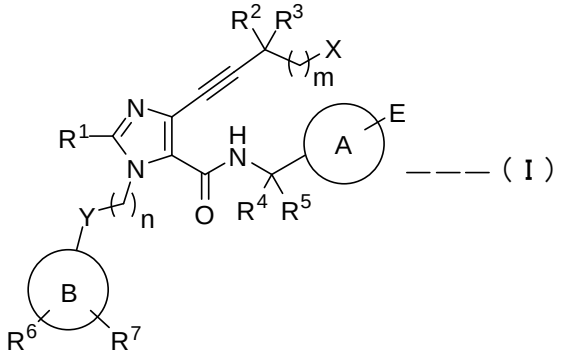
CLAIMS

1. A 4-alkynylimidazole derivative represented by the general formula (I) or a pharmaceutically acceptable salt thereof:

[Formula 1]



（Ⅰ）

[wherein ring A is an optionally substituted cycloalkyl, an optionally substituted aryl or an optionally substituted heteroaryl;

ring B is aryl or heteroaryl;

m is an integer of any one of 0~2;

n is an integer of any one of 1~3;

R^1 is a hydrogen atom, a C_1~C_4 alkyl group, a C_1~C_4 alkoxy group, a halogen atom, or a C_1~C_4 haloalkyl group;

R^2 and R^3 are each independently a hydrogen atom, a halogen atom or a C_1~C_4 alkyl group or may, taken together with the carbon atom to which R^2 and R^3 are adjacent, form a C_3~C_6 carbon ring;

R^4 and R^5 are each independently a hydrogen atom or a C_1~C_4 alkyl group or may, taken together with the carbon atom to which R^4 and R^5 are adjacent, form a C_3~C_6 carbon ring, and R^6 and R^7 are each independently a hydrogen atom, a C_1~C_4 alkyl group, a C_1~C_4 alkoxy group, a C_1~C_4 hydroxyalkyl group, a carboxyl group, a cyano group, a halogen atom, a C_1~C_4 haloalkyl group, or a C_1~C_4 haloalkoxy group;

X is $-OR^8$, $-NR^9R^{10}$ or a halogen atom;

R^8 is a hydrogen atom, a C_1~C_4 alkyl group or a C_1~C_4 haloalkyl group;

R^9 and R^{10} are each independently a hydrogen atom or a C_1~C_4 alkyl group or may, taken together with the nitrogen atom to which R^9 and R^{10} are adjacent, form a nitrogen-containing heterocycle, Y is a single bond, an oxygen atom or a sulfur atom; and

E is $-CO_2H$, $-CO_2P$ or bioisostere of a carboxyl group;

$-CO_2P$ is pharmaceutically acceptable ester prodrug].

2. The 4-alkynylimidazole derivative according to claim 1 or a pharmaceutically acceptable salt thereof, wherein in the foregoing general formula (I), X is $-OR^8$ (R^8 is as defined in claim 1) and m is 0.

3. The 4-alkynylimidazole derivative according to claim 1 or 2 or a pharmaceutically acceptable salt thereof, wherein in the foregoing general formula (I), R^2 and R^3 are both a methyl group.

4. The 4-alkynylimidazole derivative according to any one of claims 1 to 3 or a pharmaceutically acceptable salt thereof, wherein in the foregoing general formula (I), R^1 is a methyl group, an ethyl group, a cyclopropyl group, a chlorine atom, a difluoromethyl group, or a trifluoromethyl group.

5. The 4-alkynylimidazole derivative according to claim 4 or a pharmaceutically acceptable salt thereof, wherein in the foregoing general formula (I), R^1 is a chlorine atom.

6. The 4-alkynylimidazole derivative according to any one of claims 1 to 5 or a pharmaceutically acceptable salt thereof, wherein in the foregoing formula (I), ring A is cyclohexyl substituted by E at the 4-position or phenyl substituted by E at the 4-position (where E is as defined in claim 1).

7. The 4-alkynylimidazole derivative according to any one of claims 1 to 6 or a pharmaceutically acceptable salt thereof, wherein in the foregoing formula (I), E is $-CO_2H$ or tetrazolyl.

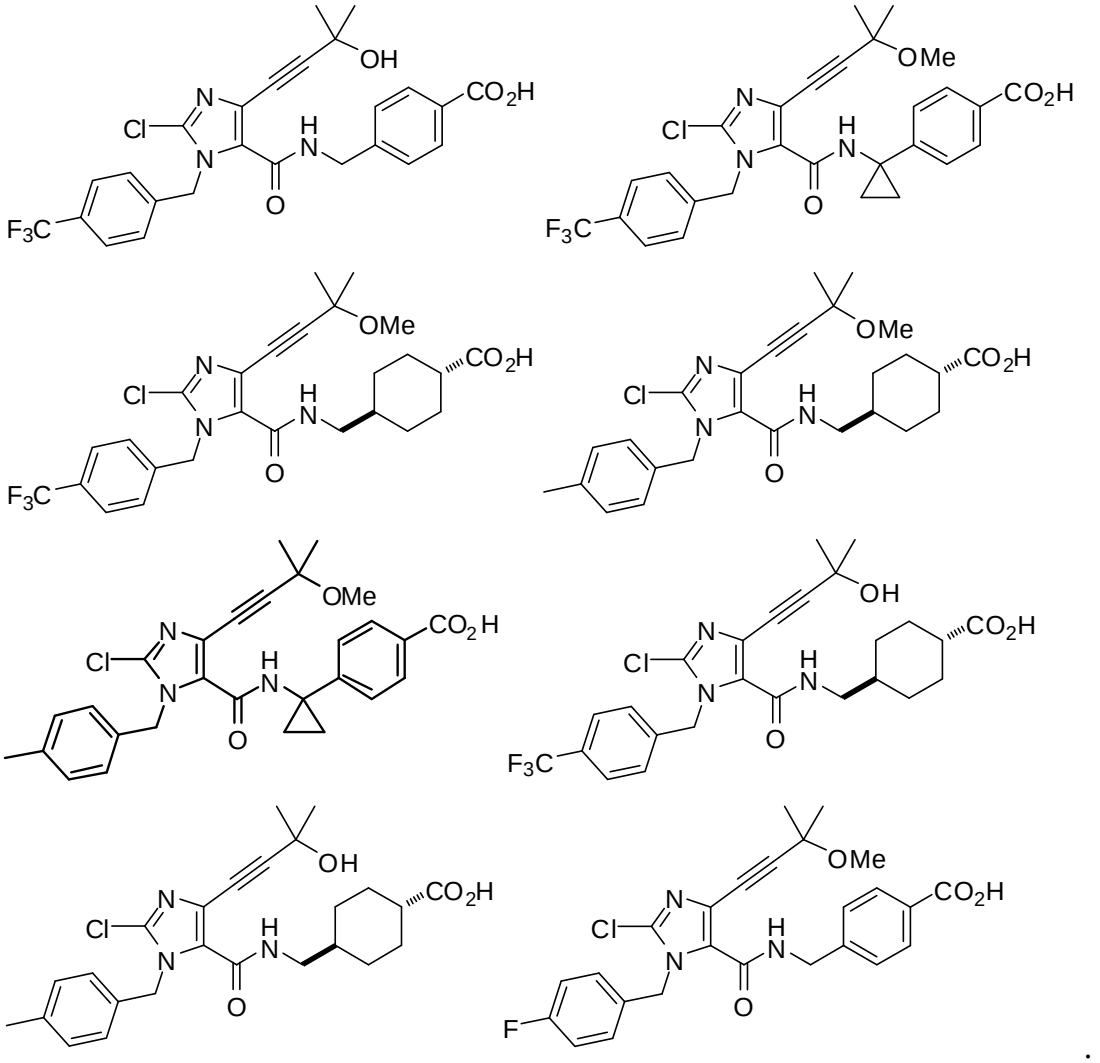
8. The 4-alkynylimidazole derivative according to any one of claims 1 to 7 or a

pharmaceutically acceptable salt thereof, wherein in the foregoing formula (I), ring B is phenyl, n is 1, and Y is a single bond.

9. The 4-alkynylimidazole derivative according to claim 8 or a pharmaceutically acceptable salt thereof, wherein in the foregoing formula (I), ring B is phenyl substituted by R^6 at the 4-position, R^7 is a hydrogen atom, and R^6 is any one of a C_1~C_4 alkyl group, a C_1~C_4 alkoxy group, a cyano group, a halogen atom, a C_1~C_4 haloalkyl group, and a C_1~C_4 haloalkoxy group.

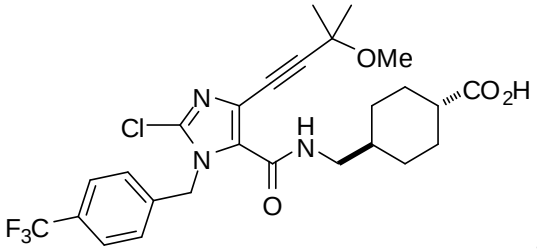
10. The 4-alkynylimidazole derivative according to claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound represented by the foregoing formula (I) is any one of:

[Formula 2]



11. The 4-alkynylimidazole derivative according to claim 1 or a pharmaceutically acceptable salt thereof, wherein the compound represented by the foregoing formula (I) is:

[Formula 3]



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12. A pharmaceutical comprising the 4-alkynylimidazole derivative according to any one of claims 1 to 11 or a pharmaceutically acceptable salt thereof as an active ingredient.

13. An EP4 receptor antagonist comprising the 4-alkynylimidazole derivative according to any one of claims 1 to 11 or a pharmaceutically acceptable salt thereof.

14. The alkynylimidazole derivative according to any one of claims 1 to 11 or a pharmaceutically acceptable salt thereof for use in the treatment of a disease associated with an EP4 receptor-mediated action of PGE2.

15. The alkynylimidazole derivative according to claim 14 or a pharmaceutically acceptable salt thereof, wherein the disease is an inflammatory disease or an inflammatory pain.

16. The alkynylimidazole derivative according to claim 14 or 15 or a pharmaceutically acceptable salt thereof, wherein the disease is at least one disease selected from the group consisting of arthritic pain, articular rheumatism, osteoarthritis, lumbago, scapulohumeral periarthritis, cervico-omo-brachial syndrome, tendonitis, and thecitis.

17. The alkynylimidazole derivative according to any one of claims 14 to 16 or a pharmaceutically acceptable salt thereof, wherein the treatment is anti-inflammation and/or pain relieving.

18. The alkynylimidazole derivative according to claim 14 or a pharmaceutically acceptable salt thereof, wherein the disease is an immune disease in which Th1 cells and/or Th17 cells are implicated.

19. The alkynylimidazole derivative according to claim 14 or 18 or a pharmaceutically acceptable salt thereof, wherein the disease is at least one disease selected from the group consisting of multiple sclerosis, ulcerative colitis, Crohn’s disease, atopic dermatitis, psoriasis, and contact dermatitis.

20. The alkynylimidazole derivative according to claim 19 or a pharmaceutically acceptable salt thereof, wherein the disease is multiple sclerosis.