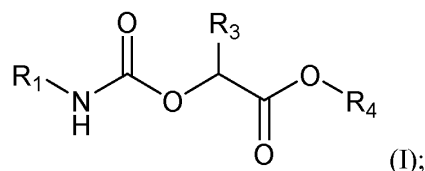


CLAIMS

1. A compound of Formula (I):



or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof, wherein:

R₁ is C₃-C₇ monocyclic cycloalkyl, polycyclic cycloalkyl, C₅-C₁₀ aryl, 8- to 12-membered heterocycloalkyl, or 5- to 6-membered heteroaryl, wherein the C₃-C₇ monocyclic cycloalkyl, polycyclic cycloalkyl, 8- to 12-membered heterocycloalkyl, or 5- to 6-membered heteroaryl is optionally substituted by one or more **R₆**;

R₃ is H or C₁-C₄ alkyl optionally substituted with one or more **R₇**;

R₄ is H, C₁-C₆ alkyl, -(CH₂)₀₋₃-(C₃-C₆ cycloalkyl), or -(CH₂)₀₋₃-C₅-C₆ aryl;

R₆ is C₁-C₆ alkyl, C₂-C₆ alkenyl, C₁-C₆ alkoxy, C₃-C₈ cycloalkyl, halo, oxo, -OH, -CN, -NH₂, -NH(C₁-C₆ alkyl), -N(C₁-C₆ alkyl)₂, -CH₂F, -CHF₂, or -CF₃;

R₇ is -OR₈, C₅-C₁₀ aryl, or 5- to 10- membered heteroaryl, wherein the C₅-C₁₀ aryl or 5- to 10-membered heteroaryl is optionally substituted by one or more **R_{7S}**, wherein each **R_{7S}** is independently C₁-C₆ alkyl, C₁-C₆ alkoxy, 5- to 10-membered heteroaryl, halo, -OH, -CN, -(CH₂)₀₋₃-NH₂, -(CH₂)₀₋₃-NH(C₁-C₆ alkyl), -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, -CH₂F, -CHF₂, or -CF₃; and

R₈ is C₁-C₆ alkyl or 5- to 7-membered heterocycloalkyl, wherein the C₁-C₆ alkyl or 5- to 7-membered heterocycloalkyl is optionally substituted by one or more **R_{7S}**.

2. The compound of claim 1, wherein **R₁** is C₃-C₇ monocyclic cycloalkyl, polycyclic cycloalkyl, or C₅-C₁₀ aryl, wherein the C₃-C₇ monocyclic cycloalkyl, polycyclic cycloalkyl, or C₅-C₆ aryl is optionally substituted by one or more **R₆**.

3. The compound of claim 1 or claim 2, wherein **R₁** is C₃-C₇ monocyclic cycloalkyl optionally substituted by one or more **R₆**.

4. The compound of any one of claims 1-3, wherein **R₁** is cyclopentyl, cyclohexyl, or

cycloheptyl, wherein the cyclopentyl, cyclohexyl, or cycloheptyl is optionally substituted by one or more **R**₆.

5. The compound of claim 1 or claim 2, wherein **R**₁ is C₈-C₁₆ polycyclic cycloalkyl substituted by one or more **R**₆.

6. The compound of any one of claims 1-2 and 5, wherein **R**₁ is adamantly, norbornyl, or bicyclo[2.2.2]octanyl, wherein the adamantly, norbornyl, or bicyclo[2.2.2]octanyl is optionally substituted by one or more **R**₆.

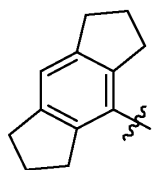
7. The compound of any one of claims 1-2 and 5, wherein **R**₁ is C₁₂-C₁₆ tricyclic saturated cycloalkyl optionally substituted by one or more **R**₆.

8. The compound of any one of claims 1-2, 5, and 7, wherein **R**₁ is hexahydroindacenyl optionally substituted by one or more **R**₆.

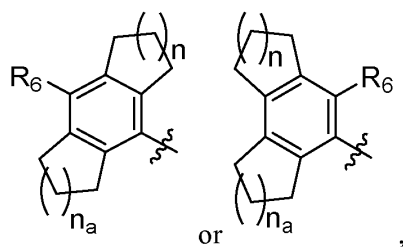
9. The compound of any one of claims 1-2, 5, and 7-8, wherein **R**₁ is hexahydroindacenyl optionally substituted by one, two, three, or four substituents independently selected from C₁-C₄ alkyl, C₁-C₆ alkoxy, halo, oxo, -OH, and -CF₃.

10. The compound of any one of claims 1-2, 5, and 7-9, wherein **R**₁ is hexahydroindacenyl.

11. The compound of any one of claims 1-2, 5, and 7-10, wherein **R**₁ is



12. The compound of any one of claims 1-2, 5, and 7-9, wherein **R**₁ is

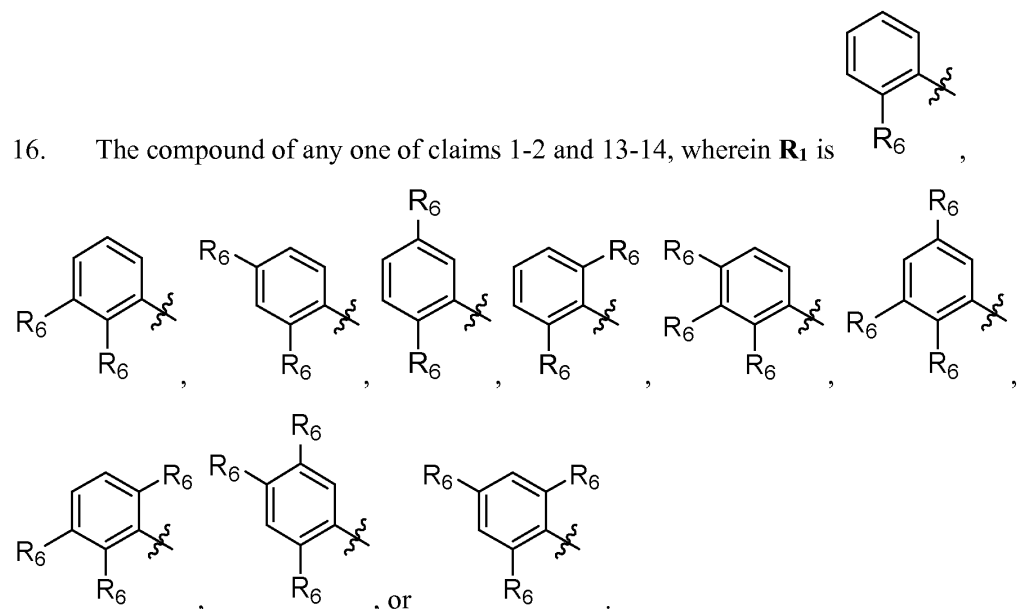


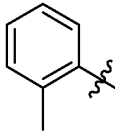
wherein n and n_a each independently are 0, 1, 2, or 3.

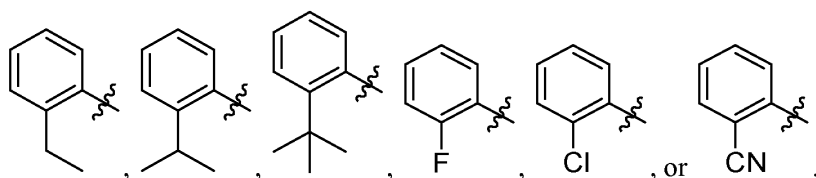
13. The compound of claim 1 or claim 2, wherein **R₁** is C₅-C₁₀ aryl optionally substituted by one or more **R₆**.

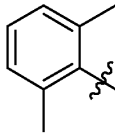
14. The compound of any one of claims 1-2 and 13, wherein **R₁** is phenyl optionally substituted by one or more **R₆**.

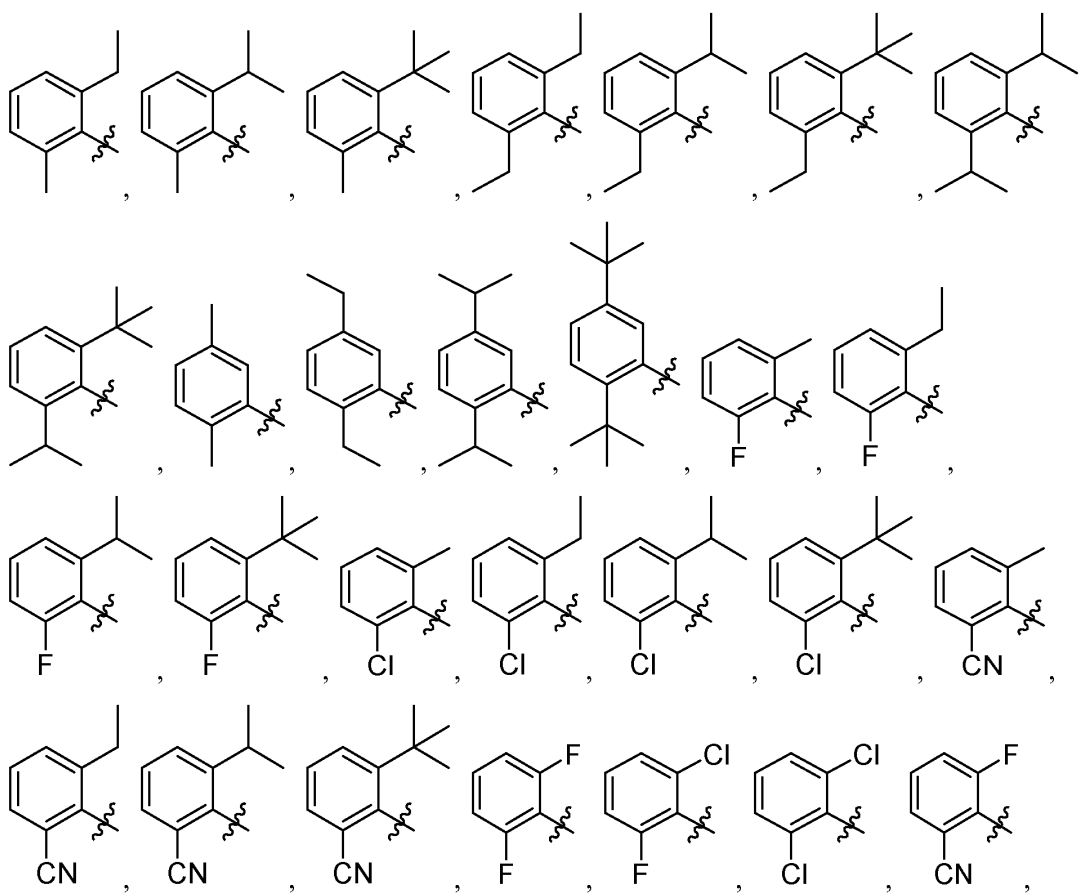
15. The compound of any one of claims 1-2 and 13-14, wherein phenyl optionally substituted by one, two, or three substituents independently selected from C₁-C₄ alkyl, halo, -CN, and -CF₃; optionally, the one, two, or three substituents are independently selected from Cl and F.

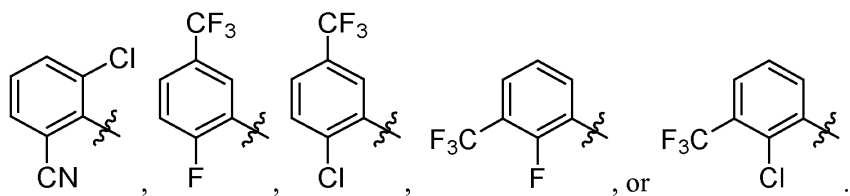


17. The compound of any one of claims 1-2, 13-14, and 16, wherein **R**₁ is ,

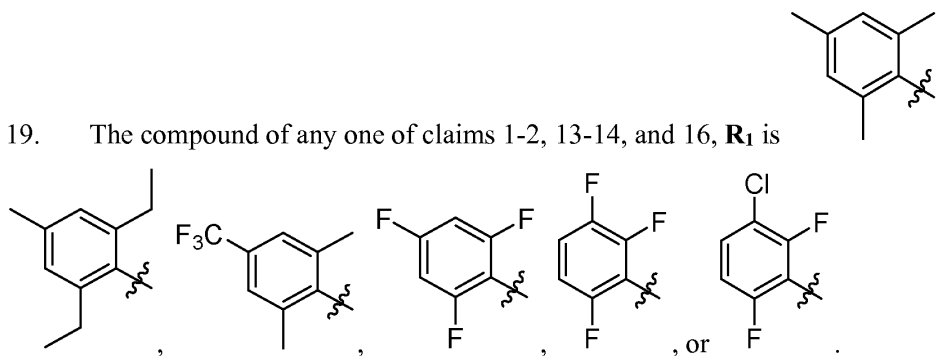


18. The compound of any one of claims 1-2, 13-14, and 16, wherein **R**₁ is ,



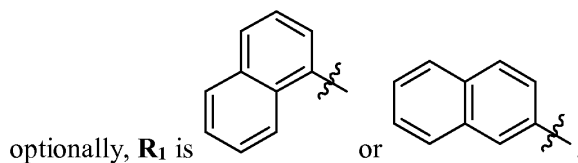


19. The compound of any one of claims 1-2, 13-14, and 16, **R**₁ is



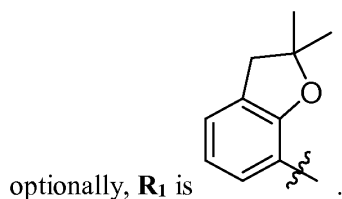
20. The compound of any one of claims 1-2 and 13, wherein **R**₁ is naphthalenyl optionally substituted by one or more **R**₆.

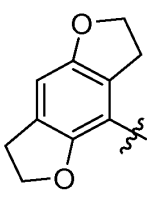
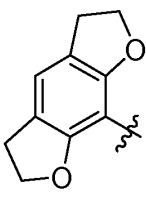
21. The compound of any one of claims 1-2, 13, and 20, wherein **R**₁ is unsubstituted naphthalenyl;

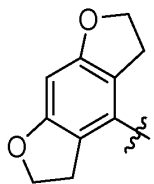


22. The compound of claim 1, wherein **R**₁ is 8- to 12-membered heterocycloalkyl optionally substituted by one or more **R**₆.

23. The compound of claim 1 or claim 22, wherein **R**₁ is benzofuranyl or dihydrobenzofuranyl, wherein the benzofuranyl or dihydrobenzofuranyl is optionally substituted by one or more **R**₆;

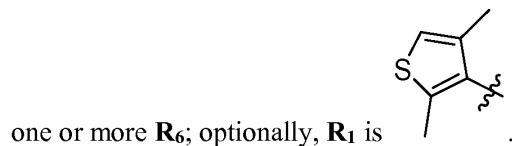


24. The compound of claim 1 or claim 22, wherein **R**₁ is , , or



25. The compound of claim 1, wherein **R**₁ is 5- to 6-membered heteroaryl optionally substituted by one or more **R**₆.

26. The compound of claim 1 or claim 25, wherein **R**₁ is thiophenyl optionally substituted by



27. The compound of any one of claims 1-26, wherein **R**₃ is H.

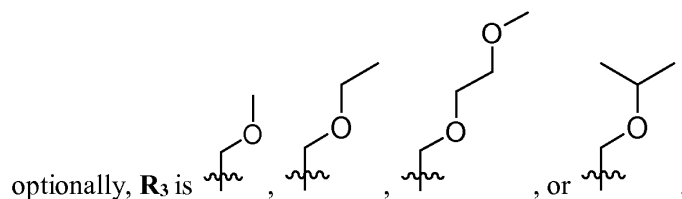
28. The compound of any one of claims 1-26, wherein **R**₃ is C₁-C₄ alkyl optionally substituted with one or more **R**₇.

29. The compound of any one of claims 1-26 and 28, wherein **R**₃ is methyl or ethyl.

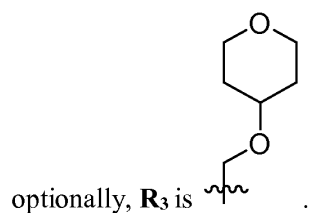
30. The compound of any one of claims 1-26 and 28, wherein **R**₃ is C₁-C₄ alkyl substituted

with one or more **R**₇.

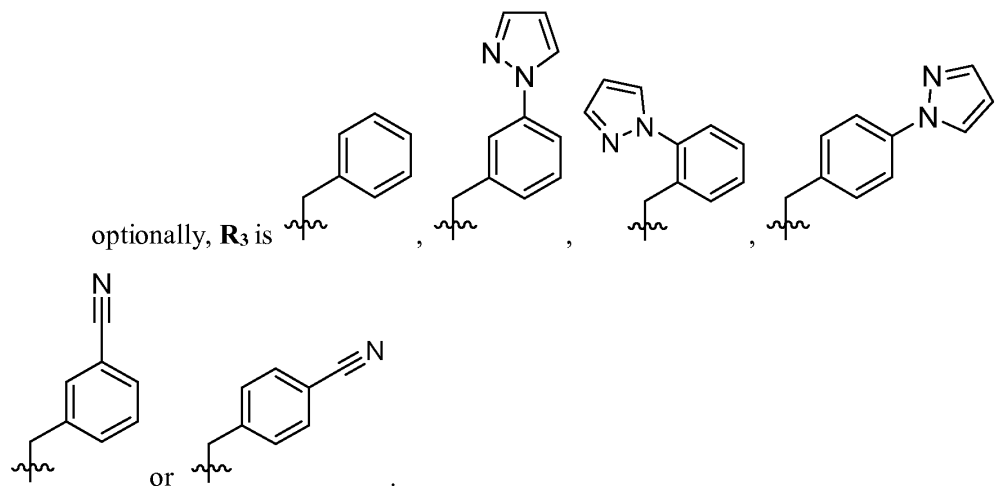
31. The compound of any one of claims 1-26, 28, and 30, wherein **R**₃ is methyl substituted with one or more C₁-C₆ alkoxy, wherein the C₁-C₆ alkoxy is optionally substituted with one or more C₁-C₆ alkoxy;



32. The compound of any one of claims 1-26, 28, and 30, wherein **R**₃ is methyl substituted with one or more -O-(5- to 7-membered heterocycloalkyl);

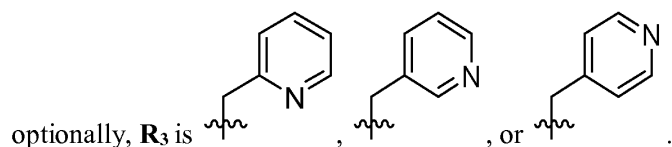


33. The compound of any one of claims 1-26, 28, and 30, wherein in some embodiments, **R**₃ is methyl with one or more C₅-C₁₀ aryl, wherein the C₅-C₁₀ aryl is optionally substituted with one or more 5- to 10-membered heteroaryl or -CN;

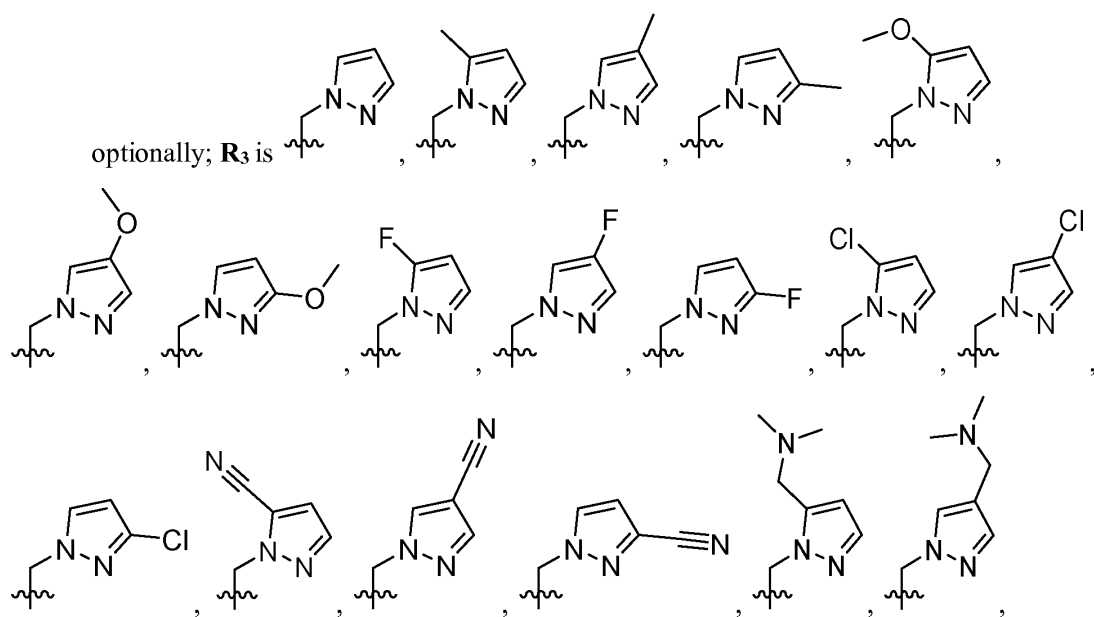


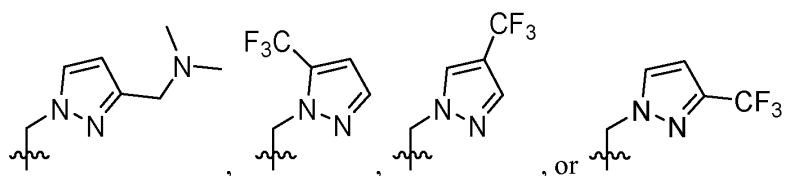
34. The compound of any one of claims 1-26, 28, and 30, wherein **R**₃ is methyl substituted with one or more 5- to 10-membered heteroaryl, wherein the 5- to 10-membered heteroaryl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃.

35. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R**₃ is methyl substituted with one or more pyridinyl, wherein the pyridinyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

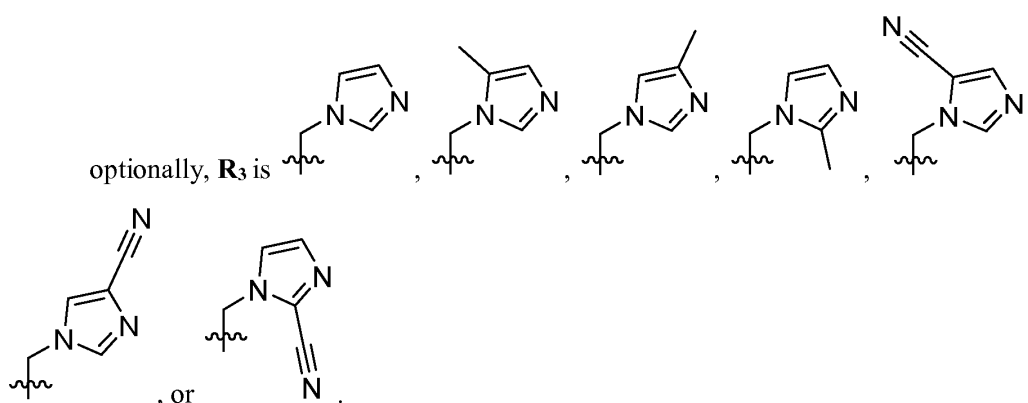


36. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R**₃ is methyl substituted with one or more pyrazolyl, wherein the pyrazolyl is optionally substituted with one or more methyl, methoxy, F, Cl, -CN, -CH₂-N(CH₃)₂, or -CF₃;

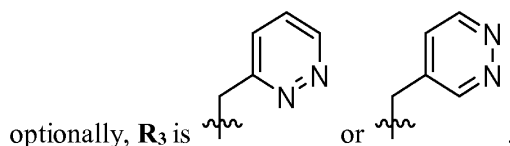




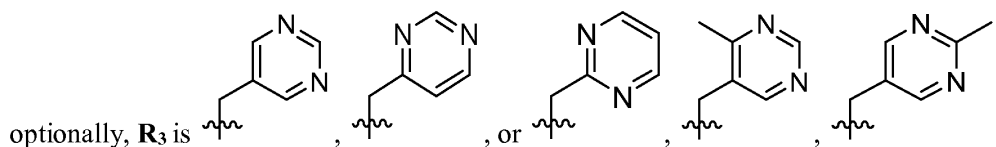
37. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R**₃ is methyl substituted with one or more imidazolyl, wherein the imidazolyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

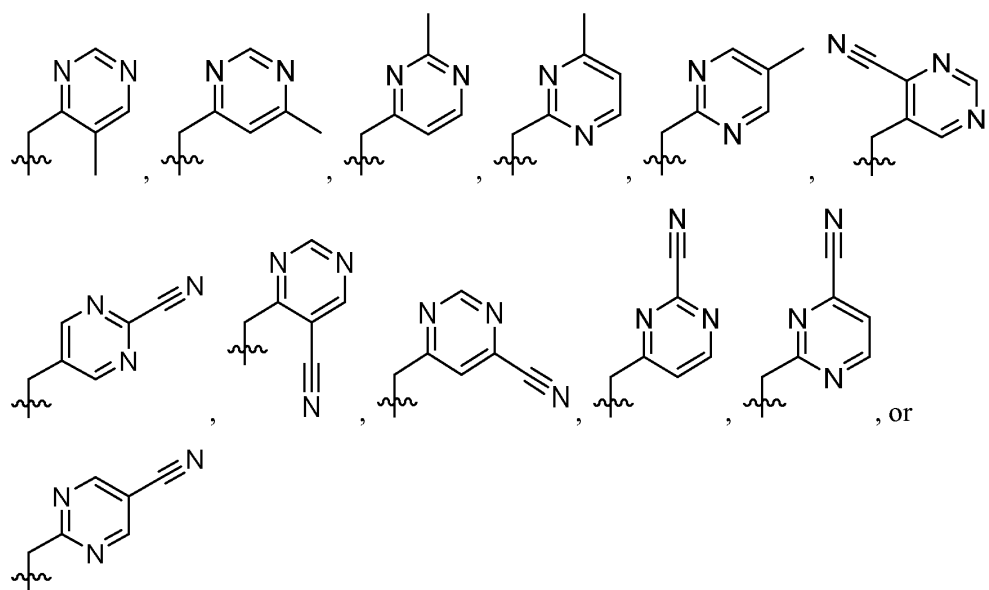


38. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R**₃ is methyl substituted with one or more pyridazinyl, wherein the pyridazinyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

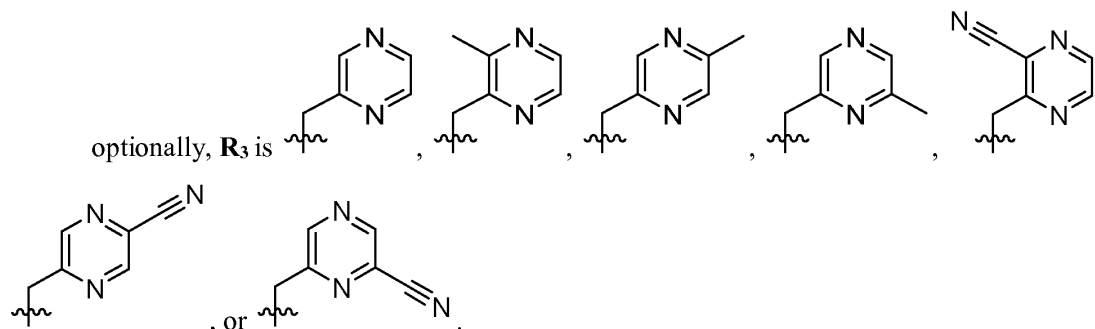


39. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R**₃ is methyl substituted with one or more pyrimidinyl, wherein the pyrimidinyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

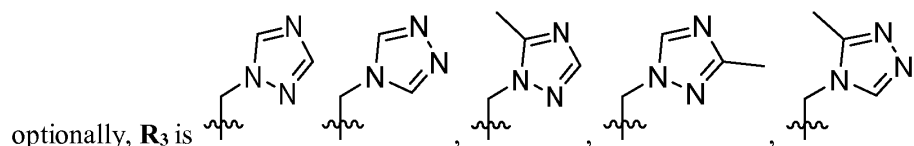


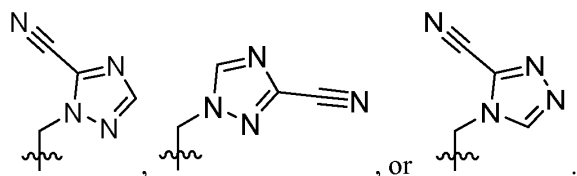


40. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R₃** is methyl substituted with one or more pyrazinyl, wherein the pyrazinyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

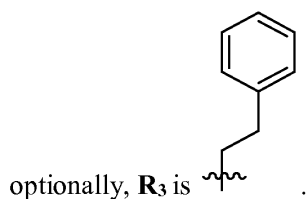


41. The compound of any one of claims 1-26, 28, 30, and 34, wherein **R₃** is methyl substituted with one or more triazolyl, wherein the triazolyl is optionally substituted with one or more C₁-C₆ alkyl, C₁-C₆ alkoxy, halo, -CN, -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, or -CF₃;

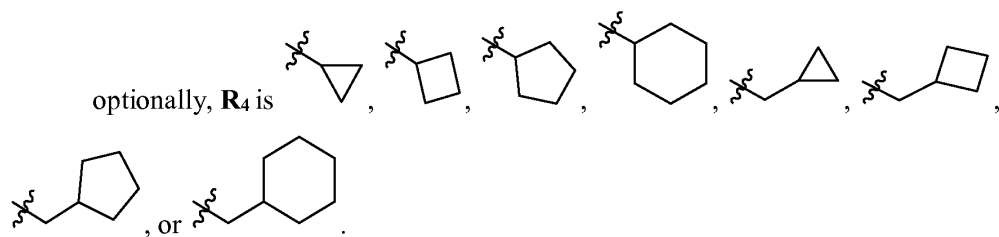




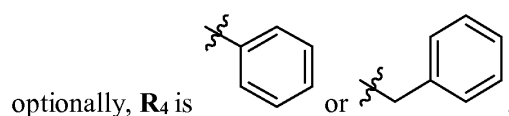
42. The compound of any one of claims 1-26, 28, and 30, wherein **R**₃ is ethyl substituted with one or more C₅-C₁₀ aryl;



43. The compound of any one of claims 1-42, wherein **R**₄ is H.
44. The compound of any one of claims 1-42, wherein **R**₄ is C₁-C₆ alkyl, -(CH₂)₀₋₃-(C₃-C₆ cycloalkyl), or -(CH₂)₀₋₃-C₅-C₆ aryl.
45. The compound of any one of claims 1-42 and 44, wherein **R**₄ is C₁-C₆ alkyl; optionally, **R**₄ is methyl, ethyl, propyl, or butyl.
46. The compound of any one of claims 1-42 and 44, wherein **R**₄ is -(CH₂)₀₋₃-(C₃-C₆ cycloalkyl);

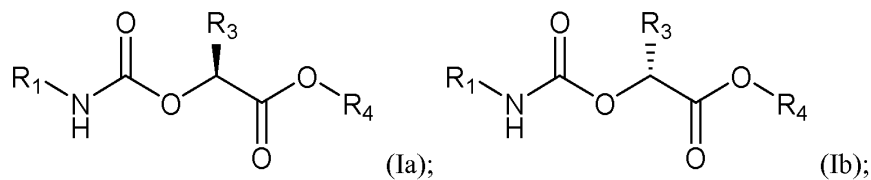


47. The compound of any one of claims 1-42 and 44, wherein in some embodiments, **R**₄ is -(CH₂)₀₋₃-C₅-C₆ aryl;



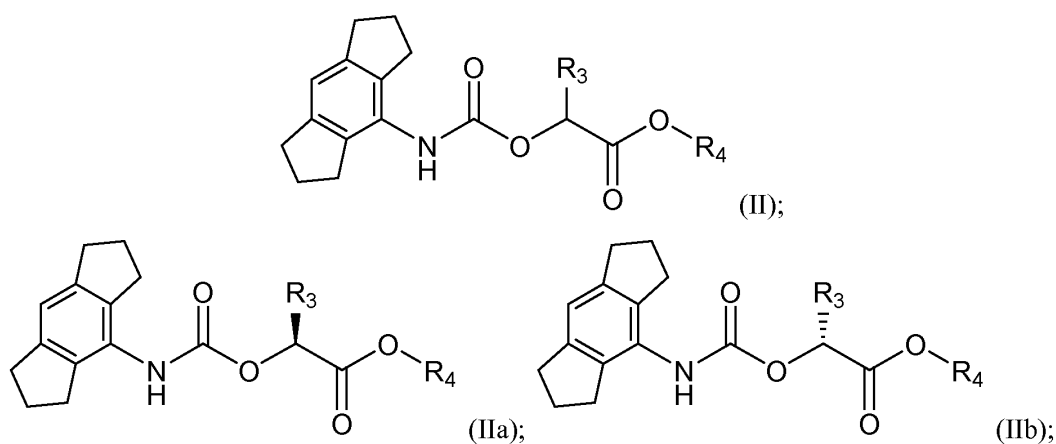
48. The compound of any one of claims 1-47, wherein at least one **R**₆ is C₁-C₆ alkyl, C₂-C₆ alkenyl, C₁-C₆ alkoxy, or C₃-C₈ cycloalkyl.
49. The compound of any one of claims 1-47, wherein at least one **R**₆ is halo, oxo, -OH, -CN, -NH₂, -NH(C₁-C₆ alkyl), -N(C₁-C₆ alkyl)₂, -CH₂F, -CHF₂, or -CF₃.
50. The compound of any one of claims 1-49, wherein at least one **R**₇ is -OR₈;
optionally, at least one **R**₇ is C₁-C₆ alkoxy optionally substituted by one or more **R**_{7S}; or
at least one **R**₇ is -O-(5- to 7-membered heterocycloalkyl) optionally substituted with one or more **R**_{7S}.
51. The compound of any one of claims 1-49, wherein at least one **R**₇ is C₅-C₁₀ aryl optionally substituted by one or more **R**_{7S}.
52. The compound of any one of claims 1-49, wherein at least one **R**₇ is 5- to 10-membered heteroaryl optionally substituted by one or more **R**_{7S}.
53. The compound of any one of claims 1-52, wherein at least one **R**_{7S} is C₁-C₆ alkyl, C₁-C₆ alkoxy, or 5- to 10-membered heteroaryl.
54. The compound of any one of claims 1-52, wherein at least one **R**_{7S} is halo, -OH, -CN, -(CH₂)₀₋₃-NH₂, -(CH₂)₀₋₃-NH(C₁-C₆ alkyl), -(CH₂)₀₋₃-N(C₁-C₆ alkyl)₂, -CH₂F, -CHF₂, or -CF₃.
55. The compound of any one of claims 1-54, wherein **R**₈ is C₁-C₆ alkyl optionally substituted by one or more **R**_{7S}.
56. The compound of any one of claims 1-54, wherein **R**₈ is 5- to 7-membered heterocycloalkyl optionally substituted with one or more **R**_{7S}.

57. The compound of any one of claims 1-56, being of Formula (Ia) or (Ib):



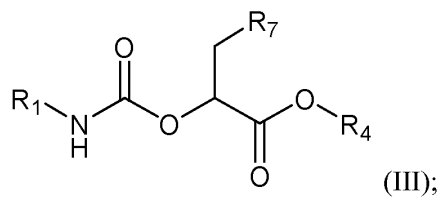
or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

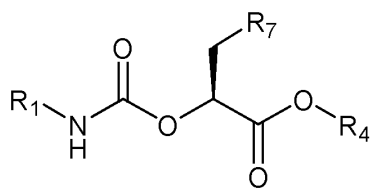
58. The compound of any one of claims 1-56, being of any one of Formulae (II), (IIa), and (IIb):



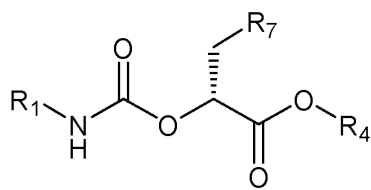
or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

59. The compound of any one of claims 1-56, being of any one of Formulae (III), (IIIa), and (IIIb):





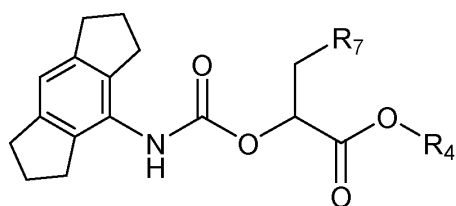
(IIIa);



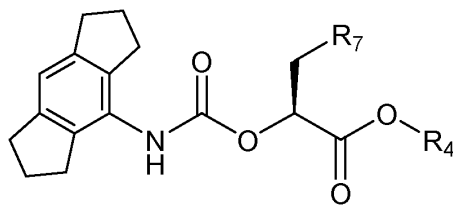
(IIIb);

or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

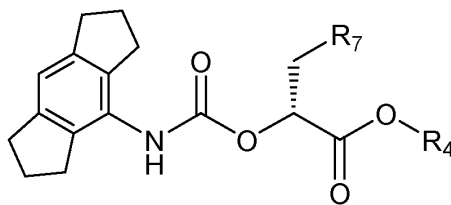
60. The compound of any one of claims 1-56 and 58-59, being of any one of Formulae (IV), (IVa), and (IVb):



(IV);



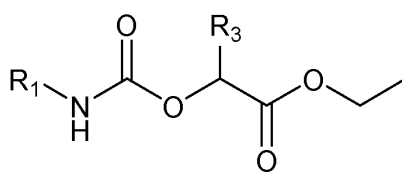
(IVa);



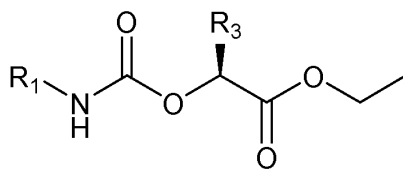
(IVb);

or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

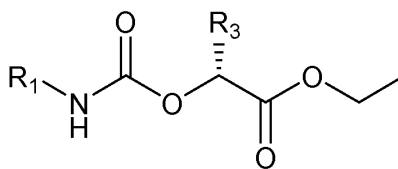
61. The compound of any one of claims 1-56, being of any one of Formulae (V), (Va), (Vb), (VI), (VIa), and (VIb):



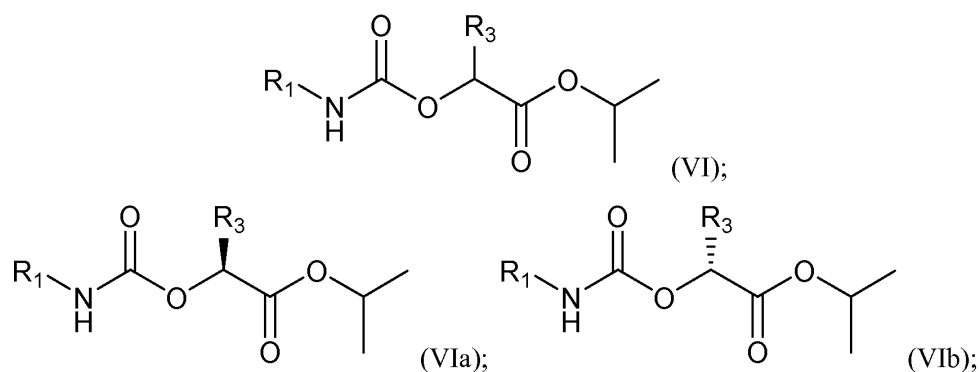
(V);



(Va);

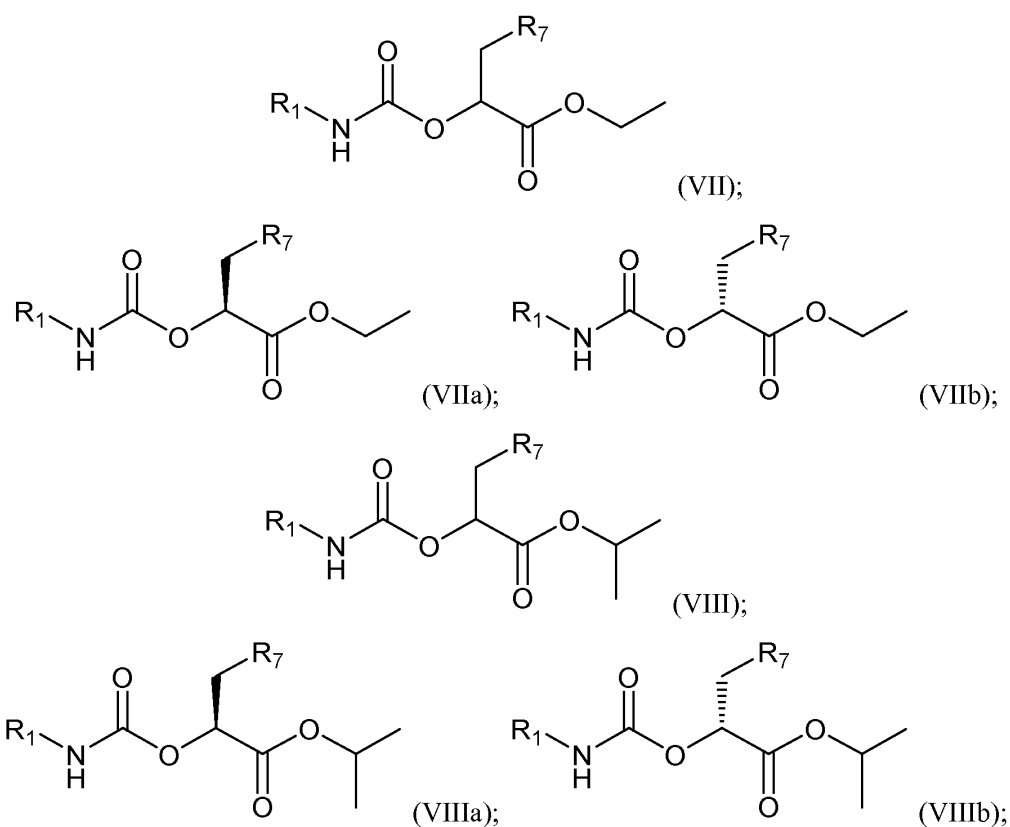


(Vb);



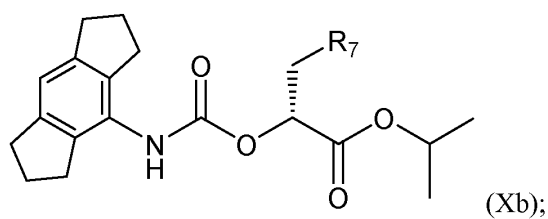
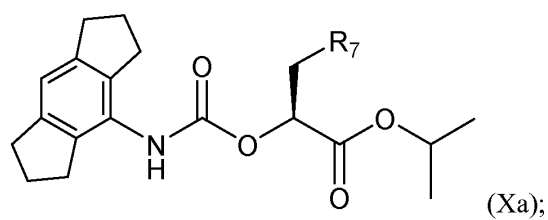
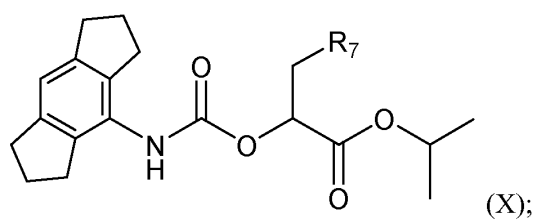
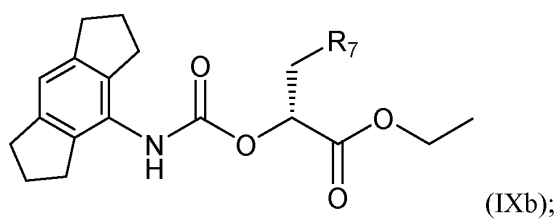
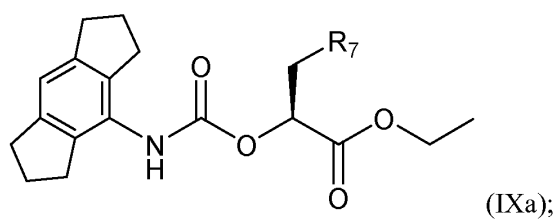
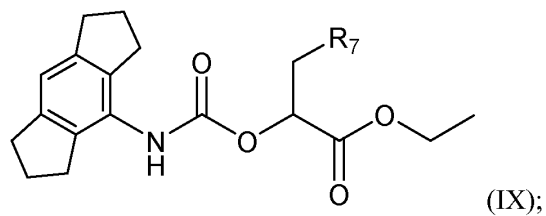
or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

62. The compound of any one of claims 1-56, 59, and 61, being of any one of Formulae (VII), (VIIa), (VIIb), (VIII), (VIIIa), and (VIIIb):



or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

63. The compound of any one of claims 1-56 and 58-62, being of any one of Formulae (IX), (IXa), (IXb), (X), (Xa), and (Xb):



or a prodrug, hydrate, solvate, or pharmaceutically acceptable salt thereof.

64. The compound of any one of claims 1-63, being selected from Compound Nos. 1-130 and prodrugs and pharmaceutically acceptable salts thereof.
65. The compound of any one of claims 1-64, being selected from Compound Nos. 1-130 and pharmaceutically acceptable salts thereof.
66. The compound of any one of claims 1-65, being selected from Compound Nos. 1-130.
67. A compound being an isotopic derivative of the compound of any one of claims 1-66.
68. The compound of claim 67, being a deuterium labeled compound.
69. The compound of claim 68, being a deuterium labeled compound of any one of Compound Nos. 1-130 and prodrugs and pharmaceutically acceptable salts thereof.
70. The compound of claim 69, being a deuterium labeled compound of any one of Compound Nos. 1-130.
71. A compound obtainable by, or obtained by, a method described herein;
optionally, the method comprises one or more steps described in Schemes 1-5.
72. A compound, by an intermediate obtained by a method for preparing the compound of any one of claims 1-70;
optionally, the intermediate is selected from the intermediates described in Examples 1-126.
73. A pharmaceutical composition comprising the compound of any one of claims 1-72 or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable diluent or carrier.
74. The pharmaceutical composition of claim 73, wherein the compound is selected from

Compound Nos. 1-130.

75. A method of inhibiting inflammasome activity, comprising contacting a cell with an effective amount of the compound of any one of claims 1-72 or a pharmaceutically acceptable salt thereof;

optionally, the inflammasome is NLRP3 inflammasome, and the activity is *in vitro* or *in vivo*.

76. A method of treating or preventing a disease or disorder in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of the compound of any one of claims 1-72 or a pharmaceutically acceptable salt thereof, or the pharmaceutical composition of claim 73 or claim 74.

77. The method of claim 76, wherein the disease or disorder is associated with an implicated inflammasome activity;

optionally, the disease or disorder is a disease or disorder in which inflammasome activity is implicated.

78. The method of claim 76 or claim 77, wherein the disease or disorder is an autoinflammatory disorder, an autoimmune disorder, a neurodegenerative disease, or cancer.

79. The method of any one of claims 76-78, wherein the disease or disorder is an autoinflammatory disorder or an autoimmune disorder;

Optionally, the disease or disorder is selected from cryopyrin-associated auto-inflammatory syndrome (CAPS; e.g., familial cold autoinflammatory syndrome (FCAS)), Muckle-Wells syndrome (MWS), chronic infantile neurological cutaneous and articular (CINCA) syndrome/ neonatal-onset multisystem inflammatory disease (NOMID), familial Mediterranean fever and nonalcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH), gout, rheumatoid arthritis, osteoarthritis, Crohn's disease, chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD), fibrosis, obesity, type 2 diabetes, multiple sclerosis and neuroinflammation occurring in protein misfolding diseases (e.g., Prion

diseases).

80. The method of any one of claims 76-78, wherein disease or disorder is a neurodegenerative disease;

optionally, the disease or disorder is Parkinson's disease or Alzheimer's disease.

81. The method of any one of claims 76-78, wherein the disease or disorder is cancer;

optionally, the cancer is metastasising cancer, gastrointestinal cancer, skin cancer, non-small-cell lung carcinoma, or colorectal adenocarcinoma.

82. The compound of any one of claims 1-72, or the pharmaceutical composition of claim 69 or claim 70, for use in inhibiting inflammasome activity;

optionally, the inflammasome is NLRP3 inflammasome, and the activity is *in vitro* or *in vivo*.

83. The compound of any one of claims 1-72, or the pharmaceutical composition of claim 69 or claim 70, for use in treating or preventing a disease or disorder.

84. The compound or pharmaceutical composition of claim 83, wherein the disease or disorder is associated with an implicated inflammasome activity;

optionally, the disease or disorder is a disease or disorder in which inflammasome activity is implicated.

85. The compound or pharmaceutical composition of claim 83 or claim 84, wherein the disease or disorder is an autoinflammatory disorder, an autoimmune disorder, a neurodegenerative disease, or cancer.

86. The compound or pharmaceutical composition of any one of claims 83-85, wherein the disease or disorder is an autoinflammatory disorder or an autoimmune disorder;

optionally, the disease or disorder is selected from cryopyrin-associated autoinflammatory syndrome (CAPS; e.g., familial cold autoinflammatory syndrome (FCAS)),

Muckle-Wells syndrome (MWS), chronic infantile neurological cutaneous and articular (CINCA) syndrome/ neonatal-onset multisystem inflammatory disease (NOMID), familial Mediterranean fever and nonalcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH), gout, rheumatoid arthritis, osteoarthritis, Crohn's disease, chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD), fibrosis, obesity, type 2 diabetes, multiple sclerosis and neuroinflammation occurring in protein misfolding diseases (e.g., Prion diseases).

87. The compound or pharmaceutical composition of any one of claims 83-85, wherein disease or disorder is a neurodegenerative disease;

optionally, the disease or disorder is Parkinson's disease or Alzheimer's disease.

88. The compound or pharmaceutical composition of any one of claims 83-85, wherein the disease or disorder is cancer;

optionally, the cancer is metastasising cancer, gastrointestinal cancer, skin cancer, non-small-cell lung carcinoma, or colorectal adenocarcinoma.

89. Use of the compound of any one of claims 1-72 or a pharmaceutical salt thereof in the manufacture of a medicament for inhibiting inflammasome activity;

optionally, the inflammasome is NLRP3 inflammasome, and the activity is *in vitro* or *in vivo*.

90. Use of the compound of any one of claims 1-72 or a pharmaceutical salt thereof in the manufacture of a medicament for treating or preventing a disease or disorder.

91. The use of claim 90, wherein the disease or disorder is associated with an implicated inflammasome activity;

optionally, the disease or disorder is a disease or disorder in which inflammasome activity is implicated.

92. The use of claim 90 or claim 91, wherein the disease or disorder is an autoinflammatory

disorder, an autoimmune disorder, a neurodegenerative disease, or cancer.

93. The use of any one of claims 90-92, wherein the disease or disorder is an autoinflammatory disorder or an autoimmune disorder;

optionally, the disease or disorder is selected from cryopyrin-associated autoinflammatory syndrome (CAPS; e.g., familial cold autoinflammatory syndrome (FCAS)), Muckle-Wells syndrome (MWS), chronic infantile neurological cutaneous and articular (CINCA) syndrome/ neonatal-onset multisystem inflammatory disease (NOMID), familial Mediterranean fever and nonalcoholic fatty liver disease (NAFLD), non-alcoholic steatohepatitis (NASH), gout, rheumatoid arthritis, osteoarthritis, Crohn's disease, chronic obstructive pulmonary disease (COPD), chronic kidney disease (CKD), fibrosis, obesity, type 2 diabetes, multiple sclerosis and neuroinflammation occurring in protein misfolding diseases (e.g., Prion diseases).

94. The use of any one of claims 90-92, wherein disease or disorder is a neurodegenerative disease;

optionally, the disease or disorder is Parkinson's disease or Alzheimer's disease.

95. The use of any one of claims 90-92, wherein the disease or disorder is cancer;

optionally, the cancer is metastasising cancer, gastrointestinal cancer, skin cancer, non-small-cell lung carcinoma, or colorectal adenocarcinoma.