3,3,3-Trifluoropropoxy)methyl]cyclohexyl}-1H-pyrrolo[2,3-h][1,6]naphthyridin-4(7H)-one, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

5 27. 4,4,4-Trifluoro-3-{{trans-4-(4-oxo-4,7-dihydro-1H-pyrrolo[2,3-h][1,6]naphthyridin-1-yl)cyclohexyl}methoxy}butanenitrile, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

28. (R)-4,4,4-Trifluoro-3-{{trans-4-(4-oxo-4,7-dihydro-1H-pyrrolo[2,3-h][1,6]naphthyridin-1-yl)cyclohexyl}methoxy}butanenitrile, a tautomer or
10 pharmaceutically acceptable salt of the compound or a solvate thereof.

29. The compound according to any one of Claims 18 to 20, wherein X³ is NH, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

30. The compound according to Claim 29, wherein R³ is a cyano C₁₋₄ haloalkyl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

15 31. The compound according to Claim 29, wherein R³ is a 3-cyano-1,1,1-trifluoropropan-2-yl group, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

32. 4,4,4-Trifluoro-3-({[trans-4-(4-oxo-4,7-dihydro-1H-pyrrolo[2,3-h][1,6]naphthyridin-1-yl)cyclohexyl]methyl}amino)butanenitrile, a tautomer or pharmaceutically acceptable salt
20 of the compound or a solvate thereof.

33. (R)-4,4,4-Trifluoro-3-({[trans-4-(4-oxo-4,7-dihydro-1H-pyrrolo[2,3-h][1,6]naphthyridin-1-yl)cyclohexyl]methyl}amino)butanenitrile, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof.

34. A JAK inhibitor containing the compound as defined in any one of Claims 1 to 33, a tautomer or a pharmaceutically acceptable salt of the compound or a solvate thereof,
25 as an active ingredient.

35. Use of a compound as defined in any one of Claims 1 to 33, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof, in the manufacture of a medicament for the prevention or treatment of diseases against which
30 inhibition of JAK is effective.

36. Use of a compound as defined in any one of Claims 1 to 33, a tautomer or pharmaceutically acceptable salt of the compound or a solvate thereof, in the

manufacture of a medicament for the treatment of rheumatoid arthritis.

37. A compound as defined in any one of Claims 1 to 33, a tautomer or a pharmaceutically acceptable salt of the compound or a solvate thereof, as an active ingredient for use as a medicament.