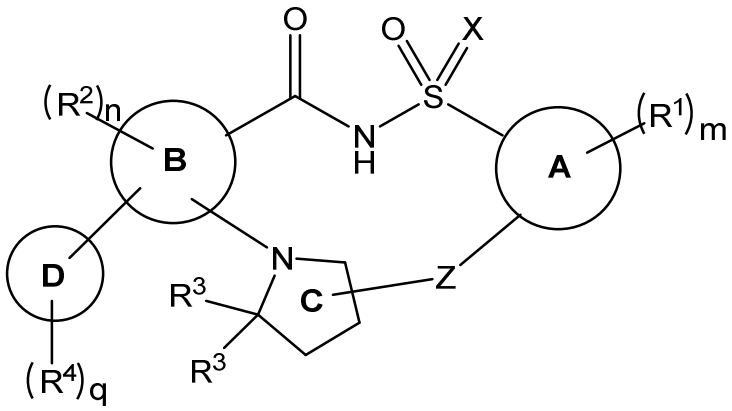
CLAIMS

1. A compound of Formula I:



(I),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

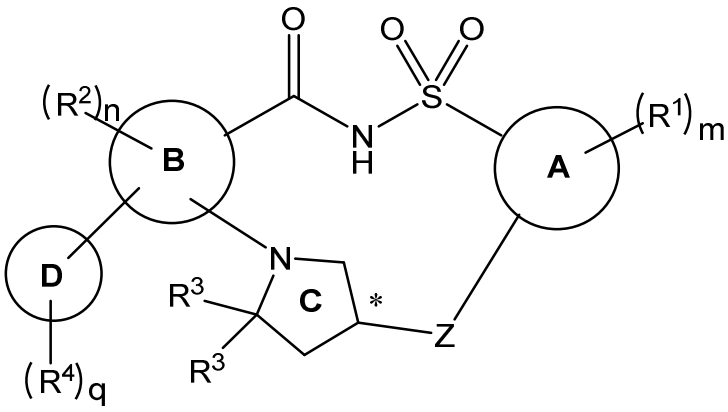
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- Ring B is a pyridinyl ring;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- X is O, NH, or an N(C1-C4 alkyl);
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the

atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; wherein:

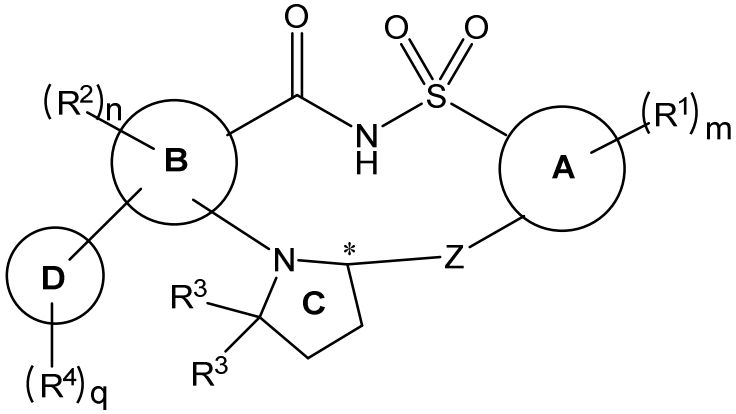
- k is 0, 1, 2, 3, 4, 5, or 6;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;

- q is 1, 2, 3 or 4; and
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 1, 2, 3, 4, 5, or 6;
  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
    - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

2. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula ~~(~~I~~)~~ is a compound of Formula ~~(~~II-A~~)~~ or ~~(~~II-B~~)~~:



(II-A) or



(II-B),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

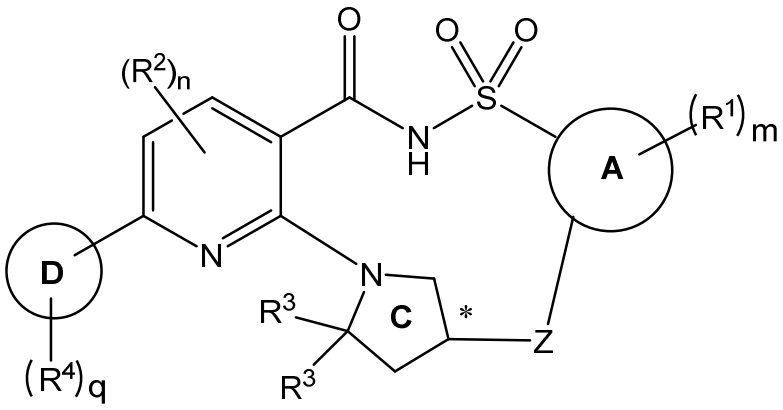
wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- Ring B is a pyridinyl ring;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6-membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;

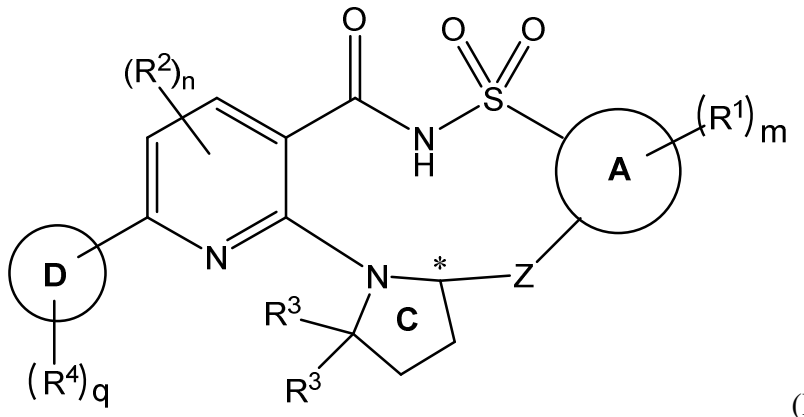
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, a hydroxyl group, an oxo group, a cyano group, and- $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
  - R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1, 2, 3, or 4;
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 1, 2, 3, 4, 5, or 6;

- each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups , wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
  - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, C_1-C_2 haloalkyl- groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

3. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula ~~(~~III-A~~)~~ or ~~(~~III-B~~)~~:



(III-A) or



(III-B),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;

- ~~Ring B is a pyridinyl ring;~~
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and

- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;

- q is 1 or 2;

- Z is a divalent linker of formula $(L)_r$, wherein:

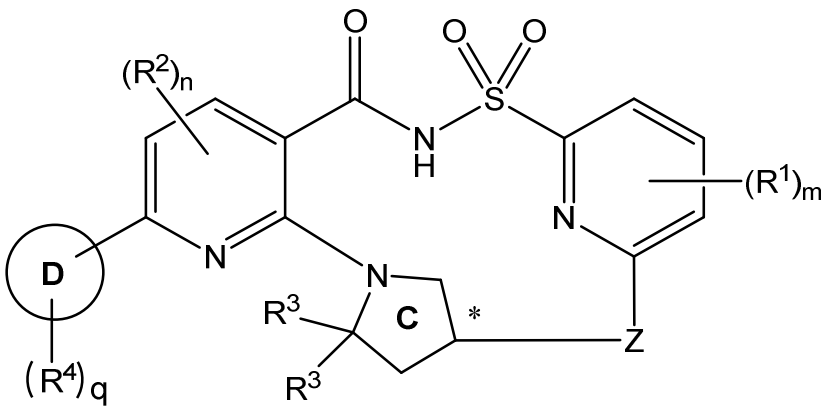
  - r is 3, 4, or 5;

  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and –NR^b– groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:

    - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and

    - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

4. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula IV-A:



(IV-A)

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;

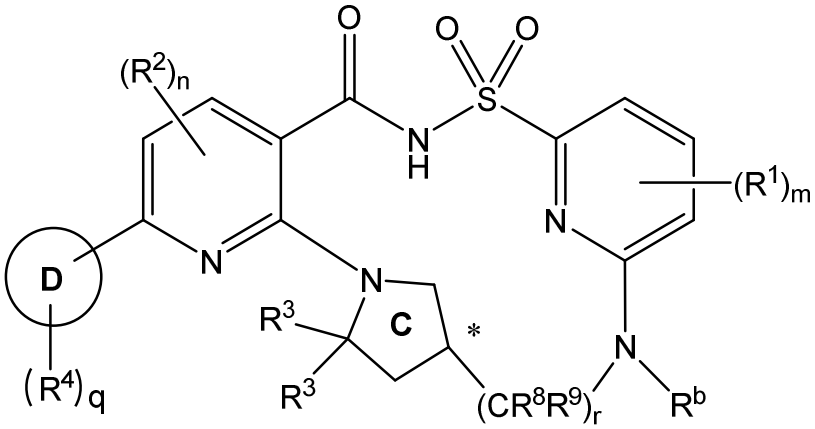
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;

~~- X is O, NH, or an N(C_1-C_4-alkyl);~~

- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and- $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
  - R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1 or 2;

- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 3, 4, or 5;
  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
    - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

5. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula IV-B:



(IV-B),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

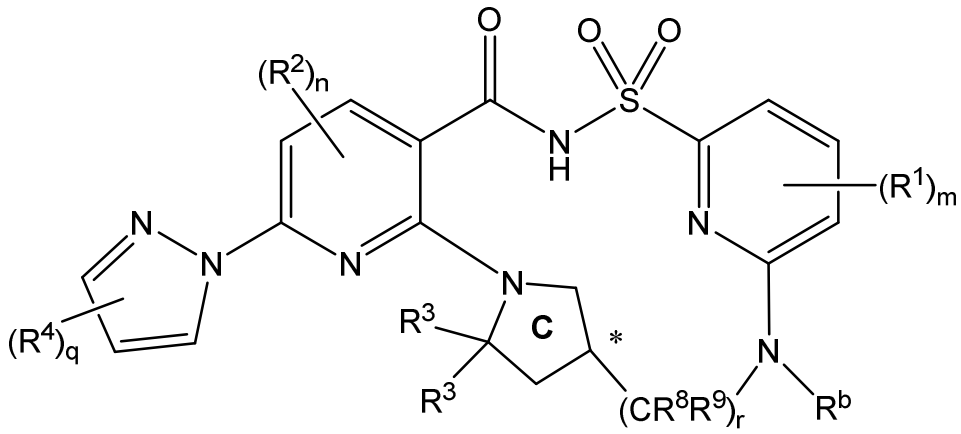
wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;

- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and— $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
  - R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1 or 2;
- r is 3 or 4;
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and

- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

6. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula IV-C:



(IV-C),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

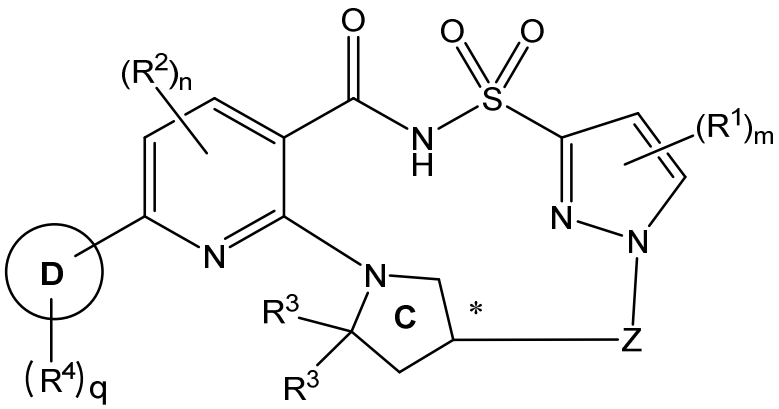
wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:

- k is 0, 1, 2, 3, 4, 5, or 6;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;

- q is 1 or 2;
- r is 3 or 4;
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

7. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula V-A:



(V-A)

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

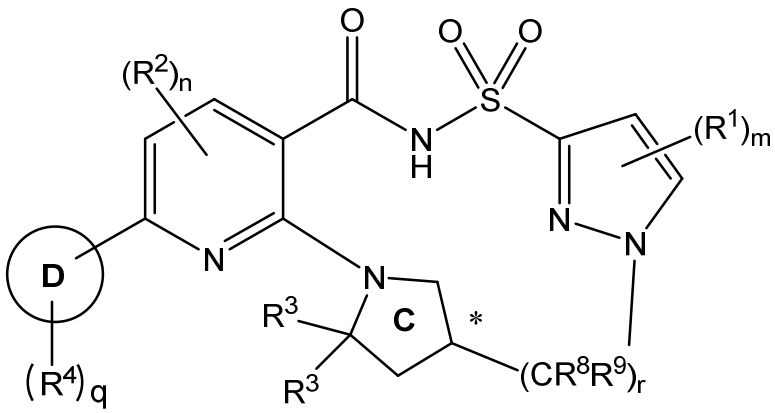
wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;

- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;

- q is 1 or 2;
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 3, 4, or 5;
  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
    - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

8. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula V-B:



(V-B),

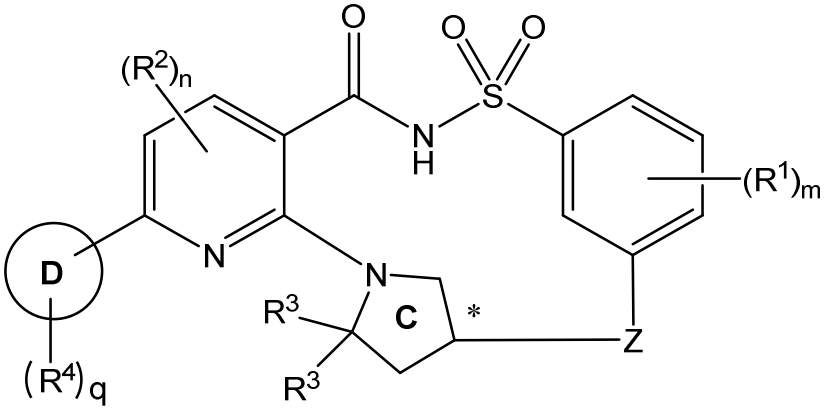
a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

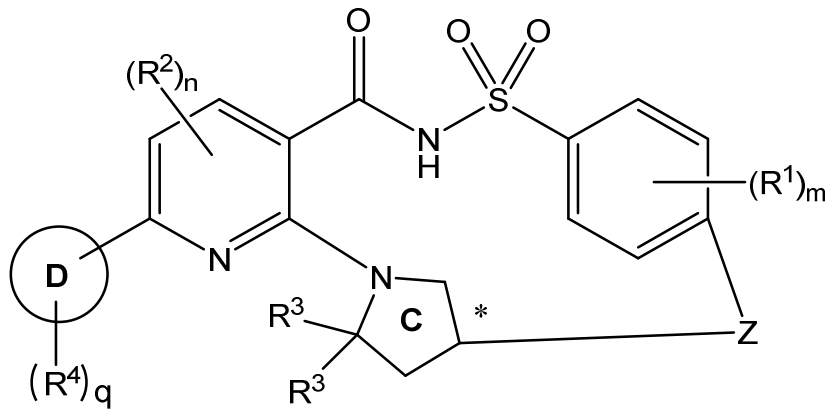
- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;

- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1 or 2;
- r is 3, 4, or 5; and
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups.

9. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula VI-A or VI-B:



(VI-A) or



(VI-B),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

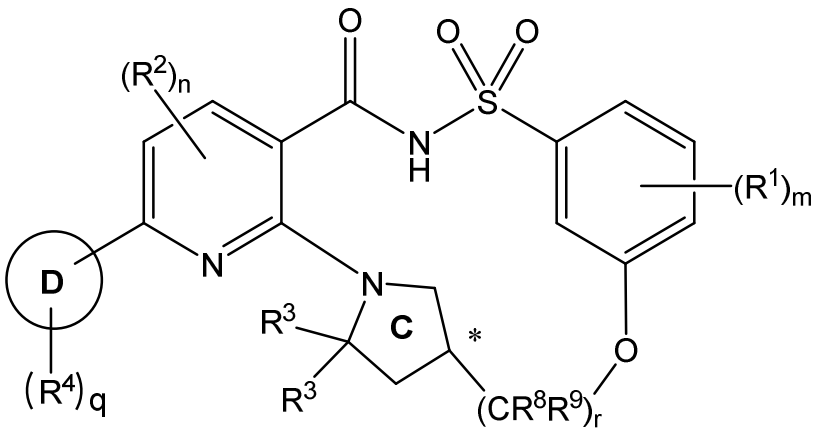
wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;

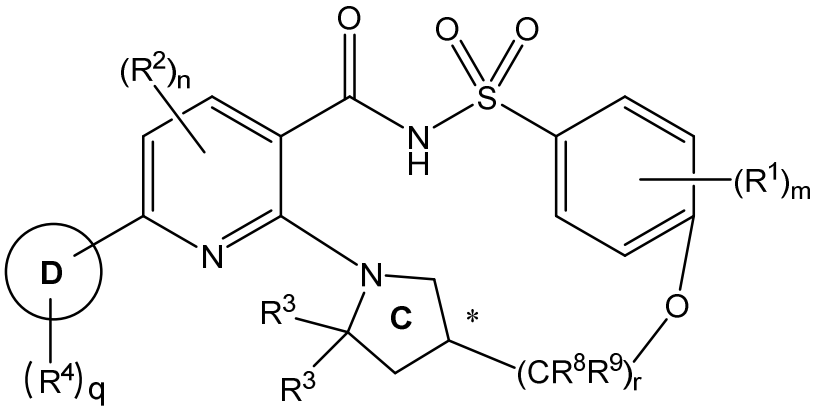
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;

- q is 1 or 2;
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 3, 4, or 5;
  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
    - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

10. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein the compound of Formula I is a compound of Formula VI-C or VI-D:



(VI-C) or



(VI-D),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

- the carbon denoted by * has S-stereochemistry or R-stereochemistry;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- ~~X is O, NH, or an N(C_1-C_4 alkyl);~~
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;

- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
  - R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1 or 2;
- r is 3 or 4; and
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups.

11. The compound of claim 1 ~~any one of claims 1-3~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring A is a phenyl ring, a pyridyl ring, or a pyrazolyl ring, wherein Ring A is optionally substituted with $(R^1)_m$.

12. The compound of claim 1 ~~any one of claims 1-11~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^1 is independently chosen from deuterium, C_1-C_2 alkyl groups, and a hydroxyl group, and m is 0 or 1.

13. The compound of claim 1 ~~any one of claims 1-11~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein n is 0.

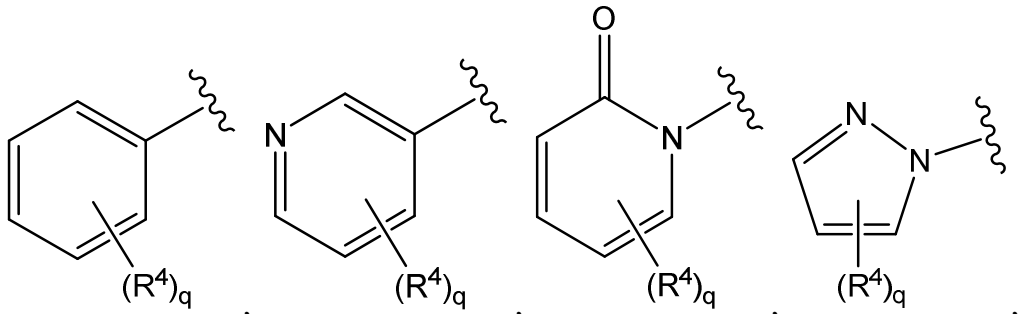
14. The compound of claim 1 or claim 5 ~~any one of claims 1-5, and 7-10~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is a 5-membered heteroaryl ring substituted with $(R^4)_q$.

15. The compound of claim 1, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is a phenyl ring, pyridinyl ring, pyrazolyl ring, imidazolidinone ring, a pyrrolidinone ring, or a pyridinone ring, wherein Ring D is substituted with $(R^4)_q$.

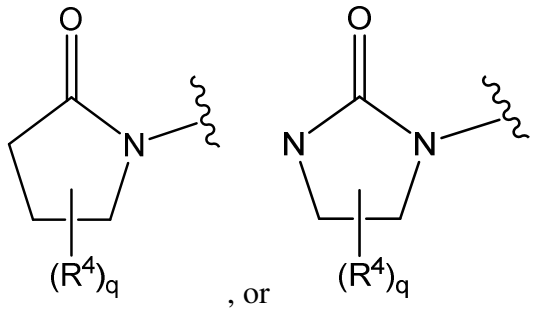
16. The compound of claim 1 or claim 5 ~~claim 2~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is a pyrazolyl ring, or a pyridinone ring, wherein Ring D is substituted with $(R^4)_q$.

17. The compound of claim 3 ~~any one of claims 3-5 and 7-10~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is a pyrazolyl ring, ~~,~~ wherein Ring D is substituted with $(R^4)_q$.

18. The compound of claim 1 ~~any one of claims 1-5 and 7-10~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is



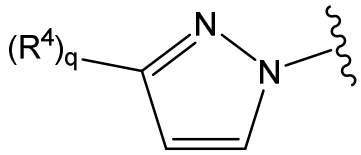
, , , , ,



, or ,

wherein  indicates the point of attachment of Ring D to Ring B .

19. The compound of claim 1 or claim 5 ~~claim 18~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is



,

wherein  indicates the point of attachment of Ring D to Ring B .

~~20. The compound of any one of claims 1-19, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^4 is independently chosen from an oxo group or $-(Y)_k-R^7$ groups, wherein:~~

~~- k is 0, 1, 2, 3, 4, 5, or 6;~~

~~- each Y is independently chosen from $C(R^5)(R^6)$ groups, $-O-$, and $-NR^a-$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, and wherein:~~

~~- each R^5 and R^6 is independently chosen from hydrogen, deuterium, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl~~

~~groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;~~

~~- each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and~~

~~- each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and~~

~~- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens.~~

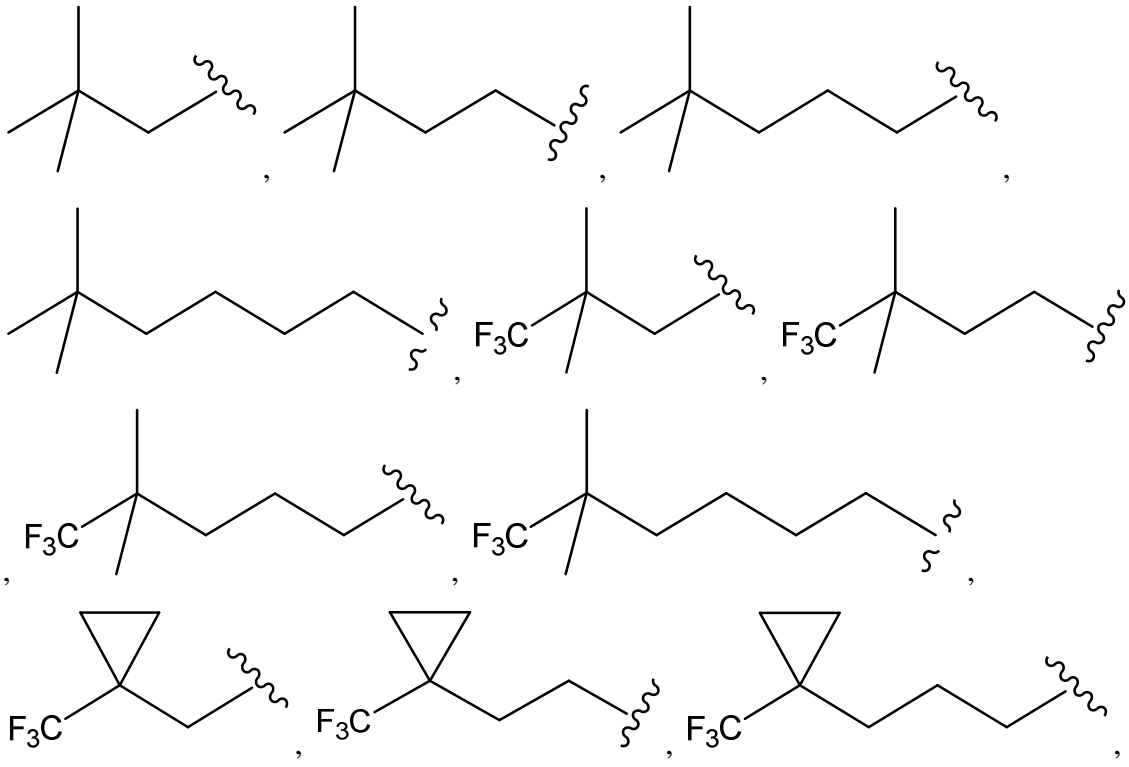
20~~21~~. The compound of claim 19 ~~any one of claims 1-20~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^4 is independently chosen from an oxo group or $-(Y)_k$-R^7 groups, wherein:

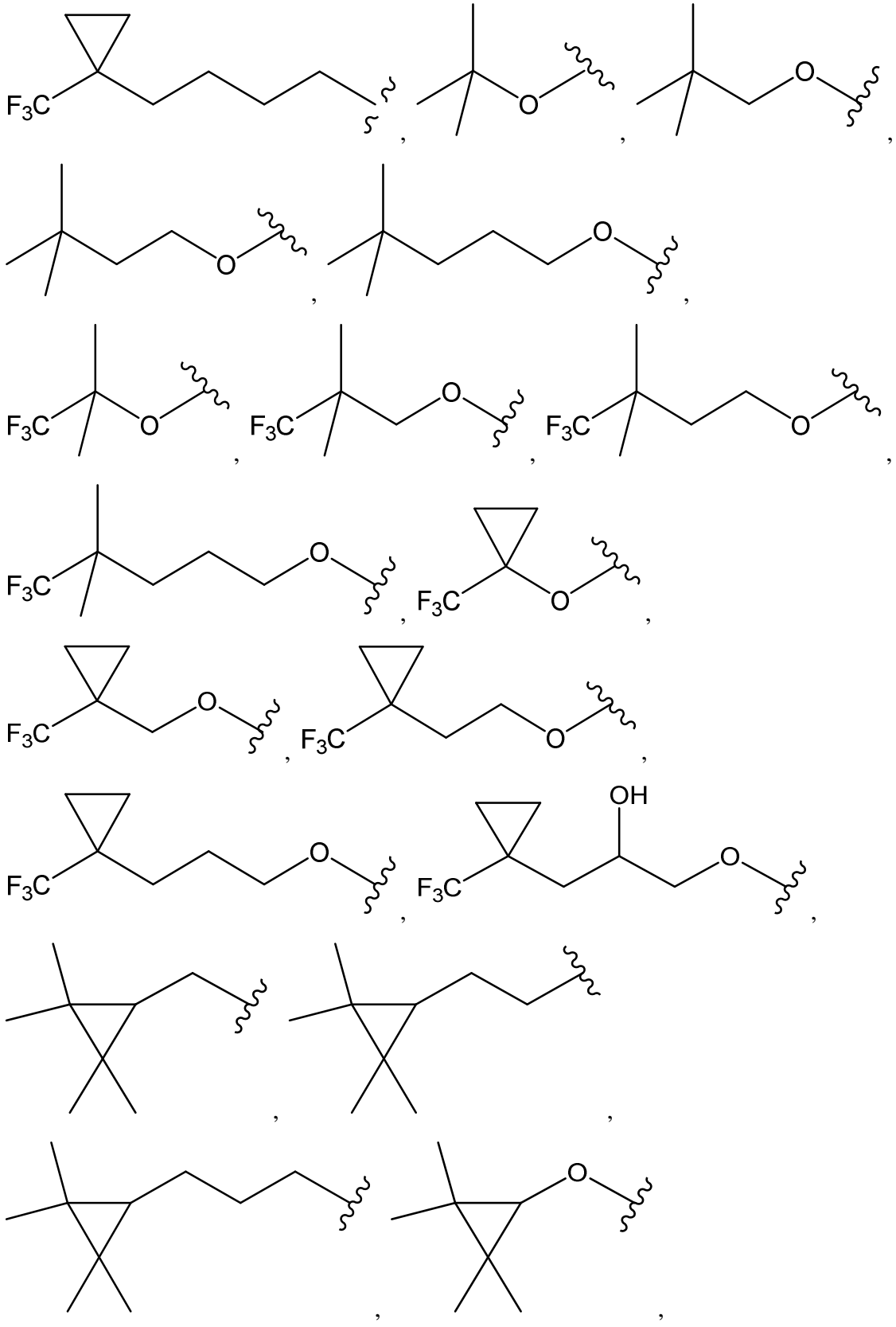
- k is 0, 1, 2, 3, 4, 5, or 6;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k$-R^7 is not bonded to another heteroatom in $-(Y)_k$-R^7, and wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, deuterium, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens.

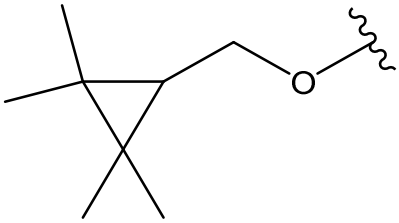
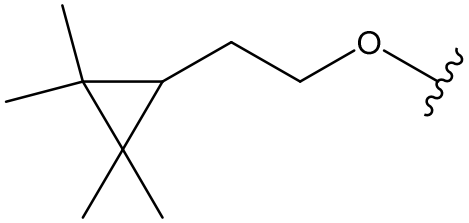
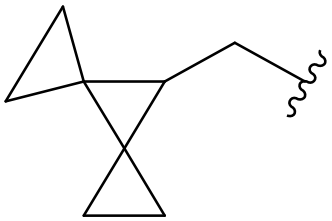
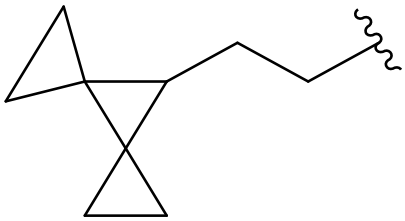
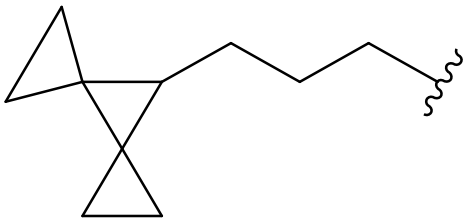
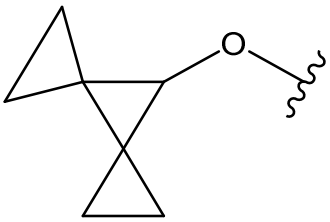
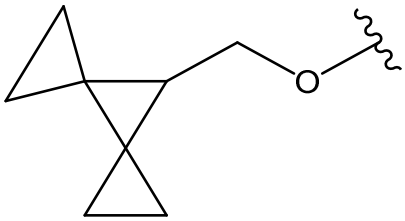
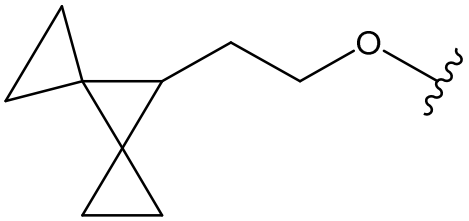
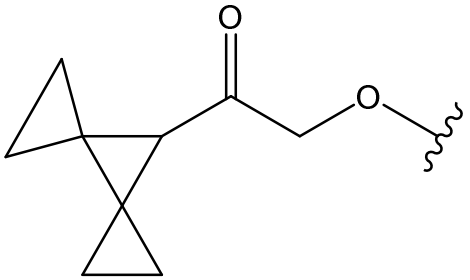
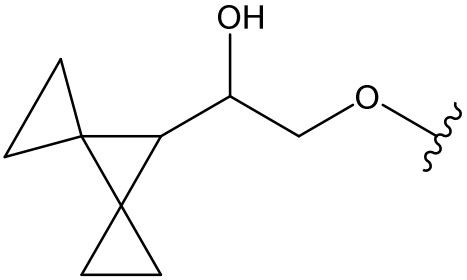
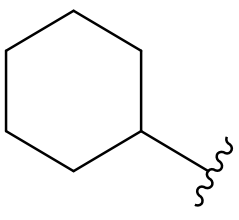
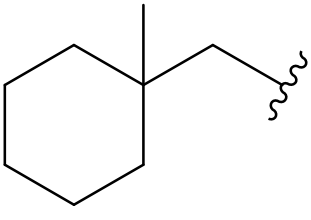
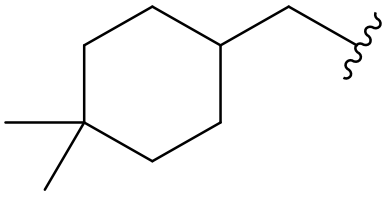
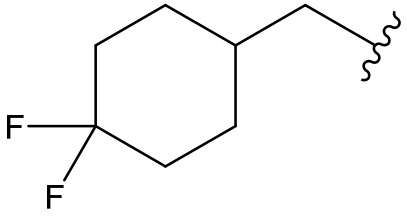
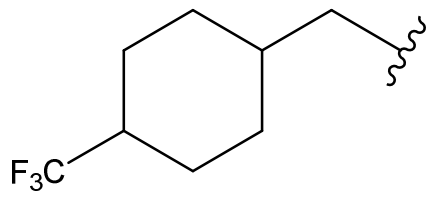
21~~22~~. The compound of claim 19 ~~any one of claims 1-19~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^4 is independently chosen from an oxo group or $-O-(Y)_k$-R^7 groups, wherein:

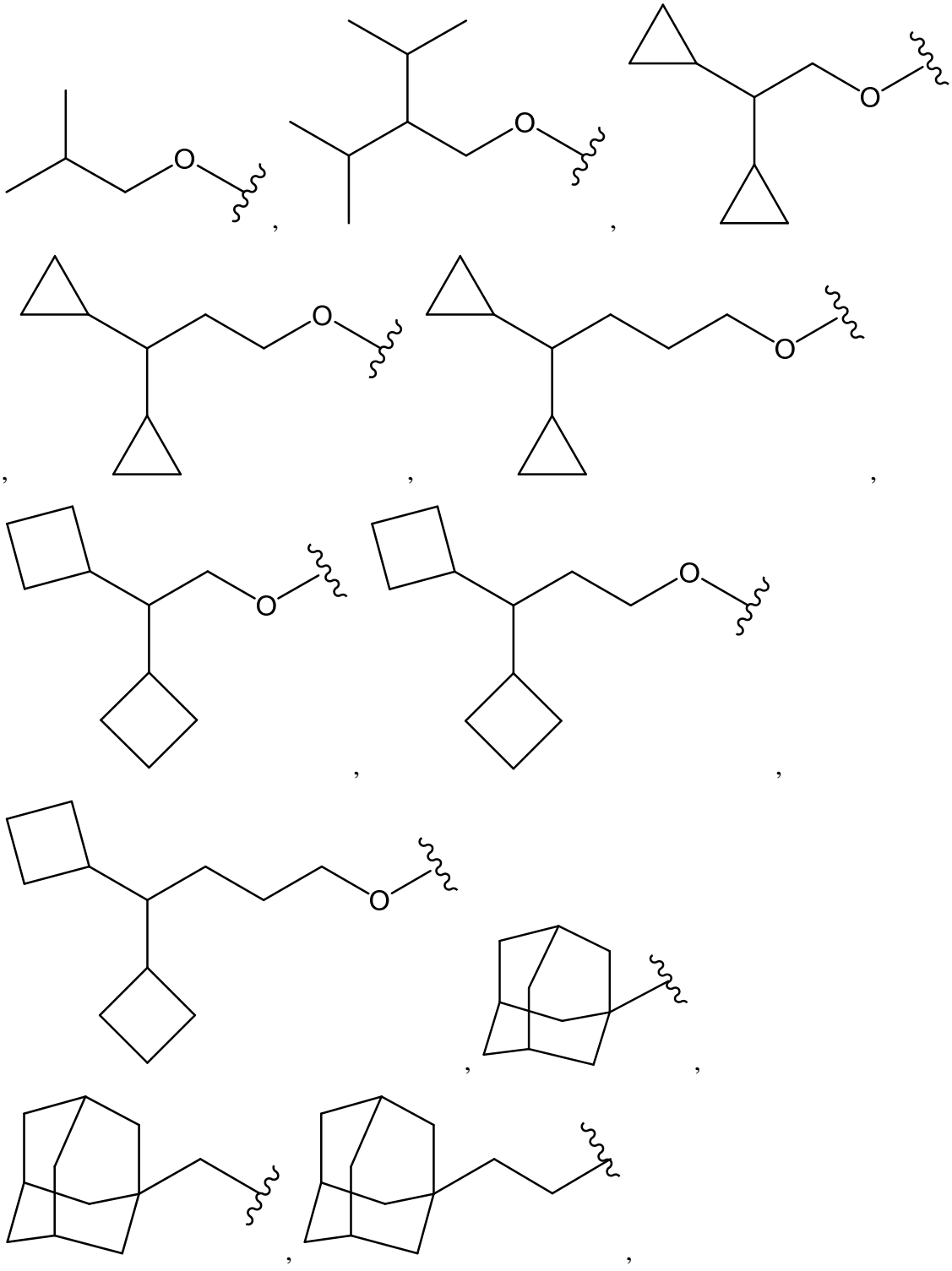
- k is 0, 1, 2, 3, 4, or 5;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, and wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, deuterium, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens.

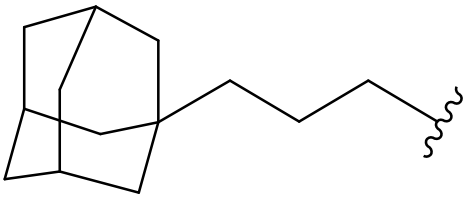
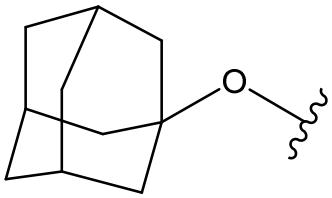
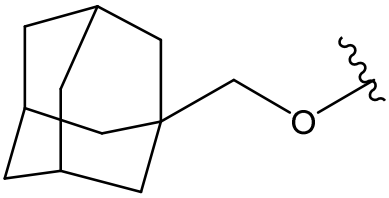
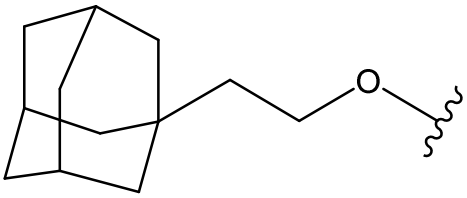
2223. The compound of claim 19 ~~any one of claims 1-22~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^4 is independently chosen from








,

,

, and

,

wherein  indicates the point of attachment of R^4 to Ring D.

2324. The compound of claim 1 ~~any one of claims 1-23~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein k is 3, 4, 5, or 6.

2425. The compound of claim 1 ~~any one of claims 1 to 24~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein q is 1.

2526. The compound of claim 1 ~~any one of claims 1 to 25~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Z is a divalent linker of formula $(L)_r$, wherein:

- r is 3, 4, or 5;
- each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, and wherein:
  - each R^8 and R^9 is independently chosen from hydrogen and deuterium; and
  - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

2627. The compound of claim 1 ~~any one of claims 1 to 25~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Z is a divalent linker of formula $(L)_r$, wherein:

- r is 3, 4, or 5;

- each L is independently chosen from $C(R^8)(R^9)$ groups and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, and:
  - each R^8 and R^9 is independently chosen from hydrogen and deuterium; and
  - each R^b is independently chosen from hydrogen and methyl.

27~~28~~. The compound of claim 1 ~~any one of claims 1 to 25~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Z is a divalent linker of formula $(L)_r$, wherein:

- r is 3, 4, or 5;
- each L is independently chosen from $C(R^8)(R^9)$ groups and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, and wherein:
  - each R^8 and R^9 is independently chosen from hydrogen and deuterium; and
  - each R^b is hydrogen.

28~~29~~. The compound of claim 1 ~~any one of claims 1 to 25~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Z is a divalent linker of formula $(L)_r$, wherein:

- r is 3, 4, or 5;
- each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
  - each R^8 and R^9 is hydrogen; and
  - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

29~~30~~. The compound of claim 1 ~~any one of claims 1 to 29~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein each R^3 is independently CD_3.

30~~31~~. The compound of claim 5 ~~or claim 6~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:

- r is 3 or 4 ~~3, 4, or 5~~;
- each R^8 and R^9 is independently chosen from hydrogen and deuterium; and
- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

~~32. The compound of claim 5 or claim 6, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:~~

~~- r is 3, 4, or 5;~~

~~- each R^8 and R^9 is independently chosen from hydrogen and deuterium; and~~

~~- each R^b is independently chosen from hydrogen and methyl.~~

31~~33~~. The compound of claim 5 ~~or claim 6~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:

- r is 3 or 4 ~~3, 4, or 5~~;
- each R^8 and R^9 is independently chosen from hydrogen and deuterium; and
- each R^b is hydrogen.

~~34. The compound of claim 5 or claim 6, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:~~

~~- r is 3, 4, or 5;~~

~~- each R^8 and R^9 is hydrogen; and~~

~~- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.~~

32~~35~~. The compound of claim 6 ~~claim 8 or claim 10~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:

- r is 3 or 4 ~~3, 4, or 5~~; and
- each R^8 and R^9 is independently chosen from hydrogen and deuterium.

33~~36~~. The compound of claim 6 ~~claim 8 or claim 10~~, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:

- r is 3 or 4 ~~3, 4, or 5~~; and
- each R^8 and R^9 is hydrogen.

~~37. The compound of claim 8 or claim 10, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:~~

~~- r is 3, 4, or 5; and~~

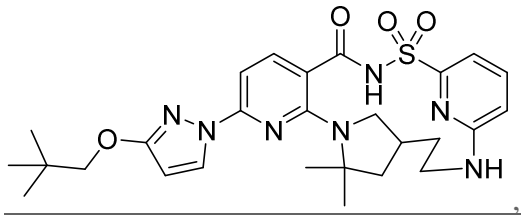
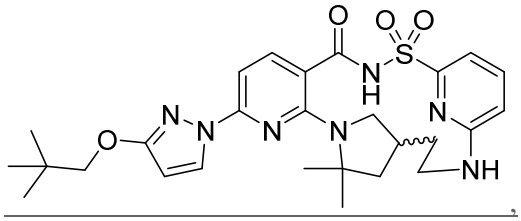
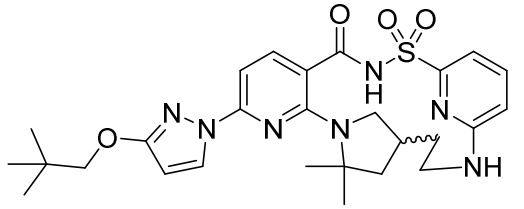
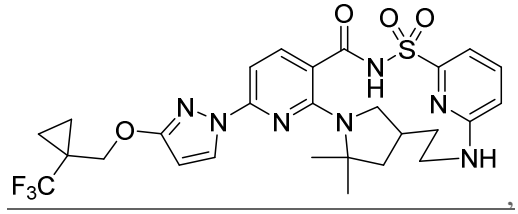
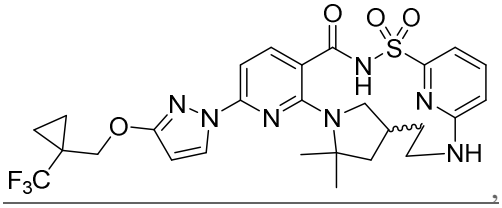
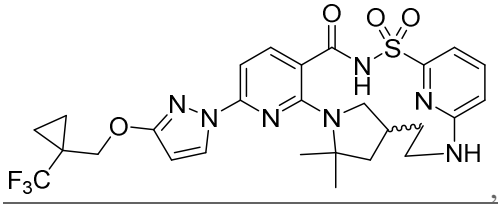
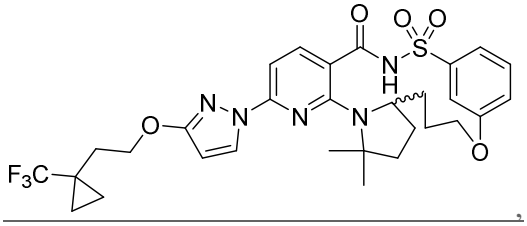
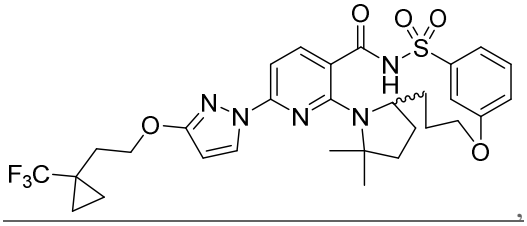
~~- each R^8 and R^9 is deuterium.~~

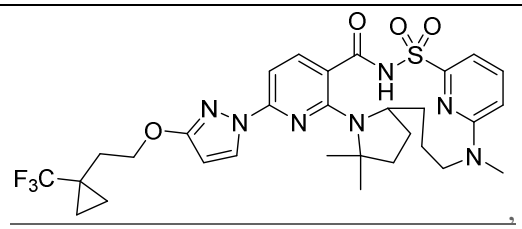
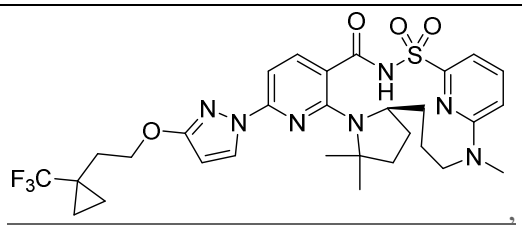
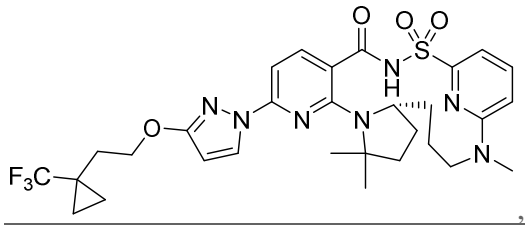
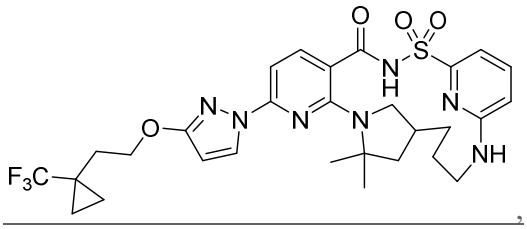
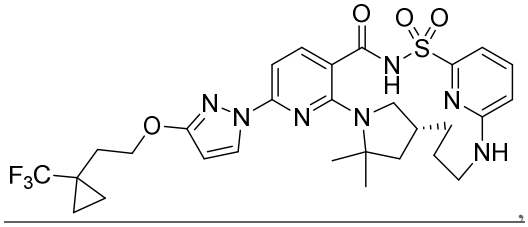
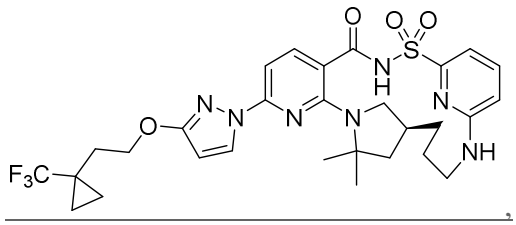
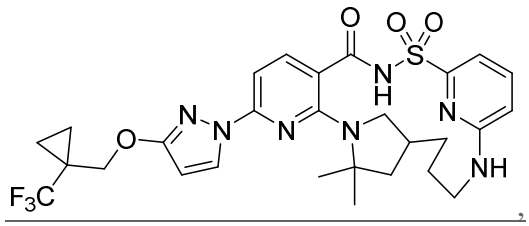
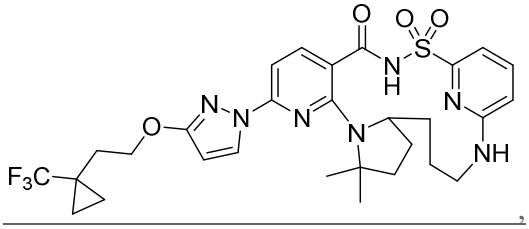
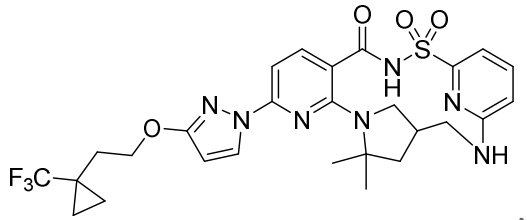
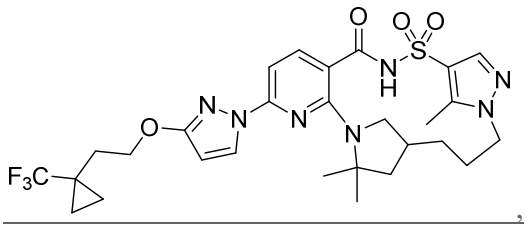
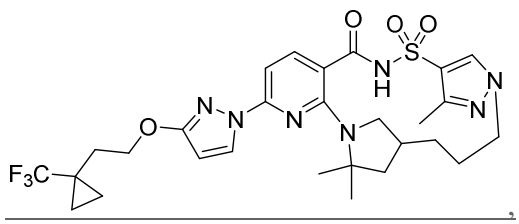
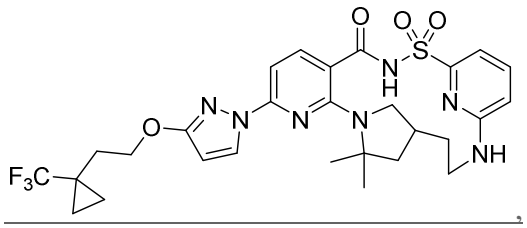
~~38. The compound of claim 8 or claim 10, a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein:~~

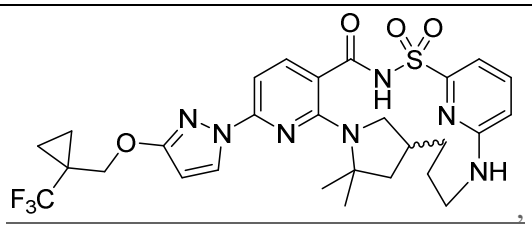
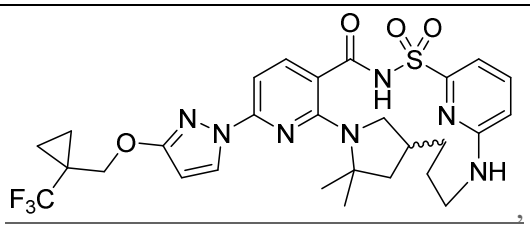
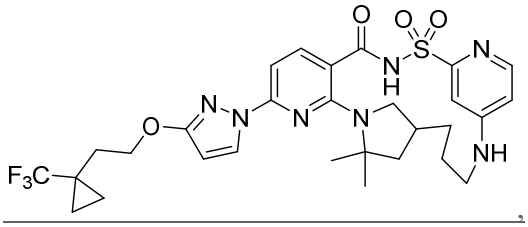
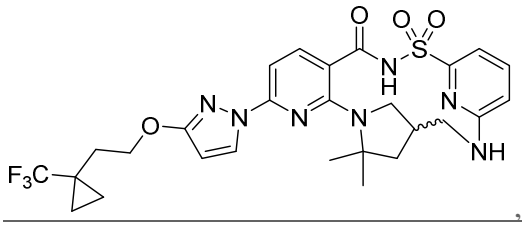
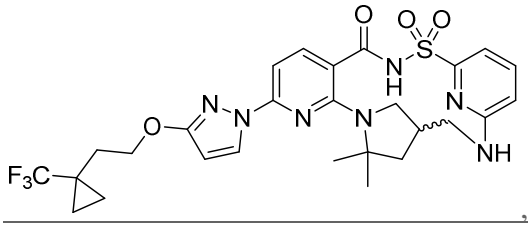
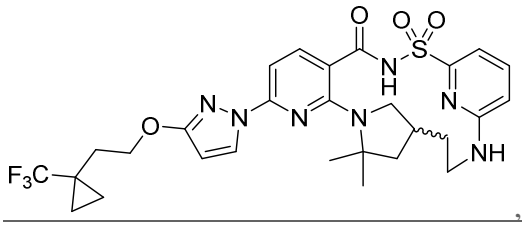
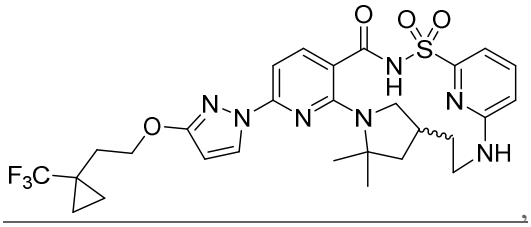
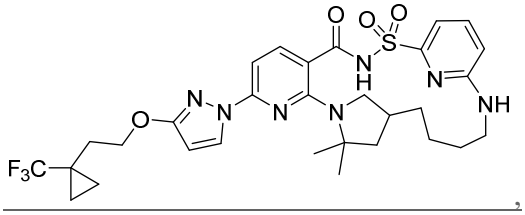
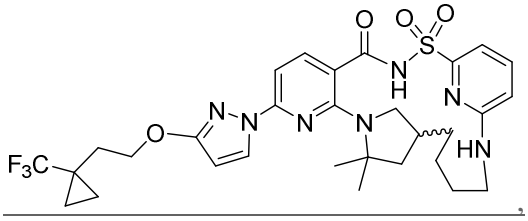
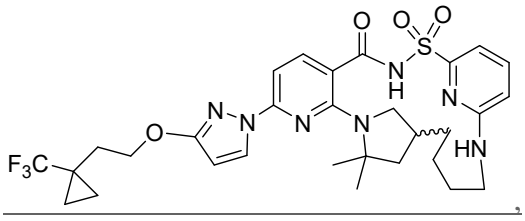
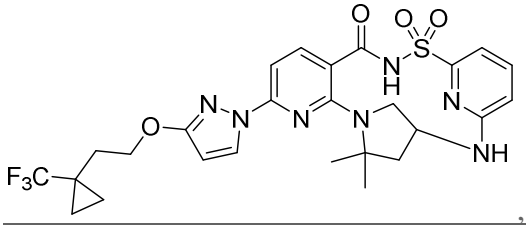
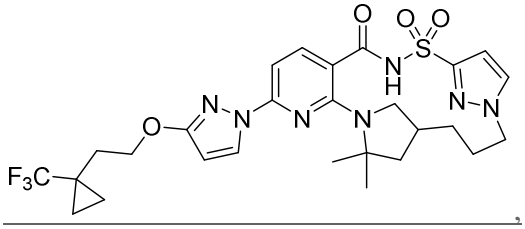
~~- r is 3 or 4; and~~

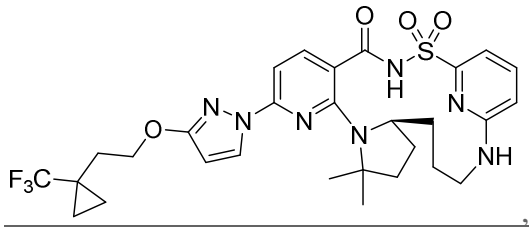
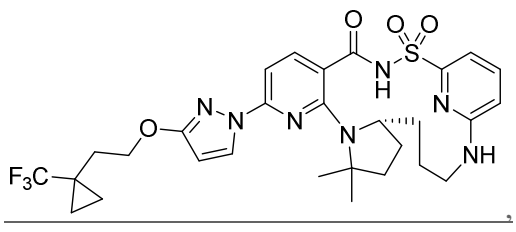
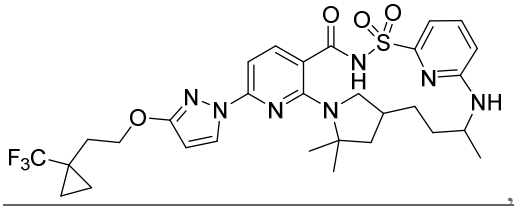
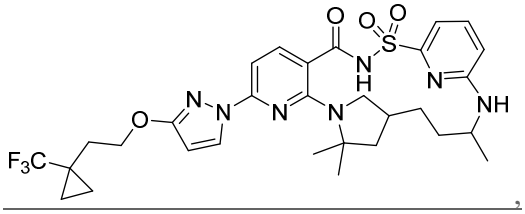
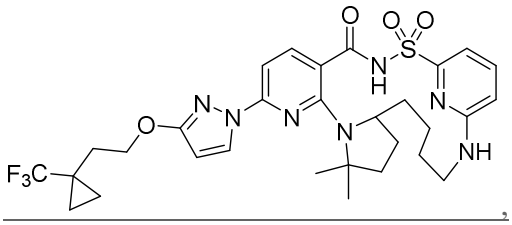
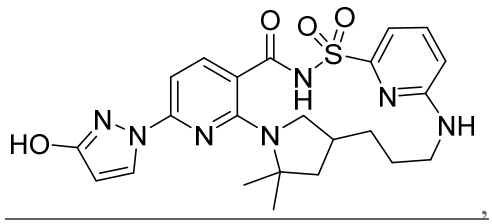
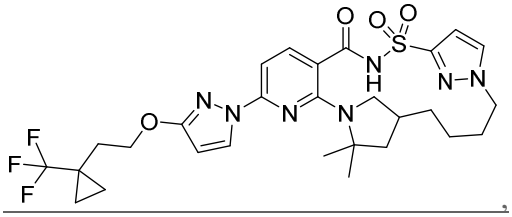
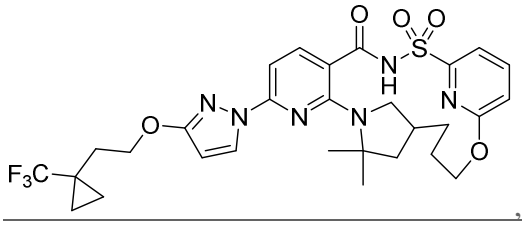
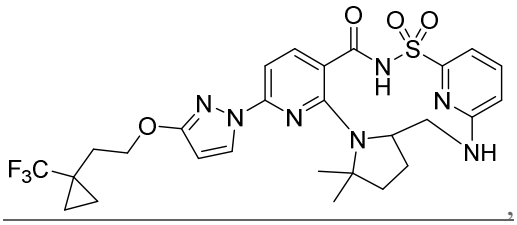
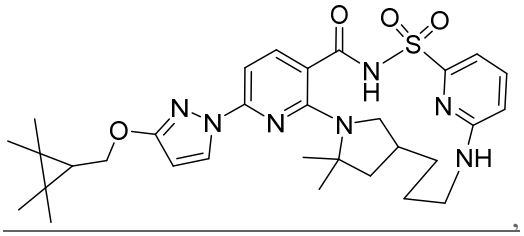
~~- each R^8 and R^9 is hydrogen.~~

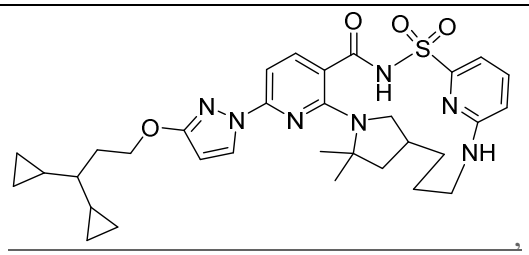
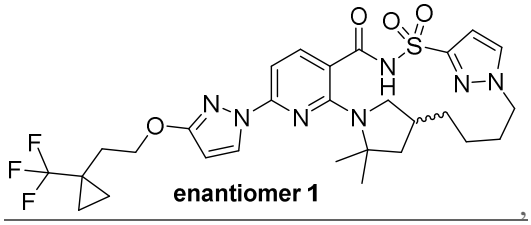
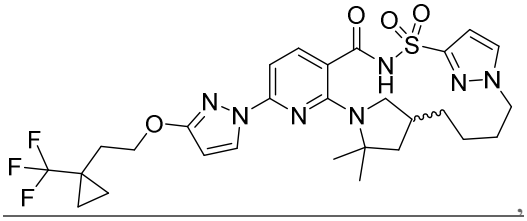
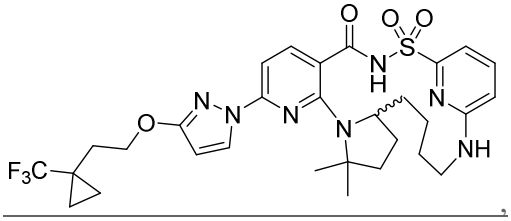
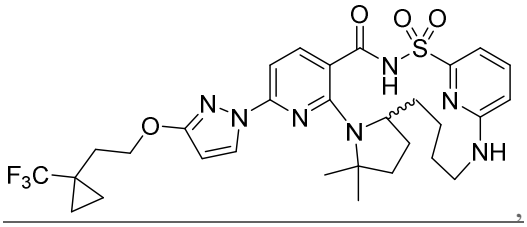
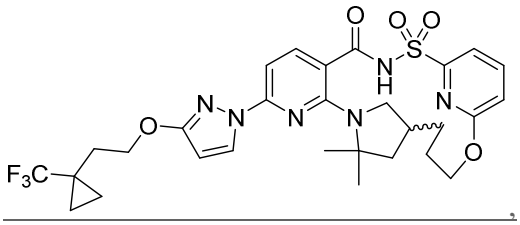
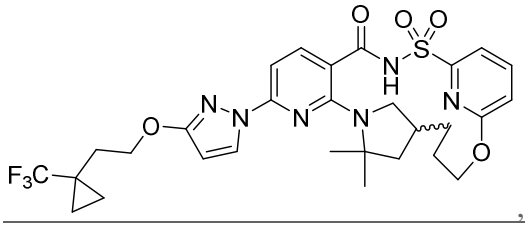
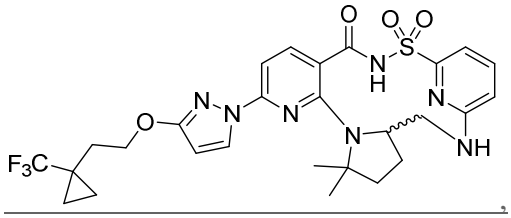
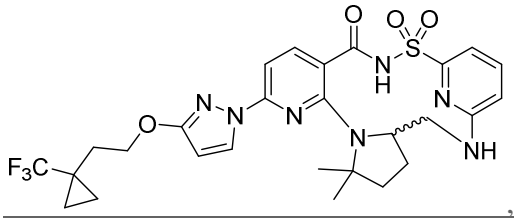
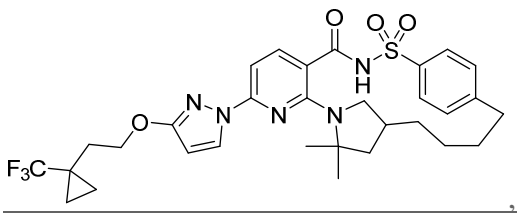
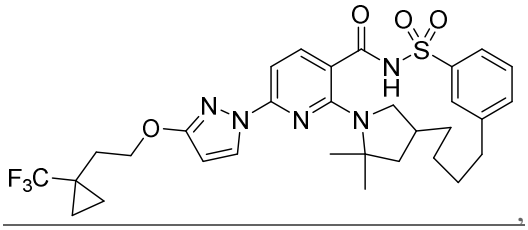
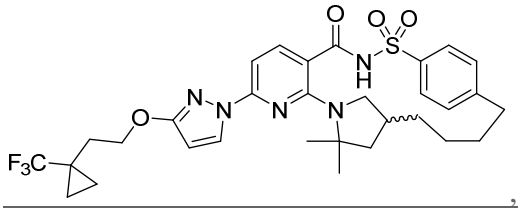
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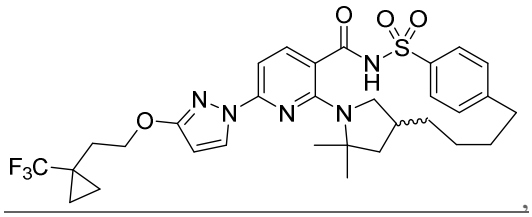
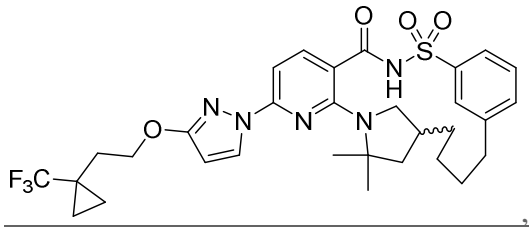
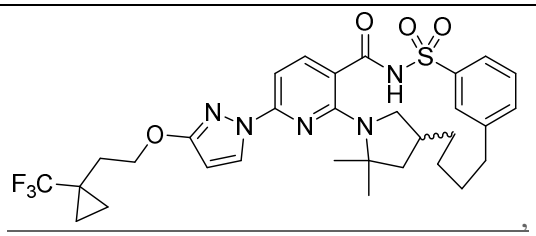
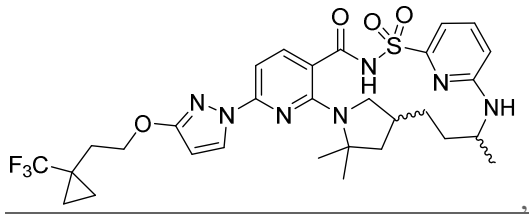
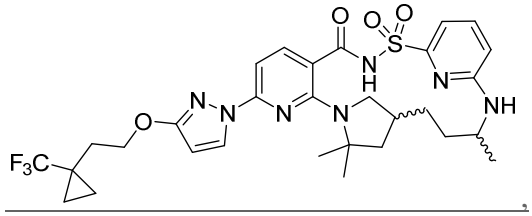
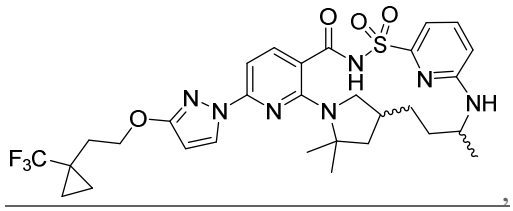
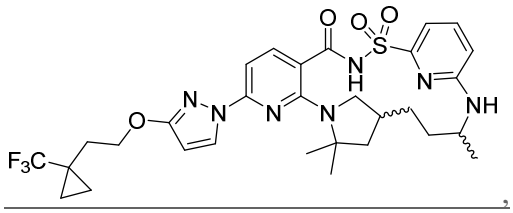
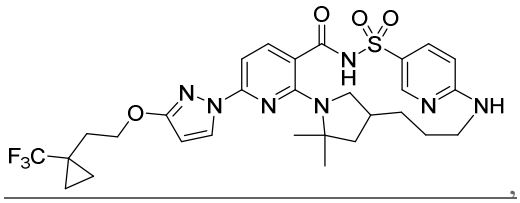
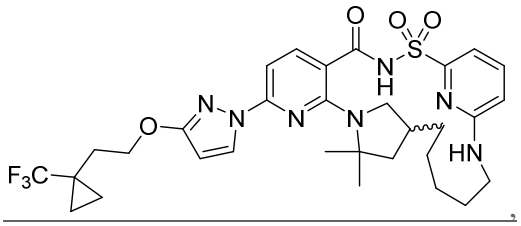
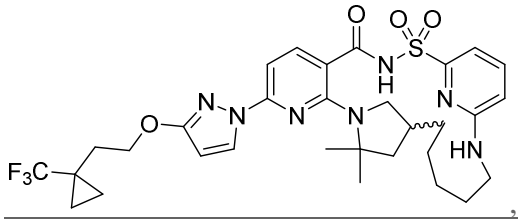
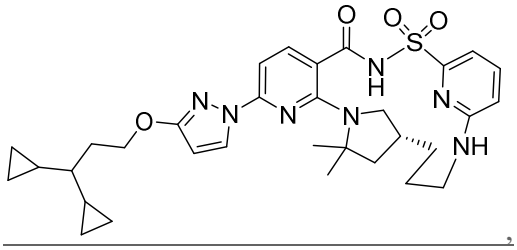
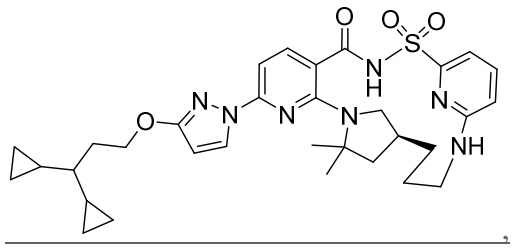
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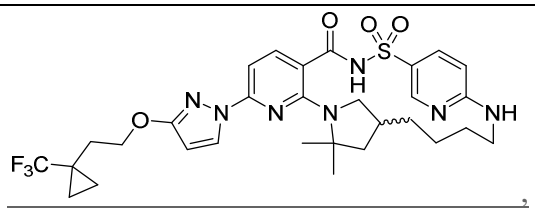
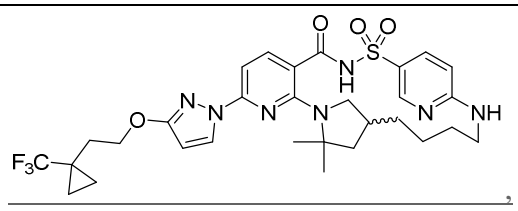
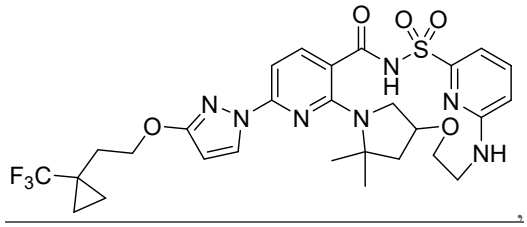
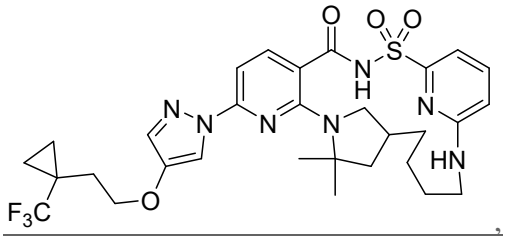
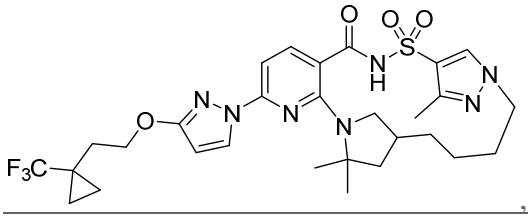
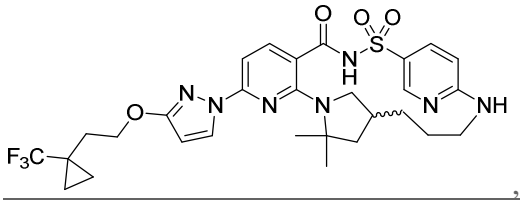
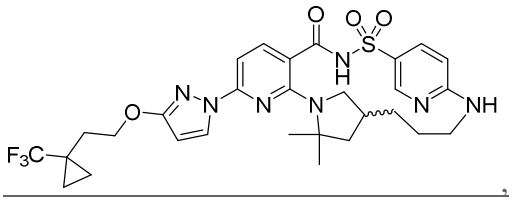
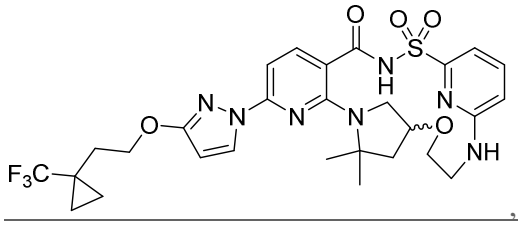
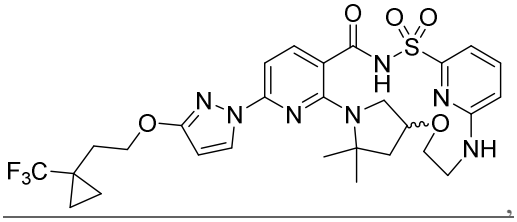
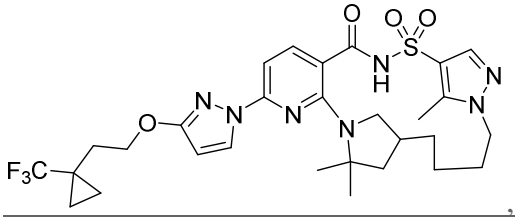
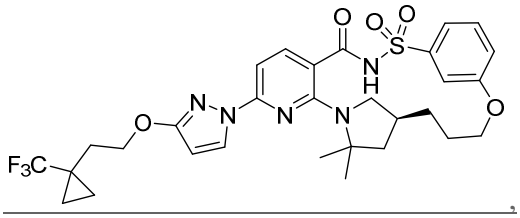
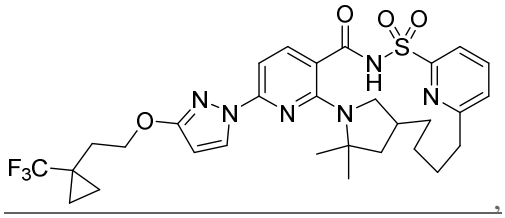
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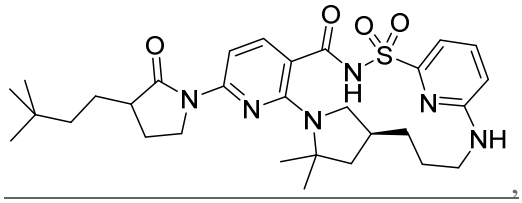
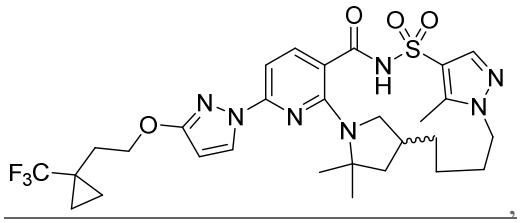
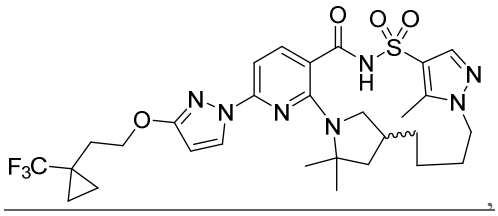
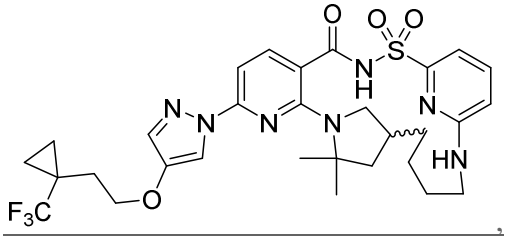
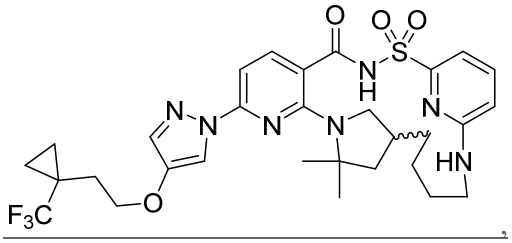
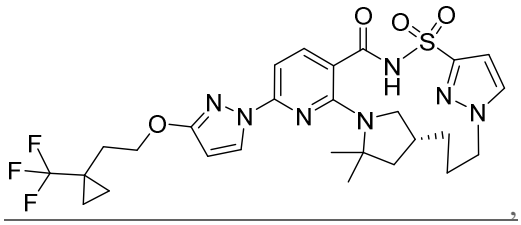
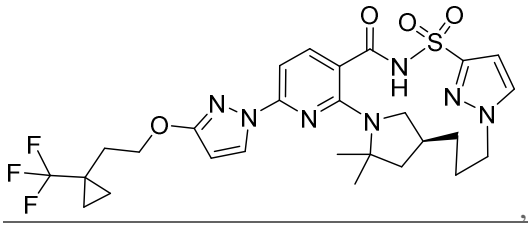
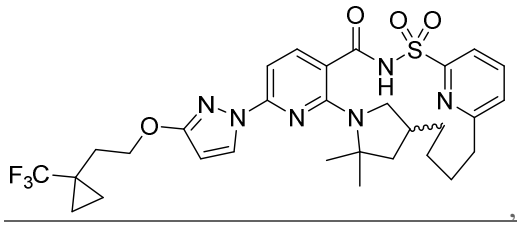
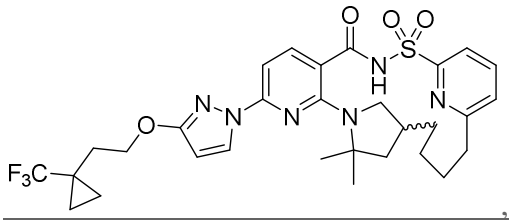
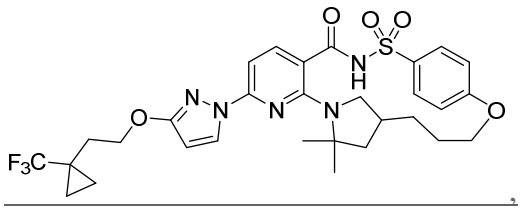
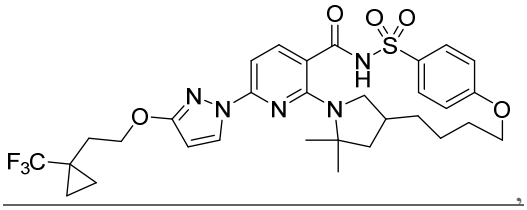
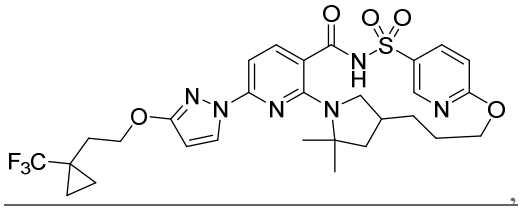
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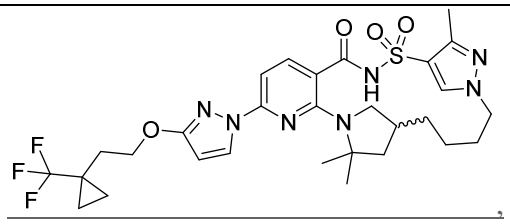
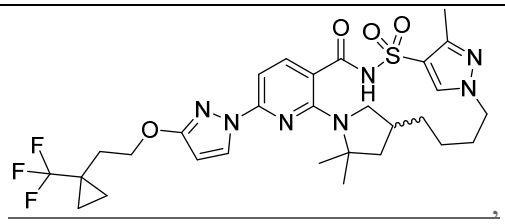
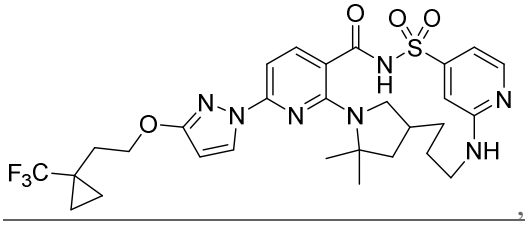
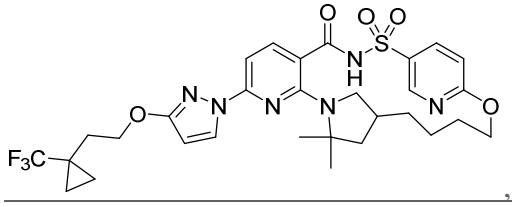
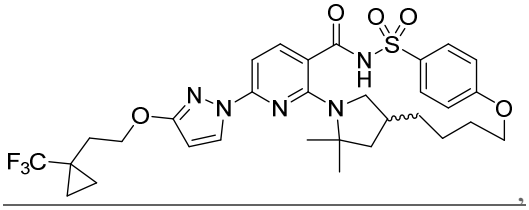
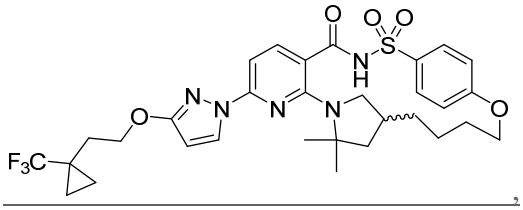
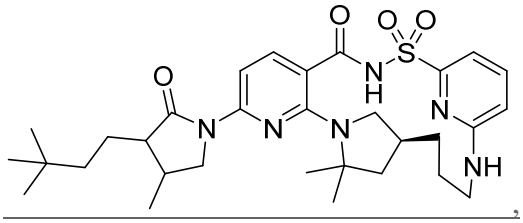
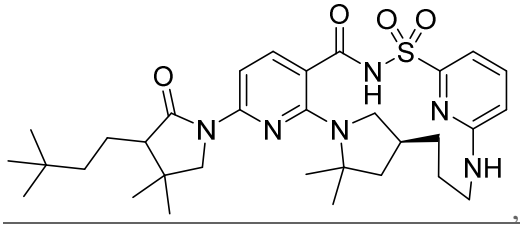
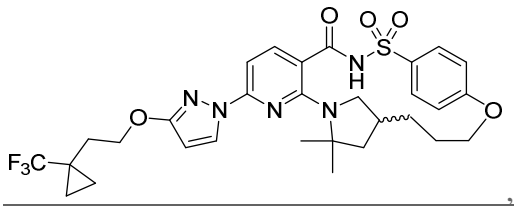
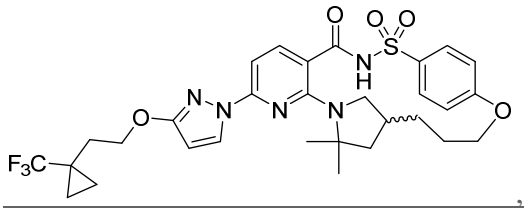
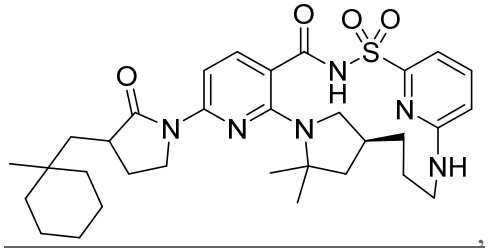
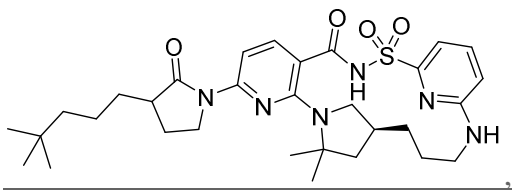
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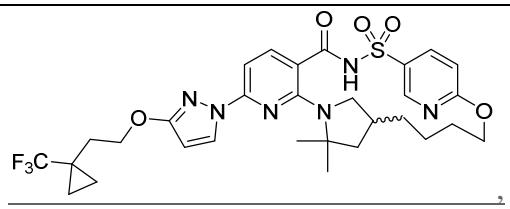
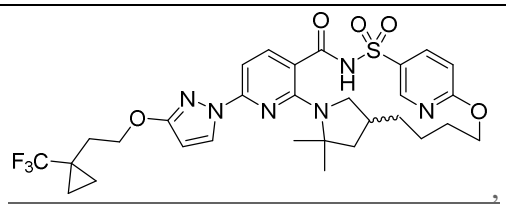
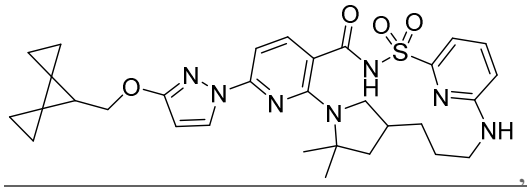
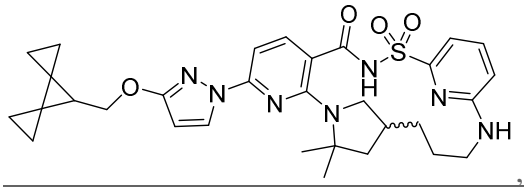
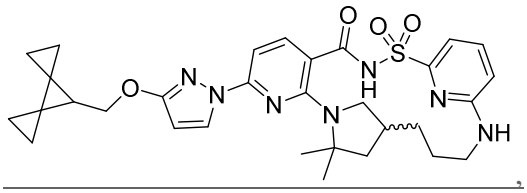
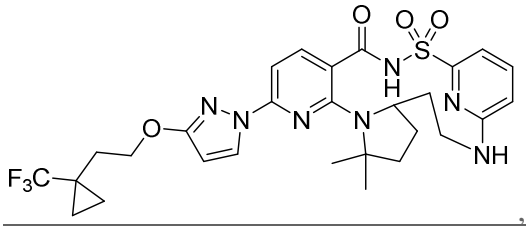
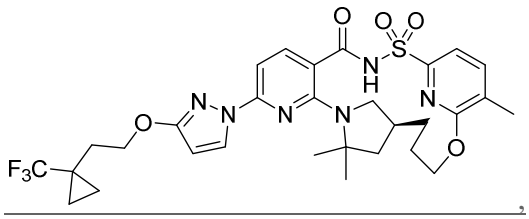
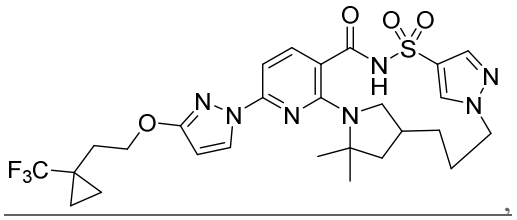
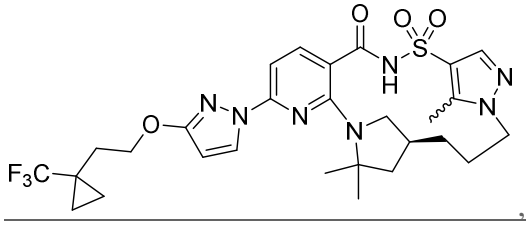
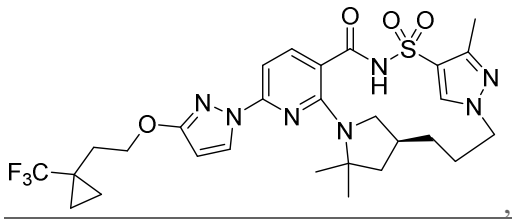
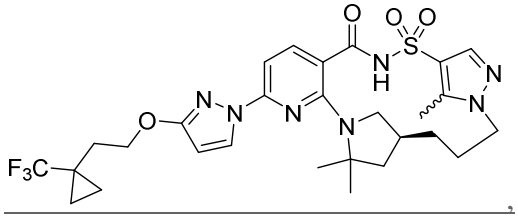
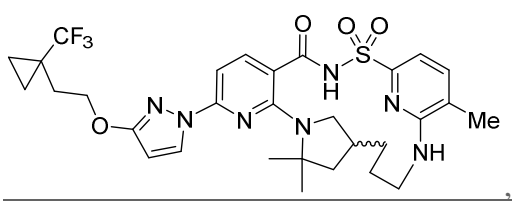
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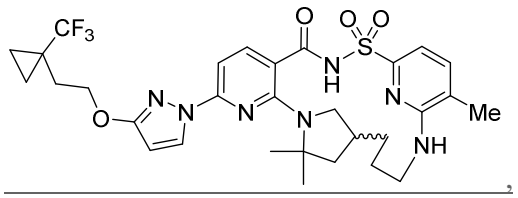
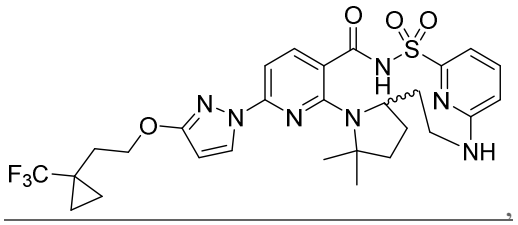
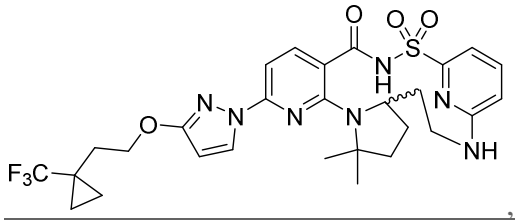
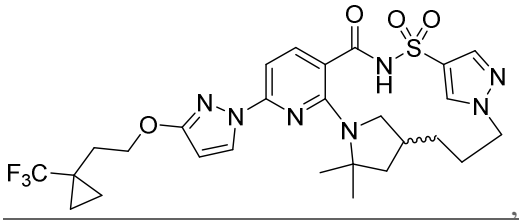
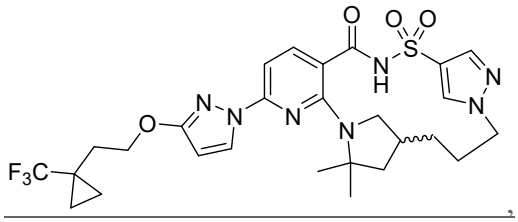
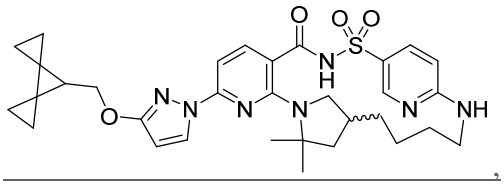
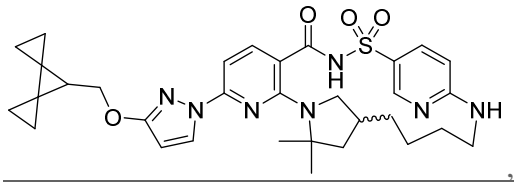
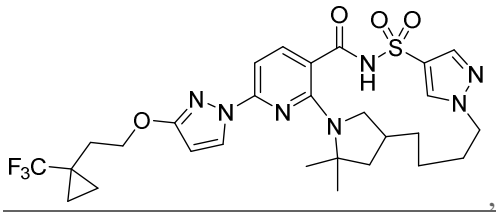
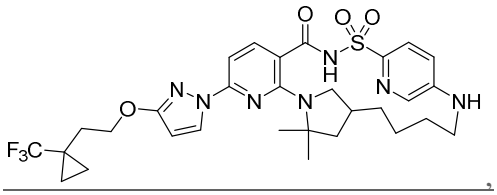
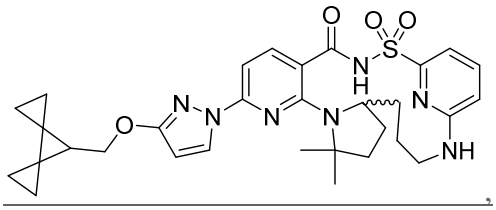
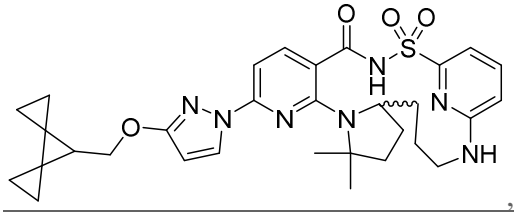
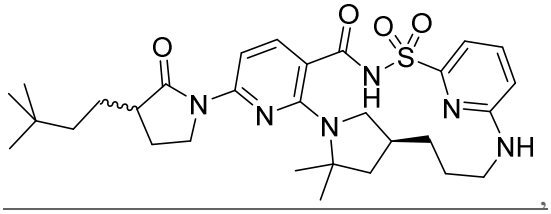
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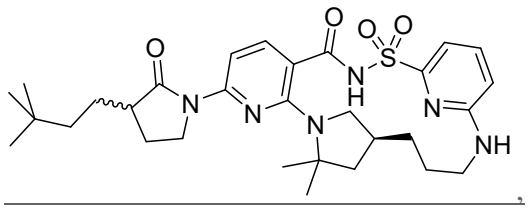
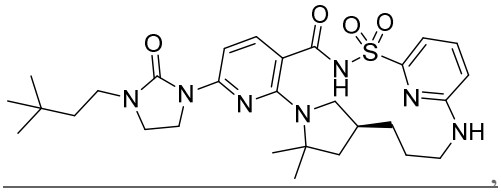
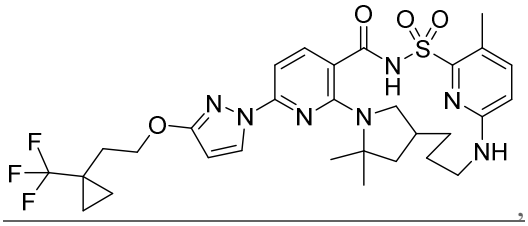
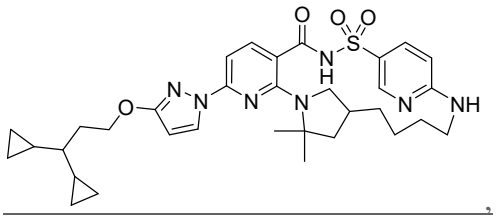
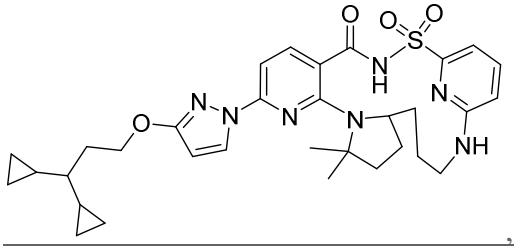
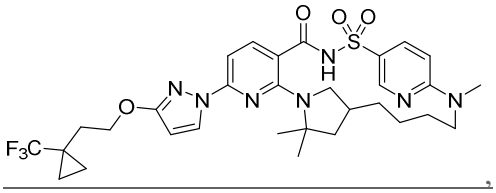
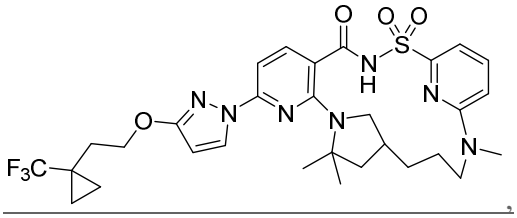
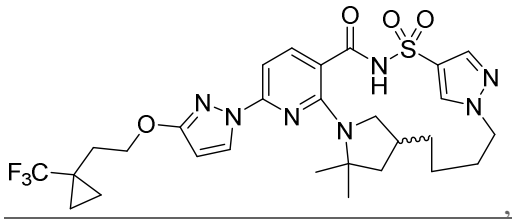
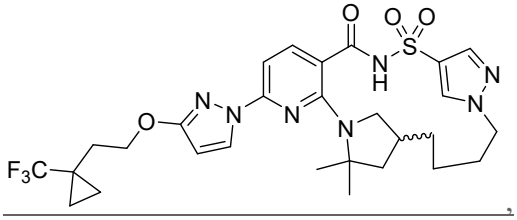
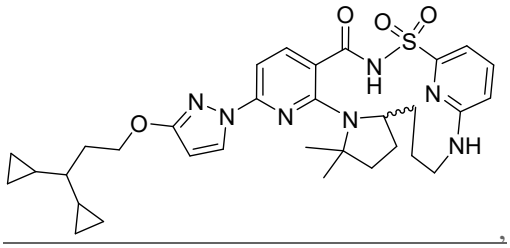
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 Compound 77	 Compound 78

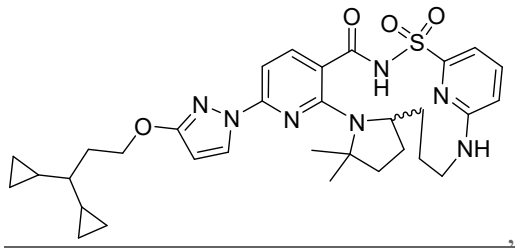
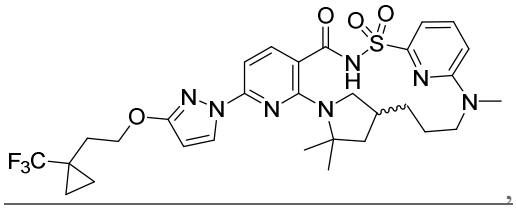
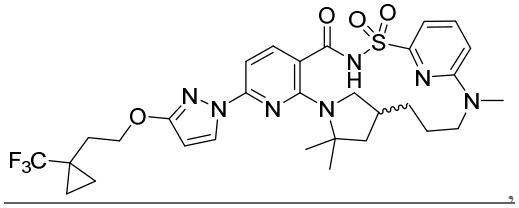
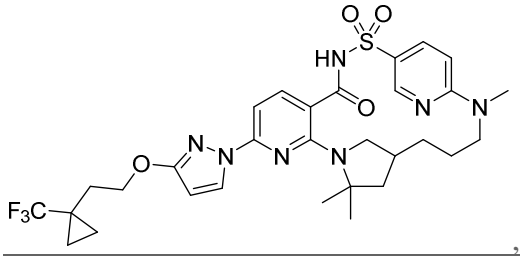
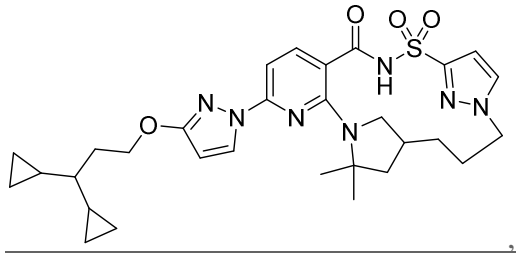
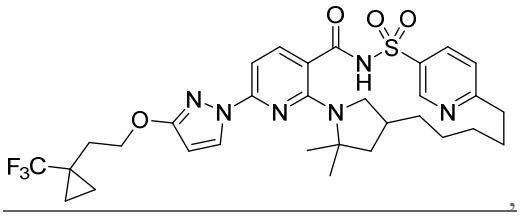
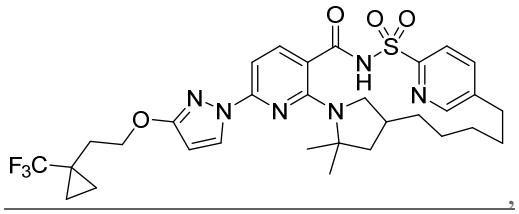
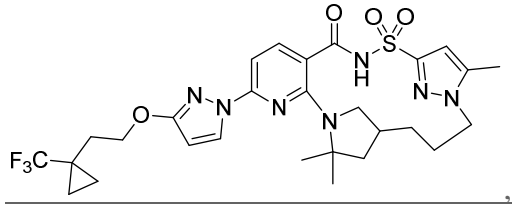
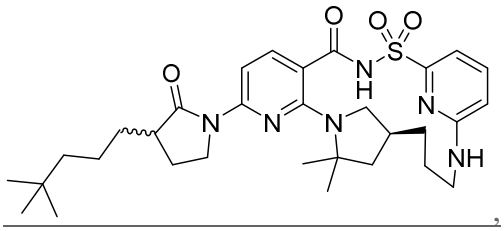
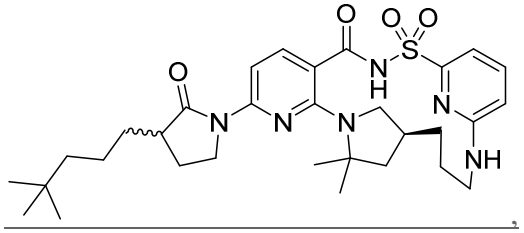
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 Compound 89	 Compound 90

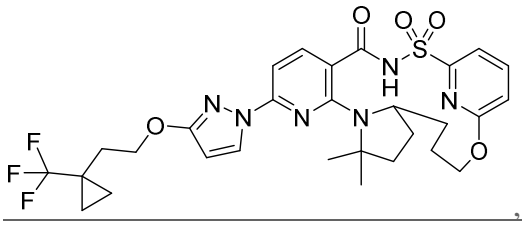
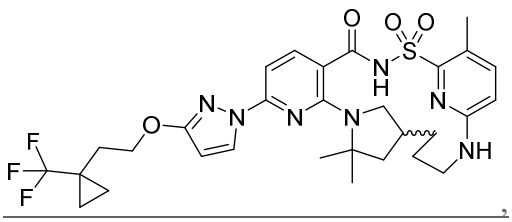
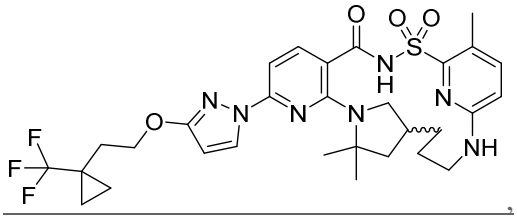
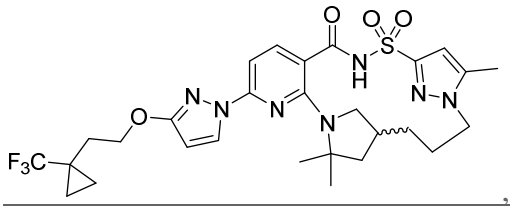
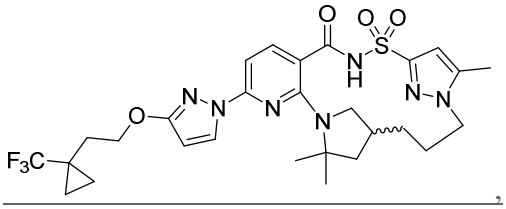
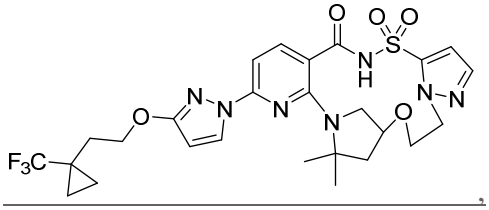
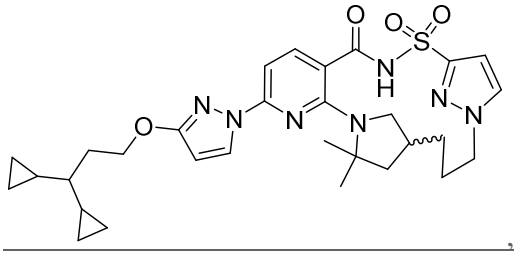
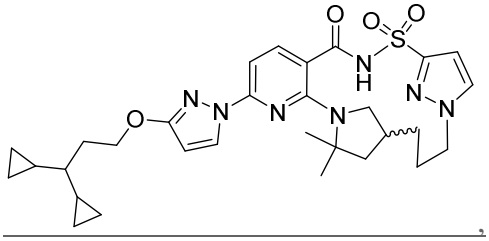
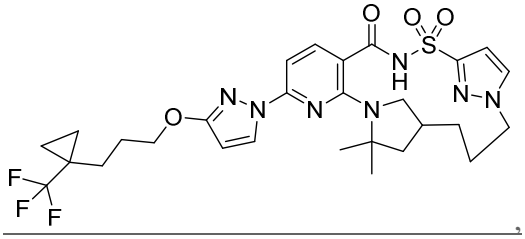
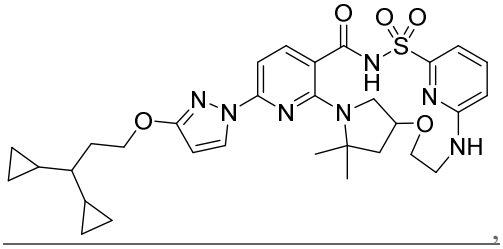
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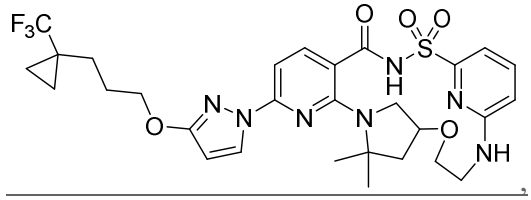
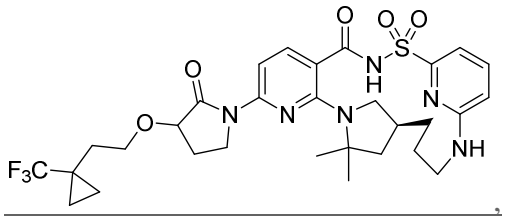
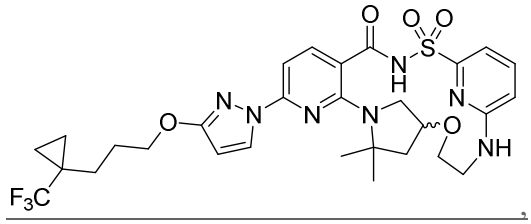
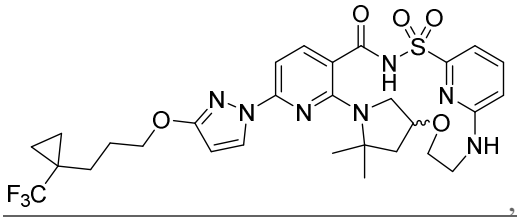
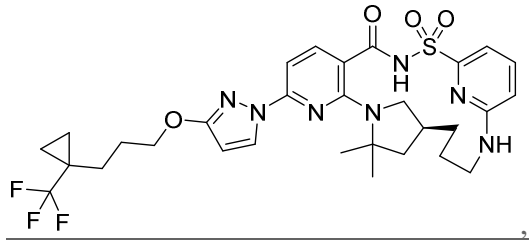
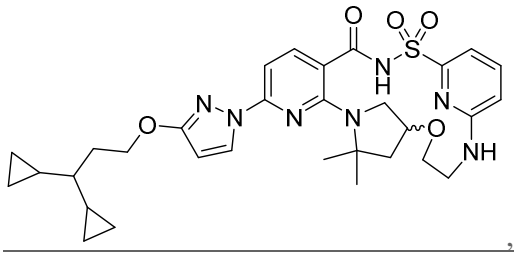
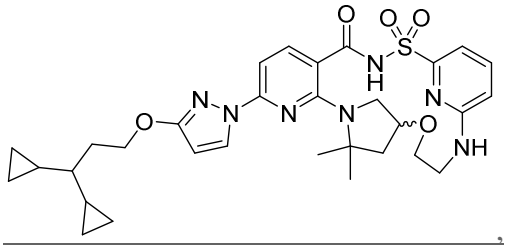
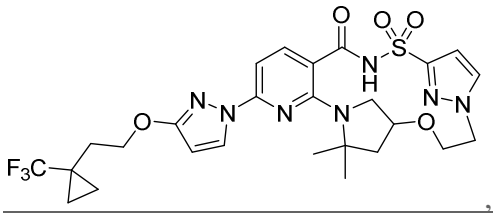
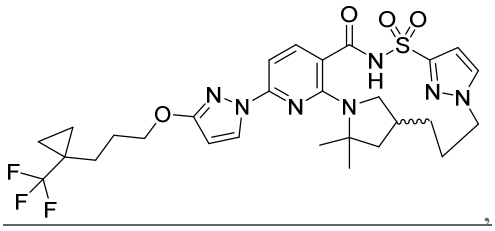
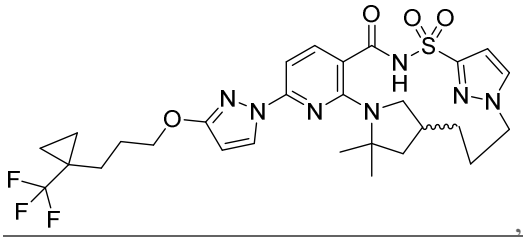
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 Compound 113	 Compound 114

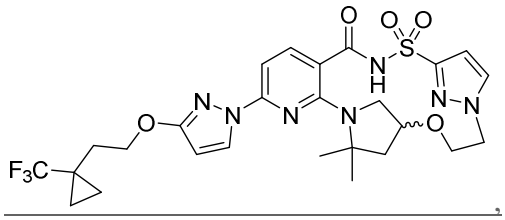
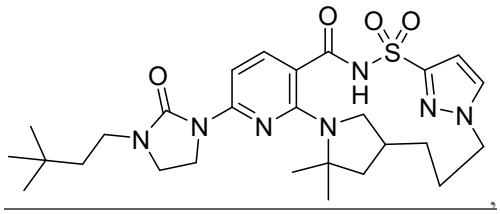
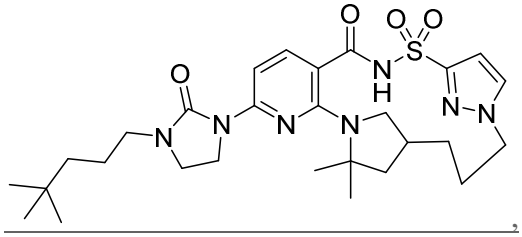
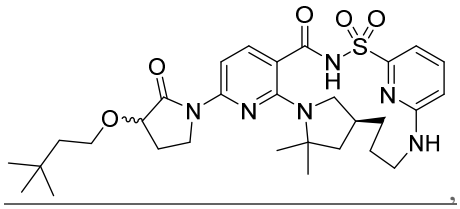
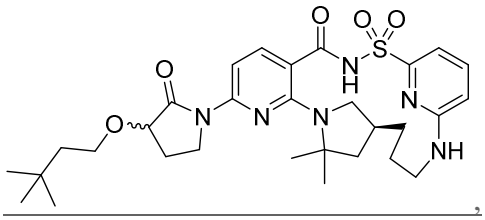
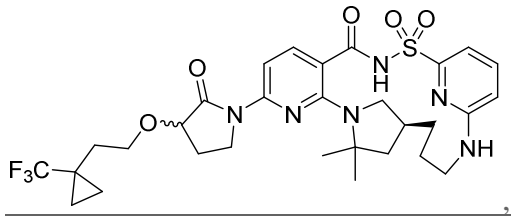
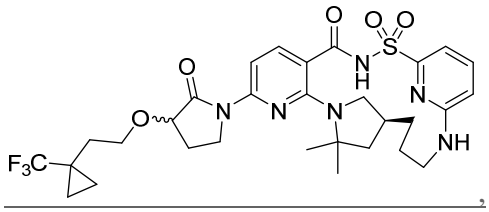
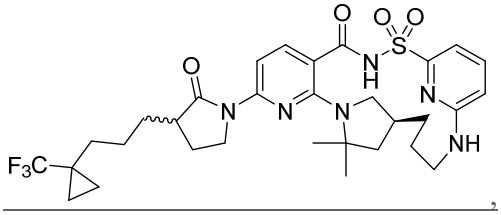
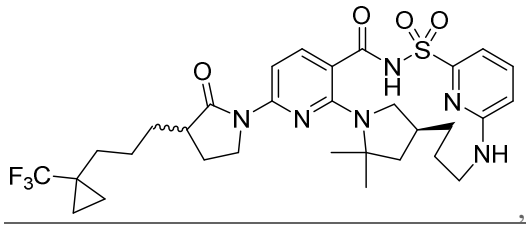
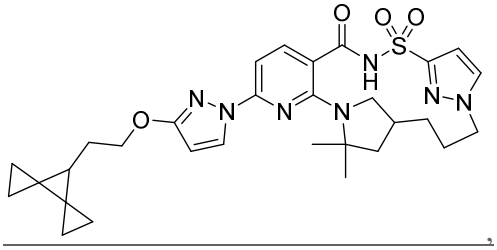
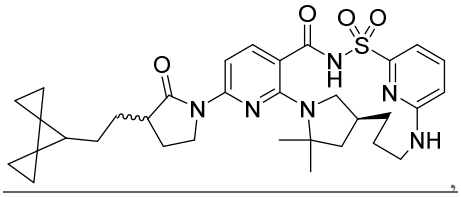
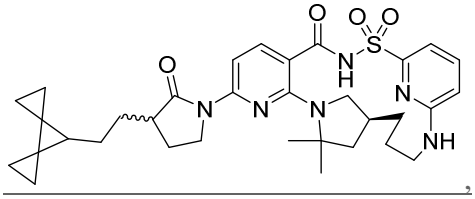
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 Compound 125	 Compound 126

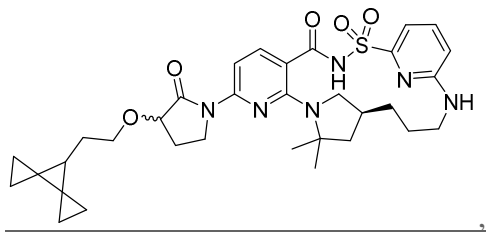
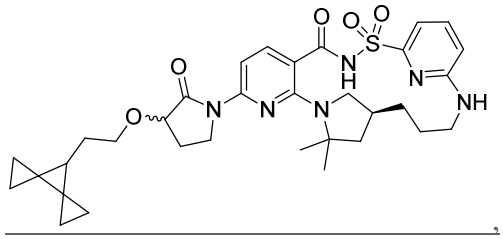
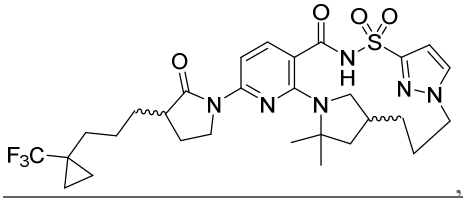
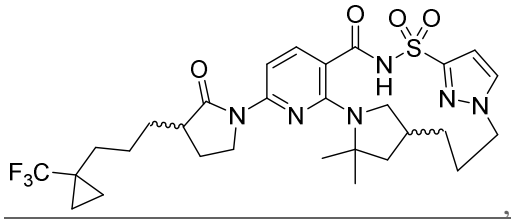
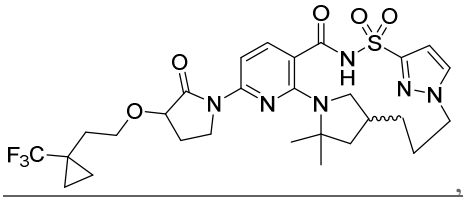
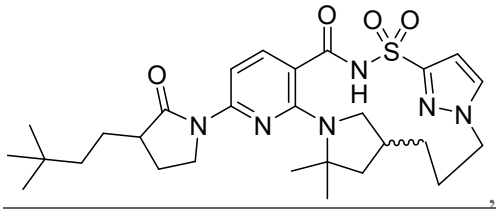
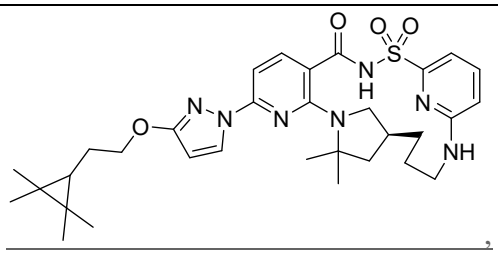
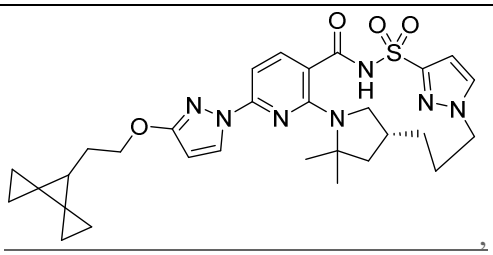
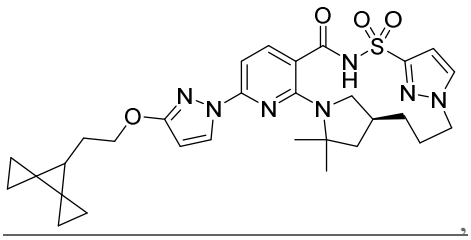
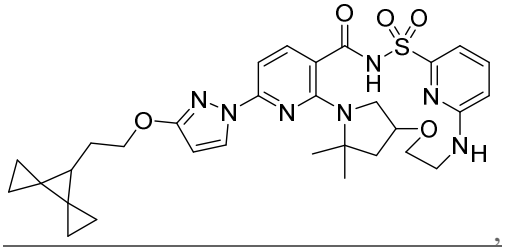
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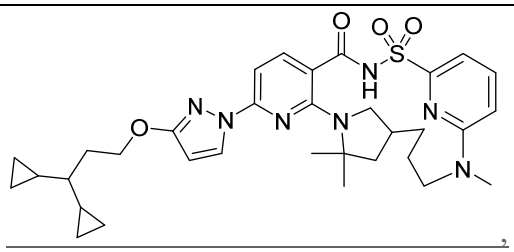
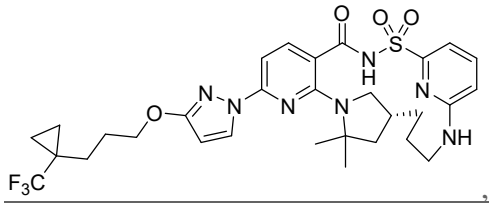
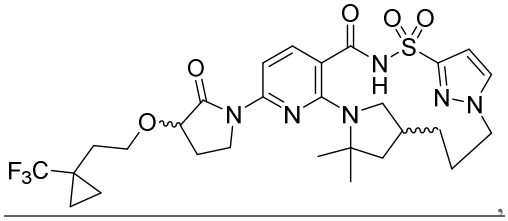
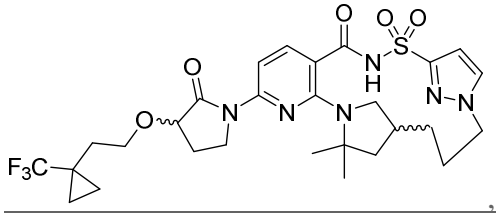
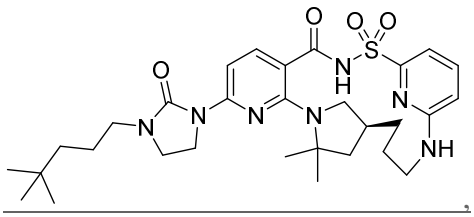
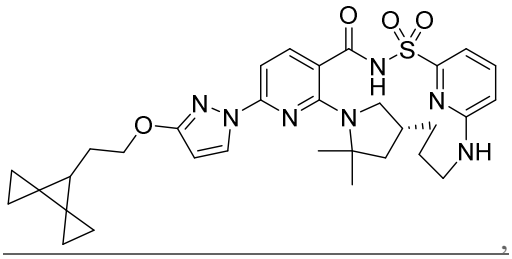
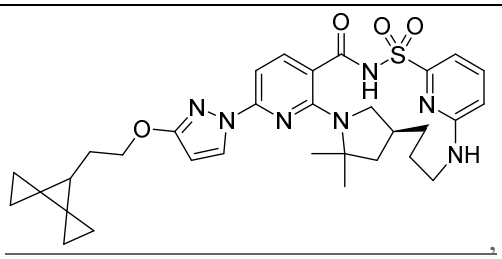
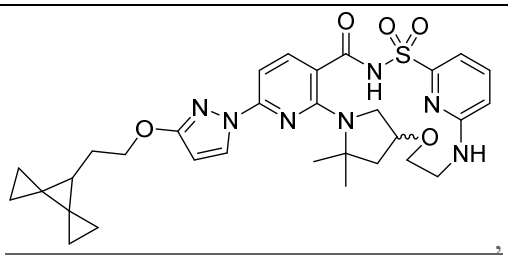
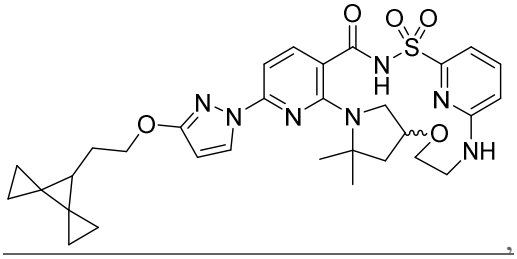
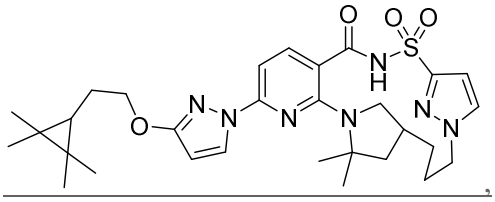
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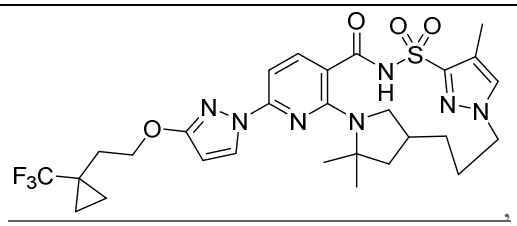
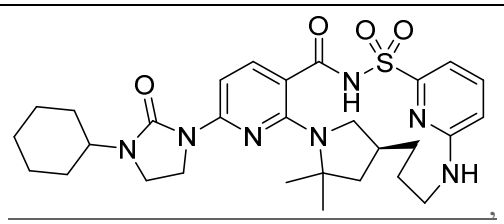
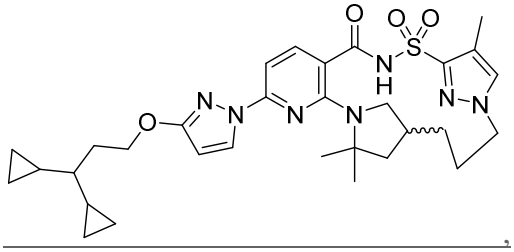
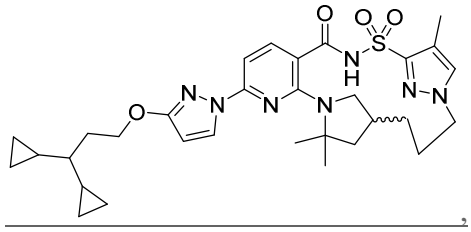
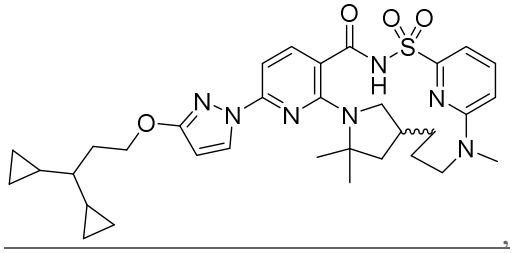
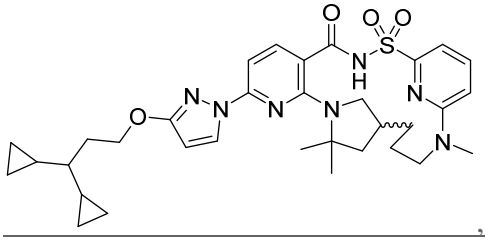
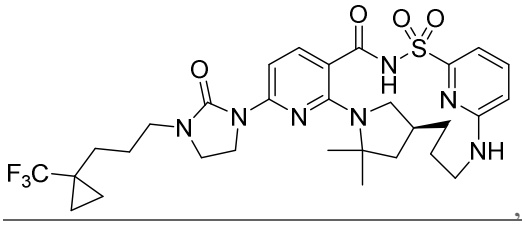
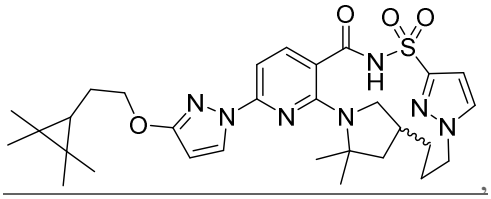
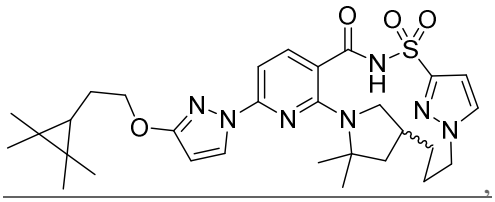
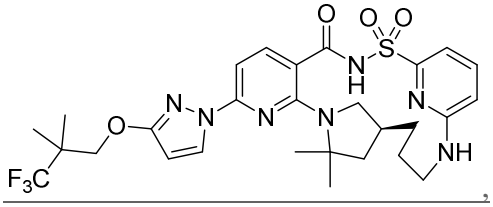
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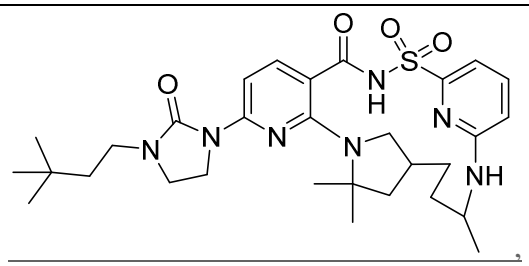
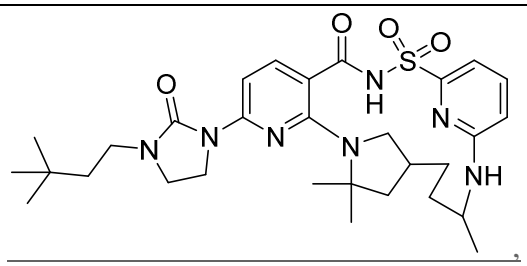
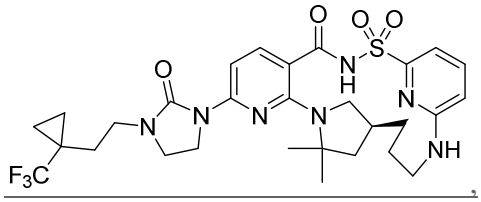
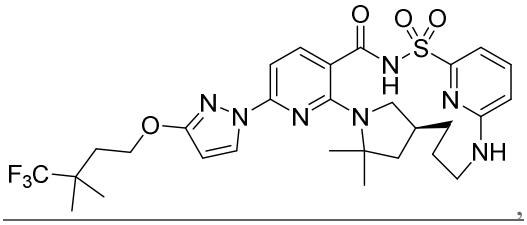
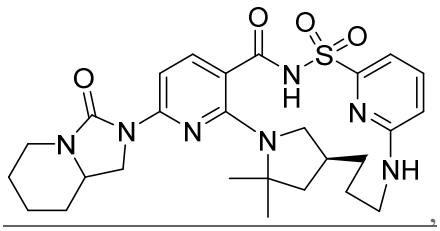
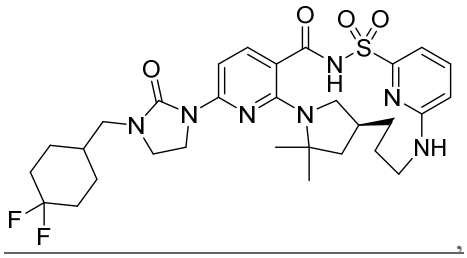
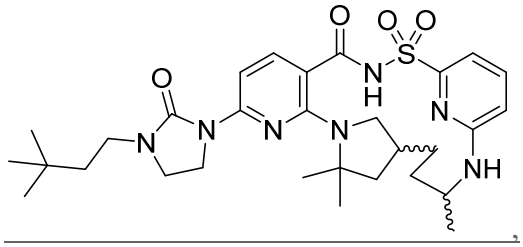
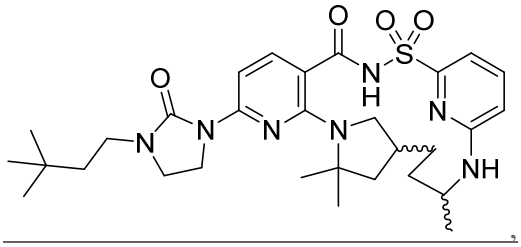
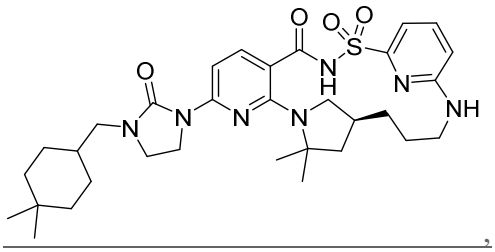
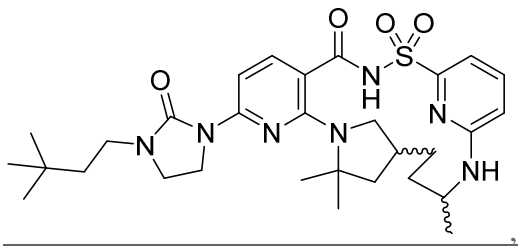
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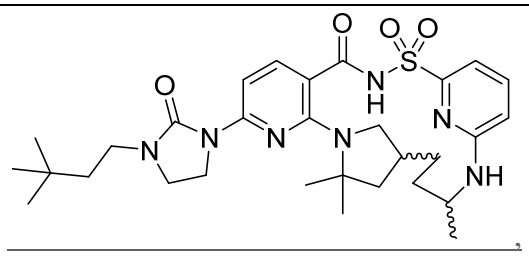
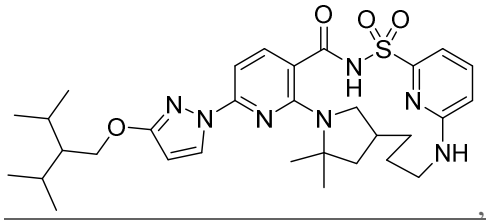
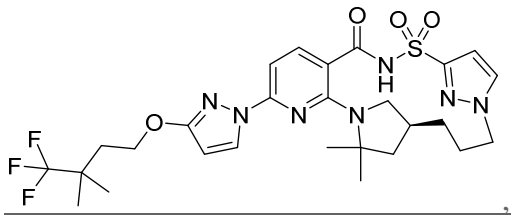
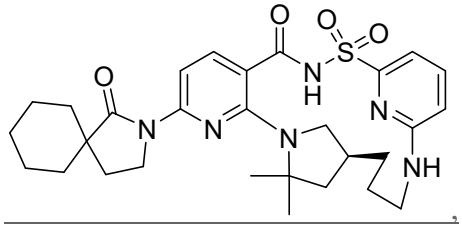
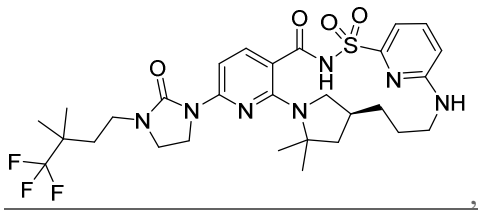
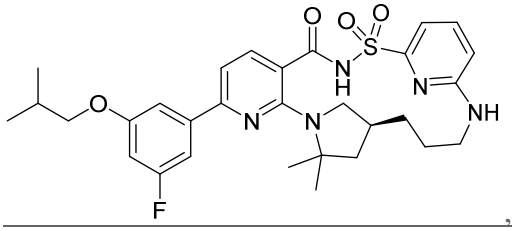
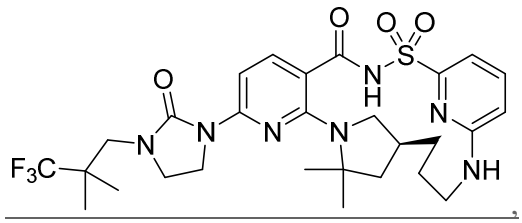
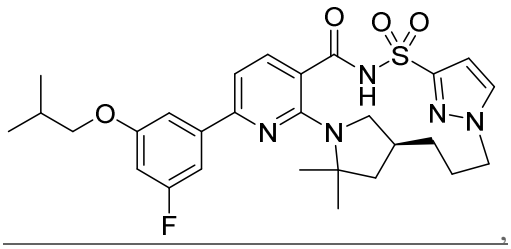
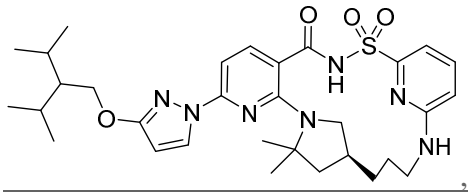
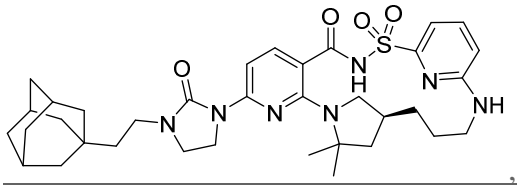
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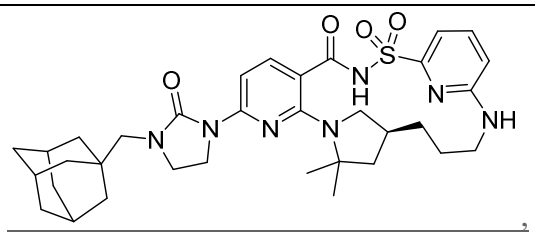
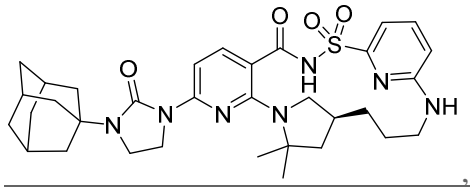
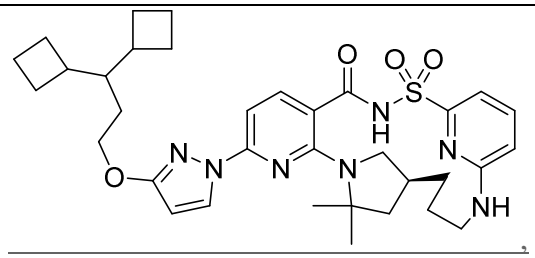
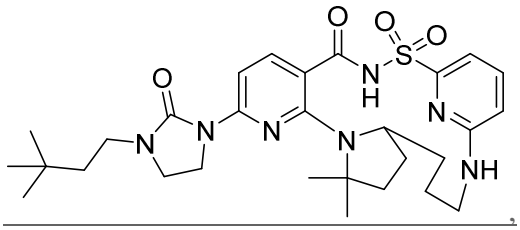
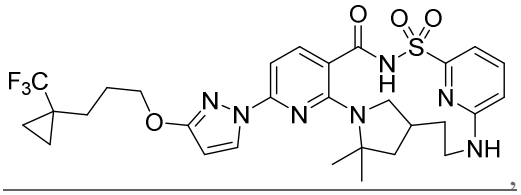
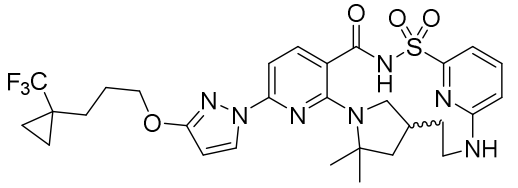
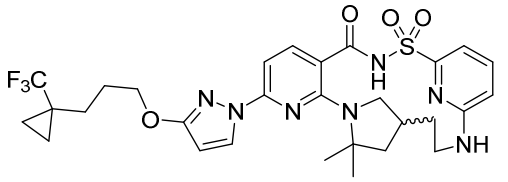
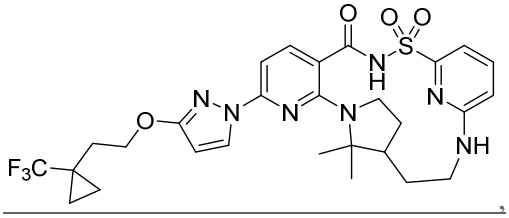
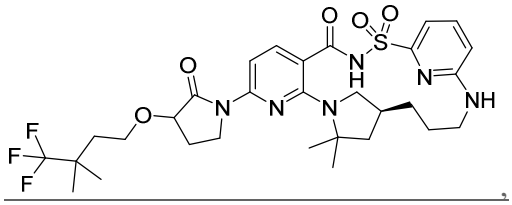
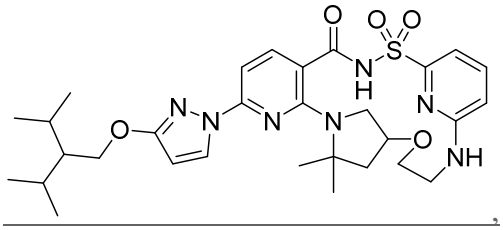
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 Compound 187	 Compound 188

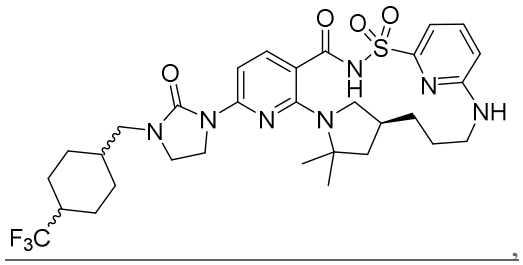
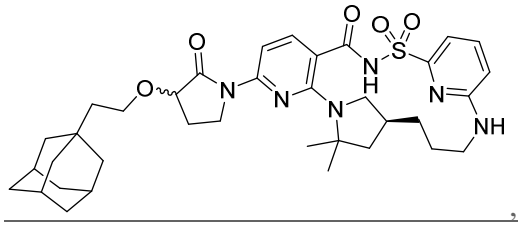
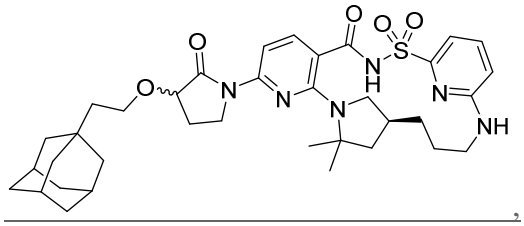
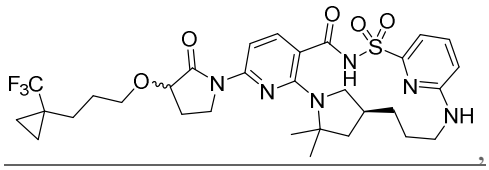
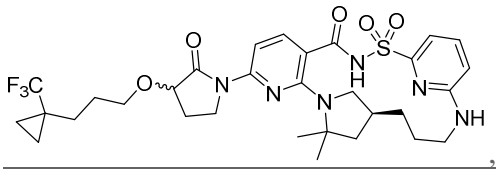
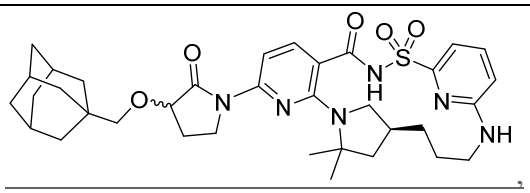
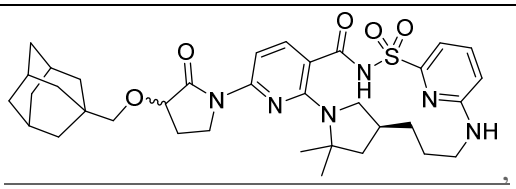
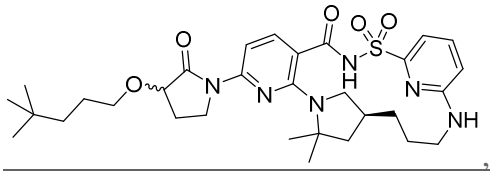
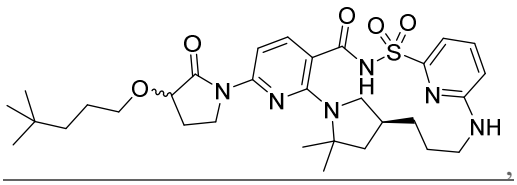
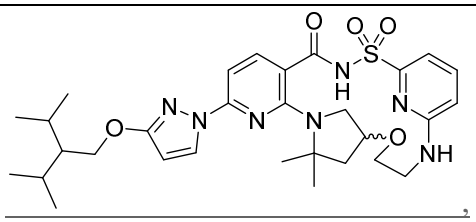
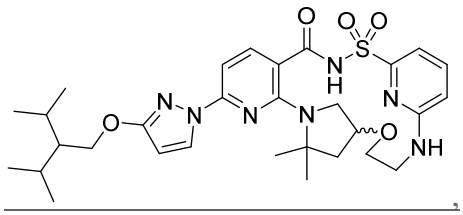
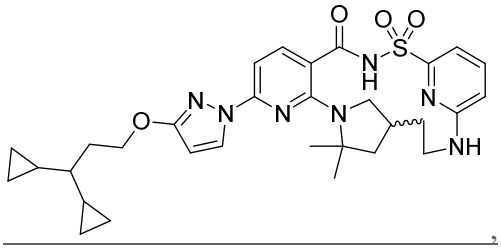
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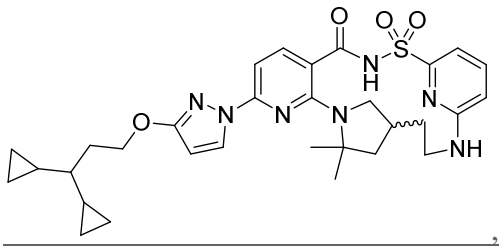
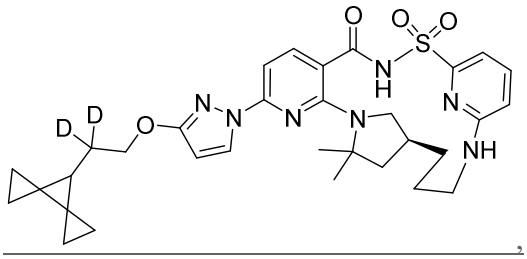
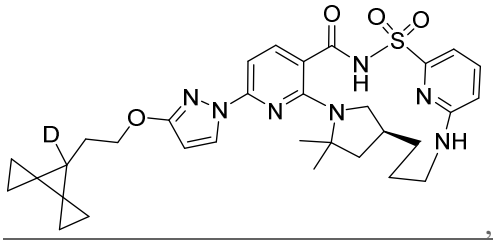
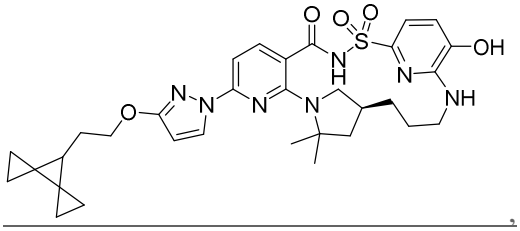
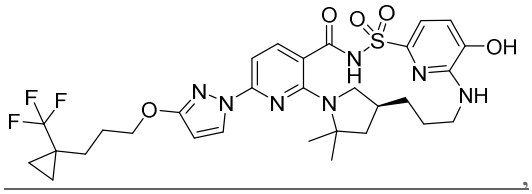
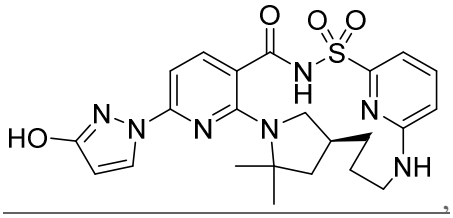
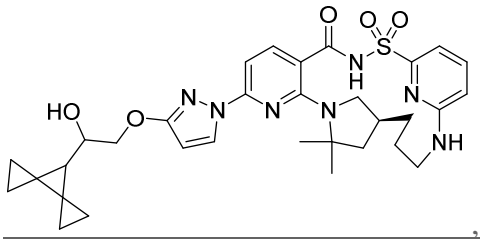
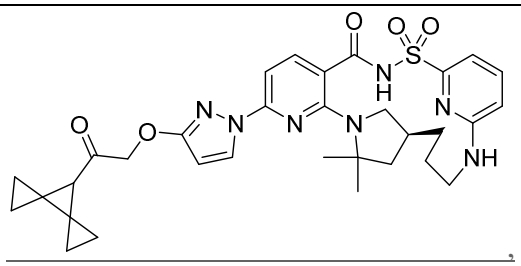
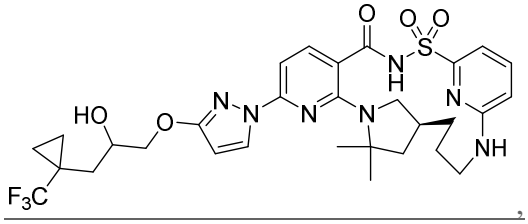
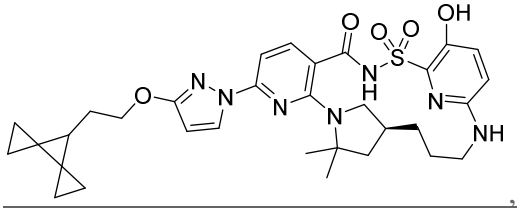
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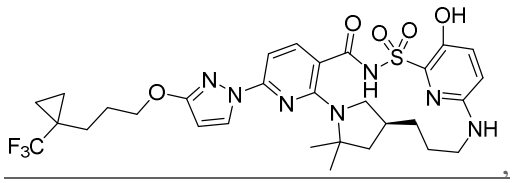
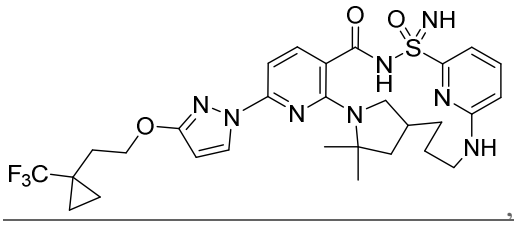
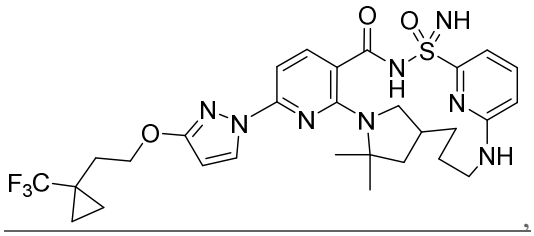
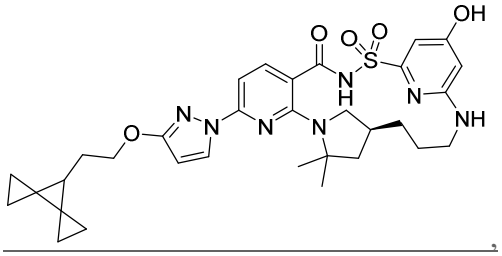
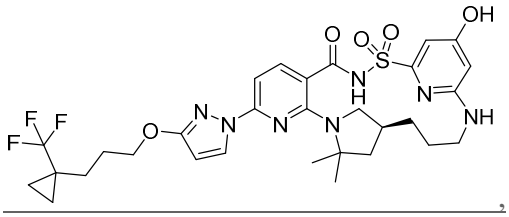
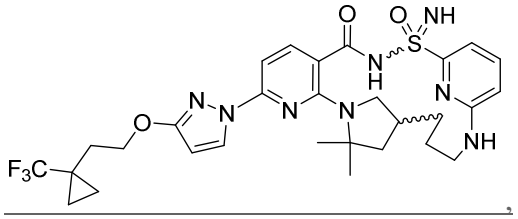
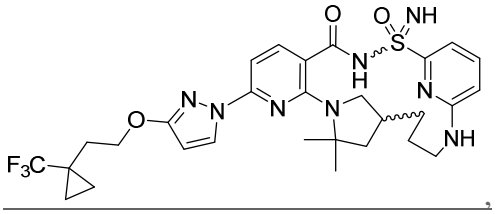
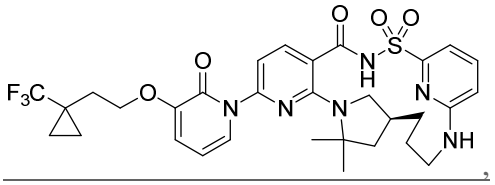
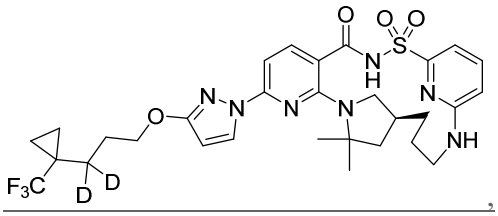
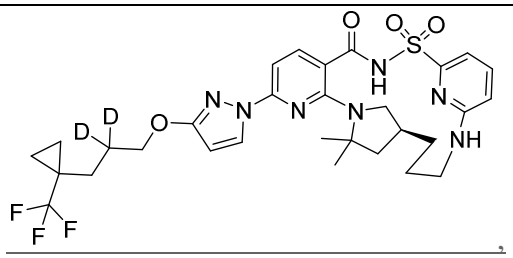
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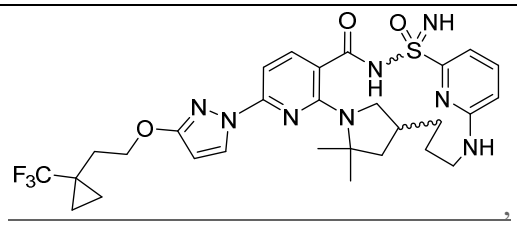
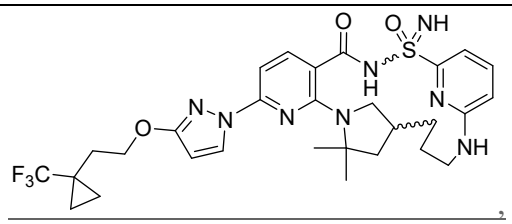
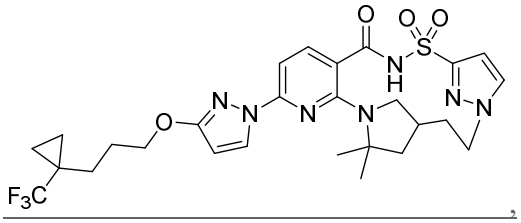
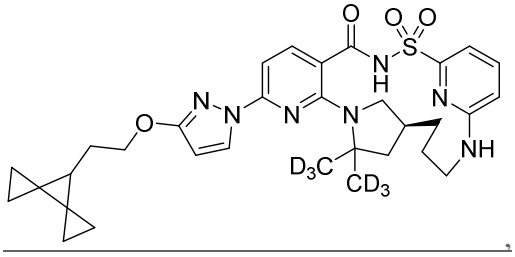
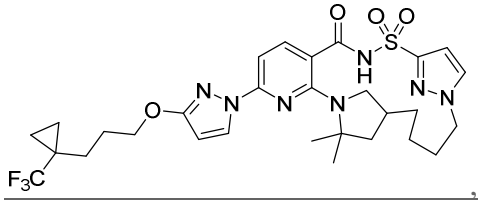
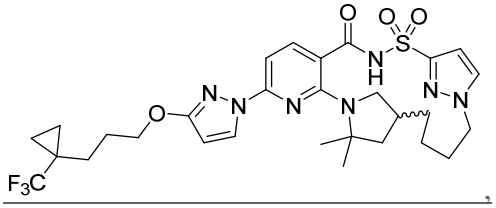
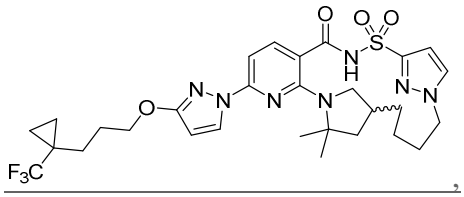
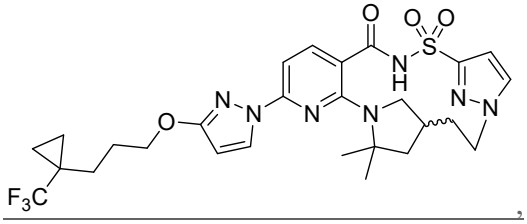
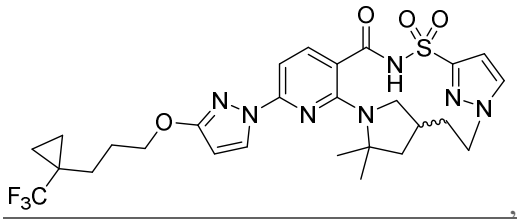
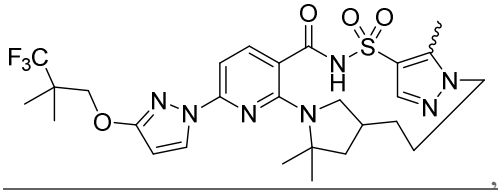
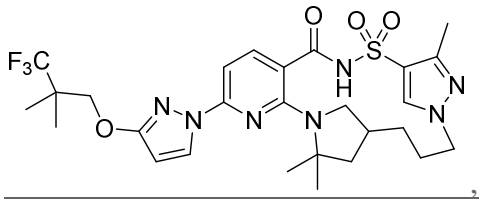
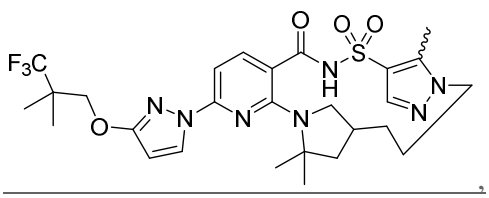
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 Compound 223	 Compound 224
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 Compound 227	 Compound 228

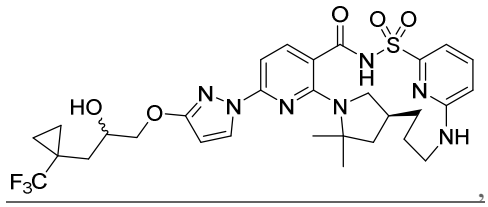
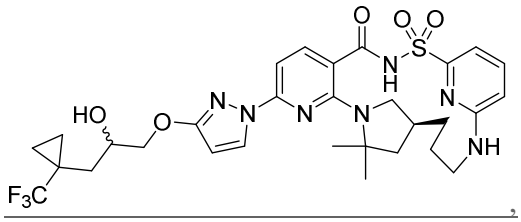
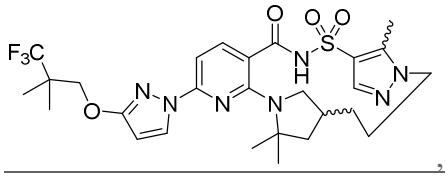
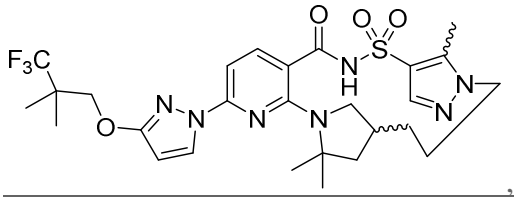
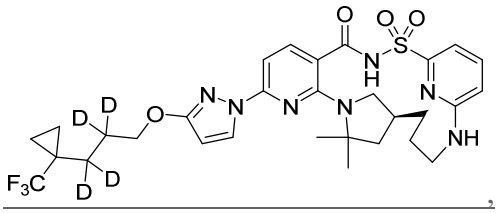
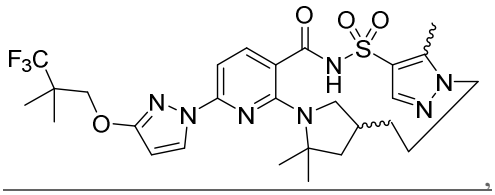
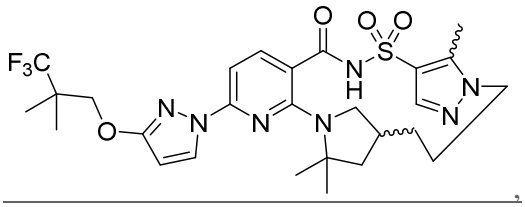
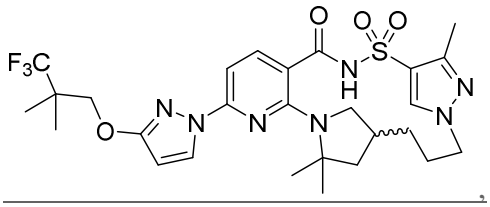
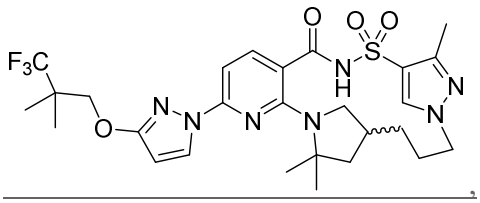
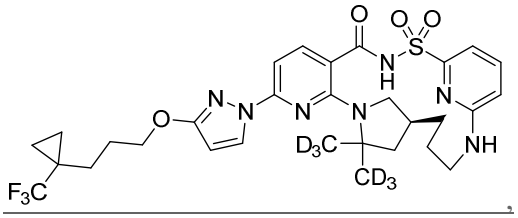
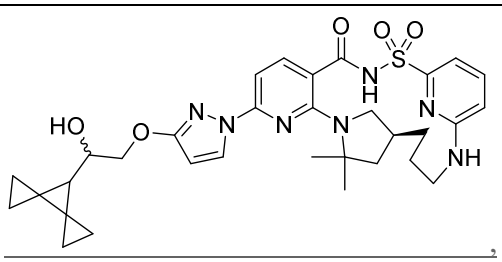
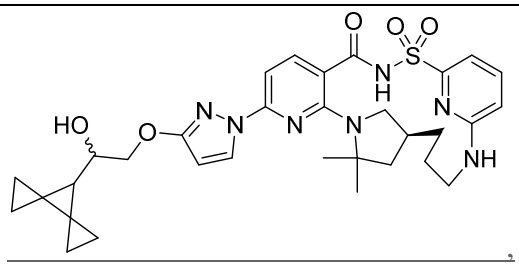
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 Compound 233	 enantiomer 1 Compound 234
 enantiomer 2 Compound 235	 Compound 236
 Compound 237	 Compound 238

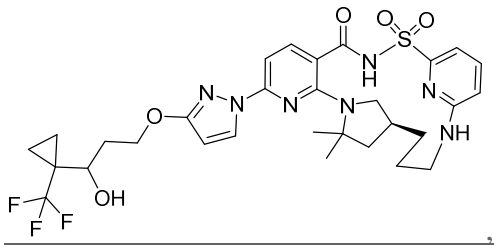
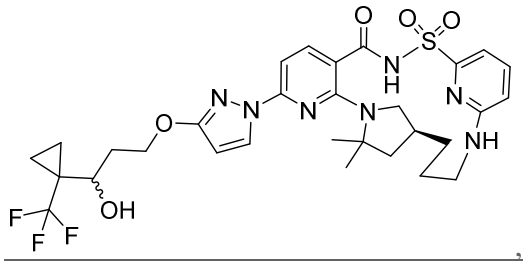
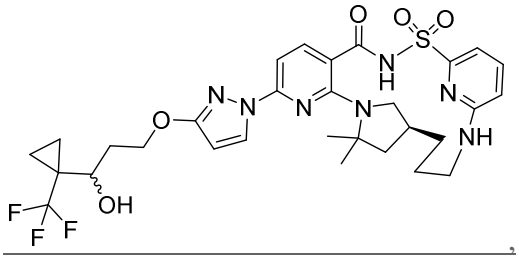
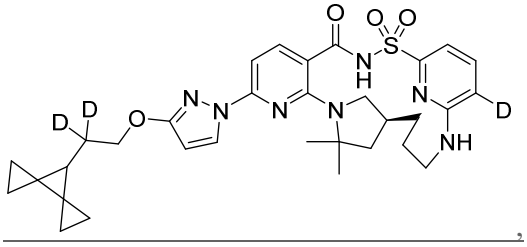
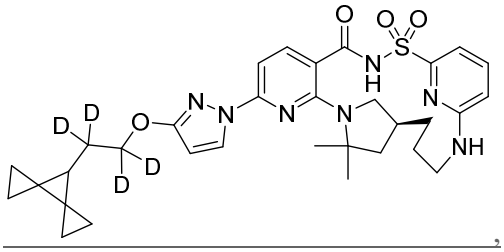
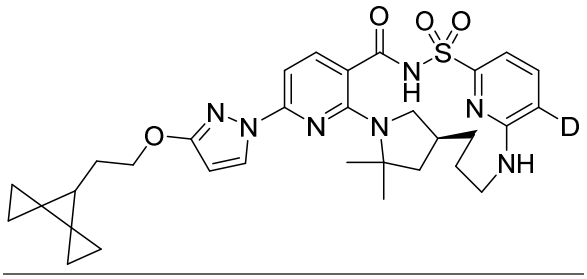
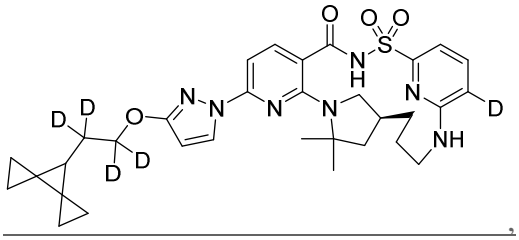
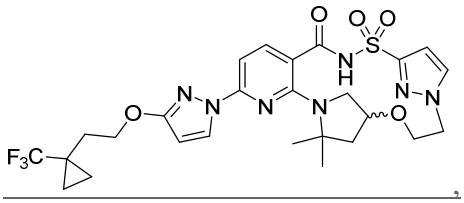
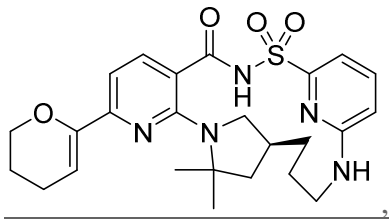
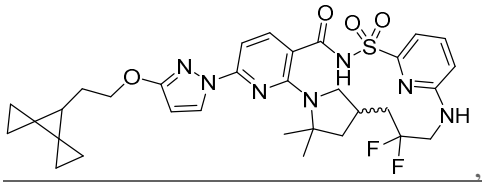
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 Compound 241	 Compound 242
 Compound 243	 Compound 244
 Compound 245	 Compound 246
 Compound 247	 Compound 248
 Compound 249	 Compound 250

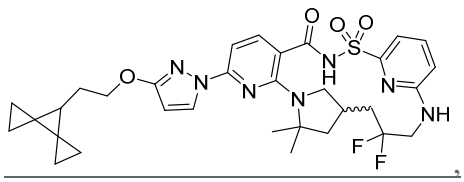
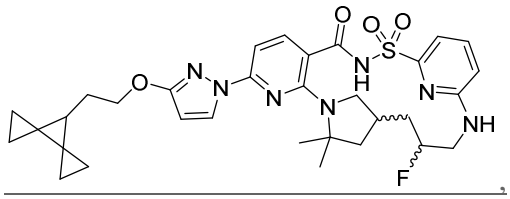
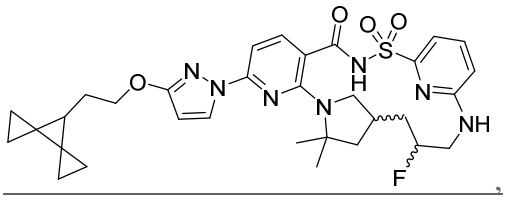
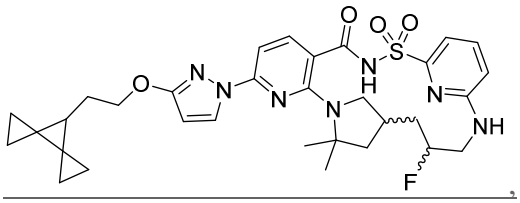
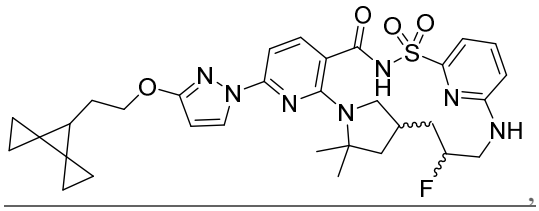
 Compound 251	 Compound 252
 Compound 253	 Compound 254
 Compound 255	 Compound 256
 Compound 257	 Compound 258
 Compound 259	 Compound 260

 Compound 261	 Compound 262
 Compound 263	 Compound 264
 Compound 265	 Compound 266
 Compound 267	 Compound 268
 Compound 269	 Compound 270

 Compound 271	 Compound 272
 Compound 273	 Compound 274
 Compound 275	 Compound 276
 Compound 277	 Compound 278
 Compound 279	 Compound 280
 Compound 281	 Compound 282

 Compound 283	 Compound 284
 Compound 285	 Compound 286
 Compound 287	 Compound 288
 Compound 289	 Compound 290
 Compound 291	 Compound 292
 Compound 293	 Compound 294

 Compound 295	 Compound 296
 Compound 297	 Compound 298
 Compound 299	 , Compound 300
 Compound 301	 Compound 302
 Compound 303	 Compound 304

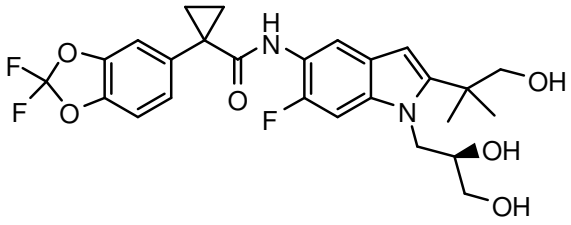
 Compound 305	 Compound 306
 Compound 307	 Compound 308
 Compound 309	

~~the compounds depicted in Figure 1,~~ a deuterated derivative thereof, or a pharmaceutically acceptable salt of any of the compounds, or a pharmaceutically acceptable salt of any deuterated derivatives of those compounds ~~or a pharmaceutically acceptable salt of any of those compounds or deuterated derivatives~~.

35. The compound of claim 1, wherein the compound is in the form of a pharmaceutically acceptable salt.

36~~40~~. A pharmaceutical composition comprising a compound of claim 1, ~~at least one compound chosen from compounds of any one of claims 1-39~~ a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, and optionally one or more of:

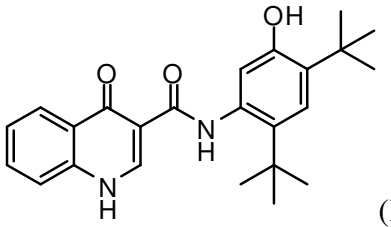
(a) Compound II:



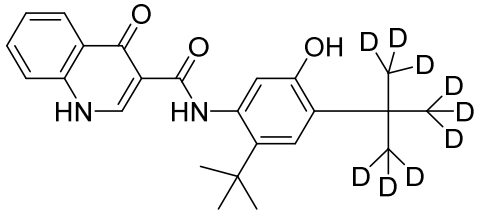
(II),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing;

(b) Compound III or Compound III-d:



(III),

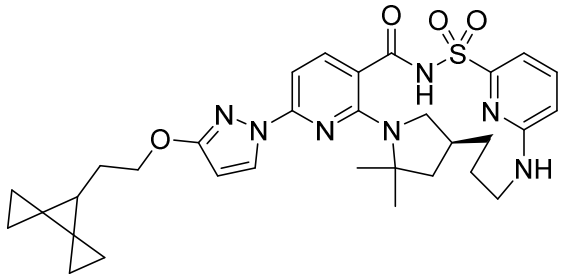


(III-d)

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing; and

(c) a pharmaceutically acceptable carrier.

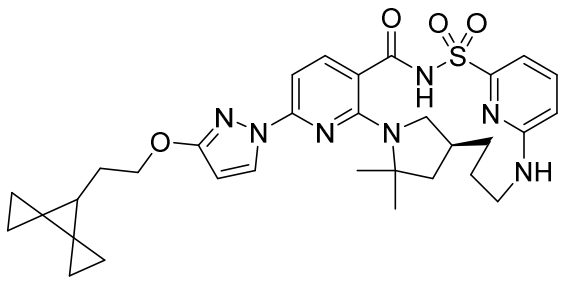
37. A compound of the formula:



(Compound 195),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing.

38. A compound of the formula:



(Compound 195), or a pharmaceutically acceptable salt thereof.

39. The compound of claim 38, wherein the compound is in the form of a pharmaceutically acceptable salt.

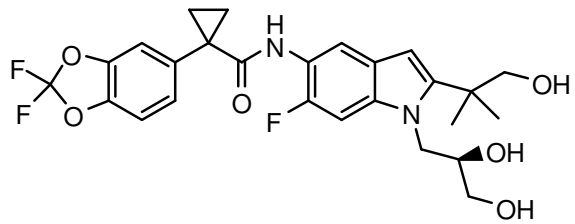
40. The compound of claim 39, wherein the pharmaceutically acceptable salt is a calcium salt.

41. The compound of claim 39, wherein the pharmaceutically acceptable salt is a sodium salt.

42. The compound of claim 39, wherein the pharmaceutically acceptable salt is a potassium salt.

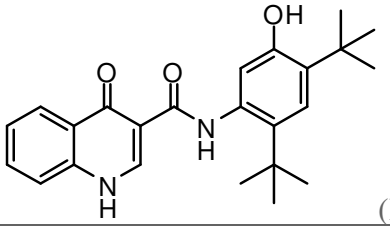
43. A pharmaceutical composition comprising the compound, salt, or deuterated derivative of any one of claims 37 to 42, and optionally one or more of:

(a) Compound II:

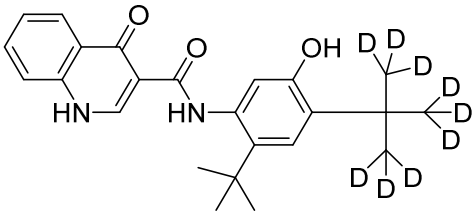


(II), a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing;

(b) Compound III or Compound III-d:



(III),



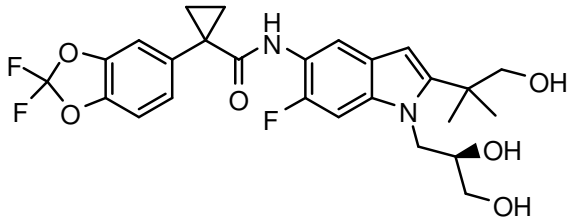
(III-d)

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing; and

(c) a pharmaceutically acceptable carrier.

44. A pharmaceutical composition comprising the pharmaceutically acceptable salt of any one of claims 37 to 42, and optionally one or more of:

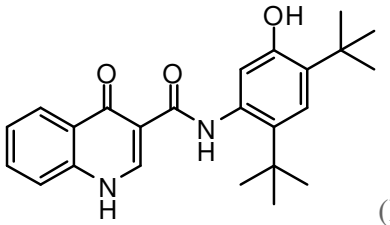
(a) Compound II:



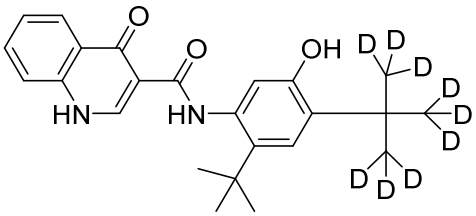
(II),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing;

(b) Compound III or Compound III-d:



(III),



(III-d)

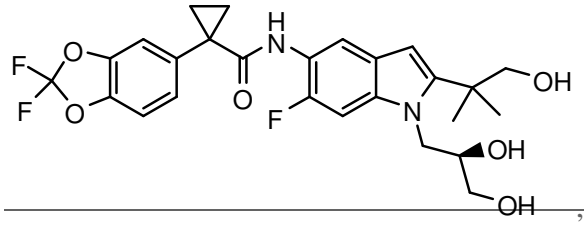
a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing; and

(c) a pharmaceutically acceptable carrier.

~~41. A method of treating cystic fibrosis comprising administering to a patient in need thereof a compound of any one of claims 1 to 39 or a pharmaceutical composition according to claim 40.~~

42. Use of at least one compound chosen from compounds of any one of claims 1-39 a deuterated derivative thereof, of a pharmaceutically acceptable salt of any of the foregoing, and optionally one or more of:

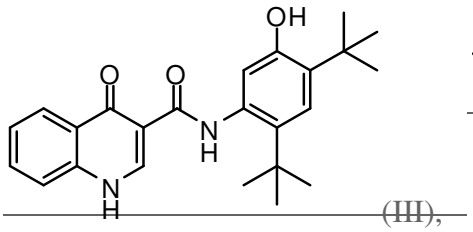
(a) Compound II:



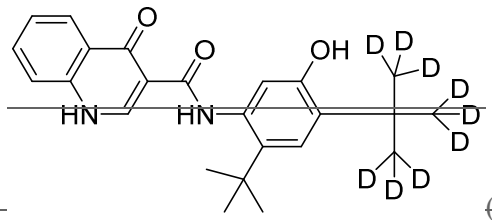
,

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing;

(b) Compound III or Compound III-d:



(III),

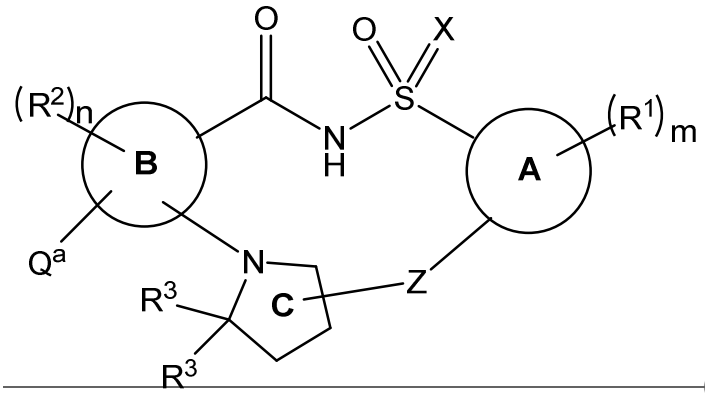


(III-d)

a deuterated derivative thereof or a pharmaceutically acceptable salt of any of the foregoing;

for treating cystic fibrosis.

43. A compound of Formula (**X**):



(**X**),

~~a deuterated derivative thereof or a salt of any of the foregoing,~~

~~wherein:~~

~~- Q^a is a halogen;~~

~~- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;~~

~~- Ring B is a pyridinyl ring;~~

~~- X is O, NH, or an N(C_1-C_4 alkyl);~~

~~- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- m is 0, 1, 2, 3, or 4;~~

~~- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- n is 0, 1, or 2;~~

~~- each R^3 is methyl;~~

~~- Z is a divalent linker of formula $(L)_r$, wherein:~~

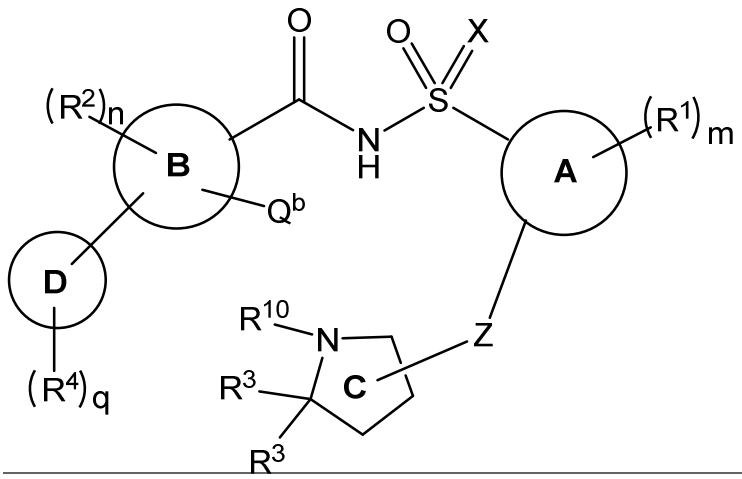
~~- r is 1, 2, 3, 4, 5, or 6;~~

~~- each L is independently chosen from $C(R^8)(R^9)$ groups, -O-, and -NR^b- groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:~~

~~- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and~~

~~- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.~~

~~44. A compound of Formula (**Y**):~~



(Y)

a salt thereof, or a deuterated derivative of any of the foregoing,

wherein:

- Q^b is a halogen;
- R^{10} is hydrogen or a protecting group;
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- Ring B is a pyridinyl ring;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- X is O, NH, or an N(C_1-C_4 alkyl);
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from

~~halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; wherein:~~

~~- k is 0, 1, 2, 3, 4, 5, or 6;~~

~~- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and –NR^a– groups, wherein a heteroatom in -$(Y)_k$-R^7 is not bonded to another heteroatom in -$(Y)_k$-R^7, wherein:~~

~~- each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_3-$_5$ cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_3-$_5$ cycloalkyl group or oxo;~~

~~- each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and~~

~~- each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and~~

~~- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;~~

~~- q is 1, 2, 3 or 4; and~~

~~- Z is a divalent linker of formula $(L)_r$, wherein:~~

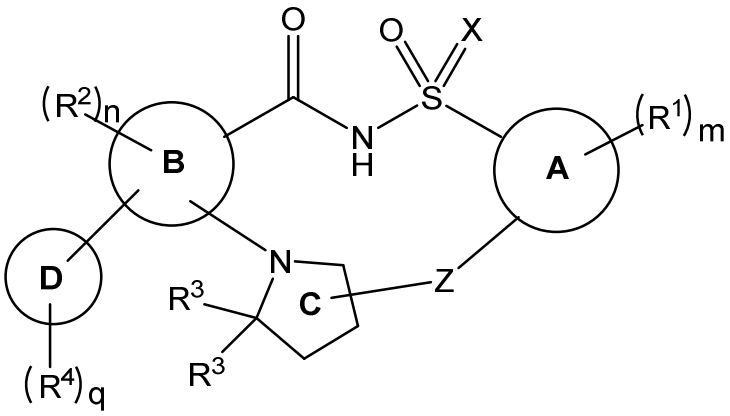
~~- r is 1, 2, 3, 4, 5, or 6;~~

~~- each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and –NR^b– groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:~~

~~- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and~~

~~- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.~~

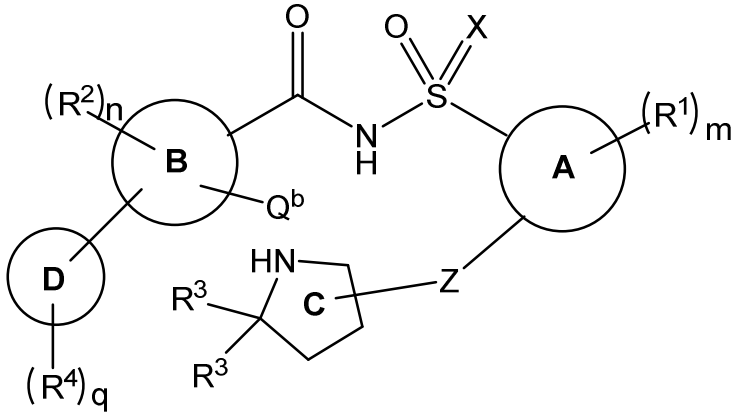
45. A method of preparing a compound of Formula (**I**):



(**I**),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, comprising

coupling the NH group of Ring C and the Q^b group of Ring B of a compound of Formula (**Y-I**):



(**Y-I**),

a salt thereof, or a deuterated derivative of any of the foregoing, wherein:

- Q^b is a halogen;
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- Ring B is a pyridinyl ring;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- X is O, NH, or an N(C_1-C_4 alkyl);
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;

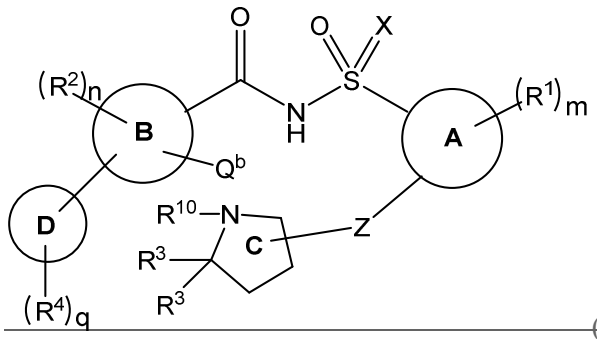
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and –NR^a– groups, wherein a heteroatom in -$(Y)_k$-R^7 is not bonded to another heteroatom in -$(Y)_k$-R^7, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1, 2, 3 or 4; and
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 1, 2, 3, 4, 5, or 6;

- each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:
  - each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups;

to form a compound of Formula (**I**), a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing.

~~46. The method of claim 45, wherein said coupling is performed in the presence of a base.~~

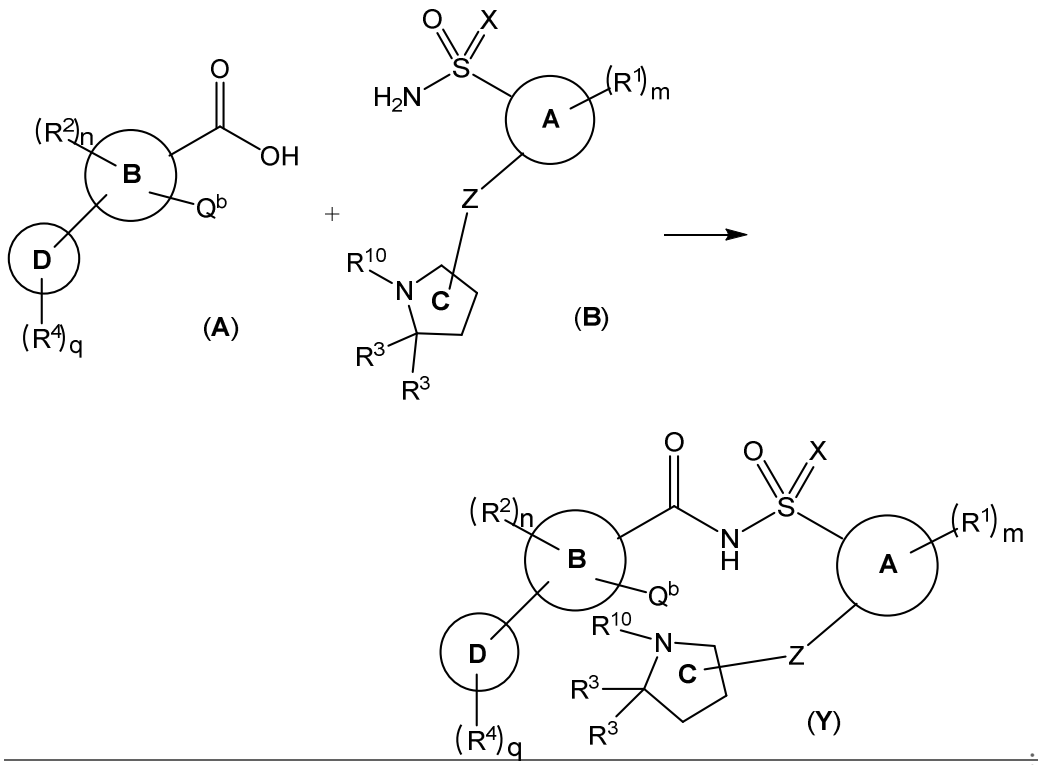
~~47. A method of preparing a compound of Formula (**Y**)~~



~~(**Y**),~~

~~a salt thereof, or a deuterated derivative of any of the foregoing, comprising~~

~~reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B**), a salt thereof, or a deuterated derivative of any of the foregoing, to form said compound of Formula (**Y**), a salt thereof, or a deuterated derivative of any of the foregoing:~~



;

~~and~~

~~optionally deprotecting the N-protecting group of Ring C of Formula (**Y**),~~ ~~wherein~~

~~Q^b is a halogen;~~

~~R^{10} of Formula (**Y**) is hydrogen or a N-protecting group;~~

~~R^{10} of Formula (**B**) is a N-protecting group, and~~

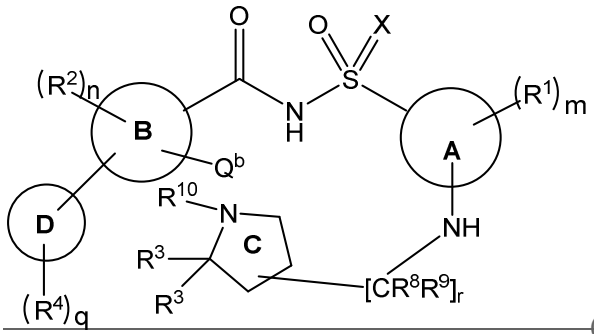
~~Ring A, Ring B, Ring D, X, R^1, m, R^2, n, R^3, R^4, q, Z, R^{10}, and the variables therein are as recited in claim 1.~~

~~48. The method of claim 47, wherein said reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B**), a salt thereof, or a deuterated derivative of any of the foregoing, is performed in the presence of a base.~~

~~49. The method of claim 48, wherein said reacting a compound of Formula (**A**), salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B**), a salt thereof, or a deuterated derivative of any of the foregoing, comprises reacting a compound of Formula (**A**) , salt thereof, or a deuterated derivative of any of the~~

~~foregoing, with a coupling reagent and subsequently with a compound of Formula (**B**) , salt thereof, or a deuterated derivative of any of the foregoing, in the presence of a base.~~

~~50. A method of preparing a compound of Formula (**Y-2**):~~



~~(**Y-2**),~~

~~a salt thereof, or a deuterated derivative of any of the foregoing, wherein:~~

~~- Q^b is a halogen;~~

~~- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;~~

~~- Ring B is a pyridinyl ring;~~

~~- Ring D is a phenyl ring, a 5- membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;~~

~~- X is O, NH, or an N(C_1-C_4 alkyl);~~

~~- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- m is 0, 1, 2, 3, or 4;~~

~~- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- n is 0, 1, or 2;~~

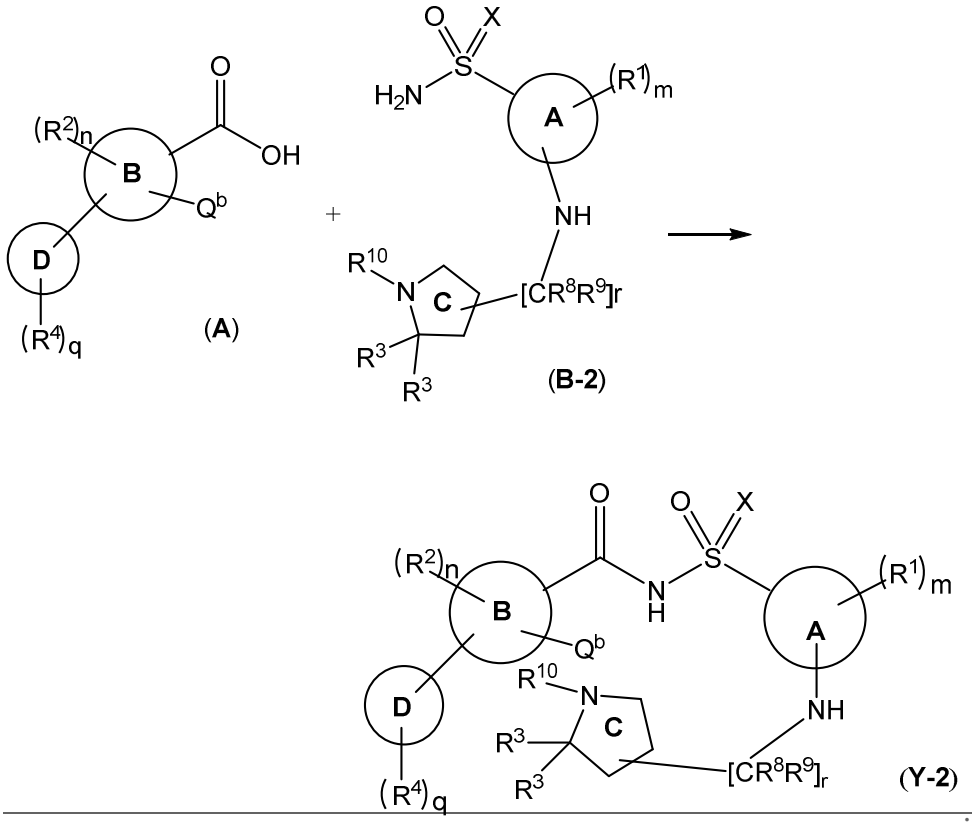
~~- each R^3 is methyl;~~

~~- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is~~

optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; wherein:

- k is 0, 1, 2, 3, 4, 5, or 6;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_3-$_5$ cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_3-$_5$ cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1, 2, 3 or 4;
- r is 1, 2, 3, 4 or 5;
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
- R^{10} is hydrogen or a protecting group;

comprising reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-2**), a salt thereof, or a deuterated derivative of any of the foregoing, to form said compound of Formula (**Y-2**), a salt thereof, or a deuterated derivative of any of the foregoing:

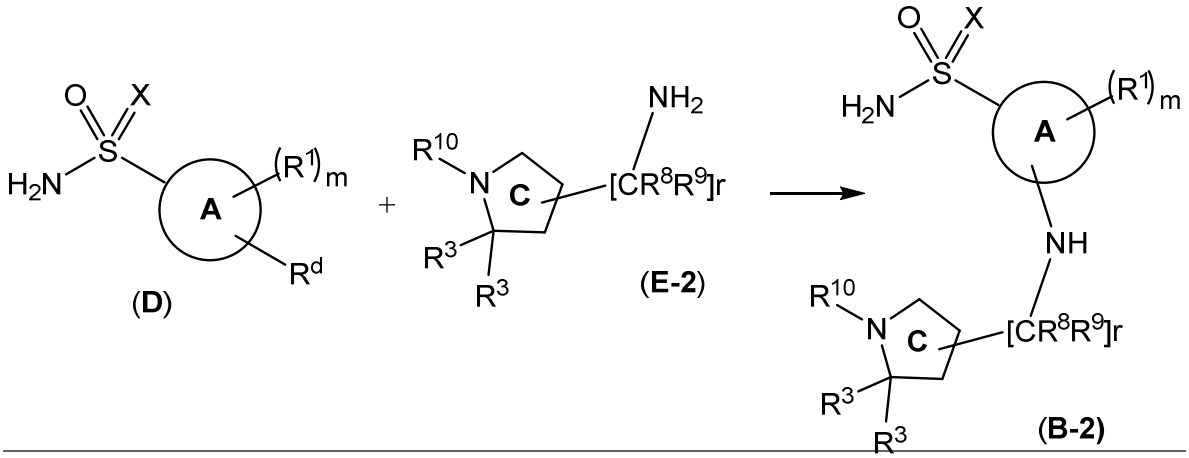


51. The method of claim 50, wherein said reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-2**), salt thereof, or a deuterated derivative of any of the foregoing, is performed in the presence of a base.

52. The method of claim 51, wherein said reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-2**), a salt thereof, or a deuterated derivative of any of the foregoing, comprises reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a coupling reagent and subsequently with a compound of Formula (**B-2**), a salt thereof, or a deuterated derivative of any of the foregoing, in the presence of a base.

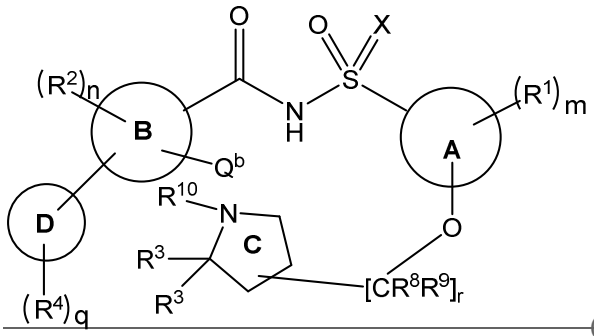
53. The method of any one of claims 50-52, further comprising reacting a compound of Formula (**D**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**E-2**),a salt thereof, or a deuterated derivative of any of the

foregoing, to form said compound of Formula (**B-2**), a salt thereof, or a deuterated derivative of any of the foregoing:



wherein R^d is a halogen.

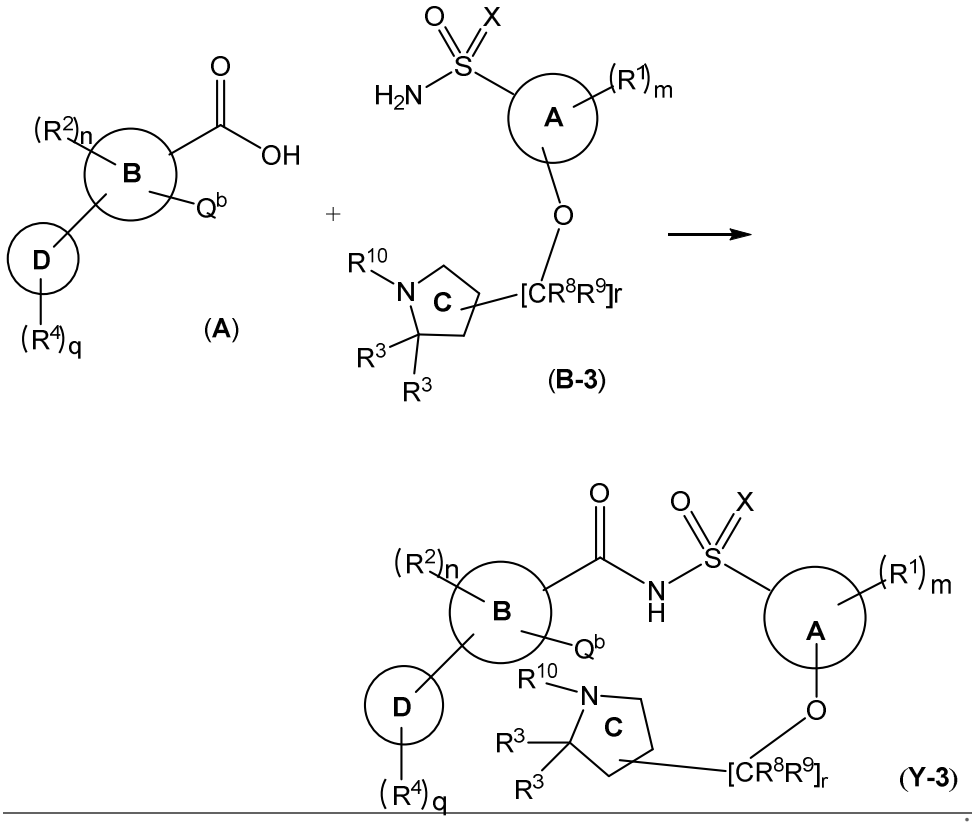
54. A method of preparing a compound of Formula (**Y-3**):



(**Y-3**),

a salt thereof, or a deuterated derivative of any of the foregoing, comprising

reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-3**), a salt thereof, or a deuterated derivative of any of the foregoing, to form said compound of Formula (**Y-3**), a salt thereof, or a deuterated derivative of any of the foregoing:

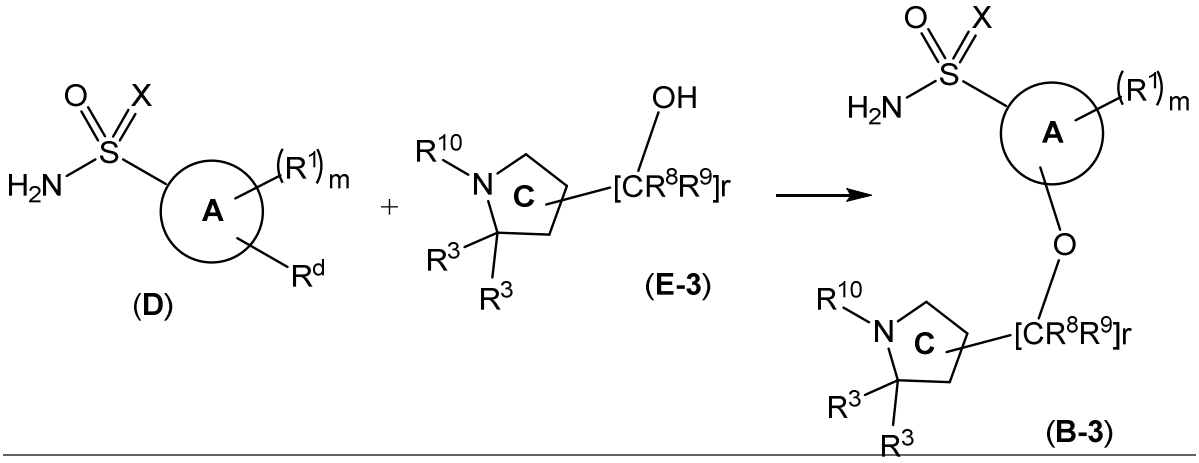


55. The method of claim 54, wherein said reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-3**), a salt thereof, or a deuterated derivative of any of the foregoing, is performed in the presence of a base.

56. The method of claim 54, wherein said reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**B-3**), a salt thereof, or a deuterated derivative of any of the foregoing, comprises reacting a compound of Formula (**A**), a salt thereof, or a deuterated derivative of any of the foregoing, with a coupling reagent and subsequently with a compound of Formula (**B-3**), a salt thereof, or a deuterated derivative of any of the foregoing, in the presence of a base.

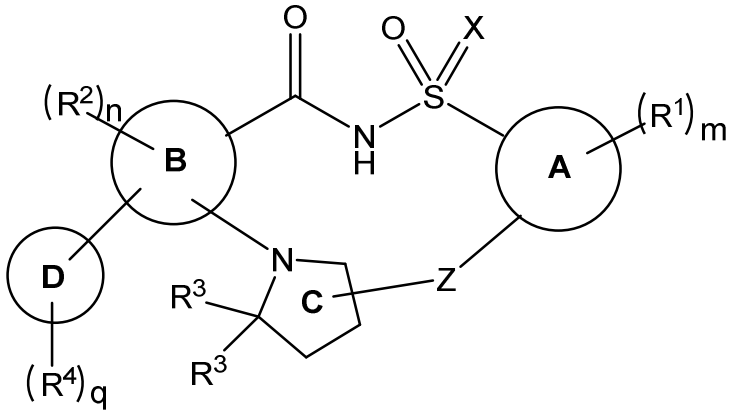
57. The method of any one of claims 54-56, further comprising reacting a compound of Formula (**D**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**E-3**), a salt thereof, or a deuterated derivative of any of the

~~foregoing, to form said compound of Formula (**B-3**), a salt thereof, or a deuterated derivative of any of the foregoing:~~

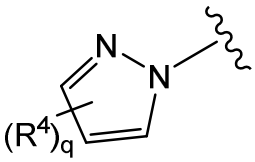


~~wherein R^d is a halogen.~~

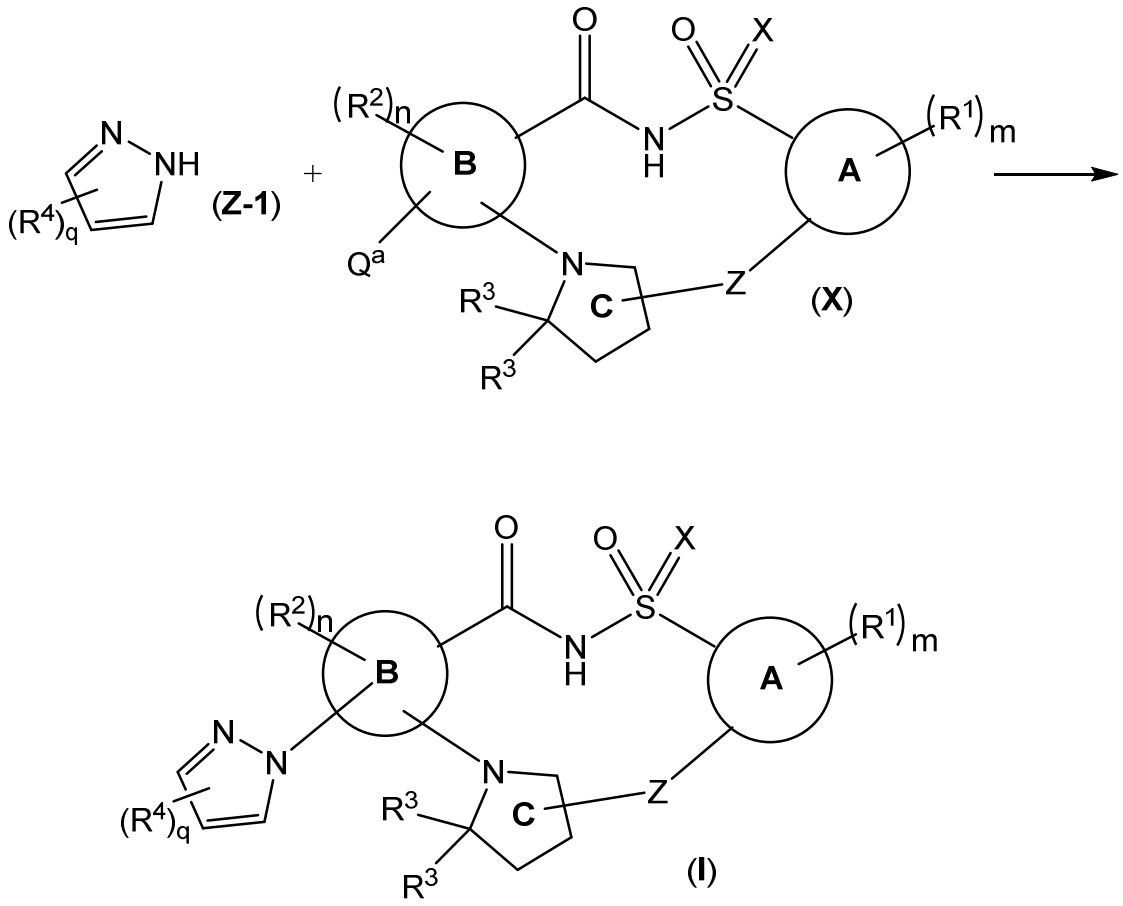
~~46~~58. A method of preparing a compound of Formula (**I**)



(**I**),

a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing, wherein Ring D is  , comprising

reacting a compound of Formula (**X**), a salt thereof, or a deuterated derivative of any of the foregoing, with a compound of Formula (**Z-1**), a salt thereof, or a deuterated derivative of any of the foregoing:



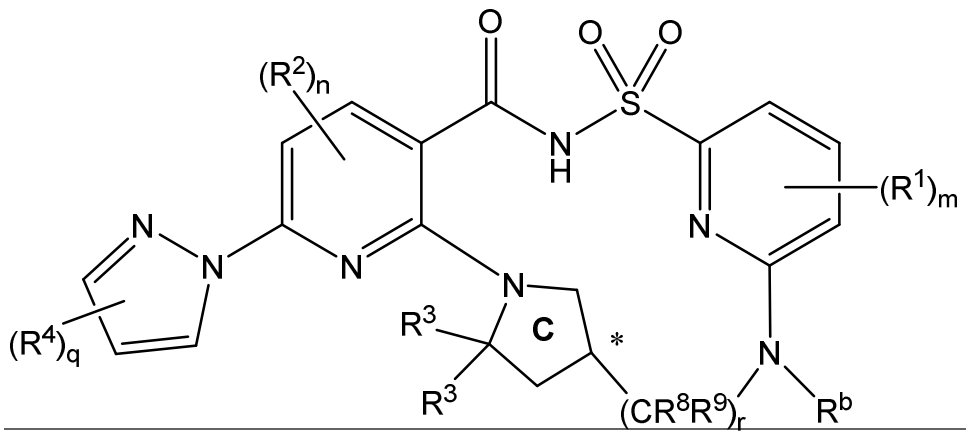
wherein:

- Q^a is a halogen;
- Ring A is a phenyl, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- Ring B is a pyridinyl ring;
- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6- membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;
- X is O, NH, or an N(C1-C4 alkyl);
- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;
- m is 0, 1, 2, 3, or 4;
- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;

- n is 0, 1, or 2;
- each R^3 is methyl;
- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and $-(Y)_k-R^7$ groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; wherein:
  - k is 0, 1, 2, 3, 4, 5, or 6;
  - each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
    - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
    - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
    - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
  - R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1, 2, 3 or 4; and
- Z is a divalent linker of formula $(L)_r$, wherein:
  - r is 1, 2, 3, 4, 5, or 6;
  - each L is independently chosen from $C(R^8)(R^9)$ groups, –O–, and $–NR^b–$ groups, wherein a heteroatom in Z is not bonded to another heteroatom in Z, wherein:

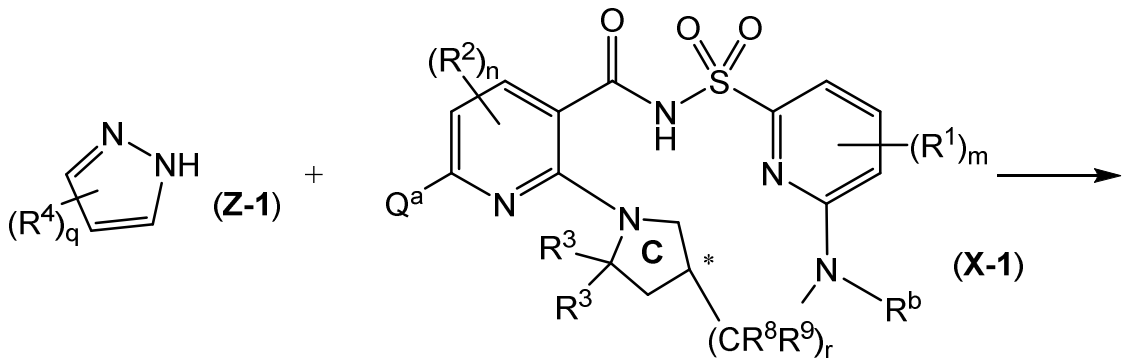
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 haloalkyl groups, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

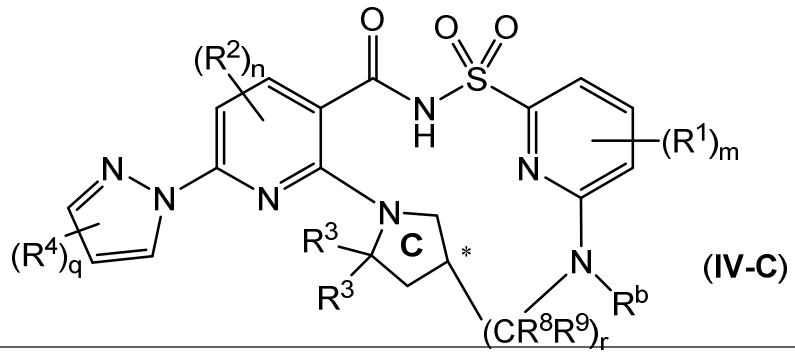
~~59. A method of preparing a compound of Formula (**IV-C**):~~



~~(**IV-C**), a pharmaceutically acceptable salt thereof, or a deuterated derivative of any of the foregoing comprising~~

~~reacting a compound of Formula (**X-1**), a salt thereof, or a deuterated derivative of any of the foregoing with a compound of Formula (**Z-1**), a salt thereof, or a deuterated derivative of any of the foregoing~~





~~wherein:~~

~~- Q^a is a halogen;~~

~~- the carbon denoted by * has S-stereochemistry or R-stereochemistry;~~

~~- Ring D is a phenyl ring, a 5-membered heterocyclyl ring, a 6-membered heterocyclyl ring, a 5-membered heteroaryl ring, or a 6-membered heteroaryl ring;~~

~~- each R^1 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- m is 0, 1, 2, 3, or 4;~~

~~- each R^2 is independently chosen from C_1-C_2 alkyl groups, C_1-C_2 alkoxyl groups, C_1-C_2 haloalkyl groups, C_1-C_2 haloalkoxyl groups, halogens, a cyano group, and a hydroxyl group;~~

~~- n is 0, 1, or 2;~~

~~- each R^3 is methyl;~~

~~- each R^4 is independently chosen from halogens, an oxo group, a hydroxyl group, a cyano group, and -$(Y)_k$-R^7 groups, or optionally two R^4, together with the atom(s) they are attached to, form a 5-6 membered cycloalkyl or heterocyclyl ring that is optionally and independently substituted with one or more groups chosen from~~

halogens, C_1-C_2 alkyl groups, haloalkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups, wherein:

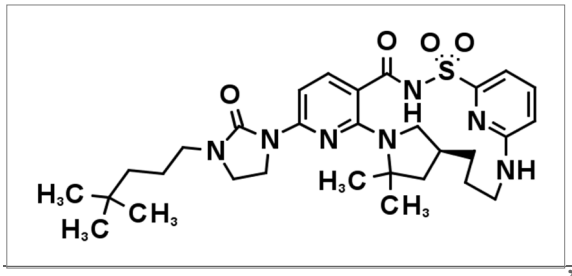
- k is 0, 1, 2, 3, 4, 5, or 6;
- each Y is independently chosen from $C(R^5)(R^6)$ groups, –O–, and $–NR^a–$ groups, wherein a heteroatom in $-(Y)_k-R^7$ is not bonded to another heteroatom in $-(Y)_k-R^7$, wherein:
  - each R^5 and R^6 is independently chosen from hydrogen, halogens, a hydroxyl group, C_1-C_4 alkyl groups, and C_{3-5} cycloalkyl groups, or R^5 and R^6 on the same carbon together form a C_{3-5} cycloalkyl group or oxo;
  - each of R^5 and R^6 is optionally independently substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, halogens, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
  - each R^a is independently chosen from hydrogen and C_1-C_2 alkyl groups; and
- R^7 is chosen from hydrogen, halogens, a cyano group, and C_3-C_{10} cycloalkyl groups optionally substituted with one or more groups chosen from C_1-C_2 alkyl groups, C_1-C_2 haloalkyl groups, and halogens;
- q is 1 or 2;
- r is 3 or 4;
- each R^8 and R^9 is independently chosen from hydrogen, halogens, C_1-C_2 alkyl groups, a hydroxyl group, C_1-C_2 alkoxyl groups, and C_1-C_2 haloalkoxyl groups; and
- each R^b is independently chosen from hydrogen and C_1-C_2 alkyl groups.

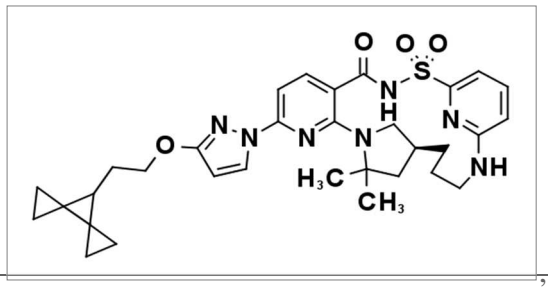
60. The compound of any one of claims 1-39, wherein the compound is in the form of a pharmaceutically acceptable salt.

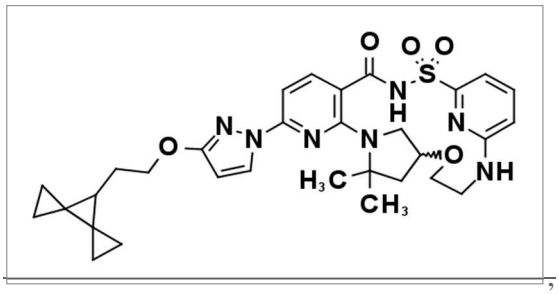
61. The compound of claim 60, wherein the pharmaceutically acceptable salt is a sodium salt, a calcium salt, or a potassium salt.

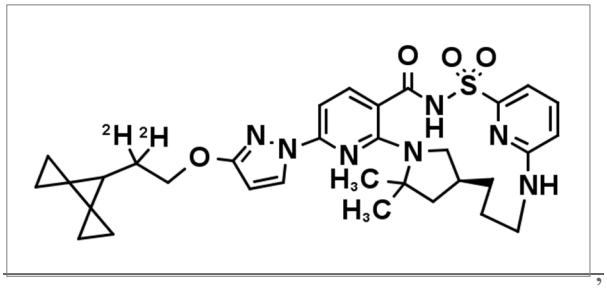
62. The compound of claim 61, wherein the pharmaceutically acceptable salt is a calcium salt.

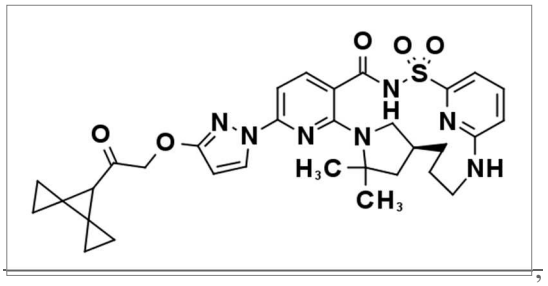
63. A compound selected from:

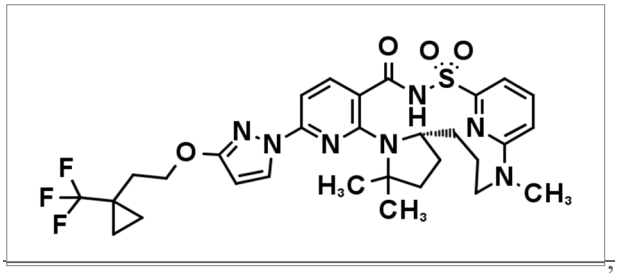
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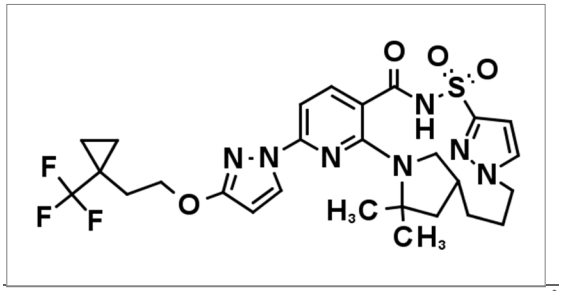
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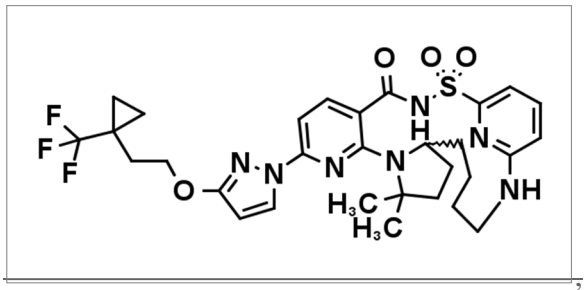
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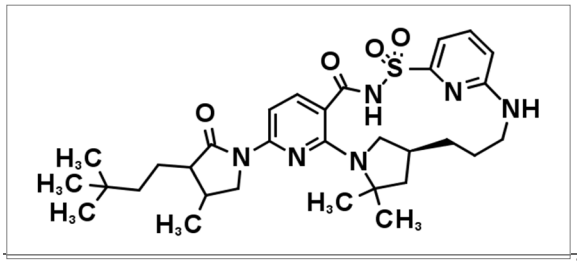
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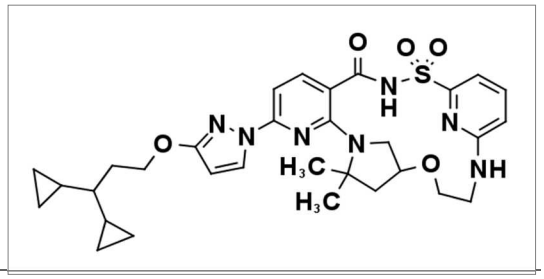
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pharmaceutically acceptable salts thereof, and deuterated derivatives of any of the foregoing.

64. The compound of claim 63, wherein the compound is in the form of a pharmaceutically acceptable salt.

65. The compound of claim 64, wherein the pharmaceutically acceptable salt is a sodium salt, a calcium salt, or a potassium salt.

66. The compound of claim 65, wherein the pharmaceutically acceptable salt is a calcium salt.

~~67. A method of treating cystic fibrosis comprising administering to a patient in need thereof the compound of any one of claims 1-39 or 60-66, wherein the compound is administered in combination with Compound III or Compound III-d.~~

~~68. A method of treating cystic fibrosis comprising administering to a patient in need thereof the compound of any one of claims 1-39 or 60-66, wherein the compound is administered in combination with (a) Compound II and (b) Compound III or Compound III-d.~~

~~69. The method of treating cystic fibrosis of any one of claims 41, 67, and 68, wherein the compound is in the form of a pharmaceutically acceptable salt.~~

~~70. The method of claim 69, wherein the pharmaceutically acceptable salt is a sodium salt, a calcium salt, or a potassium salt.~~

~~71. The method of claim 70, wherein the pharmaceutically acceptable salt is a calcium salt.~~

~~72. The compound of any one of claims 1-39 or 60-66 for use in the treatment of cystic fibrosis.~~

~~73. The compound for use of claim 72, wherein the compound is in the form of a pharmaceutically acceptable salt.~~

~~74. The compound for use of claim 73, wherein the pharmaceutically acceptable salt is a sodium salt, a calcium salt, or a potassium salt.~~

~~75. The compound for use of claim 74, wherein the pharmaceutically acceptable salt is a calcium salt.~~

~~76. The compound for use of any one of claims 72-75, wherein the treatment further comprises administration of Compound III.~~

~~77. The compound for use of any one of claims 72-75, wherein the treatment further comprises administration of Compound III-d.~~

~~78. The compound for use of any one of claims 72-75, wherein the treatment further comprises administration of Compound II and Compound III.~~

~~79. The compound for use of any one of claims 72-75, wherein the treatment further comprises administration of Compound II and Compound III-d.~~