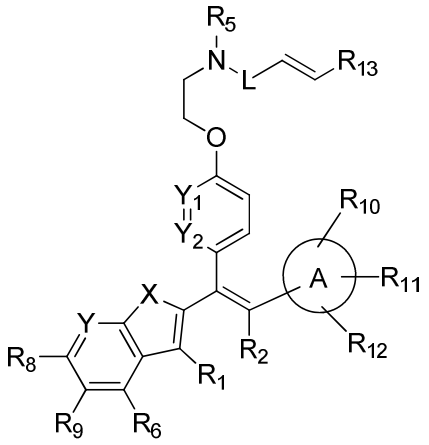
CLAIMS

1. A compound of formula (II), a stereoisomer thereof or a pharmaceutically acceptable salt thereof,



(II) ,

wherein,

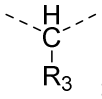
X is NH;

Y is selected from the group consisting of N and CR_7;

Y_1 is CH, and Y_2 is N;

or, Y_1 is N, and Y_2 is CH or CF;

or, Y_1 is CH, and Y_2 is CH;

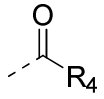
L is  or  ;

ring A is selected from the group consisting of C_{6-10} aryl and 5-10 membered heteroaryl;

R_1 is selected from the group consisting of H, halogen, CN, COOH, NH_2, C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_a;

R_2 is selected from the group consisting of C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_b;

R_3 is selected from the group consisting of H, halogen, CN, NO_2, OH, COOH, NH_2, C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_c;

R_{13} is H or  ;

R_4 is selected from the group consisting of COOH, NH_2, C_{1-6} alkyl, -NH-C_{1-6} alkyl, -N(C_{1-6} alkyl)$_2$, -C(=O)-O-C_{1-6} alkyl, -C(=O)-S-C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, phenyl and 5-6 membered heteroaryl, the C_{1-6} alkyl, -NH-C_{1-6} alkyl, -N(C_{1-6} alkyl)$_2$, -C(=O)-O-C_{1-6} alkyl, -C(=O)-S-C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, phenyl and 5-6 membered heteroaryl being optionally substituted with 1, 2 or 3 R_d;

R_5 is selected from the group consisting of H, C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_e;

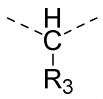
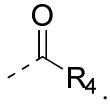
R_6, R_7, R_8 and R_9 are each independently selected from the group consisting of H, halogen, CN, NO_2, OH, COOH, NH_2, C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_f;

R_{10}, R_{11} and R_{12} are each independently selected from the group consisting of H, halogen, CN, NO_2, OH, COOH, NH_2, C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl, C_{3-6} cycloalkyl and 3-6 membered heterocycloalkyl being optionally substituted with 1, 2 or 3 R_g;

R_a, R_b, R_c, R_d, R_e, R_f and R_g are each independently selected from the group consisting of H, F, Cl, Br, I, OH, CN, NH_2, COOH, $C(=O)NH_2$, C_{1-8} alkyl, C_{1-8} heteroalkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl and C_{3-6} cycloalkyl-C_{1-3} alkyl-, the C_{1-8} alkyl, C_{1-8} heteroalkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl and C_{3-6} cycloalkyl-C_{1-3} alkyl- being optionally substituted with 1, 2 or 3 R;

R is independently selected from the group consisting of F, Cl, Br, I, OH, CN, NH_2, COOH, Me, Et, CF_3, CHF_2, CH_2F, $NHCH_3$, and $N(CH_3)_2$;

the C_{1-6} heteroalkyl, 3-6 membered heterocycloalkyl and 5-6 membered heteroaryl each comprise 1, 2, 3 or 4 heteroatoms or heteroatom groups each independently selected from the group consisting of -NH-, -O-, -S-, -O-N=, -C(=O)-O-, -C(=O)-S-, -C(=O)-, -C(=S)-, -S(=O)-, -S(=O)$_2$- and N.

2. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein Y is CR_7; Y_1 is CH and Y_2 is N, or, Y_1 is N and Y_2 is CH; L is  ; R_{13} is .

3. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_a, R_b, R_c, R_d, R_e, R_f and R_g are each independently selected from the group consisting of H, F, Cl, Br, I, OH, CN, NH_2, COOH, $C(=O)NH_2$, C_{1-6} alkyl, C_{1-6} heteroalkyl and cyclopropyl, the C_{1-6} alkyl, C_{1-6} heteroalkyl and cyclopropyl being optionally substituted with 1, 2 or 3 R.

4. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein ring A is selected from the group consisting of phenyl and 5-6 membered heteroaryl.

5. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_1 is selected from the group consisting of H, F, Cl, Br, I, CN, COOH, NH_2, C_{1-3} alkyl and C_{1-3} heteroalkyl, the C_{1-3} alkyl and C_{1-3} heteroalkyl being optionally substituted with 1, 2 or 3 R_a.

6. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_2 is selected from the group consisting of C_{1-3} alkyl and C_{1-3} heteroalkyl, the C_{1-3} alkyl and C_{1-3} heteroalkyl being optionally substituted with 1, 2 or 3 R_b.

7. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_3 is selected from the group consisting of H and C_{1-6} alkyl.

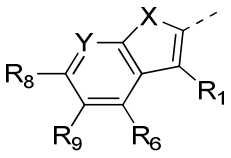
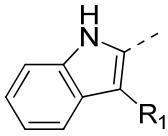
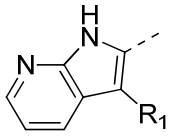
8. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_4 is selected from the group consisting of COOH, NH_2, C_{1-6} alkyl, -NH-C_{1-6} alkyl, -N(C_{1-6} alkyl)$_2$, -C(=O)-O-C_{1-6} alkyl, -C(=O)-S-C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl and phenyl, the C_{1-6}

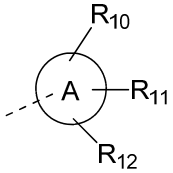
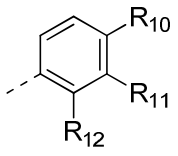
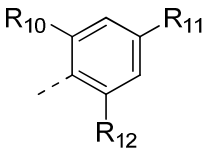
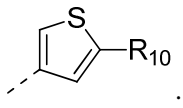
alkyl, -NH-C_{1-6} alkyl, -N(C_{1-6} alkyl)$_2$, -C(=O)-O-C_{1-6} alkyl, -C(=O)-S-C_{1-6} alkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl and phenyl being optionally substituted with 1, 2 or 3 R_d.

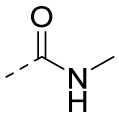
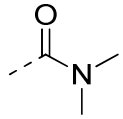
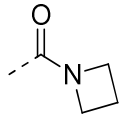
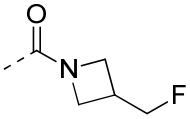
9. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_5 is selected from the group consisting of H, C_{1-3} alkyl and C_{1-3} heteroalkyl, the C_{1-3} alkyl and C_{1-3} heteroalkyl being optionally substituted with 1, 2 or 3 R_e.

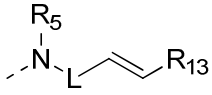
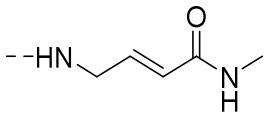
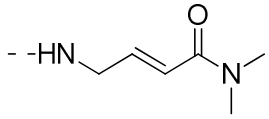
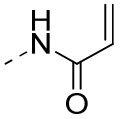
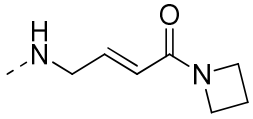
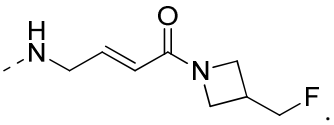
10. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_6, R_7, R_8 and R_9 are H.

11. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_{10}, R_{11} and R_{12} are each independently selected from H, F, Cl, Br, I, CN, NO_2, OH, COOH, NH_2, C_{1-3} alkyl and C_{1-3} heteroalkyl, the C_{1-3} alkyl and C_{1-3} heteroalkyl being optionally substituted with 1, 2 or 3 R_g.

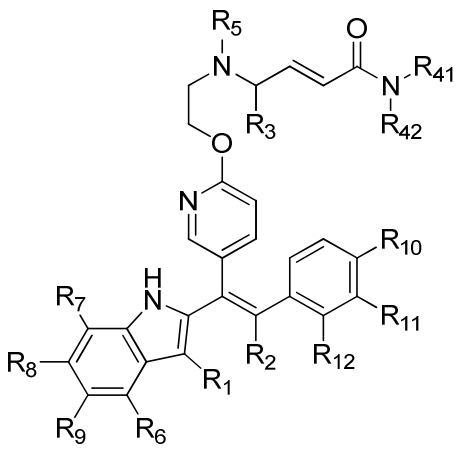
12. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural unit  is selected from  and .

13. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural unit  is selected from the group consisting of , ,  and .

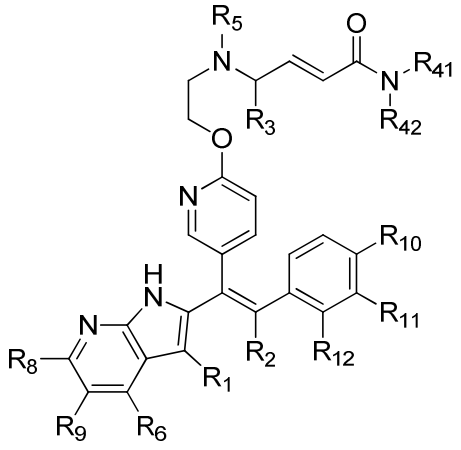
14. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein R_{13} is H, , ,  or .

15. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the structural unit  is selected from the group consisting of , , ,  and .

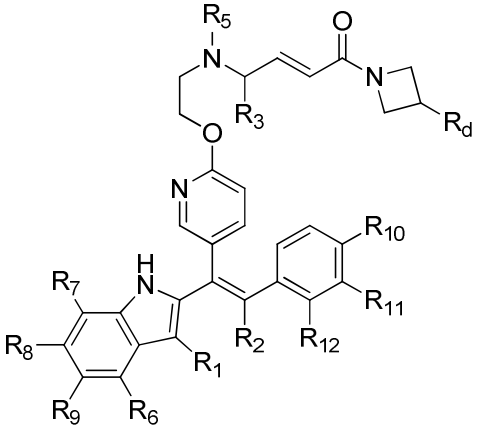
16. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof is selected from



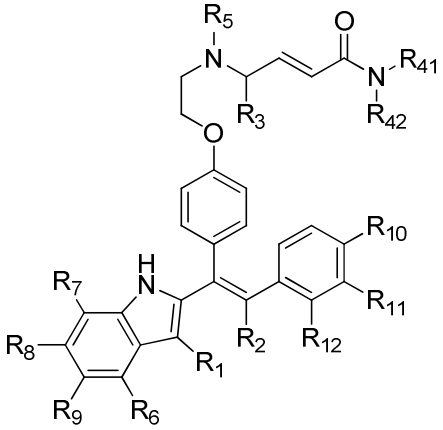
(I-3) ,



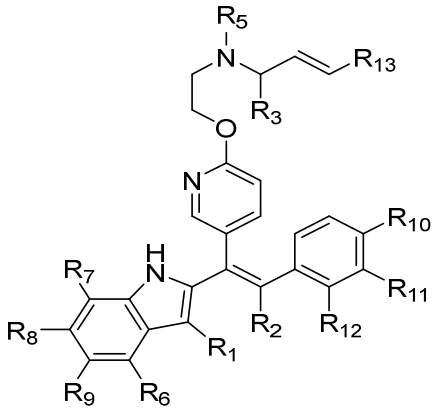
(I-6) ,



(II-1) ,



(II-2) ,



and (II-3) ,

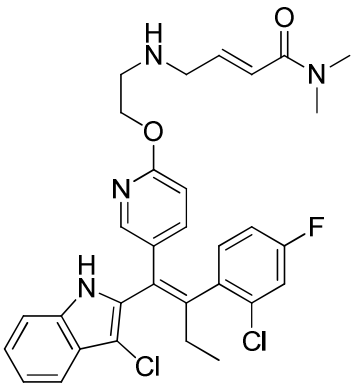
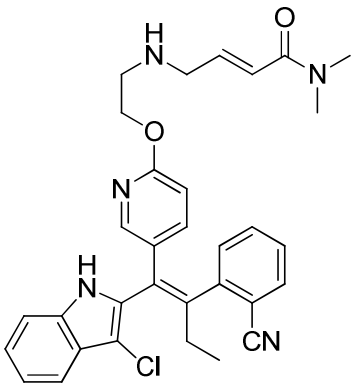
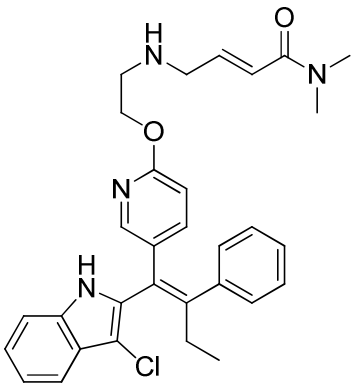
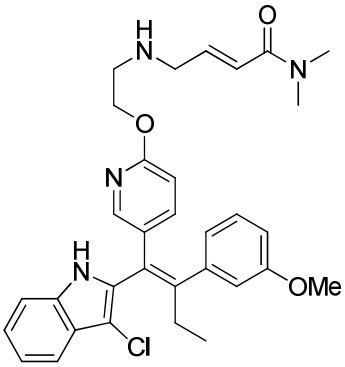
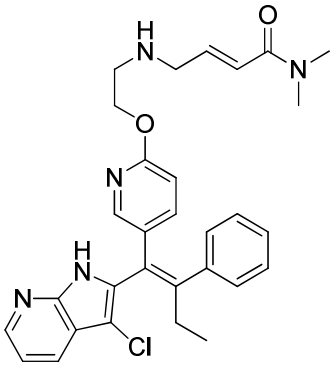
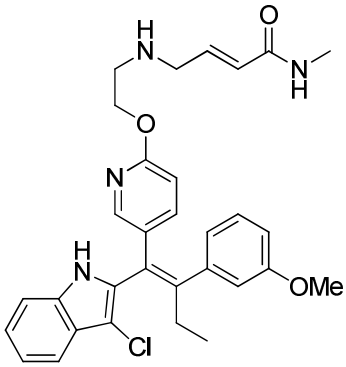
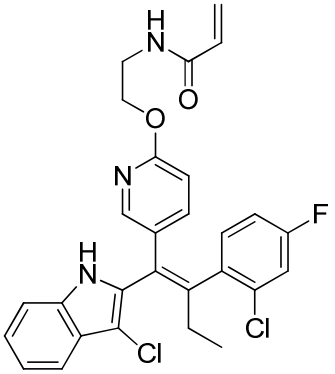
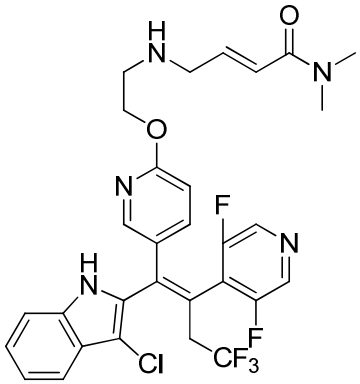
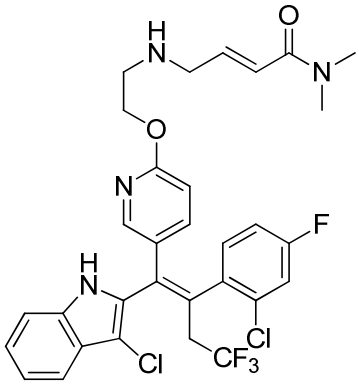
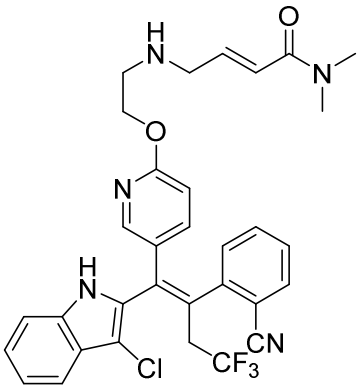
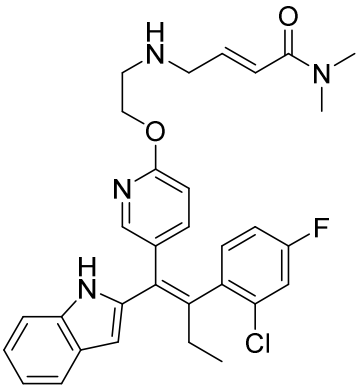
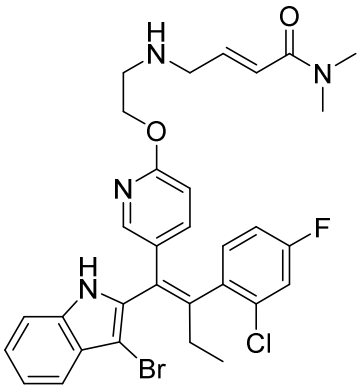
wherein,

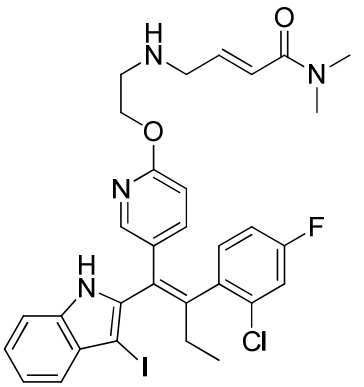
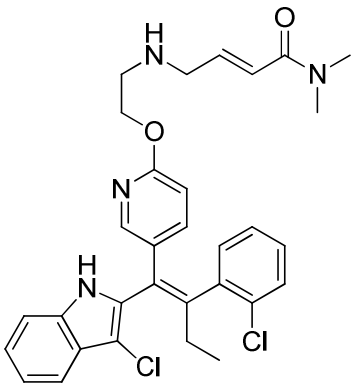
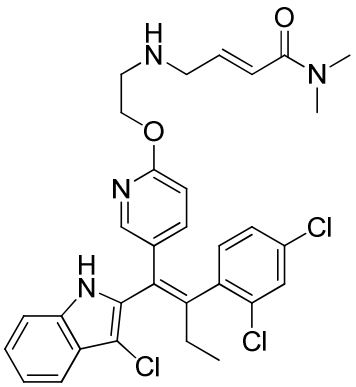
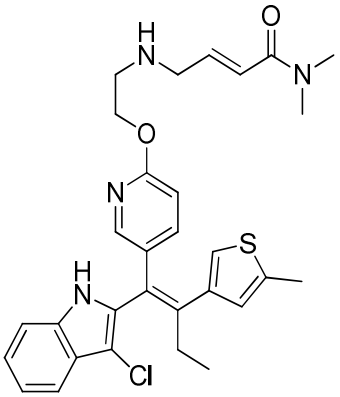
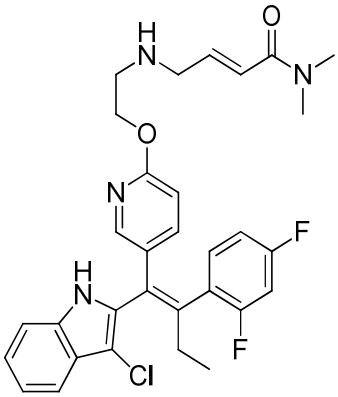
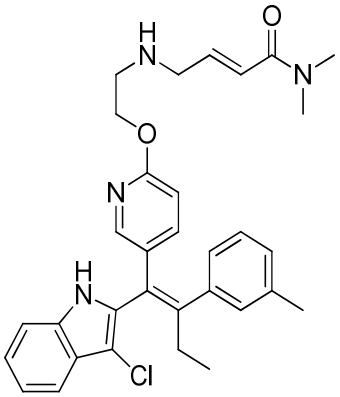
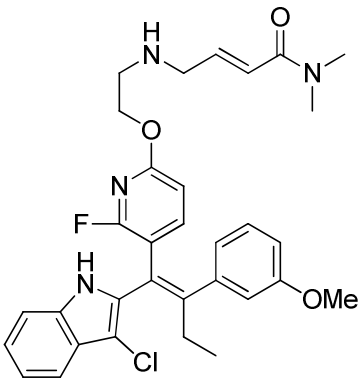
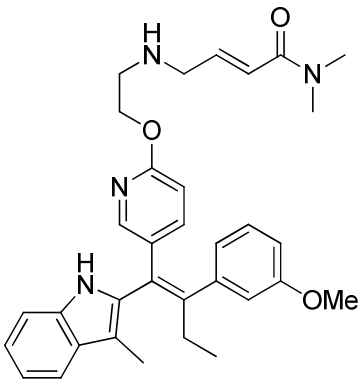
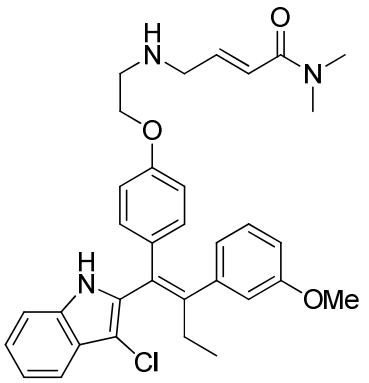
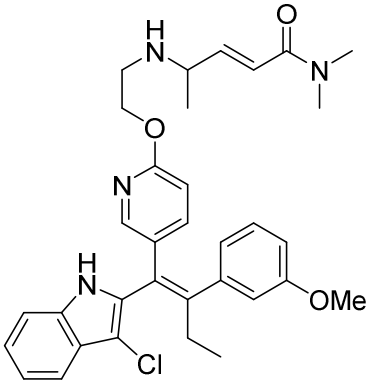
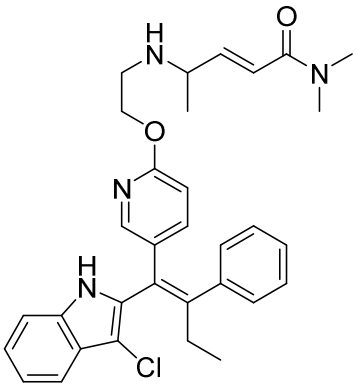
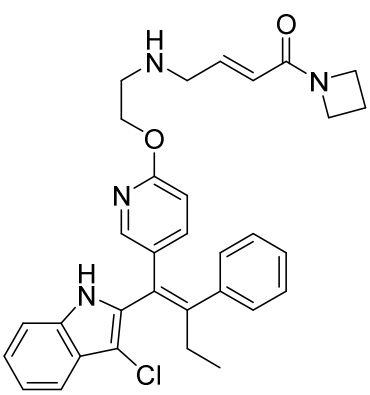
R_1, R_2, R_3, R_5, R_6, R_7, R_8, R_9, R_{10}, R_{11}, R_{12} and R_{13} are as defined in claim 1,

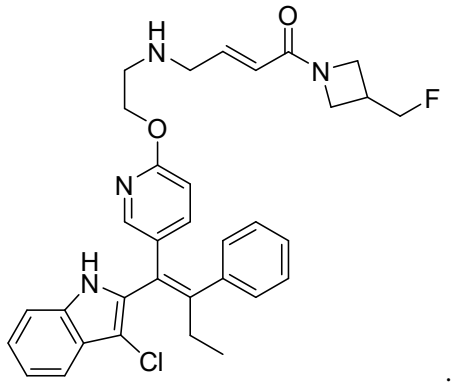
R_{41} and R_{42} are each independently selected from H and C_{1-6} alkyl, the C_{1-6} alkyl being optionally substituted with 1, 2 or 3 R_d,

R_d being as defined in claim 1.

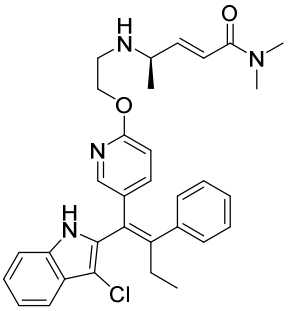
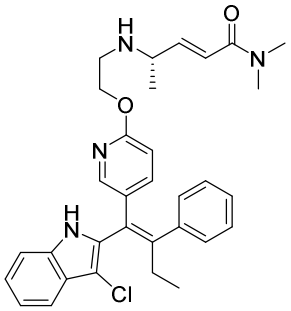
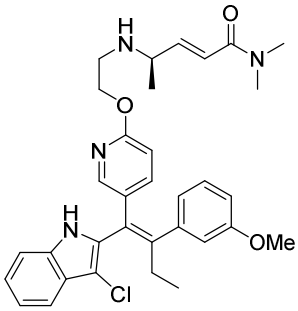
17. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound is selected from:

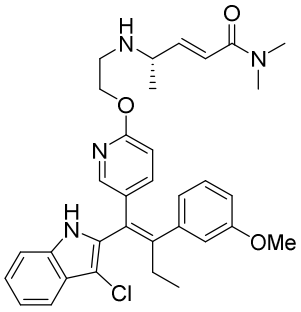













and  .

18. The compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 17, wherein the compound is selected from:

   and

 .

19. A pharmaceutical composition comprising a therapeutically effective amount of the compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1 as an active ingredient, and a pharmaceutically acceptable carrier.

20. Use of the compound, the stereoisomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1, or the pharmaceutical composition according to claim 19 in preparing a medicament for treating estrogen receptor positive breast cancer.