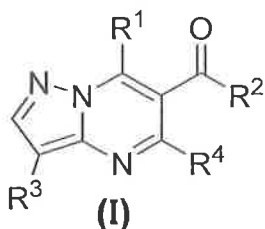
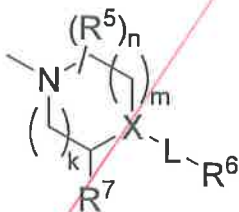


Claims

1. A pyrazolopyrimidine derivative represented by the formula (I)

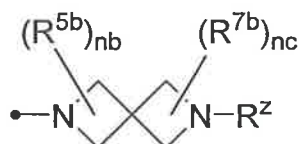


{wherein R^1 represents $-NR^{1a}R^{1b}$ (wherein R^{1a} and R^{1b} are the same or different and each represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), lower alkanoyl optionally having substituent(s), aryl optionally having substituent(s), aralkyl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), or R^{1a} and R^{1b} form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s)), $-OR^{1c}$ (wherein R^{1c} represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), aralkyl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s)) or $-SR^{1d}$ (wherein R^{1d} is as defined for the aforementioned R^{1c}), R^2 represents



[wherein k and m each represents an integer of 0 - 2 (wherein the total of k and m is not more than 3), n represents an integer of 0 - 4, and when n is 2, 3 or 4,

with the respectively adjacent carbon atoms, an aliphatic ring optionally having substituent(s)), $-\text{CR}^{10c}=\text{CR}^{10d}-$ (wherein R^{10c} and R^{10d} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{10c} and R^{10d} form, together with the respectively adjacent carbon atoms, an aliphatic ring having at least one double bond and optionally having substituent(s) or an aromatic ring optionally having substituent(s)), $-\text{Z}^a-\text{CR}^{11a}\text{R}^{11b}-$ [wherein R^{11a} and R^{11b} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{11a} and R^{11b} form carbonyl together with the adjacent carbon atom, Z^a represents $\text{C}(=\text{O})$, O , S , SO , SO_2 or NR^{12} (wherein R^{12} represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkanoyl optionally having substituent(s), lower alkoxy carbonyl optionally having substituent(s) or aralkyl optionally having substituent(s))], or $-\text{CR}^{11c}\text{R}^{11d}-\text{Z}^b-$ (wherein R^{11c} , R^{11d} and Z^b are as defined for the aforementioned R^{11a} , R^{11b} and Z^a , respectively)], or



(wherein R^Z represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), R^{5b} and R^{7b} are the same or different and each represents halogen, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s), nb represents an integer of 0 - 2, nc represents an integer of 0 - 2, when nb is 2, respective R^{5b} are the same or different, when nc is 2, respective R^{7b} are the same or different), R^3 represents $-\text{S}(\text{O})_2\text{R}^{13a}$ [wherein R^{13a} represents hydroxy, lower alkoxy optionally having substituent(s), $-\text{NR}^{13b}\text{R}^{13c}$ (wherein R^{13b} and R^{13c} are the same or different and each represents a

hydrogen atom, lower alkyl optionally having substituent(s),
lower alkoxy optionally having substituent(s), cycloalkyl
optionally having substituent(s), aralkyl optionally having
substituent(s), aryl optionally having substituent(s), an
5 aromatic heterocyclic group optionally having substituent(s)
or an aliphatic heterocyclic group optionally having
substituent(s), or R^{13b} and R^{13c} form, together with the adjacent
nitrogen atom, a nitrogen-containing heterocyclic group
optionally having substituent(s)), $-NR^{13d}C(=O)R^{13e}$ (wherein R^{13d}
10 represents a hydrogen atom, lower alkyl optionally having
substituent(s), cycloalkyl optionally having substituent(s),
aralkyl optionally having substituent(s), aryl optionally
having substituent(s), an aromatic heterocyclic group
optionally having substituent(s) or an aliphatic heterocyclic
15 group optionally having substituent(s), R^{13e} represents a
hydrogen atom, lower alkyl optionally having substituent(s),
cycloalkyl optionally having substituent(s), aralkyl
optionally having substituent(s), lower alkoxy optionally
having substituent(s), N-mono-lower alkylamino optionally
20 having substituent(s), N,N-di-lower alkylamino optionally
having substituent(s), N-cycloalkylamino optionally having
substituent(s), N-mono-arylamino optionally having
substituent(s), N,N-di-arylamino optionally having
substituent(s), aryl optionally having substituent(s), an
25 aromatic heterocyclic group optionally having substituent(s)
or an aliphatic heterocyclic group optionally having
substituent(s)), $-NR^{13f}C(=S)R^{13g}$ (wherein R^{13f} and R^{13g} are as
defined for the aforementioned R^{13d} and R^{13e} , respectively) or -
 $NR^{13h}S(O)_2R^{14}$ (wherein R^{13h} is as defined for the aforementioned
30 R^{13d} , R^{14} represents lower alkyl optionally having
substituent(s), cycloalkyl optionally having substituent(s),
N-mono-lower alkylamino optionally having substituent(s), N,N-
di-lower alkylamino optionally having substituent(s), aryl
optionally having substituent(s), aralkyl optionally having
35 substituent(s), an aromatic heterocyclic group optionally

having substituent(s) or an aliphatic heterocyclic group

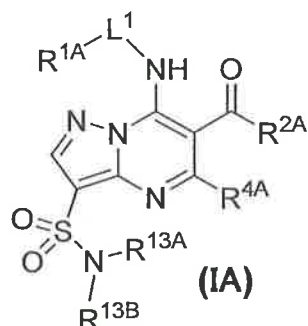
optionally having substituent(s)], and

R⁴ represents a hydrogen atom, halogen, lower alkyl optionally having substituent(s), aralkyl optionally having

5 substituent(s), -NR^{15a}R^{15b} (wherein R^{15a} and R^{15b} are as defined for the aforementioned R^{1a} and R^{1b}, respectively), -OR^{15c} (wherein R^{15c} is as defined for the aforementioned R^{1c}), or -SR^{15d} (wherein R^{15d} is as defined for the aforementioned R^{1c}) or a pharmaceutically acceptable salt thereof.

10

2. A pyrazolopyrimidine derivative represented by the formula (IA)

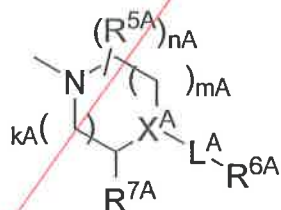


{wherein

15 L¹ represents a single bond or methylene,

R^{1A} represents lower alkyl optionally having substituent(s), an aralkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally
20 having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s),

R^{2A} represents



[wherein nA represents an integer of 0 - 2, and when nA is 2,

25 respective R^{5A}s may be the same or different,

kA, mA and L^A are as defined for the aforementioned k, m and l,

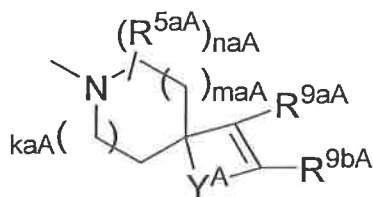
respectively,

R^{5A} represents halogen or lower alkyl,

R^{6A} represents cycloalkyl optionally having substituent(s),
aryl optionally having substituent(s), an aromatic

5 heterocyclic group optionally having substituent(s) or an
aliphatic heterocyclic group optionally having substituent(s),
 X^A represents a nitrogen atom or $-CR^{8A}$ (wherein R^{8A} represents a
hydrogen atom, halogen or lower alkyl, or forms a bond
together with R^{7A}), and

10 R^{7A} forms a bond together with R^{8A} , or represents a hydrogen
atom, halogen or lower alkyl],



[wherein naA and R^{5aA} are as defined for the aforementioned na
and R^{5A} , respectively,

15 maA and kaA are as defined for the aforementioned ma and ka ,
respectively,

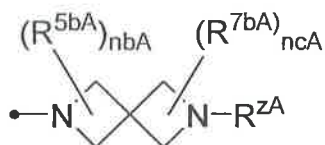
R^{9aA} and R^{9bA} form, together with the respectively adjacent
carbon atoms, an aromatic ring optionally having
substituent(s),

20 Y^A represents $-CHR^{10aA}-CHR^{10bA}-$ (wherein R^{10aA} and R^{10bA} are the
same or different and each represents a hydrogen atom, hydroxy,
lower alkyl optionally having substituent(s) or lower alkoxy
optionally having substituent(s)), $-CR^{10cA}=CR^{10dA}-$ (wherein R^{10cA}
and R^{10dA} are the same or different and each represents a

25 hydrogen atom or lower alkyl optionally having substituent(s)),

$-Z^{aA}-CR^{11aA}R^{11bA}-$ [wherein R^{11aA} and R^{11bA} are the same or different
and each represents a hydrogen atom or lower alkyl optionally
having substituent(s), or R^{11aA} and R^{11bA} form carbonyl together
with the adjacent carbon atom, Z^{aA} represents $C(=O)$, O , S , SO ,
30 SO_2 or NR^{12A} (wherein R^{12A} represents a hydrogen atom, lower
alkyl optionally having substituent(s), lower alkanoyl
optionally having substituent(s), lower alkoxycarbonyl

optionally having substituent(s) or aralkyl optionally having substituent(s))], or $-\text{CR}^{11\text{cA}}\text{R}^{11\text{dA}}-\text{Z}^{\text{bA}}-$ (wherein $\text{R}^{11\text{cA}}$, $\text{R}^{11\text{dA}}$ and Z^{bA} are as defined for the aforementioned $\text{R}^{11\text{aA}}$, $\text{R}^{11\text{bA}}$ and Z^{aA} , respectively)), or



(wherein R^{zA} represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), $\text{R}^{5\text{bA}}$ and $\text{R}^{7\text{bA}}$ are the same or different and each represents halogen, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s), nbA represents an integer of 0 - 2, ncA represents an integer of 0 - 2, when nbA is 2, respective $\text{R}^{5\text{bA}}$ are the same or different and when ncA is 2, respective $\text{R}^{7\text{bA}}$ are the same or different), $\text{R}^{13\text{A}}$ represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), or $\text{R}^{13\text{A}}$ and $\text{R}^{13\text{B}}$ form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s), $\text{R}^{13\text{B}}$ represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s), an aliphatic heterocyclic group optionally having substituent(s) or $\text{COR}^{13\text{e1}}$ (wherein $\text{R}^{13\text{e1}}$ is as defined for the aforementioned $\text{R}^{13\text{e}}$), or $\text{R}^{13\text{B}}$ and $\text{R}^{13\text{A}}$ form, together with the adjacent nitrogen atom, a nitrogen-

~~containing heterocyclic group optionally having substituent(s),~~
and

R^{4A} represents a hydrogen atom or lower alkyl optionally having substituent(s)},

5 or a pharmaceutically acceptable salt thereof.

3. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein L^1 is a single bond.

10

4. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2 or 3, wherein R^{1A} is aryl optionally having substituent(s).

15 5. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2 or 3, wherein R^{1A} is phenyl optionally having substituent(s).

6. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2 or 3, wherein R^{1A} is an aromatic heterocyclic group optionally having substituent(s).

7. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 6, wherein R^{4A} is a hydrogen atom.

8. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 7, wherein R^{13A} is a hydrogen atom, and R^{13B} is lower alkyl optionally having substituent(s).

9. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 7, wherein R^{13A} is a hydrogen atom, and R^{13B} is COR^{13e1} (wherein R^{13e1}

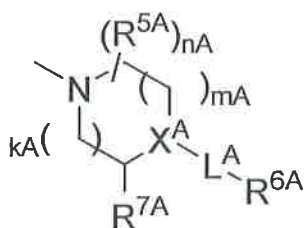
35

is as defined above).

10. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 7, wherein R^{13A} is a hydrogen atom, and R^{13B} is COR^{13e2} (wherein R^{13e2} represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), N-mono-lower alkylamino optionally having substituent(s) or N-mono-arylamino optionally having substituent(s)).

10

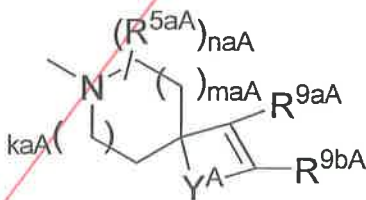
11. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 10, wherein R^{2A} is



15 (wherein nA , mA , ka , R^{5A} , R^{6A} , R^{7A} , L^A and X^A are each as defined above).

12. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 11, wherein R^{6A} is
20 phenyl optionally having substituent(s).

13. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 10, wherein R^{2A} is



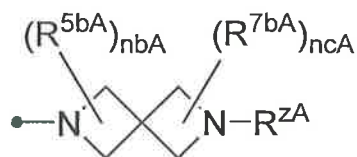
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(wherein naA , maA , kaA , R^{5aA} , R^{9aA} , R^{9bA} and Y^A are each as defined above).

14. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 13, wherein R^{9aA} and R^{9bA} form, together with the respectively adjacent carbon atom, a benzene ring optionally having substituent(s), Y^A is $-CHR^{10aA}-$ 5 $CHR^{10bA}-$ (wherein R^{10aA} and R^{10bA} are each as defined above), $-CR^{10cA}=CR^{10dA}-$ (wherein R^{10cA} and R^{10dA} are each as defined above), $-O-CR^{11aA}R^{11bA}-$ (wherein R^{11aA} and R^{11bA} are each as defined above) or $-CR^{11cA}R^{11dA}-O-$ (wherein R^{11cA} and R^{11dA} are each as defined above).

10

15. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 2 to 10, wherein R^{2A} is



15 (wherein R^{2A} , R^{5bA} , R^{7bA} , nbA and ncA are each as defined above).

16. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 15, wherein R^{2A} is phenyl optionally having substituent(s).

20

17. A medicament comprising, as an active ingredient, the pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 16.

25 18. An agent for the prevention and/or treatment of a skin disease comprising, as an active ingredient, the pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 16.

30 19. The agent for the prevention and/or treatment of a skin disease according to claim 18, wherein the skin disease is a skin disease selected from acne vulgaris, drug eruption, contact dermatitis, dermatitis due to venomous moth, pollen

dermatitis, urticaria, psoriasis, atopic dermatitis, candidal
dermatitis, seborrheic dermatitis, eczema, Stevens-Johnson
syndrome, toxic epidermal necrosis, erythema multiforme,
erythema nodosum, granuloma annulare, pityriasis rosea,
5 rosacea, lichen planus, lichen pilaris (keratosis pilaris),
photosensitivity, solar dermatitis, miliaria, herpes simplex,
Kaposi's varicelliform eruption, impetigo contagiosa,
staphylococcal scalded skin syndrome, erysipelas, slap cheek,
lupus erythematosus, keloid, Hailey-Hailey disease, scabies
10 and linear dermatitis.

20. The agent for the prevention and/or treatment of a skin
disease according to claim 18, wherein the skin disease is
dermatitis.

15

21. The agent for the prevention and/or treatment of a skin
disease according to claim 18, wherein the skin disease is a
skin disease selected from contact dermatitis and atopic
dermatitis.

20

22. A method for the prevention and/or treatment of a skin
disease, comprising a step of administering an effective
amount of the pyrazolopyrimidine derivative or the
pharmaceutically acceptable salt thereof according to any one
25 of claims 1 to 16 to a subject in need thereof.

23. The method according to claim 22, wherein the skin disease
is a skin disease selected from acne vulgaris, drug eruption,
contact dermatitis, dermatitis due to venomous moth, pollen
30 dermatitis, urticaria, psoriasis, atopic dermatitis, candidal
dermatitis, seborrheic dermatitis, eczema, Stevens-Johnson
syndrome, toxic epidermal necrosis, erythema multiforme,
erythema nodosum, granuloma annulare, pityriasis rosea,
rosacea, lichen planus, lichen pilaris (keratosis pilaris),
35 photosensitivity, solar dermatitis, miliaria, herpes simplex,

~~Kaposi's varicelliform eruption, impetigo contagiosa,~~

staphylococcal scalded skin syndrome, erysipelas, slap cheek, lupus erythematosus, keloid, Hailey-Hailey disease, scabies and linear dermatitis.

5

24. The method according to claim 22, wherein the skin disease is dermatitis.

25. The method according to claim 22, wherein the skin disease
10 is a skin disease selected from contact dermatitis and atopic dermatitis.

26. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 16
15 for use in prevention and/or treatment of a skin disease.

27. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 26, wherein the skin disease is a skin disease selected from acne vulgaris,
20 drug eruption, contact dermatitis, dermatitis due to venomous moth, pollen dermatitis, urticaria, psoriasis, atopic dermatitis, candidal dermatitis, seborrheic dermatitis, eczema, Stevens-Johnson syndrome, toxic epidermal necrosis, erythema multiforme, erythema nodosum, granuloma annulare, pityriasis
25 rosea, rosacea, lichen planus, lichen pilaris (keratosis pilaris), photosensitivity, solar dermatitis, miliaria, herpes simplex, Kaposi's varicelliform eruption, impetigo contagiosa, staphylococcal scalded skin syndrome, erysipelas, slap cheek, lupus erythematosus, keloid, Hailey-Hailey disease, scabies
30 and linear dermatitis.

28. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 26, wherein the skin disease is dermatitis.

35

29. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 26, wherein the skin disease is a skin disease selected from contact dermatitis and atopic dermatitis.

5

30. Use of the pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 16 for the manufacture of an agent for the prevention and/or treatment of a skin disease.

10

31. The use according to claim 30, wherein the skin disease is a skin disease selected from acne vulgaris, drug eruption, contact dermatitis, dermatitis due to venomous moth, pollen dermatitis, urticaria, psoriasis, atopic dermatitis, candidal dermatitis, seborrheic dermatitis, eczema, Stevens-Johnson syndrome, toxic epidermal necrosis, erythema multiforme, erythema nodosum, granuloma annulare, pityriasis rosea, rosacea, lichen planus, lichen pilaris (keratosis pilaris), photosensitivity, solar dermatitis, miliaria, herpes simplex, Kaposi's varicelliform eruption, impetigo contagiosa, staphylococcal scalded skin syndrome, erysipelas, slap cheek, lupus erythematosus, keloid, Hailey-Hailey disease, scabies and linear dermatitis.

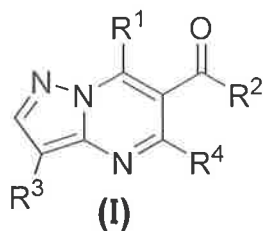
25 32. The use according to claim 30, wherein the skin disease is dermatitis.

33. The use according to claim 30, wherein the skin disease is a skin disease selected from contact dermatitis and atopic dermatitis.

30

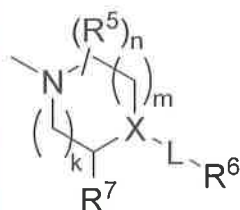
Claims

1. A pyrazolopyrimidine derivative represented by the formula(I)



{wherein R^1 represents $-NR^{1a}R^{1b}$ (wherein R^{1a} and R^{1b} are the same or different and each represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), lower alkanoyl optionally having substituent(s), aryl optionally having substituent(s), aralkyl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), or R^{1a} and R^{1b} form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s)), $-OR^{1c}$ (wherein R^{1c} represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), aralkyl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s)) or $-SR^{1d}$ (wherein R^{1d} is as defined for the aforementioned R^{1c}),

R^2 represents



[wherein k and m each represents an integer of 0-2 (wherein the total of k and m is not more than 3),

n represents an integer of 0-4, and when n is 2, 3 or 4, respective R⁵ may be the same or different,

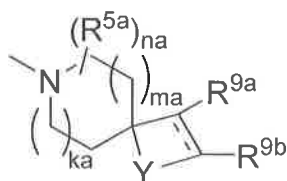
L represents a single bond, alkylene, C(=O) or SO₂,

R⁵ represents halogen, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s),

R⁶ represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s),

X represents a nitrogen atom or -CR⁸ (wherein R⁸ represents a hydrogen atom, halogen, hydroxy, cyano, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s), or forms a bond together with R⁷), and

R⁷ forms a bond together with R⁸, or represents a hydrogen atom, halogen, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s)],



[wherein ka, ma and na are as defined for the aforementioned k, m and n, respectively,

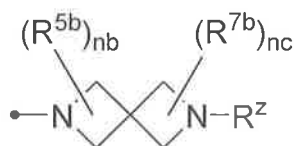
R^{5a} is as defined for the aforementioned R⁵,

--- represents a single bond or a double bond,

R^{9a} and R^{9b} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{9a} and R^{9b} form, together with the respectively adjacent carbon atoms, an aliphatic ring optionally having

substituent(s) or an aromatic ring optionally having substituent(s),

Y represents $-\text{CHR}^{10a}-\text{CHR}^{10b}-$ (wherein R^{10a} and R^{10b} are the same or different and each represents a hydrogen atom, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s), or R^{10a} and R^{10b} form, together with the respectively adjacent carbon atoms, an aliphatic ring optionally having substituent(s)), $-\text{CR}^{10c}=\text{CR}^{10d}-$ wherein R^{10c} and R^{10d} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{10c} and R^{10d} form, together with the respectively adjacent carbon atoms, an aliphatic ring having at least one double bond and optionally having substituent(s) or an aromatic ring optionally having substituent(s)), $-\text{Z}^a-\text{CR}^{11a}\text{R}^{11b}-$ [wherein R^{11a} and R^{11b} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{11a} and R^{11b} form carbonyl together with the adjacent carbon atom, Z^a represents $\text{C}(=\text{O})$, O , S , SO , SO_2 or NR^{12} (wherein R^{12} represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkanoyl optionally having substituent(s), lower alkoxycarbonyl optionally having substituent(s) or aralkyl optionally having substituent(s))], or $-\text{CR}^{11c}\text{R}^{11d}-\text{Z}^b-$ (wherein R^{11c} , R^{11d} and Z^b are as defined for the aforementioned R^{11a} , R^{11b} and Z^a , respectively)], or



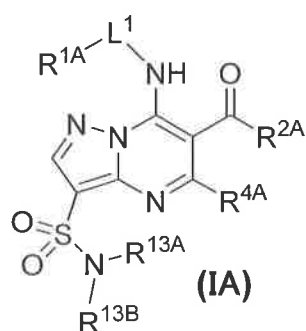
(wherein R^Z represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), R^{5b} and R^{7b} are the same or different and each represents halogen, hydroxy, lower alkyl optionally having substituent(s)

or lower alkoxy optionally having substituent(s), n_b represents an integer of 0-2, n_c represents an integer of 0-2, when n_b is 2, respective R^{5b} are the same or different, when n_c is 2, respective R^{7b} are the same or different), R^3 represents $-S(O)_2R^{13a}$ [wherein R^{13a} represents $-NR^{13b}R^{13c}$ (wherein R^{13b} and R^{13c} are the same or different and each represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), or R^{13b} and R^{13c} form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s)), $-NR^{13d}C(=O)R^{13e}$ (wherein R^{13d} represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), R^{13e} represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), N-mono-lower alkylamino optionally having substituent(s), N,N-di-lower alkylamino optionally having substituent(s), N-cycloalkylamino optionally having substituent(s), N-mono-arylamino optionally having substituent(s), N,N-di-arylamino optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s)), $-NR^{13f}C(=S)R^{13g}$ (wherein R^{13f} and R^{13g} are as defined for the aforementioned R^{13d} and R^{13e} ,

respectively) or $-NR^{13h}S(O)_2R^{14}$ (wherein R^{13h} is as defined for the aforementioned R^{13d} , R^{14} represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), N-mono-lower alkylamino optionally having substituent(s), N,N-di-lower alkylamino optionally having substituent(s), aryl optionally having substituent(s), aralkyl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s)]], and

R^4 represents a hydrogen atom, halogen, lower alkyl optionally having substituent(s), aralkyl optionally having substituent(s), $-NR^{15a}R^{15b}$ (wherein R^{15a} and R^{15b} are as defined for the aforementioned R^{1a} and R^{1b} , respectively), $-OR^{15c}$ (wherein R^{15c} is as defined for the aforementioned R^{1c}), or $-SR^{15d}$ (wherein R^{15d} is as defined for the aforementioned R^{1c}) or a pharmaceutically acceptable salt thereof.

2. A pyrazolopyrimidine derivative represented by the formula (IA)

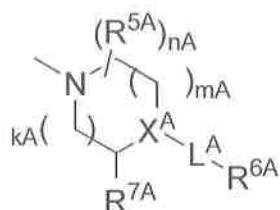


{wherein

L^1 represents a single bond or methylene,

R^{1A} represents lower alkyl optionally having substituent(s), an aralkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s),

R^{2A} represents



[wherein n_A represents an integer of 0-2, and when n_A is 2, respective R^{5A} s may be the same or different,

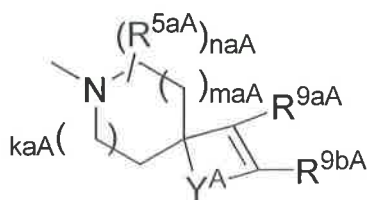
k_A , m_A and L^A are as defined for the aforementioned k , m and l , respectively,

R^{5A} represents halogen or lower alkyl,

R^{6A} represents cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s),

X^A represents a nitrogen atom or $-CR^{8A}$ (wherein R^{8A} represents a hydrogen atom, halogen or lower alkyl, or forms a bond together with R^{7A}), and

R^{7A} forms a bond together with R^{8A} , or represents a hydrogen atom, halogen or lower alkyl],

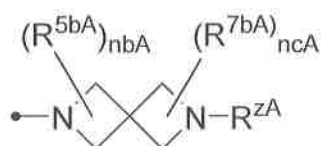


[wherein n_{aA} and R^{5aA} are as defined for the aforementioned n_A and R^{5A} , respectively,

m_{aA} and k_{aA} are as defined for the aforementioned m_a and k_a , respectively,

R^{9aA} and R^{9bA} form, together with the respectively adjacent carbon atoms, an aromatic ring optionally having substituent(s),

Y^A represents -CHR^{10aA}-CHR^{10bA}- (wherein R^{10aA} and R^{10bA} are the same or different and each represents a hydrogen atom, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s)), -CR^{10cA}=CR^{10dA}- (wherein R^{10cA} and R^{10dA} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s)), -Z^{aA}-CR^{11aA}R^{11bA}- [wherein R^{11aA} and R^{11bA} are the same or different and each represents a hydrogen atom or lower alkyl optionally having substituent(s), or R^{11aA} and R^{11bA} form carbonyl together with the adjacent carbon atom, Z^{aA} represents C(=O), O, S, SO, SO₂ or NR^{12A} (wherein R^{12A} represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkanoyl optionally having substituent(s), lower alkoxy carbonyl optionally having substituent(s) or aralkyl optionally having substituent(s))], or -CR^{11cA}R^{11dA}-Z^{bA}- (wherein R^{11cA}, R^{11dA} and Z^{bA} are as defined for the aforementioned R^{11aA}, R^{11bA} and Z^{aA}, respectively)}, or



(wherein R^{zA} represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), R^{5bA} and R^{7bA} are the same or different and each represents halogen, hydroxy, lower alkyl optionally having substituent(s) or lower alkoxy optionally having substituent(s), nbA represents an integer of 0-2, ncA represents an integer of 0-2, when nbA is 2, respective R^{5bA} are the same or different and when ncA is 2, respective R^{7bA} are the same or different),

R^{13A} represents a hydrogen atom, lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s) or an aliphatic heterocyclic group optionally having substituent(s), or R^{13A} and R^{13B} form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s),

R^{13B} represents a hydrogen atom, lower alkyl optionally having substituent(s), lower alkoxy optionally having substituent(s), cycloalkyl optionally having substituent(s), aralkyl optionally having substituent(s), aryl optionally having substituent(s), an aromatic heterocyclic group optionally having substituent(s), an aliphatic heterocyclic group optionally having substituent(s) or COR^{13e1} (wherein R^{13e1} is as defined for the aforementioned R^{13e}), or R^{13B} and R^{13A} form, together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic group optionally having substituent(s), and

R^{4A} represents a hydrogen atom or lower alkyl optionally having substituent(s)),

or a pharmaceutically acceptable salt thereof.

3. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein L^1 is a single bond.

4. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{1A} is aryl optionally having substituent(s).

5. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{1A} is phenyl optionally having substituent(s).

6. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{1A} is an aromatic heterocyclic group optionally having substituent(s).

7. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{4A} is a hydrogen atom.

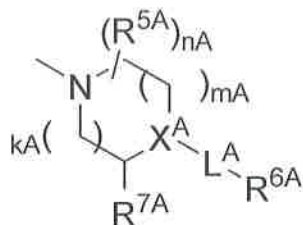
8. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{13A} is a hydrogen atom, and R^{13B} is lower alkyl optionally having substituent(s).

9. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{13A} is a hydrogen atom, and R^{13B} is COR^{13e1} (wherein R^{13e1} is as defined above).

10. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{13A} is a hydrogen atom, and R^{13B} is COR^{13e2} (wherein R^{13e2} represents lower alkyl optionally having substituent(s), cycloalkyl optionally having substituent(s), N-mono-lower

alkylamino optionally having substituent(s) or N-mono-arylamino optionally having substituent(s)).

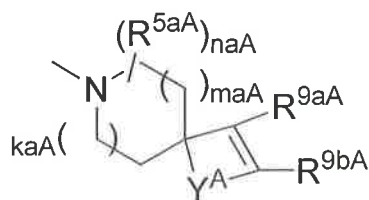
11. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{2A} is



(wherein nA , mA , kA , R^{5A} , R^{6A} , R^{7A} , L^A and X^A are each as defined above).

12. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 11, wherein R^{6A} is phenyl optionally having substituent(s).

13. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{2A} is

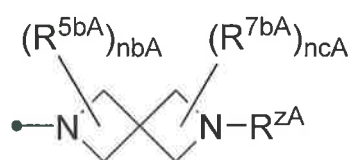


wherein naA , maA , kaA , R^{5aA} , R^{9aA} , R^{9bA} and Y^A are each as defined above).

14. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 13, wherein R^{9aA} and R^{9bA} form, together with the respectively adjacent carbon atom,

a benzene ring optionally having substituent(s), Y^A is $-\text{CHR}^{10aA}-\text{CHR}^{10bA}-$ (wherein R^{10aA} and R^{10bA} are each as defined above), $-\text{CR}^{10cA}=\text{CR}^{10dA}-$ (wherein R^{10cA} and R^{10dA} are each as defined above), $-\text{O}-\text{CR}^{11aA}\text{R}^{11bA}-$ (wherein R^{11aA} and R^{11bA} are each as defined above) or $-\text{CR}^{11cA}\text{R}^{11dA}-\text{O}-$ (wherein R^{11cA} and R^{11dA} are each as defined above).

15. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, wherein R^{2A} is



(wherein R^{2A} , R^{5bA} , R^{7bA} , nbA and ncA are each as defined above).

16. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 15, wherein R^{2A} is phenyl optionally having substituent(s).

17. A medicament comprising, as an active ingredient, the pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2.

18. The pyrazolopyrimidine derivatives or the pharmaceutically acceptable salt thereof according to claim 2, which is N-[7-(2-chlorophenylamino)-6-(4-phenylpiperidine-1-carbonyl)pyrazolo[1,5-a]pyrimidin-3-ylsulfonyl]cyclopropanecarboxamide or a pharmaceutically acceptable salt thereof.

19. The pyrazolopyrimidine derivatives or the pharmaceutically acceptable salt thereof according to claim 2, which is 7-(2-chloro-5-methylphenylamino)-N-(ethylcarbamoyl)-6-[4-(4-fluorophenyl)piperidine-1-carbonyl]pyrazolo[1,5-a]pyrimidine-3-sulfonamide or a pharmaceutically acceptable salt thereof.

20. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, which is 7-(4-fluoro-2-methylphenylamino)-N-(ethylcarbamoyl)-6-[3H-spiro(isobenzofuran-1,4-piperidine)-1-carbonyl]pyrazolo[1,5-a]pyrimidine-3-sulfonamide or a pharmaceutically acceptable salt thereof.

21. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, which is N-{7-(2,5-dichlorophenylamino)-6-[4-(4-fluorophenyl)piperidine-1-carbonyl]pyrazolo[1,5-a]pyrimidin-3-ylsulfonyl}propionamide or a pharmaceutically acceptable salt thereof.

22. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, which is 7-(2,5-dichlorophenylamino)-6-[4-(4-fluorophenyl)piperidine-1-carbonyl]-N-methoxypyrazolo[1,5-a]pyrimidine-3-sulfonamide or a pharmaceutically acceptable salt thereof.

23. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, which is N-{7-(2-chloro-4-fluoro-5-methylphenylamino)-6-[4-(4-fluorophenyl)piperidine-1-carbonyl]pyrazolo[1,5-a]pyrimidin-3-ylsulfonyl}propionamide or a pharmaceutically acceptable salt thereof.

24. The pyrazolopyrimidine derivative or the pharmaceutically acceptable salt thereof according to claim 2, which is N-{7-(2-chloro-5-methylphenylamino)-6-[6-(4-fluorophenyl)-2,6-diazaspiro[3,3]heptanes-2-carbonyl]pyrazolo[1,5-a]pyrimidin-3-ylsulfonyl}propionamide or a pharmaceutically acceptable salt thereof.