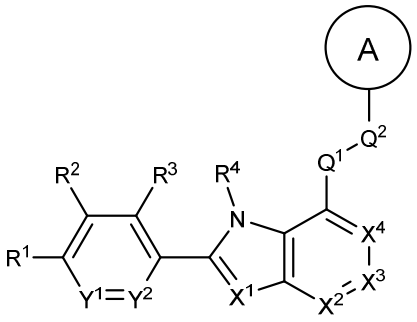
Claims

[Claim 1]

A compound expressed by general formula (I):

[Chem. Fig. 1]



(I)

[where

R^1 is an optionally substituted 5-membered heteroaryl group, an optionally substituted 5- to 6-membered non-aromatic heterocyclic group, an optionally substituted pyridonyl group, -C (=O)-NR^aR^b, or -NR^c-C(=O)R^d, where R^a, R^b, R^c, and R^d each independently represents a hydrogen atom or a C_1-C_6 alkyl group;

R^2 is a hydrogen atom, an optionally substituted C_1-C_6 alkyl group, or an optionally substituted C_1-C_6 haloalkyl group;

or R^1 and R^2 may together with the carbon atoms to which they are attached form an optionally substituted 5- to 6-membered non-aromatic heterocyclic group;

R^3 is a hydrogen atom, an optionally substituted C_1-C_6 alkyl group, or an optionally substituted C_1-C_6 haloalkyl group;

R^4 is a hydrogen atom, an optionally substituted C_1-C_6 alkyl group, an optionally substituted C_1-C_6 haloalkyl group, an optionally substituted C_1-C_3 alkoxy-C_2-C_6 alkyl group, an optionally substituted C_1-C_3 haloalkoxy-C_2-C_6 alkyl group, or an optionally substituted C_3-C_6 cycloalkyl-C_1-C_6 alkyl group;

Q^1 is C(=O) or CH_2;

Q^2 is NH or O;

X^1 is N or CR^5, where R^5 is a hydrogen atom or a halogen atom;

X^2, X^3, and X^4 are each independently N or CR^6, where R^6 is a hydrogen atom, a halogen atom, a cyano group, an optionally substituted C_1-C_6 alkyl group, an optionally substituted C_1-C_6 haloalkyl group, an optionally substituted hydroxy-C_1-C_6 alkyl group, an optionally substituted cyano-C_1-C_6 alkyl group, an optionally substituted C_3-C_6 cycloalkyl group, an optionally substituted C_1-C_6 alkoxy-C_1-C_6 alkyl group, an optionally substituted C_2-C_6 alkenyl group, an optionally substituted C_2-C_6 alkynyl group, or an optionally substituted phenyl group;

Y^1 and Y^2 are each independently N or CR^7, where R^7 is a hydrogen atom, an optionally substituted C_1-C_6 alkyl group, or an optionally substituted C_1-C_6 haloalkyl group; and

ring A is an optionally substituted phenyl group or an optionally substituted 5- to 6-membered heteroaryl group, where the phenyl group or the 5- to 6-membered heteroaryl group may be further fused with another ring to form an optionally substituted 8-to 10-membered fused ring.]

or a pharmaceutically acceptable salt thereof.

[Claim 2]

The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein in general formula (I), Q^1 is C(=O) and Q^2 is NH.

[Claim 3]

The compound or pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, in general formula (I), X^1, X^2, and X^4 are each independently CH or N.

[Claim 4]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 3, wherein in general formula (I),

(i) X^1 is CH, X^2 is CH, and X^4 is CH;

(ii) X^1 is N, X^2 is CH, and X^4 is CH; or

(iii) X^1 is CH, X^2 is CH, and X^4 is N.

[Claim 5]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein in general formula (I), Y^1 and Y^2 are each independently CH or N.

[Claim 6]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein in general formula (I),

(i) Y^1 is CH and Y^2 is CH;

(ii) Y^1 is N and X^2 is CH; or

(iii) Y^1 is CH and Y^2 is N.

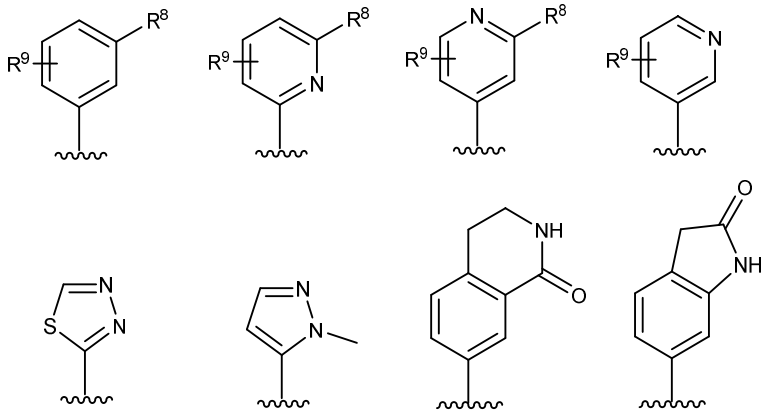
[Claim 7]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 6, wherein in the general formula (I), ring A is an optionally substituted phenyl group, an optionally substituted pyridinyl group, an optionally substituted pyrazolyl group or an optionally substituted thiadiazolyl group.

[Claim 8]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 7, wherein in general formula (I), ring A is a ring selected from a group consisting of rings expressed by the following formula

[Chem. Fig. 2]



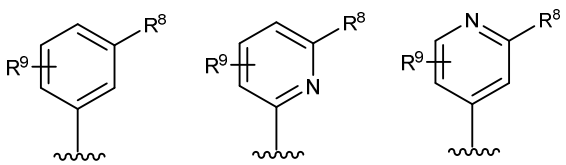
(wherein R^8 is a hydrogen atom, a cyano group, a hydroxyl group, an amino group, a methanesulfonylamino group, a sulfonamide group, a C_1-C_6 alkyl group, a C_1-C_6 haloalkyl group, a hydroxy-C_1-C_6 alkyl group, a C_1-C_6 alkoxy group, a C_1-C_6 alkoxy-C_1-C_6 alkyl group, a C_1-C_6 alkylcarbonyl group, an amino-C_1-C_6 alkyl group, an N-acetylamino-C_1-C_6 alkyl group, a C_1-C_6 alkylcarbamoyl group, an N-methyl-C_1-C_6 alkylcarbamoyl group, an imidazolyl group, a thiazolyl group, or a -C(=O)NHR^e group, where R^e is a C_1-C_6 alkyl group which may be substituted with a hydrogen atom or a cyano group, a C_1-C_6 alkylcarbonyl group optionally substituted with a dimethylamino group, or an optionally substituted 5- to 6-membered heteroaryl group; and

R^9 is a hydrogen atom, a halogen atom, or a C_1-C_6 alkyl group.)

[Claim 9]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 7, wherein in general formula (I), ring A is a ring selected from a group consisting of rings expressed by the following formula

[Chem. Fig. 3]

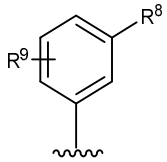


wherein R^8 and R^9 are as defined in claim 8.)

[Claim 10]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 7, wherein in general formula (I), ring A is a ring selected from a group consisting of rings expressed by the following formula

[Chem. Fig. 4]

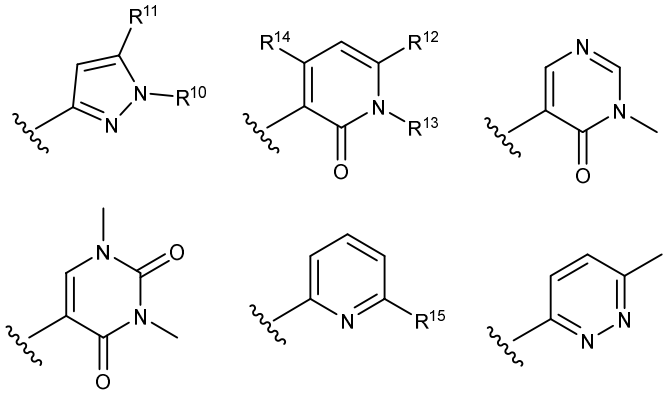


[where

R^8 is a hydrogen atom, a cyano group, a C_1-C_6 alkyl group, an imidazolyl group, a thiazolyl group or a -C(=O)-NHR^{e}group; and

R^e is a hydrogen atom, a C_{16} alkyl group which may be substituted with a cyano group, a C_{16} alkylcarbonyl group which may be substituted with a dimethylamino group, or a ring selected from rings expressed by the following formula:

[Chem. Fig. 5]



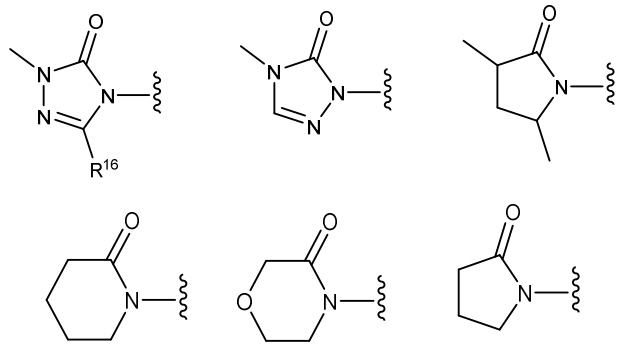
{where R^{10} is a hydrogen atom, a C_1-C_6 alkyl group optionally substituted with a cyano group, a C_1-C_6 alkyl group optionally substituted with a C_3-C_6cycloalkyl group, a C_1-C_6 alkoxy-C_1-C_6 alkylcarbonyl group, or a C_3-C_6 cycloalkyl group; R^{11} is a hydrogen atom, a halogen atom, or a cyano group; R^{12} is a hydrogen atom or C_1-C_6 alkyl group; R^{13} is a hydrogen atom, a C_1-C_6 alkyl group, or a C_1-C_6 alkyl group optionally substituted with a halogen atom; R^{14} is a hydrogen atom or a C_1-C_6 alkyl group; and R^{15} is a hydrogen atom, C_1-C_6 alkyl group, or a C_1-C_6 alkoxy-C_1-C_6 alkyl group}].

[Claim 11]

The compound or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 10, wherein in general formula (I),

R^1 is a ring selected from a group consisting of rings expressed by the following formula

[Chem. Fig. 6]



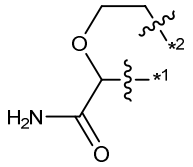
{where,

R^{16} is a hydrogen atom, a C_1-C_6 alkyl group, or a C_1-C_6 haloalkyl group}

a -C(=O-NR^aR^b group, or an -NR^c -C(= O)R^d group, where R^a, R^b, R^c, and R^d are each independently a hydrogen atom or a C_1-C_6 alkyl group;

or R^{12} together with the carbon atom to which they are attached form a ring expressed by the formula

[Chem. Fig. 7]



{where,

*1 is a carbon atom to which R^1 is bonded,

*2 is a carbon atom to which R^2 is bonded}.

[Claim 12]

The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 11, wherein in general formula (I),

R^4 is a C_1-C_6 alkyl group, C_1-C_6 haloalkyl group, C_1-C_3 alkoxy-C_2-C_6 alkyl group, C_1-C_3 haloalkoxy-C_2-C_6 alkyl group, or a C_3-C_6 cycloalkyl-C_1-C_6 alkyl group which may be substituted with a cyano group.

[Claim 13]

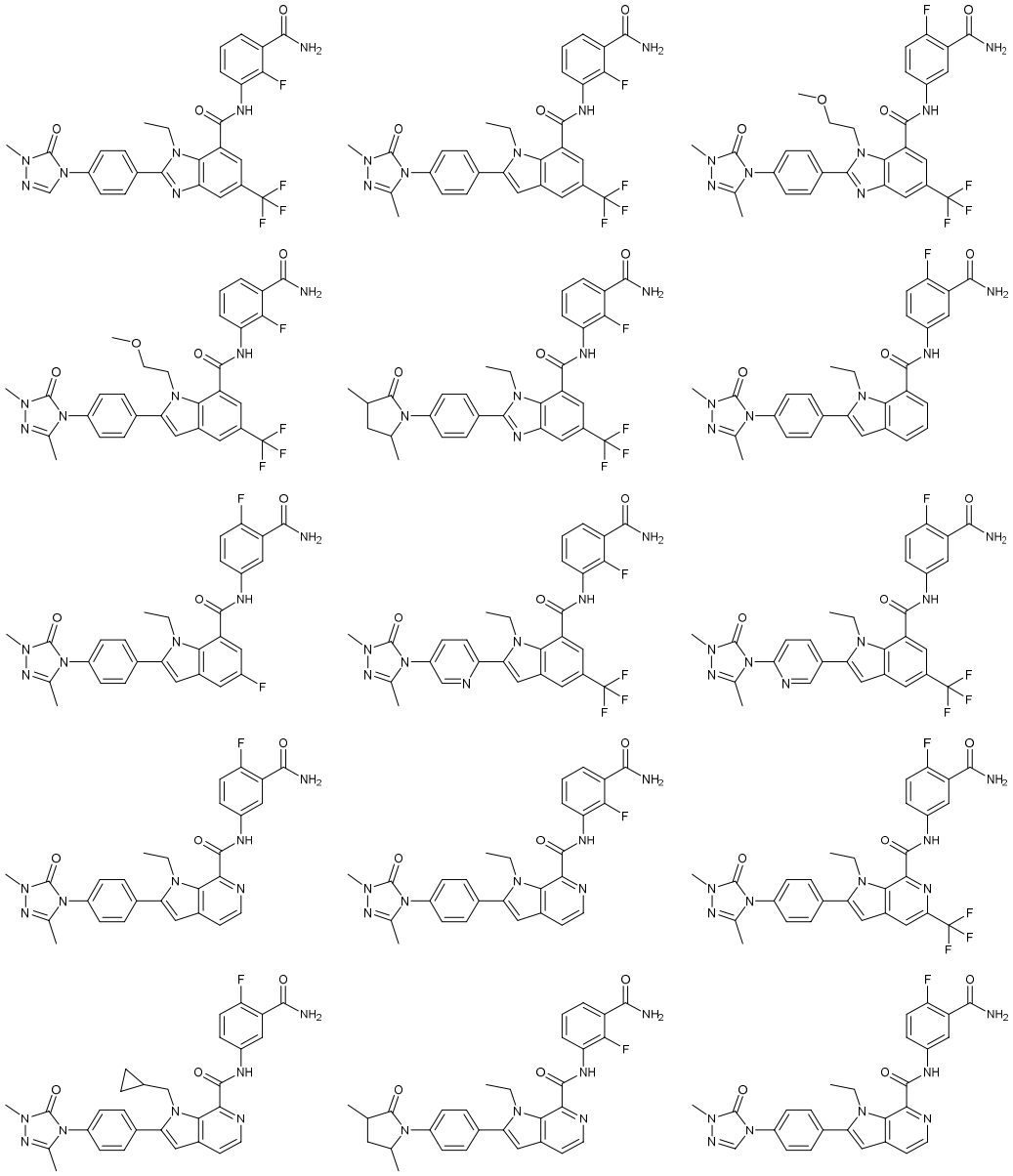
The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 12, wherein in general formula (I),

X^2 is a CH group, and X^3 is a CR^6 group, where R^6 is a hydrogen atom, a halogen atom, a cyano group, a C_1-C_6 alkyl group, a C_1-C_6 haloalkyl group, a hydroxy-C_1-C_6 alkyl group, a cyano-C_1-C_6 alkyl group, a C_3-C_6 cycloalkyl group, a C_1-C_6 alkoxy-C_1-C_6 alkyl group, a C_1-C_6 alkenyl group, a C_1-C_6 alkynyl group, or a phenyl group.

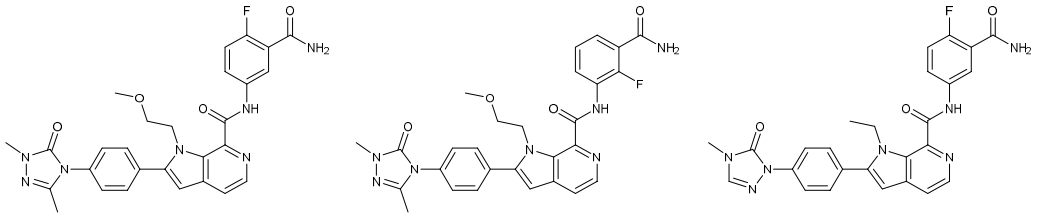
[Claim 14]

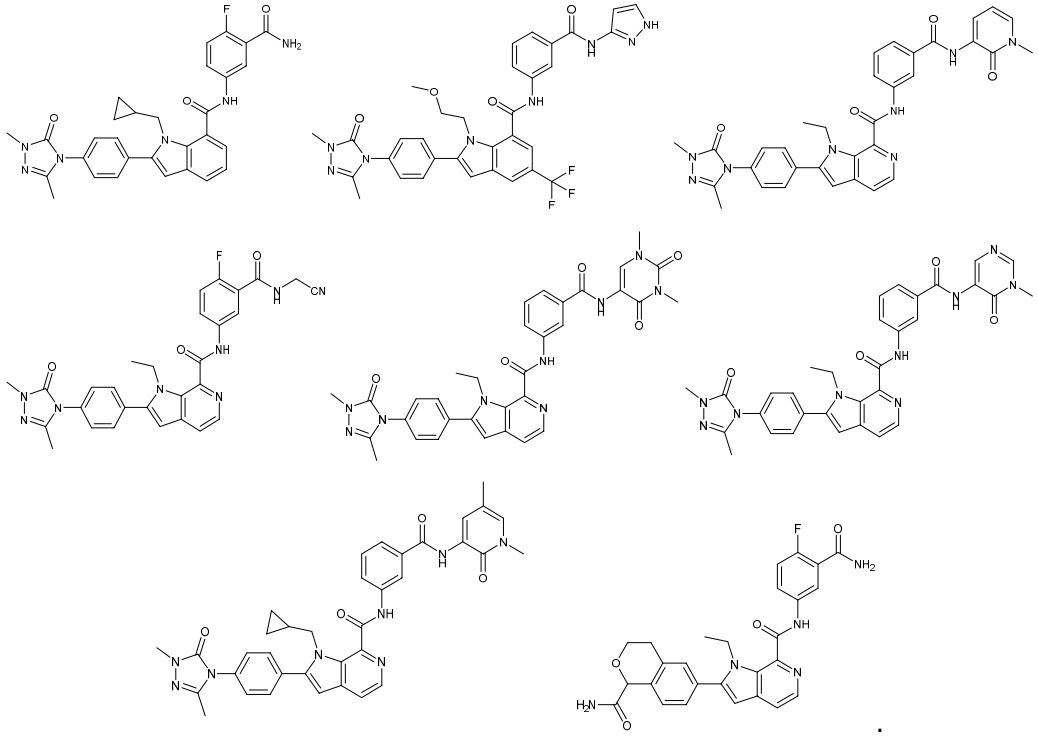
The compound or pharmaceutically acceptable salt thereof according to claim 1, wherein the compound expressed by general formula (I) is either:

[Chem. Fig. 8]



[Chem. Fig. 9]





[Claim 15]

A medicament, comprising the compound according to any one of claims 1 to 14 or a pharmaceutically acceptable salt thereof as an active ingredient.

[Claim 16]

Use of the compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 14 in the manufacture of a prophylactic or therapeutic agent for treating diseases associated with STAT6.

[Claim 17]

The use according to claim 16, wherein the diseases associated with STAT6 are allergic and inflammatory diseases.

[Claim 18]

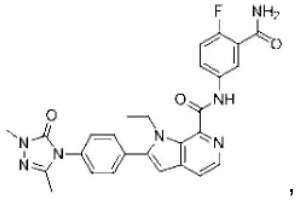
The use according to claim 16 or 17, wherein the diseases associated with STAT6 are one or more diseases selected from the group consisting of chronic obstructive pulmonary disease, atopic dermatitis, bronchial asthma, bullous pemphigoid, nasal polyps, chronic rhinosinusitis, allergic rhinitis, eosinophilic esophagitis, prurigo, and urticaria.

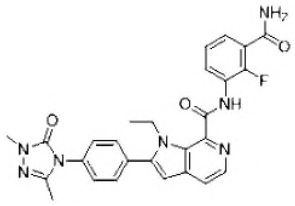
[Claim 19]

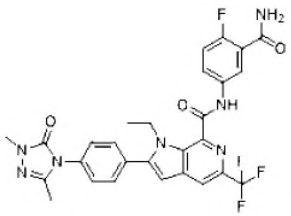
The compound or pharmaceutically acceptable salt thereof according to any one of claims 1 to 14 for use in therapy.

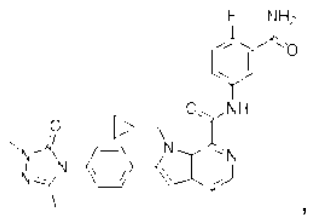
[Claim 20]

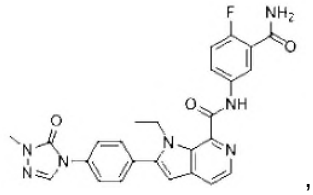
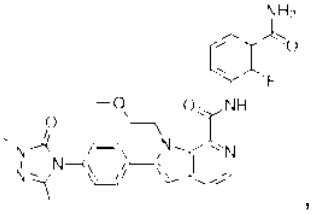
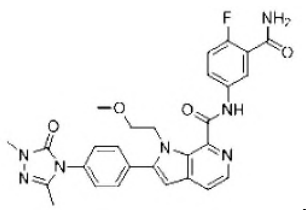
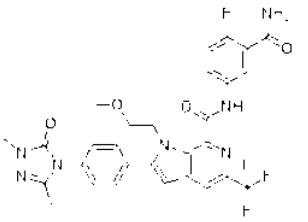
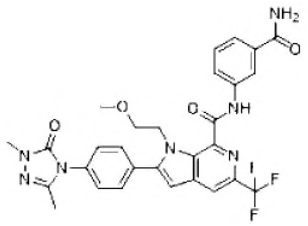
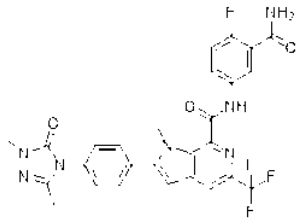
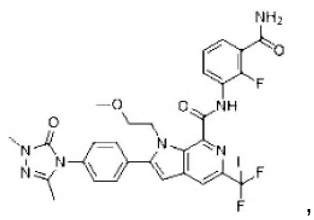
A compound selected from the group consisting of:

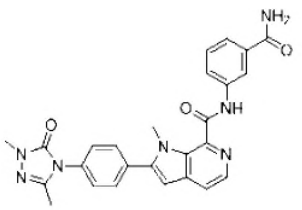

,

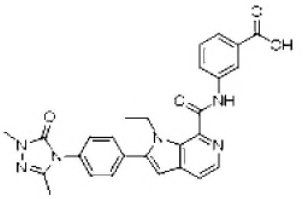

,

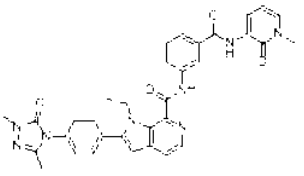

,

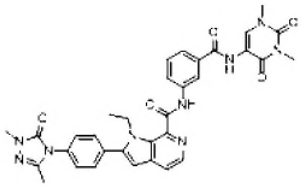

,

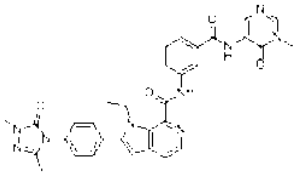

,

,

,

,

5 ,

,

,

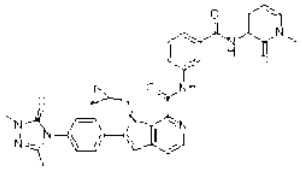

,

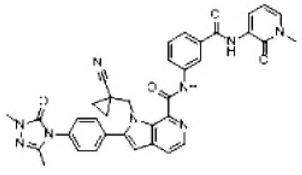

,


,


,


,

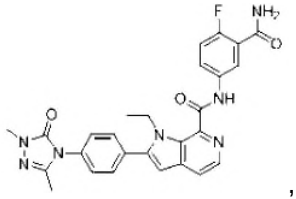

, and

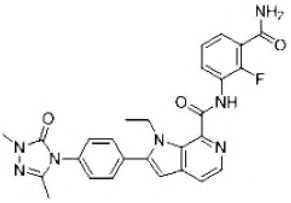

,

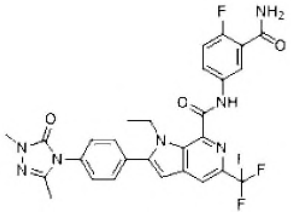
or a pharmaceutically acceptable salt thereof.

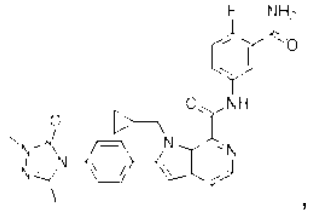
[Claim 21]

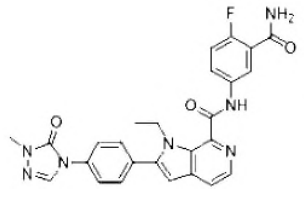
The compound of claim 20, wherein the compound is selected from the group consisting of:

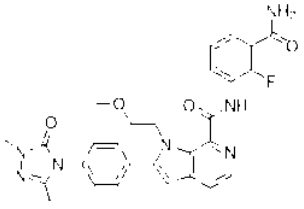

,

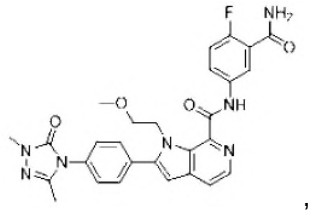
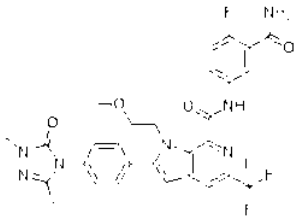
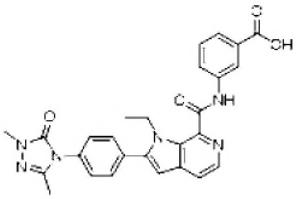
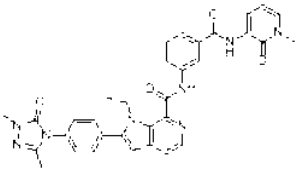
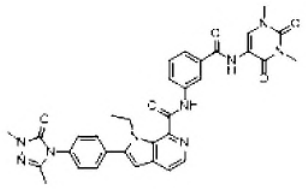
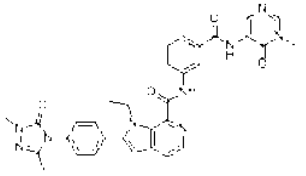

,


,


,


,

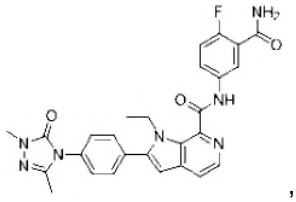

,


,

,

,

,

, and

,

or a pharmaceutically acceptable salt thereof.

[Claim 22]

The compound of claim 21, wherein the compound is:

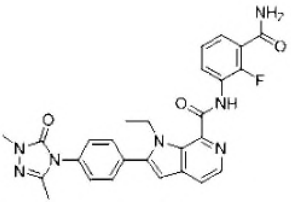


,

or a pharmaceutically acceptable salt thereof.

[Claim 23]

The compound of claim 21, wherein the compound is:

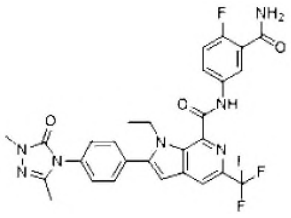


,

or a pharmaceutically acceptable salt thereof.

[Claim 24]

The compound of claim 21, wherein the compound is:

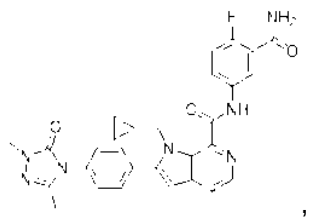


,

or a pharmaceutically acceptable salt thereof.

[Claim 25]

The compound of claim 21, wherein the compound is:

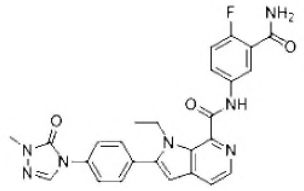


,

or a pharmaceutically acceptable salt thereof.

[Claim 26]

The compound of claim 21, wherein the compound is:

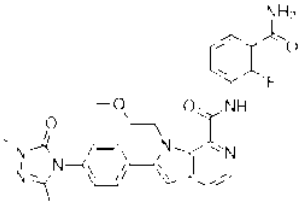


,

or a pharmaceutically acceptable salt thereof.

[Claim 27]

The compound of claim 21, wherein the compound is:

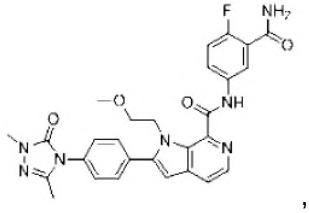


,

or a pharmaceutically acceptable salt thereof.

[Claim 28]

The compound of claim 21, wherein the compound is:

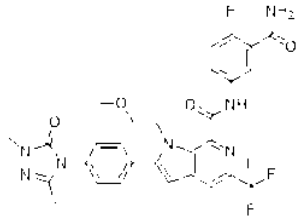


,

or a pharmaceutically acceptable salt thereof.

[Claim 29]

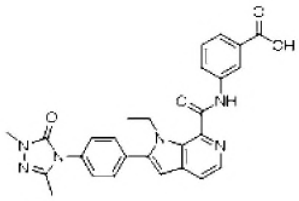
The compound of claim 21, wherein the compound is:


,

or a pharmaceutically acceptable salt thereof.

[Claim 30]

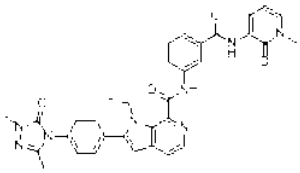
The compound of claim 21, wherein the compound is:


,

or a pharmaceutically acceptable salt thereof.

[Claim 31]

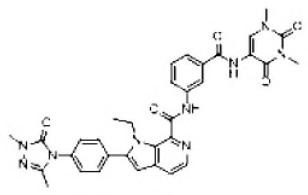
The compound of claim 21, wherein the compound is:


,

or a pharmaceutically acceptable salt thereof.

[Claim 32]

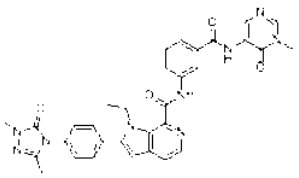
The compound of claim 21, wherein the compound is:


,

or a pharmaceutically acceptable salt thereof.

[Claim 33]

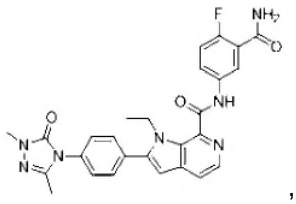
The compound of claim 21, wherein the compound is:

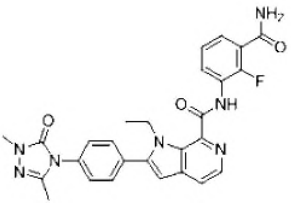

,

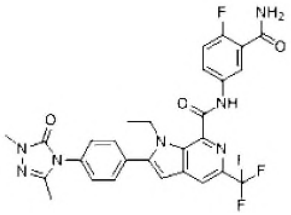
or a pharmaceutically acceptable salt thereof.

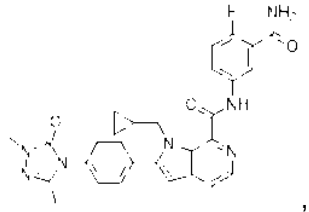
[Claim 34]

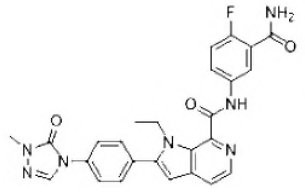
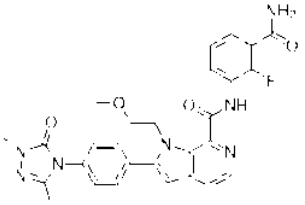
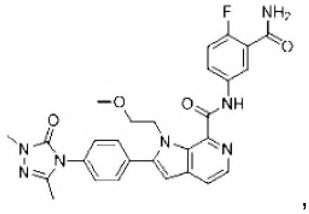
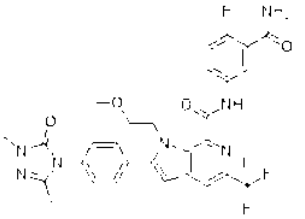
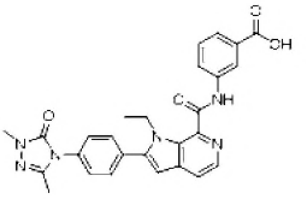
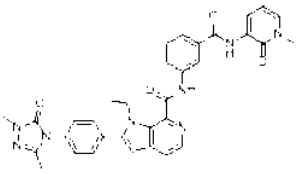
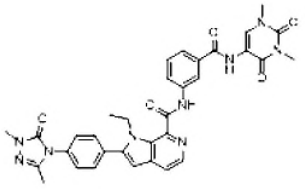
The compound of claim 20, wherein the compound is selected from the group consisting of:

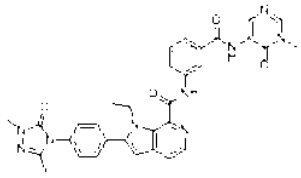

,


,


,

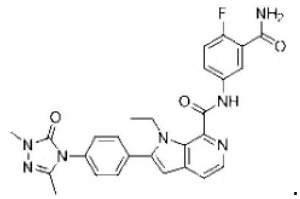

,


,

,

,

,

,

,

, and


.

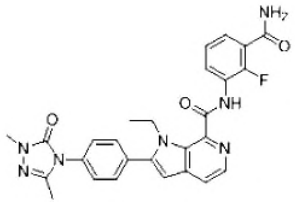
[Claim 35]

The compound of claim 34, wherein the compound is:


.

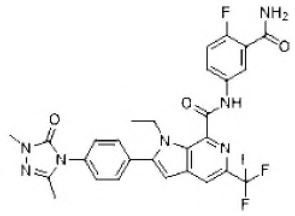
[Claim 36]

The compound of claim 34, wherein the compound is:


.

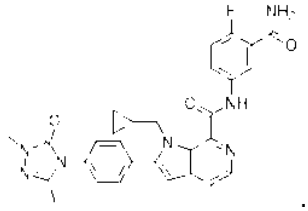
[Claim 37]

The compound of claim 34, wherein the compound is:


.

[Claim 38]

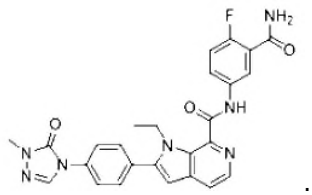
The compound of claim 34, wherein the compound is:



.

[Claim 39]

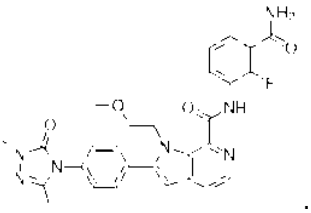
The compound of claim 34, wherein the compound is:



.

[Claim 40]

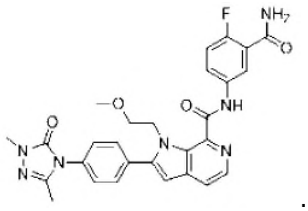
The compound of claim 34, wherein the compound is:



.

[Claim 41]

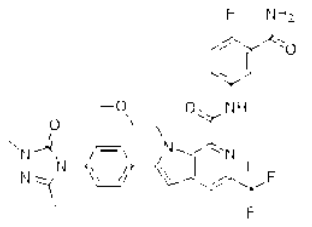
The compound of claim 34, wherein the compound is:



.

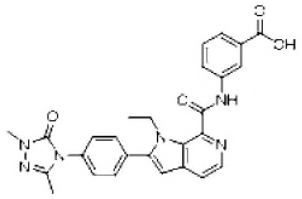
[Claim 42]

The compound of claim 34, wherein the compound is:


.

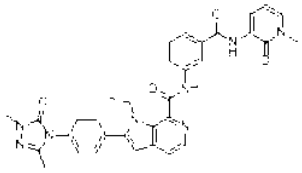
[Claim 43]

The compound of claim 34, wherein the compound is:


.

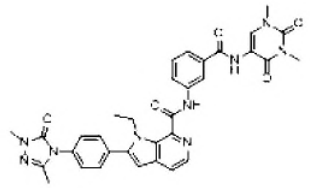
[Claim 44]

The compound of claim 34, wherein the compound is:


.

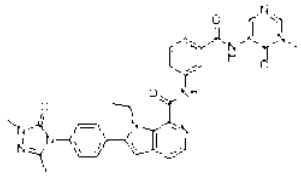
[Claim 45]

The compound of claim 34, wherein the compound is:


.

[Claim 46]

The compound of claim 34, wherein the compound is:



.

[Claim 47]

A medicament comprising the compound according to claim 20, or a pharmaceutically acceptable salt thereof, with a pharmaceutically acceptable carrier.

[Claim 48]

A medicament comprising the compound according to claim 21, or a pharmaceutically acceptable salt thereof, with a pharmaceutically acceptable carrier.

[Claim 49]

A medicament comprising the compound according to claim 34 with a pharmaceutically acceptable carrier.