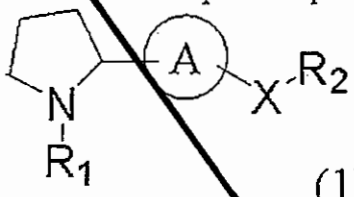
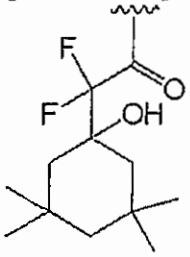
CLAIMS

1. A compound represented by formula (1)



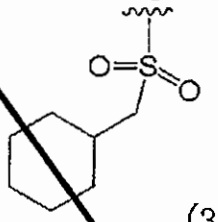
(1)

[where R_1 represents either the following formula (2) or (3)



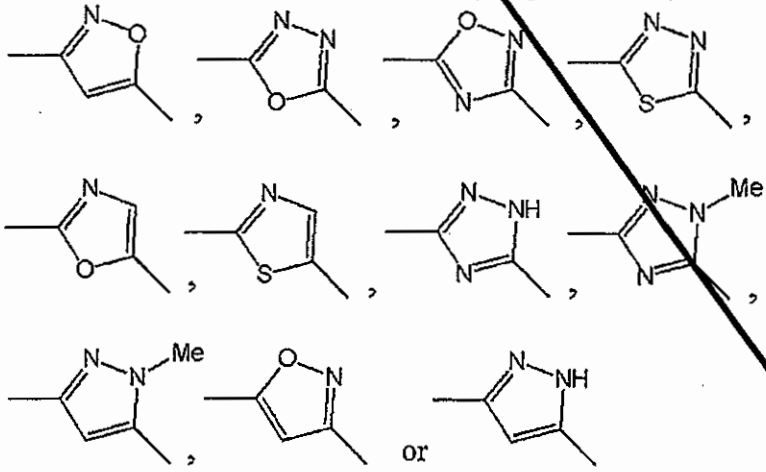
(2)

or



(3)

ring A represents either one of the rings represented by the following formula (4)



(4)

X represents $-(CH_2)_m-X_1-(CH_2)_n-$;

X_1 represents a bond, -O-, $-NR^aC(=O)-$, $-C(=O)NR^b-$, $-NR^cS(=O)_2-$, or $-S(=O)_2NR^d-$;

R^a, R^b, R^c, and R^d which may be the same or different each represent a hydrogen atom or a C_{1-6} alkyl group;

m and n which may be the same or different each represent an integer of 0-3;

R_2 represents an aryl group, a heteroaryl group (said aryl or heteroaryl group may be substituted by 1-3 substituent groups selected from the group consisting of a halogen atom, a C_{1-6} alkyl group, and a C_{1-6} alkoxy group (said C_{1-6} alkyl group or C_{1-6} alkoxy group may be

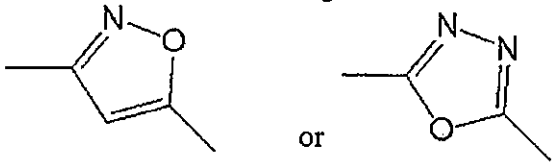
substituted by 1-3 substituent groups selected from the group consisting of a halogen atom and a hydroxy group)), a 1,3-benzodioxolanyl group, an indolyl group, a morpholyl group, a hydroxy group, a C_{1-6} alkyl group (said C_{1-6} alkyl group may be substituted by 1-2 hydroxy groups), an amino group, a mono-C_{1-6} alkylamino group, a di-C_{1-6} alkylamino group, a C_{1-6} alkoxy group, a C_{1-6} alkylsulfonyloxy group, a pyridonyl group, or a pyrimidinonyl group] or a pharmaceutically acceptable salt thereof.

2. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein X is a bond, $-CH_2O-$, $-CH_2-$, $-(CH_2)_2-$, $-(CH_2)_3-$, $-O-$, $-CH_2-NHC(=O)-$, $-CH_2-NHC(=O)-CH_2-$, or $-CH_2-NHS(=O)_2-$.

3. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein X is $-CH_2O-$ or $-CH_2-$.

4. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 3, wherein R_1 is formula (2).

5. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein ring A is either one of the rings of the following formula (5):



(5)

6. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein R_2 is a phenyl group, a pyridyl group, a pyridazinyl group or a pyrimidyl group (said phenyl group, pyridyl group or pyrimidyl group may be substituted by 1-3 halogen atoms or methoxy groups), a pyridonyl group, or a pyrimidinonyl group.

7. The compound or pharmaceutically acceptable salt thereof according to claim 6, wherein R_2 is a phenyl group or a pyridyl group (said phenyl group or pyridyl group may be substituted by 1-3 methoxy groups.)

8. The compound according to claim 1, which is (S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyridin-3-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((3,4,5-trimethoxyphenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-N-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)benzamide,

(S)-N-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)benzenesulfonamide,

(S)-1-(2-(5-((dimethylamino)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-3-(1-((cyclohexylmethyl)sulfonyl)pyrrolidin-2-yl)-5-(3,4-dimethoxyphenoxy)methyl)isoxazole,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-(phenoxymethyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)ethanone,

(S)-N-((5-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)-1,3,4-oxadiazol-2-yl)methyl)benzamide,

(S)-1-(2-(5-((dimethylamino)methyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(3-((3,4-dimethoxyphenoxy)methyl)-1,2,4-oxadiazol-5-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1-methyl-1H-pyrazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(3-((3,4-dimethoxyphenoxy)methyl)-isoxazol-5-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1H-pyrazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1,3.4-thiadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-4H-1,2,4-triazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1-methyl-1H-1,2,4-triazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)oxazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)thiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-(phenoxymethyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyrimidin-5-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-1-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)pyrimidin-4(1H)-one,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyrimidin-4-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-2,2-difluoro-1-(2-(5-((3-fluorophenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone, or

(S)-1-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)pyridin-4(1H)-one, or

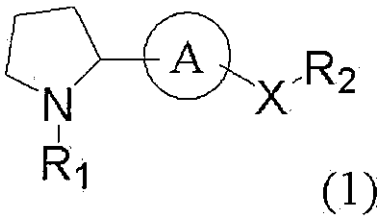
a pharmaceutically acceptable salt thereof.

9. A pharmaceutical comprising as an active ingredient the compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 8.

10. An agent for preventing or treating alopecia which comprises as an active ingredient the compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 8.

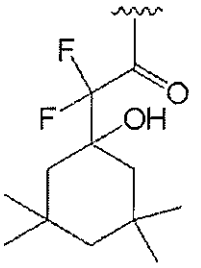
CLAIMS

1. A compound represented by formula (1)

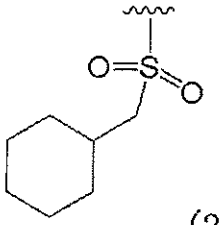


(1)

where R_1 represents either the following formula (2) or (3)

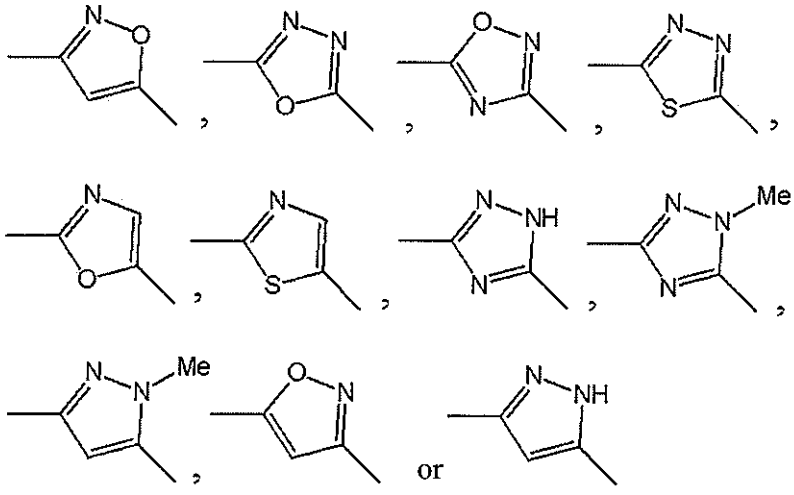


or



(2) (3)

ring A represents either one of the rings represented by the following formula (4)



(4)

X represents $-(CH_2)_m-X_1-(CH_2)_n-$;

X_1 represents a bond, -O-, $-NR^aC(=O)-$, $-C(=O)NR^b-$, $-NR^cS(=O)_2-$, or $-S(=O)_2NR^d-$;

R^a, R^b, R^c, and R^d which may be the same or different each represent a hydrogen atom or a C_{1-6} alkyl group;

m and n which may be the same or different each represent an integer of 0-3;

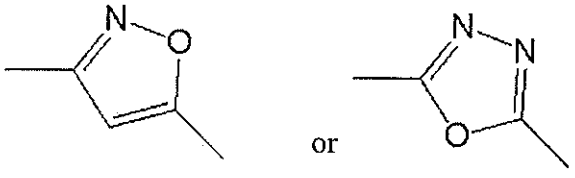
R_2 represents an aryl group, a heteroaryl group (said aryl or heteroaryl group may be substituted by 1-3 substituent groups selected from the group consisting of a halogen atom, a C_{1-6} alkyl group, and a C_{1-6} alkoxy group (said C_{1-6} alkyl group or C_{1-6} alkoxy group may be substituted by 1-3 substituent groups selected from the group consisting of a halogen atom and a hydroxyl group)), a 1,3-benzodioxolanyl group, an indolyl group, a morpholyl group, a hydroxyl group, a C_{1-6} alkyl group (said C_{1-6} alkyl group may be substituted by 1-2 hydroxyl groups), an amino group, a mono-C_{1-6} alkylamino group, a di-C_{1-6} alkylamino group, a C_{1-6} alkoxy group, a C_{1-6} alkylsulfonyloxy group, a pyridonyl group, or a pyrimidinonyl group] or a pharmaceutically acceptable salt thereof.

2. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein X is a bond, $-CH_2O-$, $-CH_2-$, $-(CH_2)_2-$, $-(CH_2)_3-$, $-O-$, $-CH_2-NHC(=O)-$, $-CH_2-NHC(=O)-CH_2-$, or $-CH_2-NHS(=O)_2-$.

3. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein X is $-CH_2O-$ or $-CH_2-$.

4. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 3, wherein R_1 is formula (2).

5. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein ring A is either one of the rings of the following formula (5):



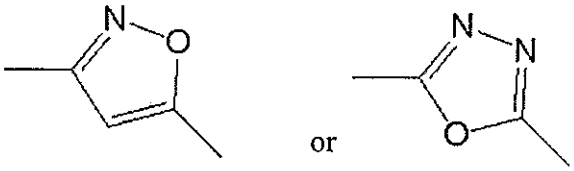
(5).

6. The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein R_2 is a phenyl group, a pyridyl group, a pyridazinyl group or a pyrimidyl group (said phenyl group, pyridyl group or pyrimidyl group may be substituted by 1-3 halogen atoms or methoxy groups), a pyridonyl group, or a pyrimidinonyl group.

7. The compound or pharmaceutically acceptable salt thereof according to claim 6, wherein R_2 is a phenyl group or a pyridyl group (said phenyl group or pyridyl group may be substituted by 1-3 methoxy groups.)

8. The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein R_1 is formula (2),

ring A is either one of the rings of the following formula (5):



(5)

X is $-CH_2O-$ or $-(CH_2)_2-$,

R_2 is a phenyl group or a pyridyl group (said phenyl group or pyridyl group may be substituted by 1-3 methoxy groups.)

9. The compound according to claim 1, which is

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyridin-3-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((3,4,5-trimethoxyphenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-N-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)benzamide,

(S)-N-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)benzenesulfonamide,

(S)-1-(2-(5-((dimethylamino)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-3-(1-((cyclohexylmethyl)sulfonyl)pyrrolidin-2-yl)-5-(3,4-dimethoxyphenoxy)methyl)isoxazole,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-(phenoxymethyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)ethanone,

(S)-N-((5-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)-1,3,4-oxadiazol-2-yl)methyl)benzamide,

(S)-1-(2-(5-((dimethylamino)methyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(3-((3,4-dimethoxyphenoxy)methyl)-1,2,4-oxadiazol-5-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1-methyl-1H-pyrazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(3-((3,4-dimethoxyphenoxy)methyl)-isoxazol-5-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1H-pyrazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1,3.4-thiadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-4H-1,2,4-triazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)-1-methyl-1H-1,2,4-triazol-3-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)oxazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)thiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-(phenoxymethyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyrimidin-5-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

(S)-1-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)pyrimidin-4(1H)-one,

(S)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyrimidin-4-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone,

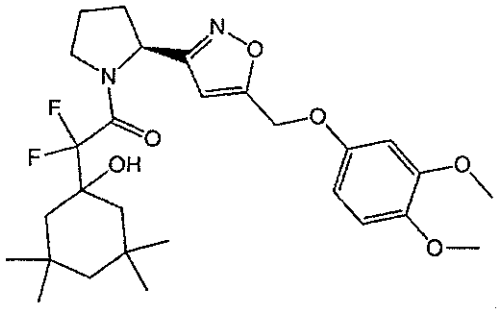
(S)-2,2-difluoro-1-(2-(5-((3-fluorophenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone, or

(S)-1-((3-(1-(2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)acetyl)pyrrolidin-2-yl)isoxazol-5-yl)methyl)pyridin-4(1H)-one, or

a pharmaceutically acceptable salt thereof.

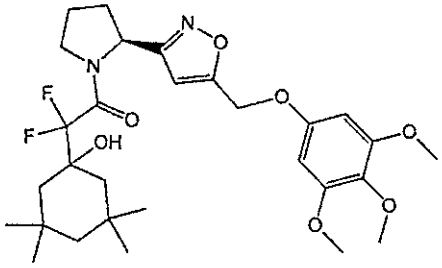
10. (S)-1-(2-(5-((3,4-dimethoxyphenoxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)-2,2-

difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone represented by the following formula or a pharmaceutically acceptable salt thereof.



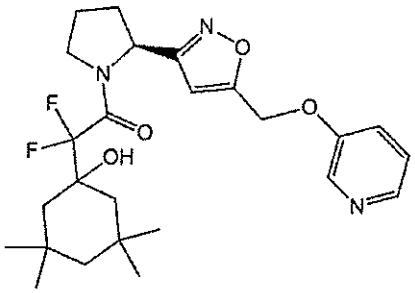
11. (S)-1-(2-(5-((3,4-Dimethoxyphenoxy)methyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)-2,2-difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)ethanone or a pharmaceutically acceptable salt thereof.

12. (S)-2,2-Difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((3,4,5-trimethoxyphenoxy)methyl)isoxaol-3-yl)pyrrolidin-1-yl)ethanone represented by the following formula or a pharmaceutically acceptable salt thereof.



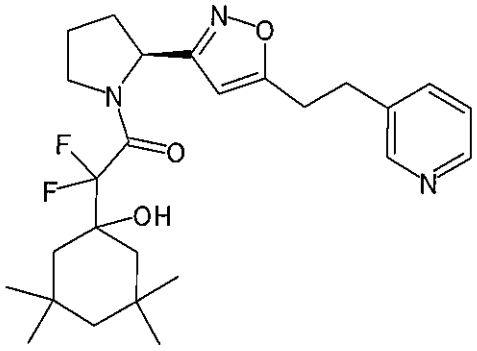
13. (S)-2,2-Difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-(phenoxymethyl)-1,3,4-oxadiazol-2-yl)pyrrolidin-1-yl)ethanone or a pharmaceutically acceptable salt thereof.

14. (S)-2,2-Difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyridin-3-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone represented by the following formula or a pharmaceutically acceptable salt thereof.



15. (S)-2,2-Difluoro-2-(1-hydroxy-3,3,5,5-tetramethylcyclohexyl)-1-(2-(5-((pyridin-4-yloxy)methyl)isoxazol-3-yl)pyrrolidin-1-yl)ethanone or a pharmaceutically acceptable salt thereof.

16. A compound represented by the following formula or a pharmaceutically acceptable salt thereof:



17. A pharmaceutical comprising as an active ingredient the compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 16.

18. An agent for preventing or treating alopecia which comprises as an active ingredient the compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 16.