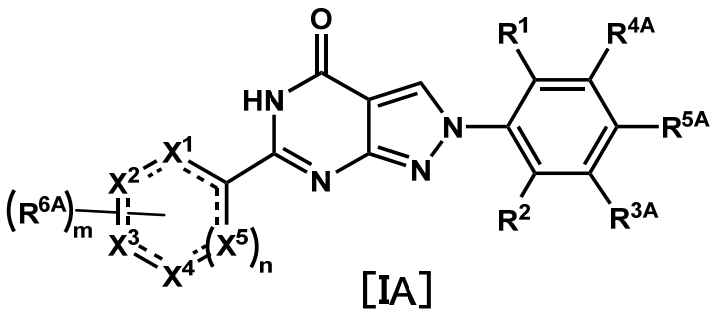
CLAIMS

1. A compound of Formula [IA]:



[IA] ,

or a pharmaceutically acceptable salt thereof,

wherein a bond represented by:



is a single bond or a double bond;

R^1 and R^2 are each independently

(1) hydrogen,

(2) hydroxy,

(3) cyano,

(4) C_{1-6} alkyl, wherein the alkyl may be optionally substituted with 1 or 2 substituents independently selected from the group consisting of:

(a) hydroxy,

(b) C_{1-4} alkoxy, and

(c) C_{3-6} cycloalkyl,

(5) C_{1-6} alkoxy, wherein the alkoxy may be optionally substituted with C_{3-6} cycloalkyl,

(6) halogen,

(7) C_{1-4} haloalkyl,

(8) -CHO,

(9) -O-C_{1-4} haloalkyl,

(10) -O-C_{3-6} cycloalkyl,

(11) -CO-C_{1-4} alkyl,

(12) -CO-C_{3-6} cycloalkyl,

(13) -NR^7R^8, wherein R^7 and R^8 are each independently hydrogen or 2,4-dimethoxybenzyl, or alternatively, R^7 and R^8 may be combined together with the nitrogen atom to which they attach and the -NR^7R^8 group may form 5- to 6-membered heterocycloalkyl comprising 1 or 2 heteroatoms independently selected from the group consisting of nitrogen and oxygen atom, or

(14) C_{3-6} cycloalkyl,

R^{3A} and R^{4A} are each independently

(1) hydrogen,

(2) C_{1-4} alkyl, or

(3) C_{1-4} haloalkyl,

R^{5A} is

(1) hydrogen,

(2) cyano,

(3) C_{1-6} alkyl,

(4) C_{2-6} alkenyl,

(5) C_{2-5} alkynyl,

(6) C_{1-4} alkoxy,

(7) halogen,

(8) C_{1-6} haloalkyl,

(9) C_{2-6} haloalkenyl,

(10) -O-C_{1-4} haloalkyl,

(11) C_{3-6} cycloalkyl, wherein the cycloalkyl may be optionally substituted with 1 to 3 substituents independently selected from the group consisting of:

(a) hydroxy,

(b) halogen, and

(c) C_{1-4} haloalkyl,

(12) C_{5-6} cycloalkenyl, or

(13) 4- to 6-membered heterocycloalkyl comprising 1 or 2 heteroatoms independently selected from the group consisting of nitrogen and oxygen atom, or alternatively

R^{5A} may be combined together with R^{3A} or R^{4A} and the carbon atom to which they attach to form:

(1) C_{5-6} cycloalkene, or

(2) 5- to 7-membered heterocycloalkene comprising 1 or 2 oxygen atoms,

R^{6A} is independently

(1) C_{1-4} alkyl, wherein the alkyl may be optionally substituted with C_{1-4} alkoxy,

(2) C_{1-4} alkoxy,

(3) halogen,

(4) C_{1-4} haloalkyl, or

(5) 4- to 6-membered heterocycloalkyl comprising 1 or 2 heteroatoms independently selected from the group consisting of nitrogen and oxygen atom,

m is 0, 1, or 2,

provided that when m is 2, then two adjacent R^{6A}s may be combined together with the two adjacent atoms among X^1, X^2, X^3, X^4, and X^5 to which they attach to form 5- to 7-membered heterocycloalkane or heterocycloalkene comprising 1 or 2 heteroatoms independently selected from the group consisting of nitrogen and oxygen atom,

n is 0 or 1,

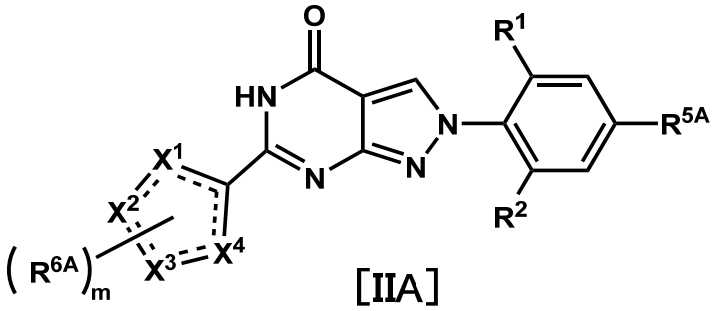
provided that when n is 0, then X^1, X^2, X^3, and X^4 are each independently carbon, nitrogen, oxygen, or sulfur atom, wherein a total number of nitrogen, oxygen, and sulfur atoms as X^1, X^2, X^3, or X^4 is 1, 2, or 3, and a total number of oxygen and sulfur atoms is 0 or 1, and X^1, X^2, X^3, and X^4 are

combined together with the carbon atom that is adjacent to X^1 and X^4 to form heteroaryl, and

provided that when n is 1, then X^1, X^2, X^3, X^4, and X^5 are each independently carbon or nitrogen atom, wherein a total number of nitrogen atoms as X^1, X^2, X^3, X^4, or X^5 is 1 or 2, and X^1, X^2, X^3, X^4, and X^5 are combined together with the carbon atom that is adjacent to X^1 and X^5 to form heteroaryl.

2. The compound according to claim 1, or a pharmaceutically acceptable salt thereof, wherein R^{3A} and R^{4A} are hydrogen.

3. The compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein the compound is represented by Formula [IIA]:



[IIA]

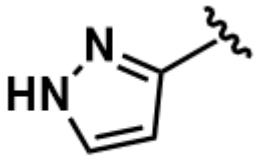
wherein R^1, R^2, R^{5A}, R^{6A}, X^1, X^2, X^3, X^4, and m are defined as those defined in claim 1.

4. The compound according to any one of claims 1 to 3, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2, X^3, and X^4 are combined together with the carbon atom that is adjacent to X^1 and X^4 to form pyrazolyl, imidazolyl, oxazolyl, isoxazolyl, thiazolyl, oxadiazolyl, or triazolyl.

5. The compound according to any one of claims 1 to 4, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2,

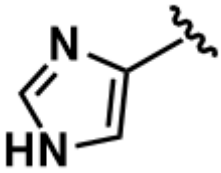
X^3, and X^4 are combined together with the carbon atom that is adjacent to X^1 and X^4 to form pyrazolyl, imidazolyl, or thiazolyl.

6. The compound according to any one of claims 1 to 5, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2, X^3, and X^4 are combined together with the carbon atom that is adjacent to X^1 and X^4 to form a group of formula (1):



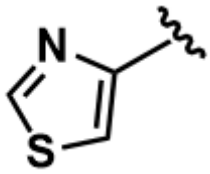
,

a group of formula (2):



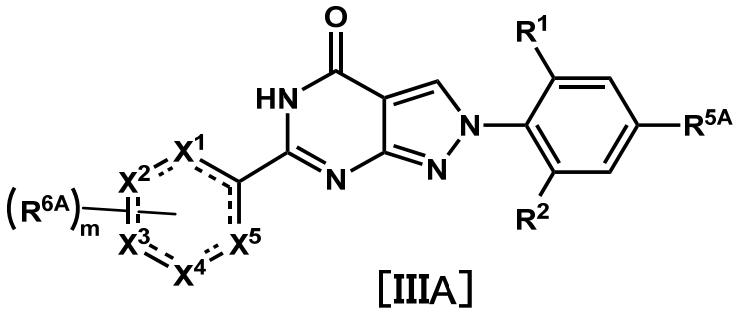
, or

a group of formula (3):



.

7. The compound according to claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein the compound is represented by Formula [IIIA]:



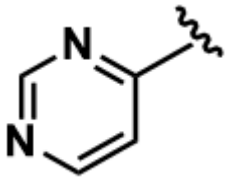
[IIIA]

wherein R^1, R^2, R^{5A}, R^{6A}, X^1, X^2, X^3, X^4, X^5, and m are defined as those defined in claim 1.

8. The compound according to any one of claim 1, 2, or 7, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2, X^3, X^4, and X^5 are combined together with the carbon atom that is adjacent to X^1 and X^5 to form pyridyl, pyridazinyl, pyrimidyl, or pyrazinyl.

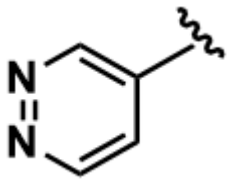
9. The compound according to any one of claim 1, 2, 7, or 8, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2, X^3, X^4, and X^5 are combined together with the carbon atom that is adjacent to X^1 and X^5 to form pyridazinyl or pyrimidyl.

10. The compound according to any one of claim 1, 2, 7, 8, or 9, or a pharmaceutically acceptable salt thereof, wherein X^1, X^2, X^3, X^4, and X^5 are combined together with the carbon atom that is adjacent to X^1 and X^5 to form a group of formula (1'):



or

a group of formula (2'):



.

11. The compound according to any one of claims 1 to 10, or a pharmaceutically acceptable salt thereof, wherein m is 0 or 1.

12. The compound according to any one of claims 1 to 11, or a pharmaceutically acceptable salt thereof, wherein at least one of R^1 and R^2 is:

C_{1-6} alkyl, wherein the alkyl may be optionally substituted with 1 or 2 substituents independently selected from the group consisting of:

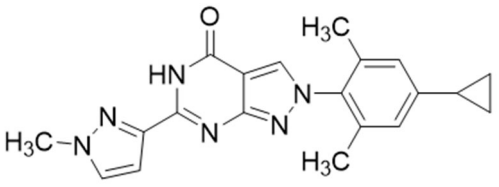
(a) hydroxy,

(b) C_{1-4} alkoxy, and

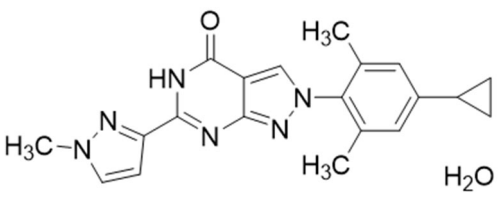
(c) C_{3-6} cycloalkyl, or

halogen.

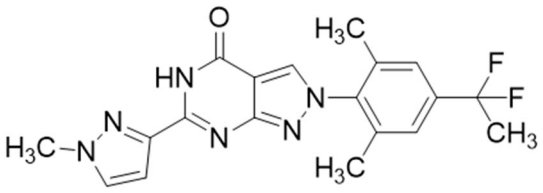
13. A compound selected from the group consisting of the following structural formulae:

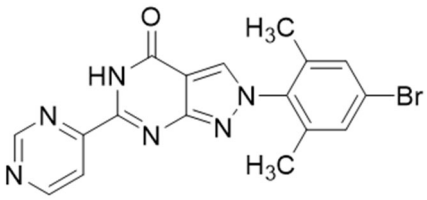


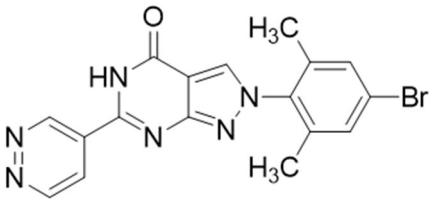
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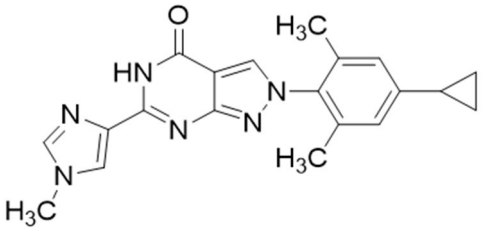


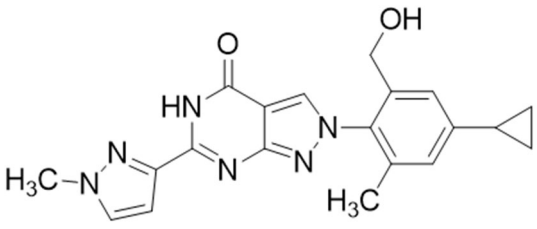
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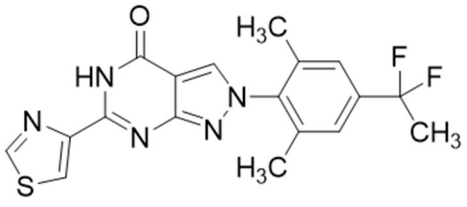

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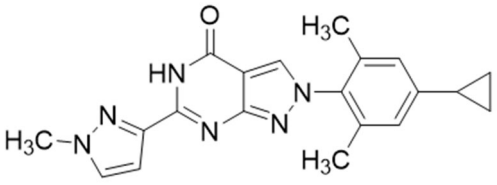

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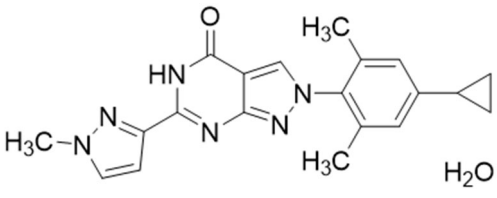
or a pharmaceutically acceptable salt thereof.

14. A compound of the following formula:



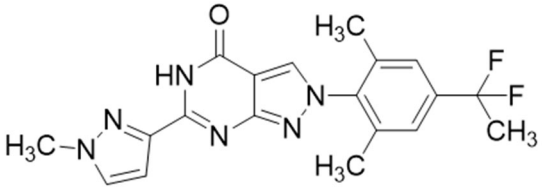
or a pharmaceutically acceptable salt thereof.

15. A compound of the following formula:



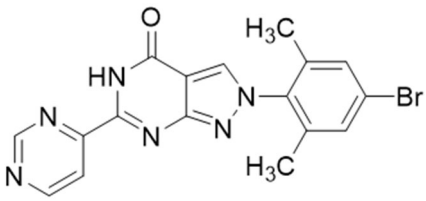
or a pharmaceutically acceptable salt thereof.

16. A compound of the following formula:



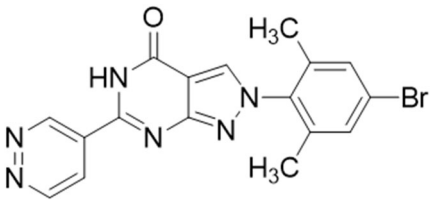
or a pharmaceutically acceptable salt thereof.

17. A compound of the following formula:



or a pharmaceutically acceptable salt thereof.

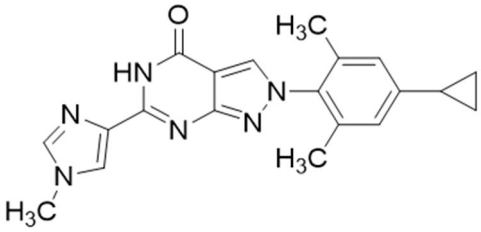
18. A compound of the following formula:



,

or a pharmaceutically acceptable salt thereof.

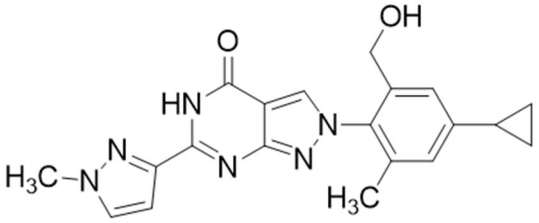
19. A compound of the following formula:



,

or a pharmaceutically acceptable salt thereof.

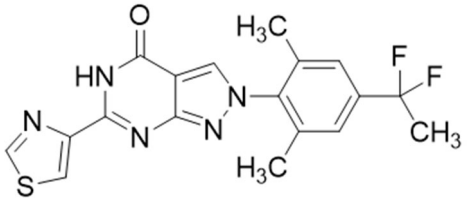
20. A compound of the following formula:



,

or a pharmaceutically acceptable salt thereof.

21. A compound of the following formula:



,

or a pharmaceutically acceptable salt thereof.

22. A pharmaceutical composition comprising a compound according to any one of claims 1 to 21, or a pharmaceutically

acceptable salt thereof, and a pharmaceutically acceptable carrier.

23. An NLRP3 inflammasome inhibitor comprising a compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof.

24. A medicament for treating or preventing a disease selected from the group consisting of multiple sclerosis, inflammatory bowel disease, arteriosclerosis, Cryopyrin-associated periodic syndrome, nonalcoholic steatohepatitis, gout, ischemic heart disease, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and traumatic brain injury, comprising a compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof.

25. The medicament according to claim 24, wherein the inflammatory bowel disease is ulcerative colitis or Crohn's disease.

26. The medicament according to claim 24, wherein the Cryopyrin-associated periodic syndrome is familial cold autoinflammatory syndrome, Muckle-Wells syndrome, chronic infantile neurologic cutaneous and articular syndrome, or neonatal onset multisystem inflammatory disease.

27. The medicament according to claim 24, wherein the disease is selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and

traumatic brain injury.

28. Use of a compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof, in the manufacture of an NLRP3 inflammasome inhibitor.

29. Use of a compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating or preventing a disease selected from the group consisting of multiple sclerosis, inflammatory bowel disease, arteriosclerosis, Cryopyrin-associated periodic syndrome, nonalcoholic steatohepatitis, gout, ischemic heart disease, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and traumatic brain injury.

30. The use according to claim 29, wherein the inflammatory bowel disease is ulcerative colitis or Crohn's disease.

31. The use according to claim 29, wherein the Cryopyrin-associated periodic syndrome is familial cold autoinflammatory syndrome, Muckle-Wells syndrome, chronic infantile neurologic cutaneous and articular syndrome, or neonatal onset multisystem inflammatory disease.

32. The use according to claim 29, wherein the disease is selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and traumatic brain injury.

33. A compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof, for use in inhibiting NLRP3 inflammasome.

34. A compound according to any one of claims 1 to 21, or a pharmaceutically acceptable salt thereof, for use in treating or preventing a disease selected from the group consisting of multiple sclerosis, inflammatory bowel disease, arteriosclerosis, Cryopyrin-associated periodic syndrome, nonalcoholic steatohepatitis, gout, ischemic heart disease, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and traumatic brain injury.

35. The compound, or a pharmaceutically acceptable salt thereof, for use according to claim 34, wherein the inflammatory bowel disease is ulcerative colitis or Crohn's disease.

36. The compound, or a pharmaceutically acceptable salt thereof, for use according to claim 34, wherein the Cryopyrin-associated periodic syndrome is familial cold autoinflammatory syndrome, Muckle-Wells syndrome, chronic infantile neurologic cutaneous and articular syndrome, or neonatal onset multisystem inflammatory disease.

37. The compound, or a pharmaceutically acceptable salt thereof, for use according to claim 34, wherein the disease is selected from the group consisting of multiple sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and traumatic brain

injury.