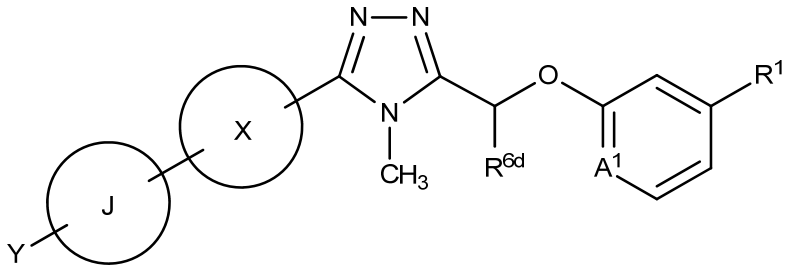
Claims

1. A compound of general formula (1') or a pharmacologically acceptable salt thereof:



(1')

wherein the symbols in the formula are defined below:

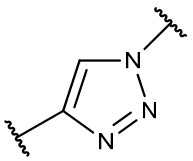
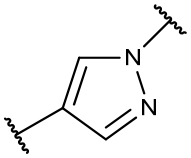
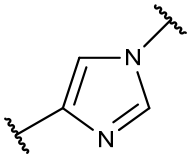
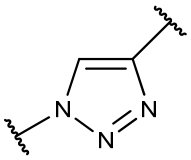
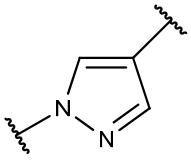
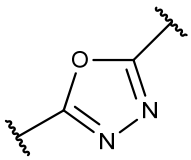
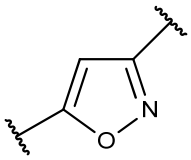
R^1: a hydrogen atom, a carboxyl group, a cyano group, a fluorine atom, a chlorine atom, a methyl group, an isopropyl group, a t-butyl group, a trifluoromethyl group, a trifluoromethoxy group, a cyclopropylmethoxy group, a 1,1-difluoro-2-methylpropyl group, a 1,1-difluoro-2,2-dimethylpropyl group, a 1-methyl-1-cyclobutyl group, a methoxycarbonyl group, an ethoxycarbonyl group, an isopropoxycarbonyl group, a 1-hydroxy-1-methylethyl group, an azetidine-1-carbonyl group, a 3-methyloxetan-3-yl group, a 4,5-dihydrooxazol-2-yl group, or a cyclopropylcarbonyl group;

R^{6d}: a hydrogen atom or a methyl group;

A^1: =N-, or =CH-;

X: benzene, pyridine or cyclohexane, each of which has two bonds;

J: any ring selected from the following ring group:

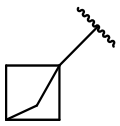
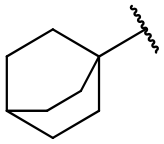
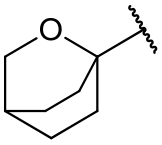
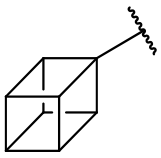
Y:

an amino group optionally substituted with 1-2 groups independently selected from Substituent group Y^1,

a phenyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^1,

any group optionally substituted with 1-3 groups independently selected from Substituent group Y^1, selected from the following:

a cyclobutyl group, a cyclopentyl group, a cyclohexyl group,


,

,

,


a cyclohexenyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^1,

any group optionally substituted with 1-3 groups independently selected from Substituent group Y^1, selected from the following:

a piperidinyl group, an azetidinyl group, a tetrahydropyranyl group, a morpholinyl group, or

a tetrahydropyridinyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^1;

Substituent group Y^1:

a hydroxyl group,

an amino group optionally substituted with 1-2 groups independently selected from Substituent group Y^2,

a cyano group,

a fluorine atom,

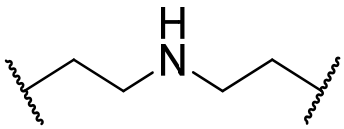
a methyl group, an ethyl group or an isopropyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^2,

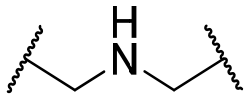
a methoxy group optionally substituted with 1-3 groups independently selected from Substituent group Y^2,

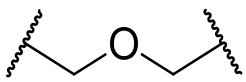
an azetidinyl group, a pyrrolidinyl group or a morpholinyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^2, and

any group optionally substituted with 1-3 groups independently selected from Substituent group Y^2,

selected from the following:



,


,


Substituent group Y^2:

a hydroxyl group,

a fluorine atom,

a methyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^3,

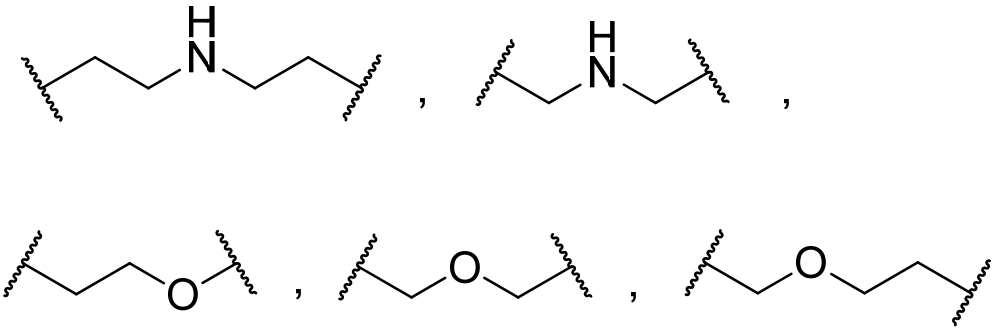
a methoxy group optionally substituted with 1-3 groups independently selected from Substituent group Y^3,

an amino group optionally substituted with 1-2 groups independently selected from Substituent group Y^3,

an azetidinyl group, a pyrrolidinyl group or a morpholinyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^3, and

any group optionally substituted with 1-3 groups independently selected from Substituent group Y^3,

selected from the following:



Substituent group Y^3:

a hydroxyl group,

a fluorine atom,

a cyano group,

a methyl group optionally substituted with 1-3 groups independently selected from Substituent group Y^4, and

a methoxy group optionally substituted with 1-3 groups independently selected from Substituent group Y^4;

Substituent group Y^4:

a fluorine atom.

2. A compound or a pharmacologically acceptable salt thereof selected from the following group:

4-Fluoro-1-methyl-4-{1-[trans-4-(4-methyl-5-{(1R)-1-[3-(propan-2-yl)phenoxy]ethyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazol-4-yl}piperidine,

4-{4-[(1R)-1-(Azetidin-1-yl)ethyl]phenyl}-1-[trans-4-(4-methyl-5-{[3-(propan-2-yl)phenoxy]methyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazole,

(3R,6S)-N,N-Dimethyl-6-{1-[trans-4-(4-methyl-5-{(1R)-1-[3-(propan-2-yl)phenoxy]ethyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazol-4-yl}tetrahydro-2H-pyran-3-amine,

4-Fluoro-1-methyl-4-{1-[(3R,6S)-6-(4-methyl-5-{[3-(propan-2-yl)phenoxy]methyl}-4H-1,2,4-triazol-3-yl)tetrahydro-2H-pyran-3-yl]-1H-1,2,3-triazol-4-yl}piperidine,

~~3-{trans-4-[4-(4-Fluoro-1-methylpiperidin-4-yl)-1H-1,2,3-triazol-1-yl]cyclohexyl}-8-[3-(trifluoromethyl)phenoxy]-5,6,7,8-tetrahydro[1,2,4]triazolo[4,3-a]pyridine,~~

1,5-Anhydro-6-azetidin-1-yl-2,3,4,6-tetradeoxy-2-{4-[trans-4-(4-methyl-5-{[3-

(trifluoromethyl)phenoxy]methyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazol-1-yl}-D-erythro-hexitol,

2-({5-[trans-4-(1-{trans-4-[3-(Fluoromethyl)azetidin-1-yl]cyclohexyl}-1H-1,2,3-triazol-4-yl)cyclohexyl]-4-methyl-4H-1,2,4-triazol-3-yl}methoxy)-4-(trifluoromethyl)pyridine,

3-(trans-4-{1-[trans-4-(Azetidin-1-yl)cyclohexyl]-1H-pyrazol-4-yl}cyclohexyl)-4-methyl-5-{[3-(trifluoromethyl)phenoxy]methyl}-4H-1,2,4-triazole,

4-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]morpholine,

6-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-2-oxa-6-azaspiro[3.3]heptane,

6-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-1-oxa-6-azaspiro[3.3]heptane,

2-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-6-oxa-2-azaspiro[3.4]octane,

{1-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-

triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]azetidine-3,3-diyl}dimethanol,

Methyl 3-{[4-methyl-5-(trans-4-{1-[trans-4-(2-oxa-6-azaspiro[3.3]hept-6-yl)cyclohexyl]-1H-pyrazol-4-yl}cyclohexyl)-4H-1,2,4-triazol-3-yl]methoxy}benzoate, and

8-Methyl-3-[trans-4-(4-methyl-5-{(1R)-1-[3-(propan-2-yl)phenoxy]ethyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1-oxa-2,8-diazaspiro[4.5]dec-2-ene.

3. 4-Fluoro-1-methyl-4-{1-[trans-4-(4-methyl-5-{(1R)-1-[3-(propan-2-yl)phenoxy]ethyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazol-4-yl}piperidine.

4. (3R,6S)-N,N-Dimethyl-6-{1-[trans-4-(4-methyl-5-{(1R)-1-[3-(propan-2-yl)phenoxy]ethyl}-4H-1,2,4-triazol-3-yl)cyclohexyl]-1H-1,2,3-triazol-4-yl}tetrahydro-2H-pyran-3-amine.

5. 2-({5-[trans-4-(1-{trans-4-[3-(Fluoromethyl)azetidin-1-yl]cyclohexyl}-1H-1,2,3-triazol-4-yl)cyclohexyl]-4-methyl-4H-1,2,4-triazol-3-yl}methoxy)-4-(trifluoromethyl)pyridine.

6. 6-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-2-oxa-6-azaspiro[3.3]heptane.

7. 6-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-

triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-1-oxa-6-azaspiro[3.3]heptane.

8. 2-[trans-4-(4-{trans-4-[4-Methyl-5-({[4-(trifluoromethyl)pyridin-2-yl]oxy}methyl)-4H-1,2,4-triazol-3-yl]cyclohexyl}-1H-pyrazol-1-yl)cyclohexyl]-6-oxa-2-azaspiro[3.4]octane.

9. Methyl 3-{[4-methyl-5-(trans-4-{1-[trans-4-(2-oxa-6-azaspiro[3.3]hept-6-yl)cyclohexyl]-1H-pyrazol-4-yl}cyclohexyl)-4H-1,2,4-triazol-3-yl]methoxy}benzoate.

10. A compound or a pharmacologically acceptable salt thereof according to any one of Claims 1 to 9, for increasing IL10.

11. A pharmaceutical composition comprising a compound or a pharmacologically acceptable salt thereof according to any one of Claims 1 to 10 as an active ingredient.

12. The compound or a pharmaceutically acceptable salt thereof according to any one of Claims 1 to 10 for use in medicine.

13. Use of the compound according to any one of Claims 1 to 10 for the manufacture of a pharmaceutical composition for preventing and/or treating an inflammatory disease.

14. The use according to Claim 13, wherein the inflammatory disease is a peripheral inflammatory disease.

15. The use according to Claim 13, wherein the inflammatory disease is a central inflammatory disease.

16. The use according to Claim 14, wherein the peripheral inflammatory disease is a disease selected from the group consisting of rheumatoid arthritis, systemic lupus erythematosus, scleroderma, bronchial asthma, asthmatic bronchitis, diffuse interstitial pneumonia, chronic obstructive pulmonary disease, ulcerative colitis, Crohn's disease, celiac disease, anal fistula, radiation enterocolitis, acute hepatitis, chronic hepatitis, fulminant hepatitis, autoimmune hepatitis, primary biliary cirrhosis, primary sclerosing cholangitis, alcoholic hepatitis, non-alcoholic steatohepatitis, cirrhosis, peripheral neuritis, ankylosing spondylitis, eczema (acute, subacute, chronic), contact dermatitis, sunlight (ultraviolet light) dermatitis, radiation dermatitis, atopic dermatitis, seborrheic dermatitis, psoriasis vulgaris, arthropathic psoriasis, psoriatic erythroderma, pustular psoriasis, lichen planus, erythema, rosacea, urticaria, alopecia areata, pemphigus, erythroderma, acne vulgaris, pressure sore, wound, burn, conjunctivitis, keratitis, scleritis, acute/chronic otitis media, perennial allergic rhinitis, hay fever, sinusitis, laryngitis, esophagitis, refractory stomatitis, glossitis, acute/chronic salivary gland inflammation, angular cheilitis, cheilitis, Behcet's disease, multiple sclerosis, Type I diabetes, Type II diabetes, atherosclerosis, pancreatitis and chronic heart failure.

17. The use according to Claim 14, wherein the peripheral inflammatory disease is a disease selected from the group consisting of rheumatoid arthritis, systemic lupus erythematosus, bronchial asthma, ulcerative colitis, Crohn's disease, celiac disease, anal fistula, radiation enterocolitis, acute hepatitis, autoimmune hepatitis, primary biliary cirrhosis, primary sclerosing cholangitis, alcoholic hepatitis, nonalcoholic steatohepatitis, ankylosing spondylitis, contact dermatitis, sunlight (ultraviolet light) dermatitis, atopic dermatitis, seborrheic dermatitis, psoriasis vulgaris, arthropathic psoriasis, psoriatic erythroderma, pustular psoriasis, lichen planus, erythema, rosacea, alopecia areata, pemphigus, erythroderma, acne vulgaris, pressure sore, wound, burn, sinusitis, laryngitis, esophagitis, refractory stomatitis, glossitis, acute/chronic salivary gland inflammation, angular cheilitis, cheilitis and Behcet's disease.

18. The use according to Claim 14, wherein the peripheral inflammatory disease is a disease selected from the group consisting of rheumatoid arthritis, systemic lupus erythematosus, ulcerative colitis, Crohn's disease, celiac disease, anal fistula, radiation enterocolitis, autoimmune hepatitis, alcoholic hepatitis, nonalcoholic steatohepatitis, ankylosing spondylitis, wound, refractory stomatitis, glossitis and Behcet's disease.

19. The use according to Claim 15, wherein the central inflammatory disease is a disease selected from the group consisting of Alzheimer's disease, Parkinson's disease, dementia with Lewy bodies, multiple system atrophy, Pick's disease, progressive supranuclear palsy, basal ganglia degeneration, frontotemporal lobar degeneration, Huntington's disease, amyotrophic lateral sclerosis, bulbar spinal muscular atrophy, spinal muscular atrophy, spinocerebellar degeneration, multiple sclerosis, Creutzfeldt-Jakob disease, lethal familial insomnia, Gerstmann-Streisler-Shinker syndrome, Down syndrome, Niemann-Pick disease, cerebral amyloid angiopathy, HIV encephalopathy, influenza encephalopathy, hepatic encephalopathy, progressive multifocal leukoencephalopathy, anti-NMDA receptor antibody encephalitis, cerebrovascular disorder, traumatic brain injury, spinal cord injury, hypoxia encephalopathy, epilepsy, optic neuritis, congenital metabolic brain disease, Wernicke encephalopathy, autism spectrum disorder, attention deficit/hyperactivity disorder, tic disorder, schizophrenia, bipolar disorder, major depressive disorder (treatment-resistant depression, postpartum depression), persistent depressive disorder (dysthymia), menstruation pre-discomfort mood disorder, anxiety disorder, localized phobia, panic disorder, obsessive compulsive disorder, trauma and stress factor related disorder, eating disorder, circadian rhythm

sleep/wake disorder, narcolepsy, substance-related disorder (alcohol dependence, drug dependence), impulse control disorder, delirium, personality disorder, and Rett syndrome.

20. The use according to Claim 15, wherein the central inflammatory disease is a disease selected from the group consisting of Alzheimer's disease, Parkinson's disease, dementia with Lewy bodies, multiple system atrophy, Pick's disease, progressive supranuclear palsy, basal ganglia degeneration, frontotemporal lobar degeneration, Huntington's disease, amyotrophic lateral sclerosis, bulbar spinal muscular atrophy, spinal muscular atrophy, spinocerebellar degeneration, multiple sclerosis, Creutzfeldt-Jakob disease, schizophrenia, bipolar disorder, major depressive disorder (treatment-resistant depression, postpartum depression), persistent depressive disorder (dysthymia), menstruation pre-discomfort mood disorder, anxiety disorder, localized phobia, panic disorder, obsessive compulsive disorder, trauma and stress factor related disorder, eating disorder, circadian rhythm sleep/wake disorder, narcolepsy, substance-related disorder (alcohol dependence, drug dependence), impulse control disorder, delirium, personality disorder, and Rett syndrome.

21. The use according to Claim 15, wherein the central inflammatory disease is a disease selected from the group consisting of schizophrenia, bipolar disorder, major

depressive disorder (treatment-resistant depression, postpartum depression), persistent depressive disorder (dysthymia), menstruation pre-discomfort mood disorder, anxiety disorder, localized phobia, panic disorder, and obsessive compulsive disorder.

22. A crystal of a compound according to Claim 3, having peaks at diffraction angles ($2\theta(°)$) of about 3.9, 4.1, 8.34, 12.6, 16.2, 18.4, 19.5 and 22.3 by powder X-ray diffraction.

23. A crystal of a compound according to Claim 3, having an X-ray diffraction pattern shown in Figure 1.

24. A crystal of a compound according to Claim 4, having peaks at diffraction angles ($2\theta(°)$) of about 3.8, 16.4, 18.0, 18.6, 19.8, 21.2 and 22.7 by powder X-ray diffraction.

25. A crystal of a compound according to Claim 4, having an X-ray diffraction pattern shown in Figure 2.

26. A crystal of a compound according to Claim 5, having peaks at diffraction angles ($2\theta(°)$) of about 13.5, 15.7, 17.2, 17.8, 18.2, 19.2, 20.4, 20.8, 22.0 and 27.2 by powder X-ray diffraction.

27. A crystal of a compound according to Claim 5, having an X-ray diffraction pattern shown in Figure 3.

28. A crystal of a compound according to Claim 6, having peaks at diffraction angles ($2\theta(°)$) of about 3.3, 13.4, 15.5, 16.8, 17.5, 17.9, 18.9, 20.4, 21.8 and 26.9 by powder X-ray diffraction.

29. A crystal of a compound according to Claim 6, having an X-ray diffraction pattern shown in Figure 4.

30. A crystal of a compound according to Claim 7, having peaks at diffraction angles ($2\theta(°)$) of about 13.2, 15.8, 16.5, 17.8, 18.1, 20.3, 20.8, 21.4 and 27.9 by powder X-ray diffraction.

31. A crystal of a compound according to Claim 7, having an X-ray diffraction pattern shown in Figure 5.

32. A crystal of a compound according to Claim 8, having peaks at diffraction angles ($2\theta(°)$) of about 14.2, 16.8, 17.4, 18.2, 18.6, 19.5, 20.0, 20.9, 21.6 and 21.8 by powder X-ray diffraction.

33. A crystal of a compound according to Claim 8, having an X-ray diffraction pattern shown in Figure 6.

34. A crystal of a compound according to Claim 9, having peaks at diffraction angles ($2\theta(°)$) of about 15.4, 17.6, 17.9, 18.4, 18.7, 19.2, 20,2, 20.7, 23.0 and 23.8 by powder X-ray diffraction.

35. A crystal of a compound according to Claim 9, having an X-ray diffraction pattern shown in Figure 7.