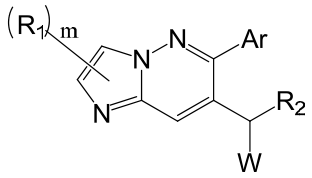
WHAT IS CLAIMED IS:

1. A compound of formula (I):



(I)

and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, and tautomers thereof, wherein

Ar is aryl or heteroaryl, each of which is optionally substituted with one or more groups chosen from deuterium, halo, -CN, -OH, -SH, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, -$O(C_{1-6}$ alkyl), -$(C_{1-6}$ alkyl)OH, -NH_2, -$NH(C_{1-6}$ alkyl), -$N(C_{1-6}$ alkyl)(C_{1-6} alkyl), and -$S(O)_2(C_{1-6}$ alkyl);

W is chosen from heteroaryl and –$N(R_3)$heteroaryl, wherein said heteroaryl is optionally substituted with one or more groups chosen from halo, -CN, -OH, -SH, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} haloalkyl, -$O(C_{1-6}$ alkyl), -$(C_{1-6}$ alkyl)OH, -NH_2, -$NH(C_{1-6}$ alkyl), -$N(C_{1-6}$ alkyl)(C_{1-6} alkyl), -COOH, -$C(O)NH_2$, -$C(O)NH(C_{1-6}$ alkyl), -$C(O)N(C_{1-6}$ alkyl)(C_{1-6} alkyl), - $SO_2(C_{1-6}$ alkyl), phenyl, and 5- or 6- membered heteroaryl; in which each of said phenyl or 5- or 6- membered heteroaryl as the substituent of W is optionally substituted with one or more groups chosen from halo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -$O(C_{1-6}$ alkyl), -$(C_{1-6}$ alkyl)OH, -NH_2, -$NH(C_{1-6}$ alkyl), and -$N(C_{1-6}$ alkyl)(C_{1-6} alkyl);

R_1 is independently chosen from H, halo, -CN, C_{1-6} alkyl, C_{1-6} haloalkyl, -$(C_{1-6}$ alkyl)OH, -$(C_{1-6}$ alkyl)$O(C_{1-6}$ alkyl), and C_{2-6} alkynyl;

R_2 is chosen from H, C_{1-6} alkyl, and C_{3-8} cycloalkyl, each of which except for H, is optionally substituted with one or more groups chosen from halo, -CN, C_{1-6} alkyl, C_{1-6} haloalkyl, and -OH;

R_3 is H or C_{1-6} alkyl;

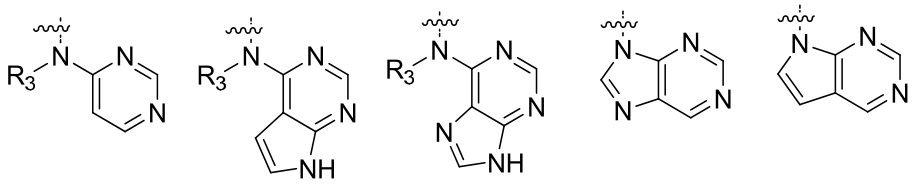
m is 1 or 2.

2. The compound of formula (I) according to claim 1, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from nitrogen-containing heteroaryl and –N(R_3) nitrogen-containing heteroaryl, wherein said nitrogen-containing heteroaryl is optionally substituted with one or more groups chosen from halo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -O(C_{1-6} alkyl), -(C_{1-6} alkyl)OH, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)(C_{1-6} alkyl), -COOH, -C(O)NH_2, -C(O)NH(C_{1-6} alkyl), -C(O)N(C_{1-6} alkyl)(C_{1-6} alkyl), -SO_2(C_{1-6} alkyl), phenyl, and 5- or 6- membered heteroaryl; in which each of said phenyl or 5- or 6- membered heteroaryl as the substituent of W is optionally substituted with one or more groups chosen from halo, -CN, -OH, C_{1-6} alkyl, C_{1-6} haloalkyl, -O(C_{1-6} alkyl), -(C_{1-6} alkyl)OH, -NH_2, -NH(C_{1-6} alkyl), or -N(C_{1-6} alkyl)(C_{1-6} alkyl).

3. The compound of formula (I) according to claim 2, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from nitrogen-containing heteroaryl or –N(R_3) nitrogen-containing heteroaryl, wherein said nitrogen-containing heteroaryl is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)(C_{1-6} alkyl), -COOH, -C(O)NH_2, phenyl, and 5- or 6- membered heteroaryl; in which each of said phenyl or 5- or 6- membered heteroaryl as the substituent of W is optionally substituted with one or more groups chosen from halo, -OH, C_{1-6} alkyl, and -O(C_{1-6} alkyl).

4. The compound of formula (I) according to claim 3, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein said nitrogen-containing heteroaryl is chosen from pyrimidinyl, pyrrolopyrimidinyl, and purinyl.

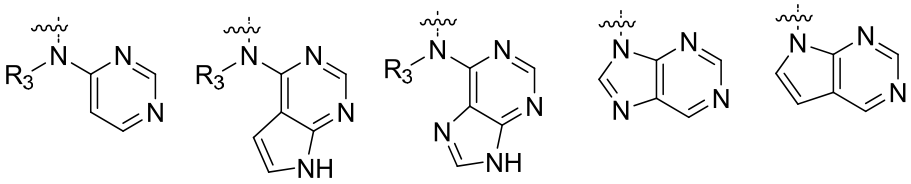
5. The compound of formula (I) according to claim 1, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from



, each of which is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH,

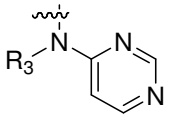
C_{1-6} alkyl, C_{1-6} haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)(C_{1-6} alkyl), -COOH, -C(O)NH_2, -C(O)NH(C_{1-6} alkyl), phenyl, and 5- or 6- membered heteroaryl; in which each of said phenyl and 5- or 6- membered heteroaryl as the substituent of W is optionally substituted with one or more groups chosen from halo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -O(C_1-C_6 alkyl), -(C_{1-6} alkyl)OH, -NH_2, -NH(C_{1-6} alkyl), or -N(C_{1-6} alkyl)(C_{1-6} alkyl).

6. The compound of formula (I) according to claim 5, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein, W is chosen from

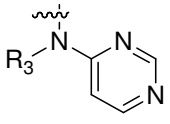


, each of which is optionally substituted with one or more groups chosen from chloro, –CN, -NH_2, -NH(C_{1-6} alkyl), -COOH, -C(O)NH_2, phenyl, pyridyl, oxadiazolyl, pyrazolyl, and tetrazolyl; in which each of said phenyl , pyridyl, oxadiazolyl, pyrazolyl, and tetrazolyl is optionally substituted with one or more groups chosen from halo, -OH, C_{1-6} alkyl, and -O(C_{1-6} alkyl).

7. The compound of formula (I) according to claim 5, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein

W is , which is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)(C_{1-6} alkyl), -COOH, -C(O)NH_2, phenyl, and 5- or 6- membered heteroaryl; in which each of said phenyl and 5- or 6- membered heteroaryl as the substituent of W is optionally substituted with one or more groups chosen from halo, -OH, C_{1-6} alkyl, and -O(C_{1-6} alkyl).

8. The compound of formula (I) according to claim 7, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein

W is , which is optionally substituted with one or more groups chosen from chloro, –CN, -NH_2, NH(C_{1-6} alkyl), -COOH, -C(O)NH_2, phenyl, pyridyl, oxadiazolyl, pyrazolyl and tetrazolyl; in which each of said phenyl , pyridyl, oxadiazolyl, pyrazolyl, and tetrazolyl is optionally substituted with one or more groups chosen from halo, -OH, C_{1-6} alkyl, or -O(C_{1-6} alkyl).

9. The compound of formula (I) according to any one of the claims 1-8, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein Ar is chosen from phenyl, naphthyl, pyridyl, pyrazolyl, quinolyl, thienyl, benzothiazolyl, indolyl, and 2,3-dihydro-1,4-benzodioxinyl, each of which is optionally substituted with one or more groups chosen from D, halo, -CN, C_{1-6} alkyl, -(C_{1-6} alkyl)OH, C_{1-6} haloalkyl, and -$S(O)_2$(C_{1-6} alkyl).

10. The compound of formula (I) according to claim 9, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein Ar is phenyl or pyridyl, each of which is optionally substituted with one or more groups chosen from halo, -CN, and C_{1-6} haloalkyl.

11. The compound of formula (I) according to claim 10, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein Ar is phenyl or pyridyl, each of which is optionally substituted with one or more halo, preferably is optionally substituted with one or more fluoro.

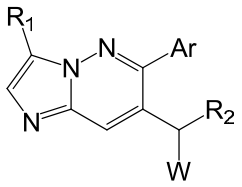
12. The compound of formula (I) according to any one of the claims 1-11, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein R_1 is independently chosen from H, halo, -CN, and C_{1-6} alkyl.

13. The compound of formula (I) according to any one of the claims 1-12, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein R_2 is C_{1-6} alkyl, preferably C_{1-4} alkyl, preferably methyl and ethyl.

14. The compound of formula (I) according to any one of the claims 1-13, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein R_3 is H.

15. The compound of formula (I) according to any one of the claims 1-14, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein m is 1.

16. The compound of formula (I) according to claim 15, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein formula (I) is formula (I-1),

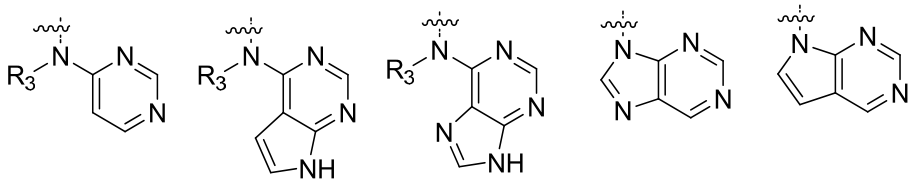


(I-1) .

17. The compound of formula (I) according to claim 16, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from nitrogen-containing heteroaryl and –N(R_3) nitrogen-containing heteroaryl, wherein said nitrogen-containing heteroaryl is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, -NH_2, -NH(C_{1-6} alkyl), -N(C_{1-6} alkyl)(C_{1-6} alkyl), phenyl, and 5- or 6- membered heteroaryl.

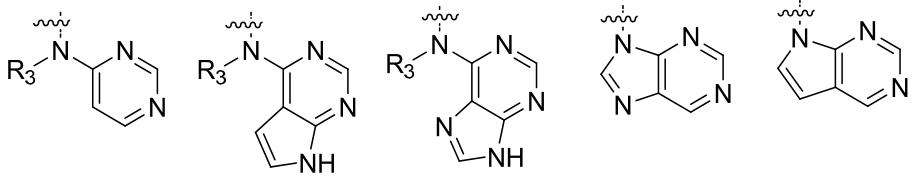
18. The compound of formula (I) according to claim 17, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein said nitrogen-containing heteroaryl is chosen from pyrimidinyl, pyrrolopyrimidinyl, and purinyl.

19. The compound of formula (I) according to claim 16, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from

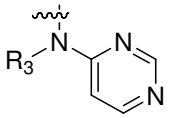


, each of which is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, $-NH_2$, $-NH(C_{1-6}$ alkyl), $-N(C_{1-6}$ alkyl)(C_{1-6} alkyl), phenyl, and 5- or 6-membered heteroaryl.

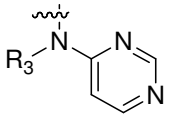
20. The compound of formula (I) according to claim 19, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is chosen from



, each of which is optionally substituted with one or more groups chosen from –CN, $-NH_2$, and tetrazolyl.

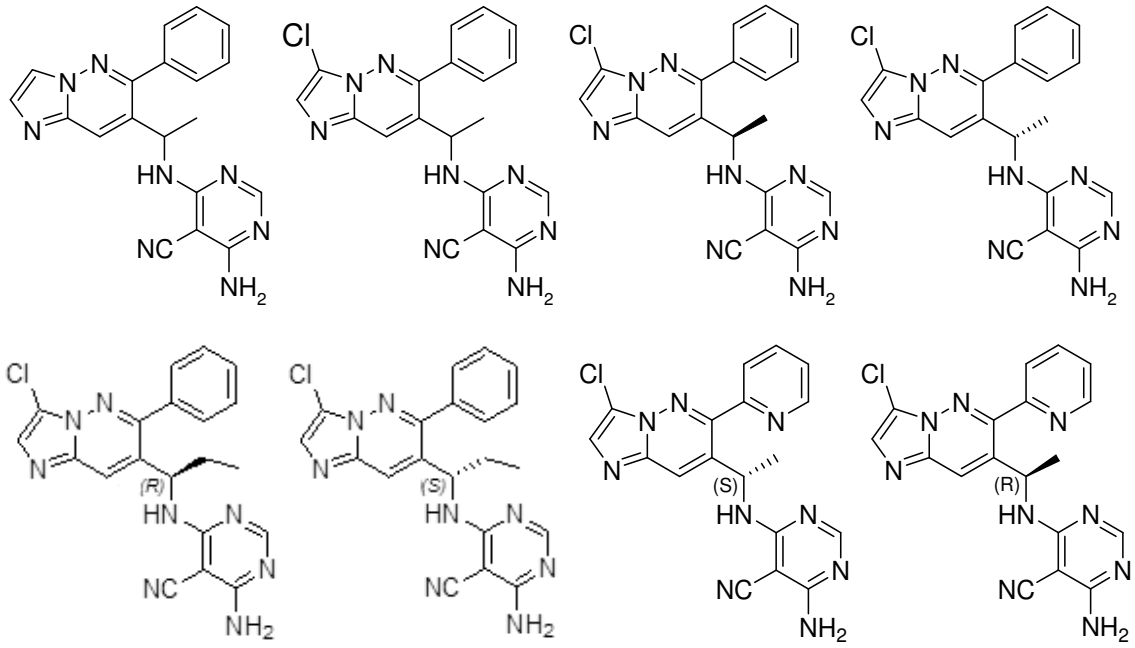
21. The compound of formula (I) according to claim 19, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein W is , which is optionally substituted with one or more groups chosen from fluoro, chloro, bromo, -CN, -OH, -SH, C_{1-6} alkyl, C_{1-6} haloalkyl, $-NH_2$, $-NH(C_{1-6}$ alkyl), $-N(C_{1-6}$ alkyl)(C_{1-6} alkyl), phenyl, and 5- or 6- membered heteroaryl.

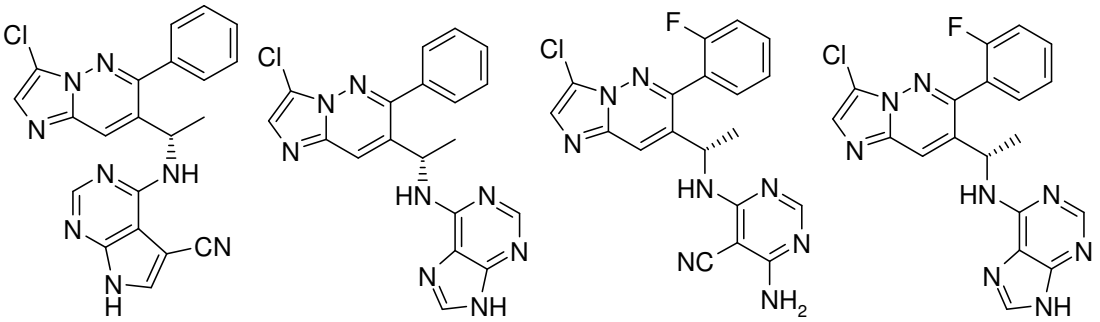
22. The compound of formula (I) according to claim 21, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein

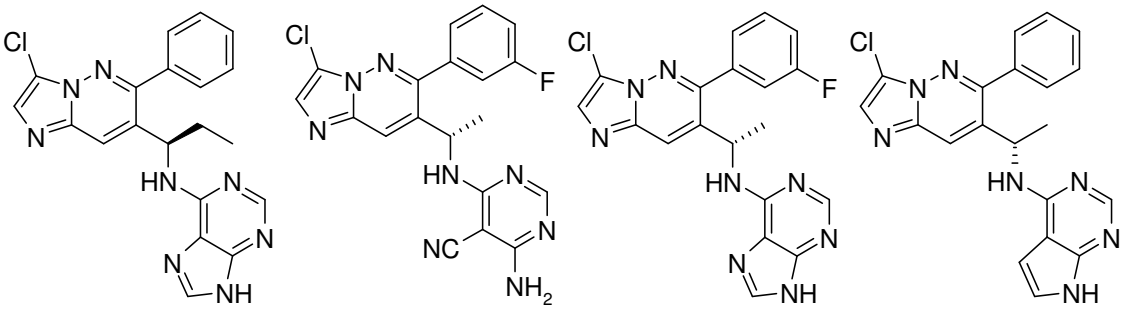
W is , which is optionally substituted with one or more groups chosen from–CN, -NH_2, and tetrazolyl.

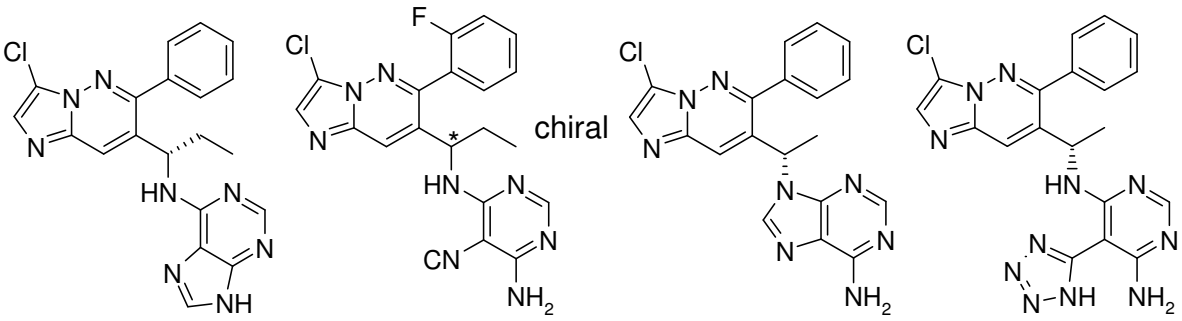
23. The compound of formula (I) according to any one of the claims 16-22, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, tautomers thereof, wherein Ar is chosen from phenyl, naphthyl, pyridyl, pyrazolyl, quinolyl, thienyl, and benzothiazolyl, each of which is optionally substituted with one or more groups chosen from halo, -CN, C_{1-6} alkyl, -(C_{1-6} alkyl)OH, and C_{1-6} haloalkyl.

24. The compound of formula (I) according to claim 1, and/or a pharmaceutically acceptable salt thereof, and/or solvates, racemic mixture, enantiomers, diasteromers, and tautomers thereof, which is chosen from:









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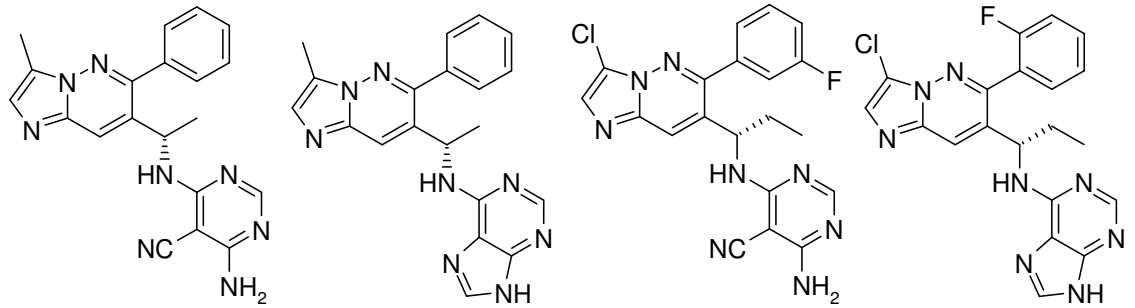

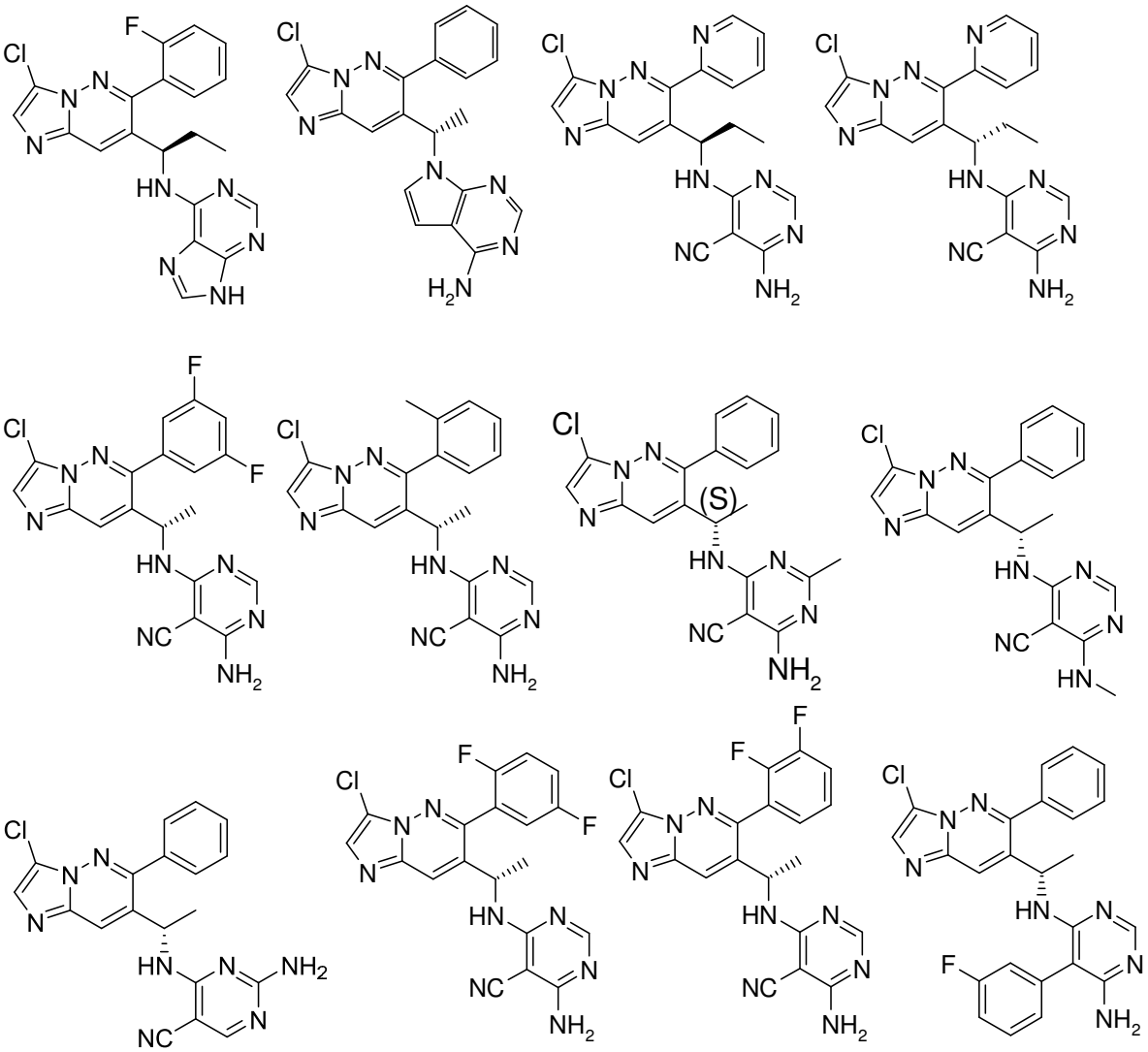

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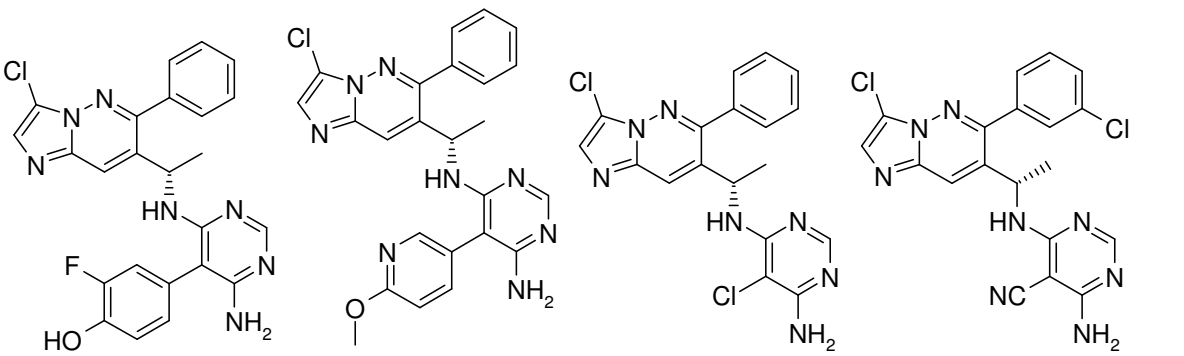
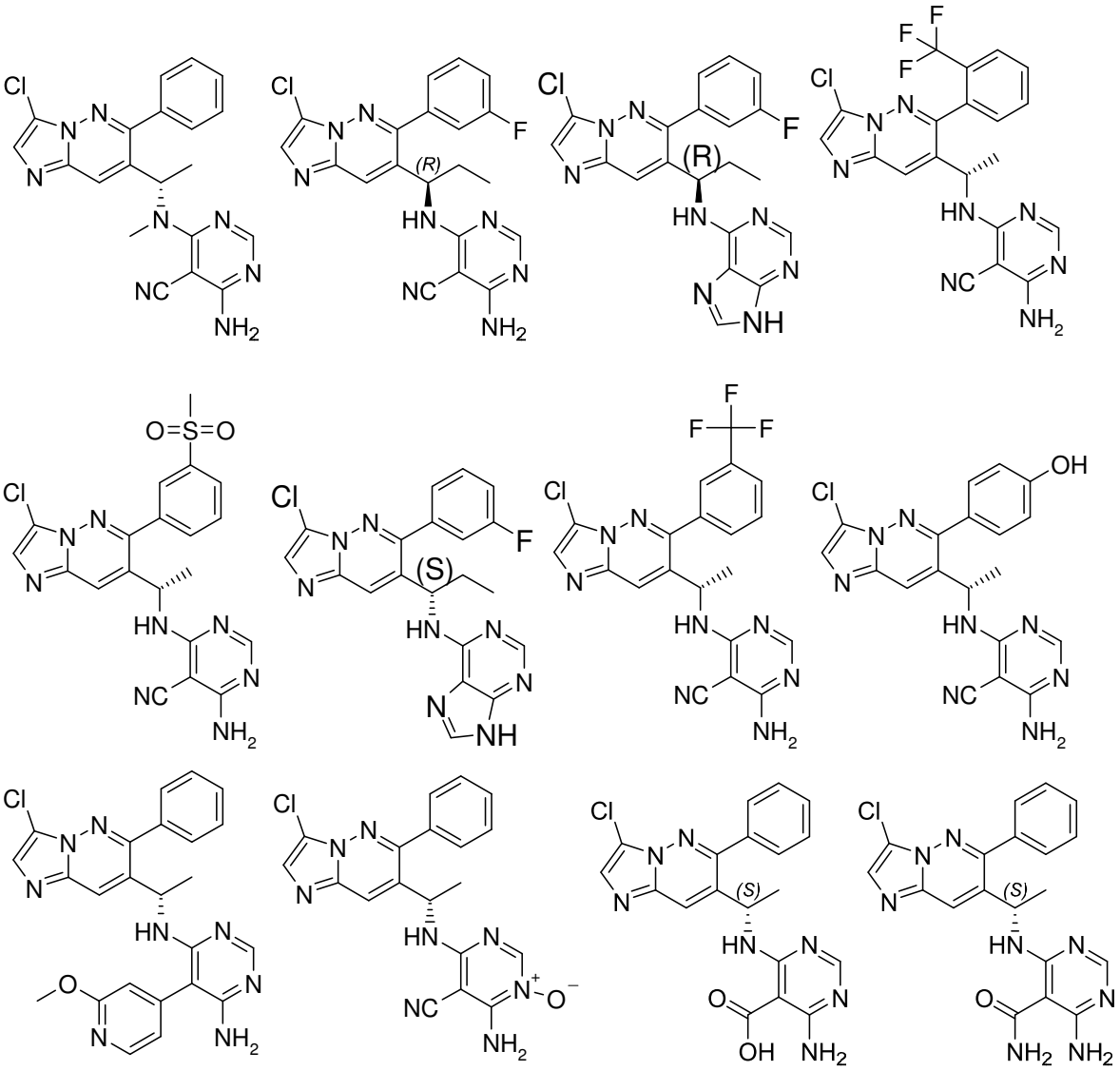
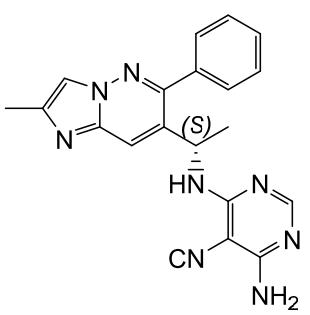
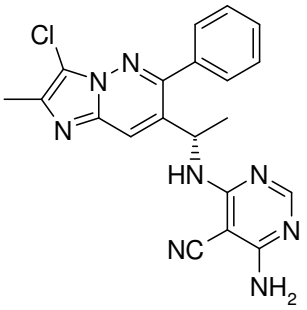
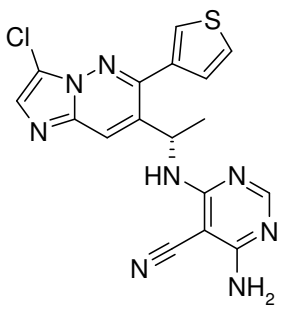
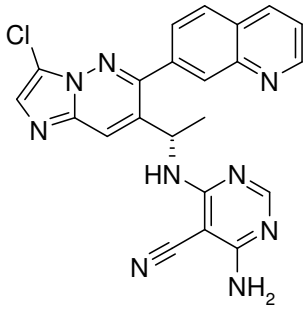
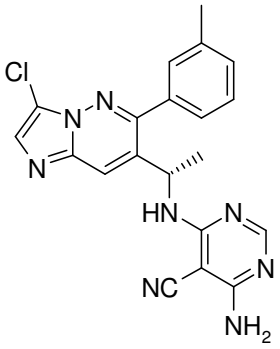
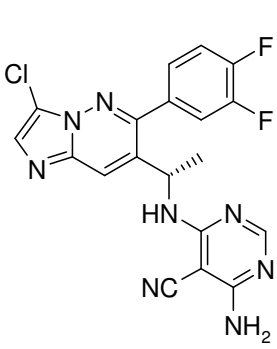
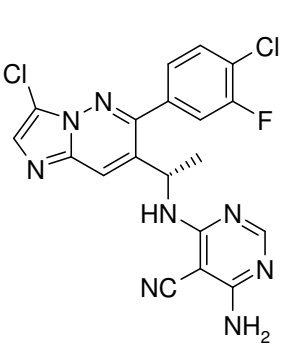
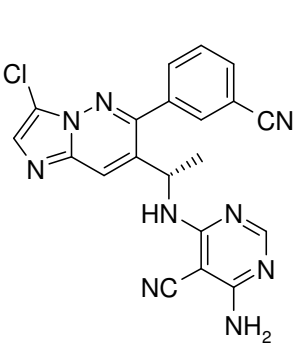
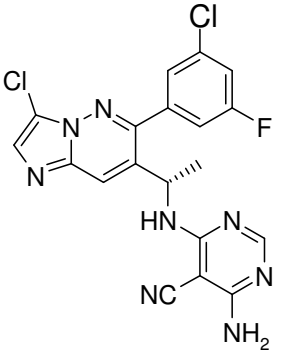
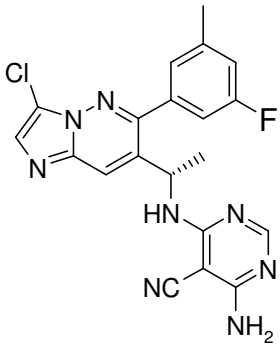
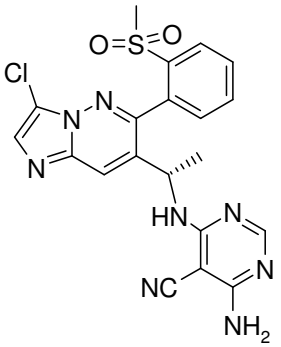
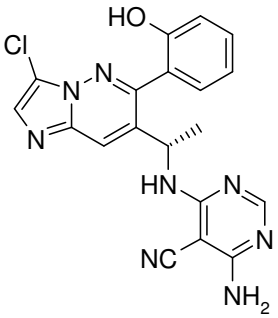
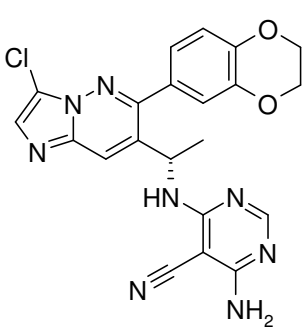
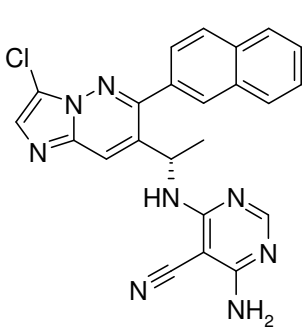
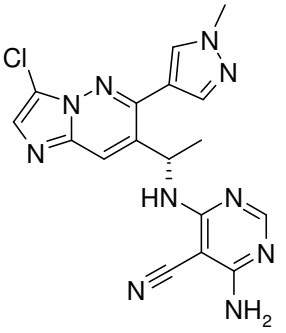
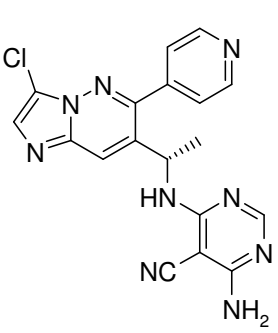
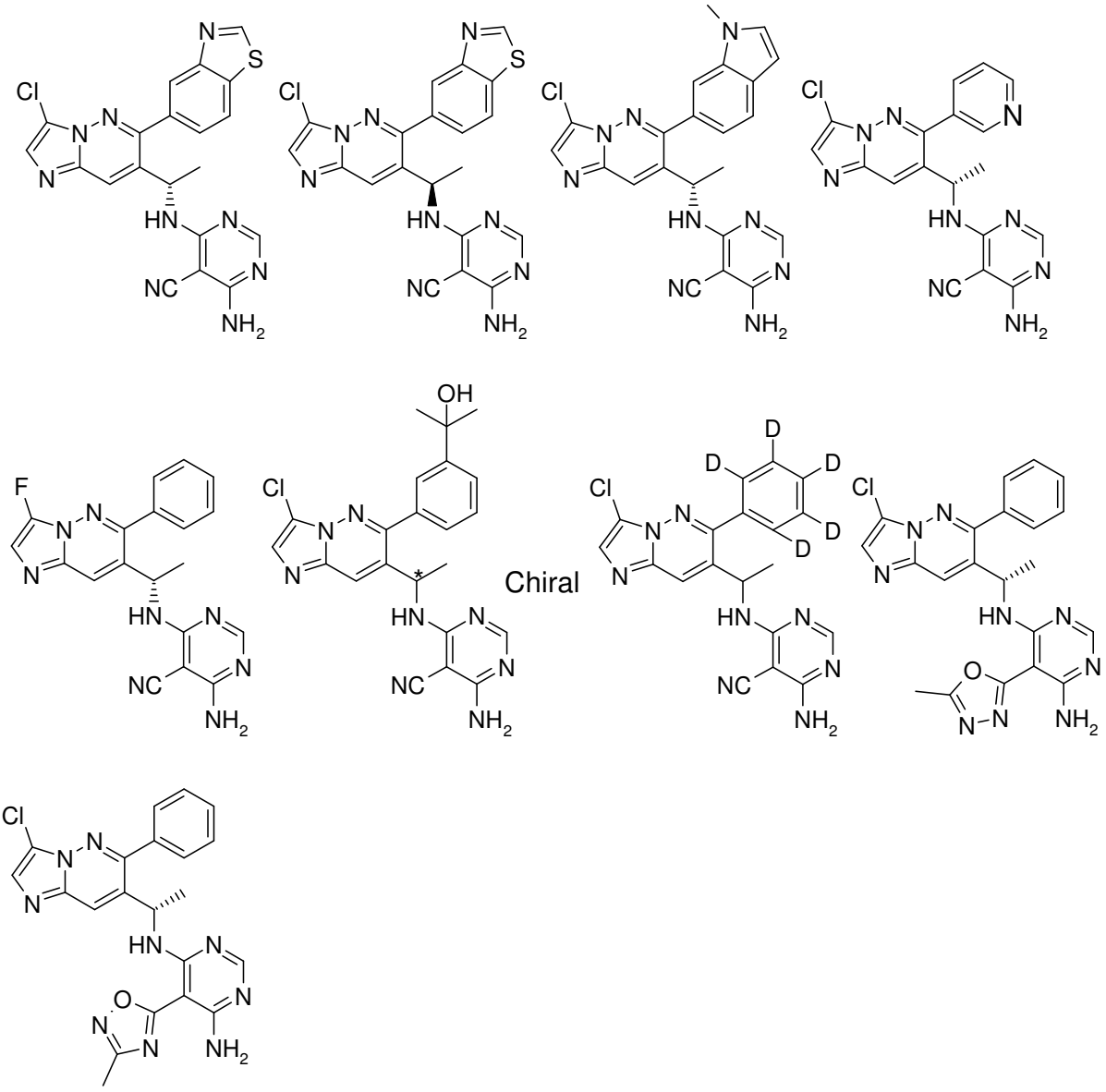






25. A pharmaceutical composition, comprising a compound of formula (I) according to any one of the claims 1-24, and/or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable excipient.

26. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in therapy.

27. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of a disease responsive to inhibition of PI_3K.

28. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of an inflammatory disease, autoimmune disease or cancer.

29. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of an inflammatory disease or autoimmune disease chosen from rheumatoid arthritis, chronic obstructive pulmonary disease (COPD), allergic rhinitis, asthma, lupus, systemic lupus erythematosus, psoriasis, and multiple sclerosis.

30. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of cancer, wherein said cancer is solid tumor or hematological malignancy chosen from leukemia, multiple myeloma (MM), and lymphoma.

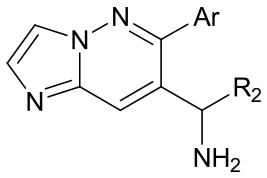
31. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of leukemia, wherein said leukemia is chosen from acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL), and chronic myelogenous leukemia (CML); said lymphoma is chosen from Hodgkin's lymphoma, non-Hodgkin's lymphoma (NHL), mantle cell lymphoma (MCL), follicular lymphoma, B-cell lymphoma, T-cell lymphoma, and diffuse large B-cell lymphoma (DLBCL).

32. A compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, for use in the treatment of any of the diseases referred to in claims 27-31 by *in vivo* or *in vitro* inhibiting the activity of PI_3K.

33. Use of a compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating an inflammatory disease, autoimmune disease or cancer.

34. Use of a compound of formula (I) according to any one of claims 1-24 and/or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating rheumatoid arthritis, chronic obstructive pulmonary disease (COPD), allergic rhinitis, asthma, lupus, systemic lupus erythematosus, psoriasis, multiple sclerosis, leukemia, multiple myeloma (MM), lymphoma, acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL), chronic myelogenous leukemia (CML), Hodgkin's lymphoma, non-Hodgkin's lymphoma (NHL), mantle cell lymphoma (MCL), follicular lymphoma, B-cell lymphoma, T-cell lymphoma or diffuse large B-cell lymphoma (DLBCL).

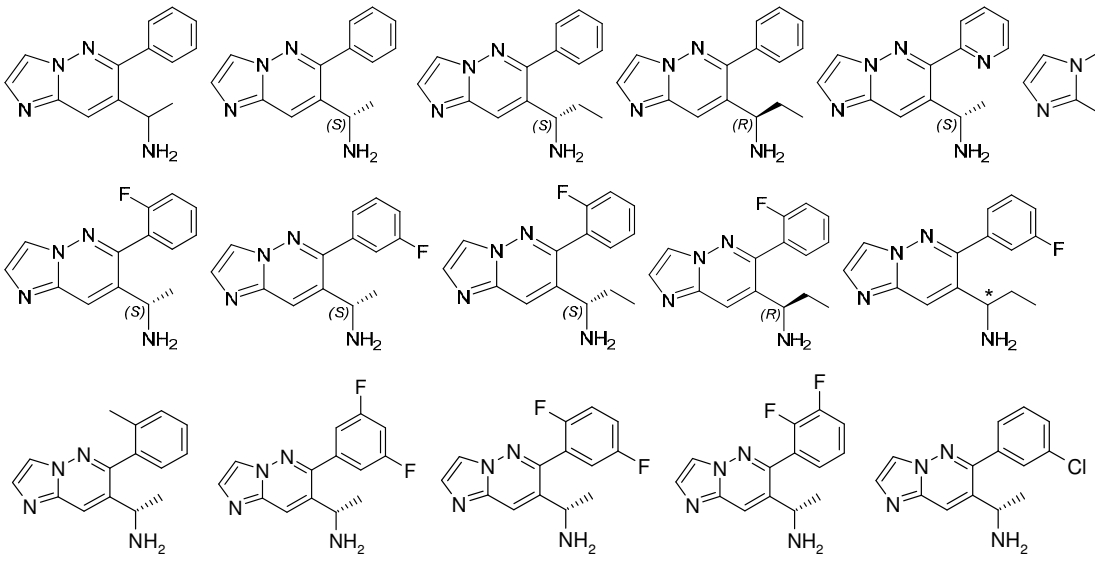
35. A compound of formula (II)

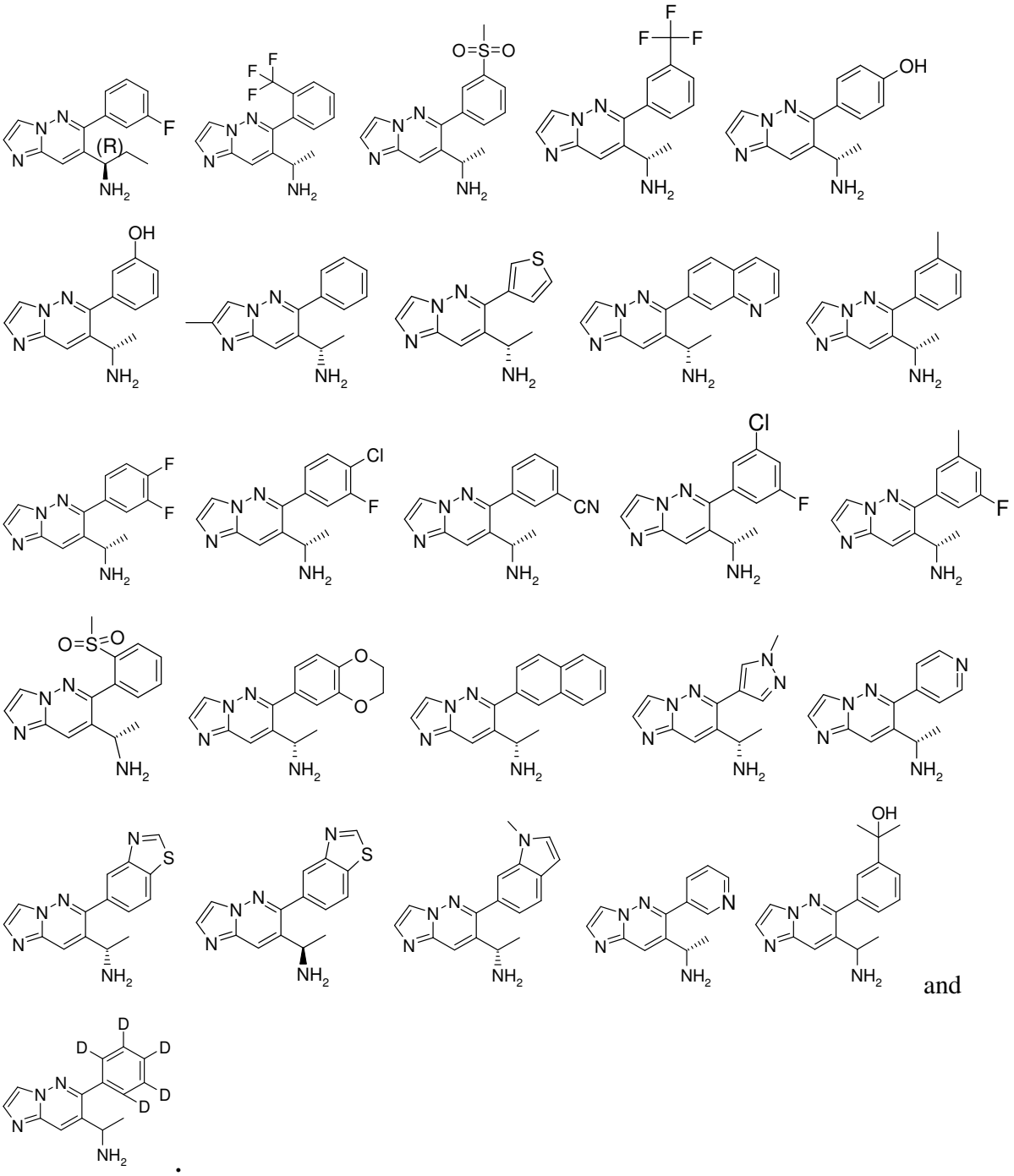


(II)

and/or a salt thereof; and/or a racemic mixture or enantiomer thereof; wherein Ar and R_2 are defined as in any one of the claims 1-23.

36. The compound of formula (II) according to claim 35, and/or a salt thereof, which is chosen from:





and

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