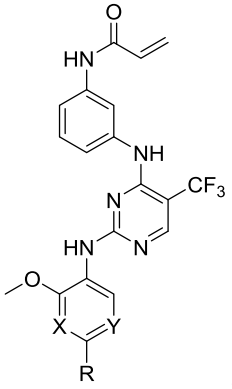
Claims

1. A compound of the following formula (I):



;

wherein:

X, Y are each independently selected from the group consisting of N, CH; with the proviso that X and Y are not CH at the same time;

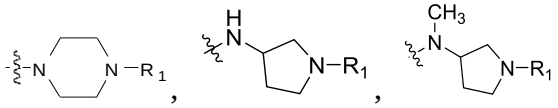
R is selected from the group consisting of: unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1-5 substituents, C1-C6 alkyl-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1-5 substituents), -NH-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1 - 5 substituents), -N(CH_3)-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1 - 5 substituents); the substitution means one or more hydrogen atoms on the group are replaced by R_1 substituents; and the heterocycle is tetrahydrogenpyrrolyl or hexahydropyridinyl;

wherein the R_1 is selected from the group consisting of: unsubstituted or halogenated C1-C6 alkyl, -C(O)-R_2, C2-C8 alkylacyl, C2-C8 alkoxyacyl, -S(O)$_2$-R_2;

the R_2 is selected from the group consisting of unsubstituted or halogenated C1-C6 alkyl, unsubstituted or halogenated C1-C6 alkoxy, C3-C8 cycloalkyl, C3-C8 cycloalkoxy, -CH_2-OC(O)CH_3, -NH_2, -N(C1-C6 alkyl)$_2$.

2. The compound of claim 1, wherein X is N, and Y is CH.

3. The compound of claim 1, wherein the R is selected from the group; consisting of

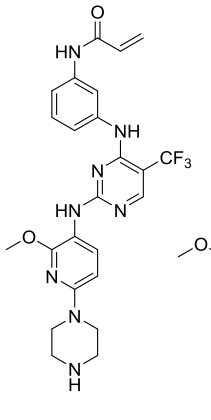


;

wherein the R_1 is selected from the group consisting of: unsubstituted or halogenated C1-C6 alkyl, -C(O)-R_2, -Boc, -S(O)$_2$-R_2,;

the R_2 is selected from the group consisting of unsubstituted or halogenated C1-C6 alkyl, unsubstituted or halogenated C1-C6 alkoxy, C3-C8 cycloalkyl, -CH_2OC(O)C_3, -NH_2, -N(C1-C6 alkyl)$_2$.

4. The compound of claim 1, wherein the compound of formula (I) is selected from the following group:



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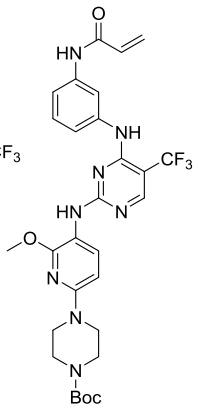

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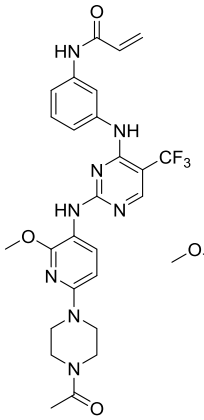

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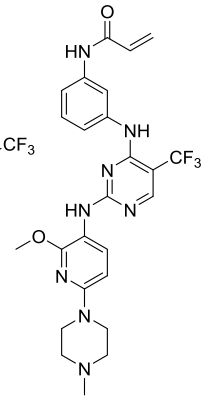

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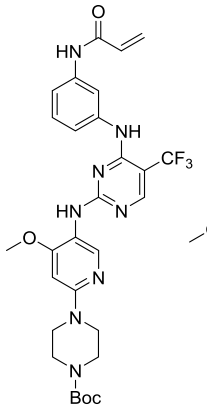

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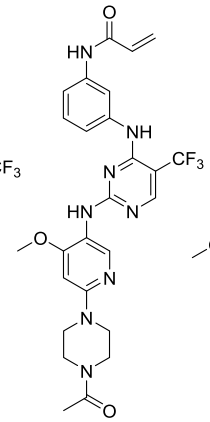

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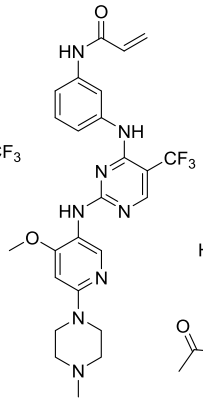

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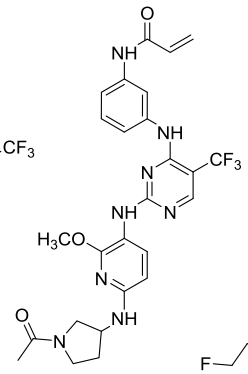

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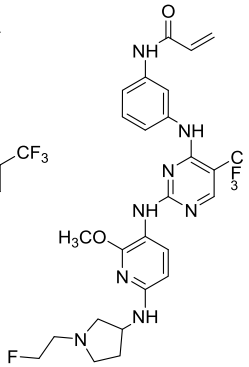

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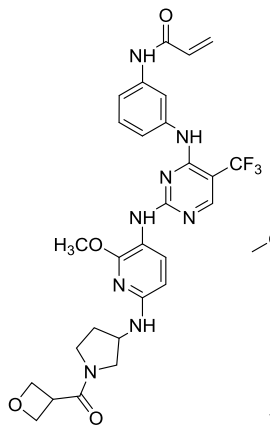

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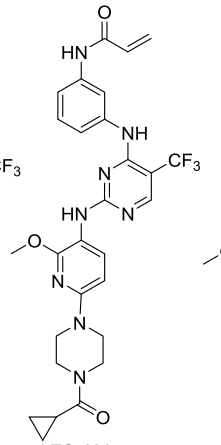

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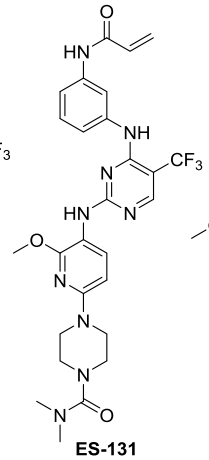

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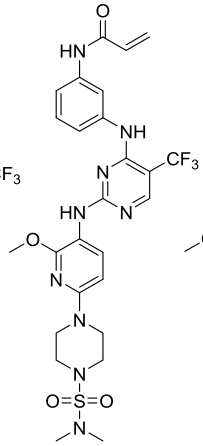

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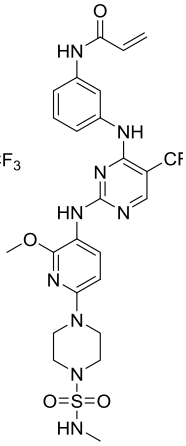

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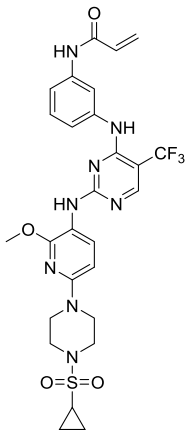

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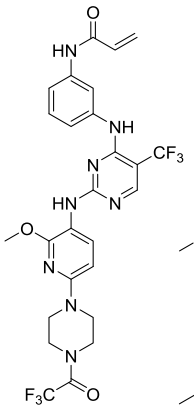

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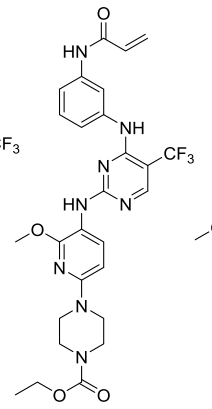

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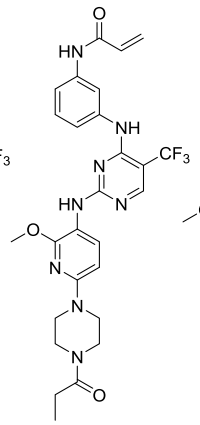

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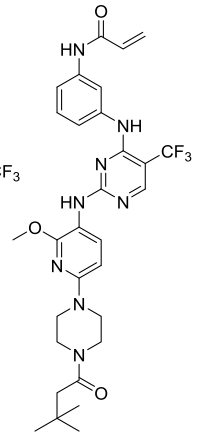

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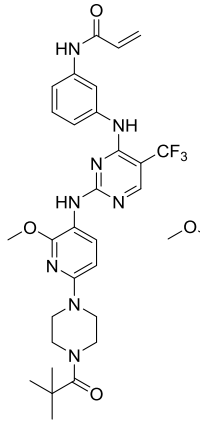

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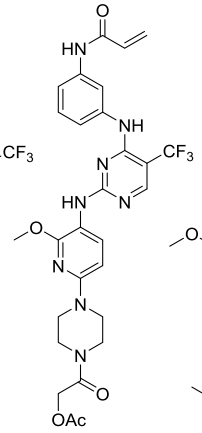

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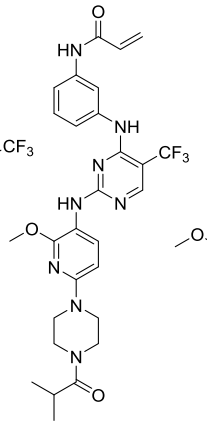

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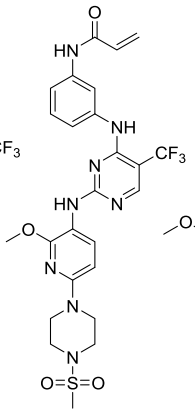

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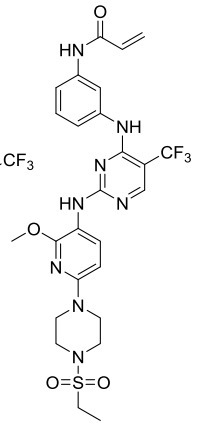

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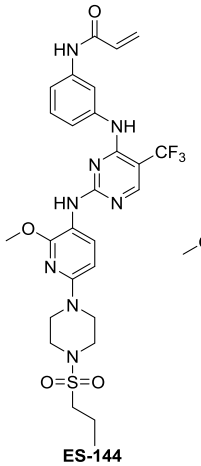

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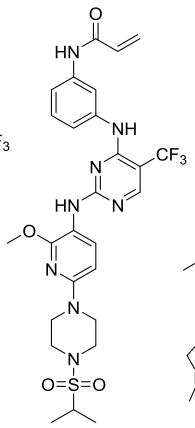

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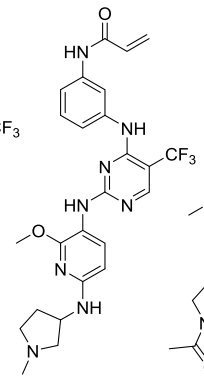
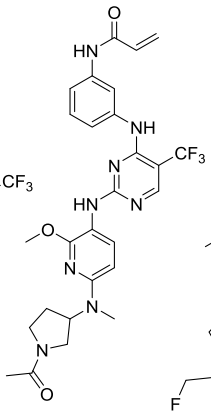


ES-146



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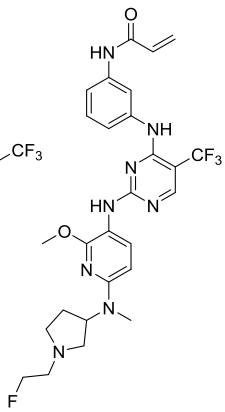
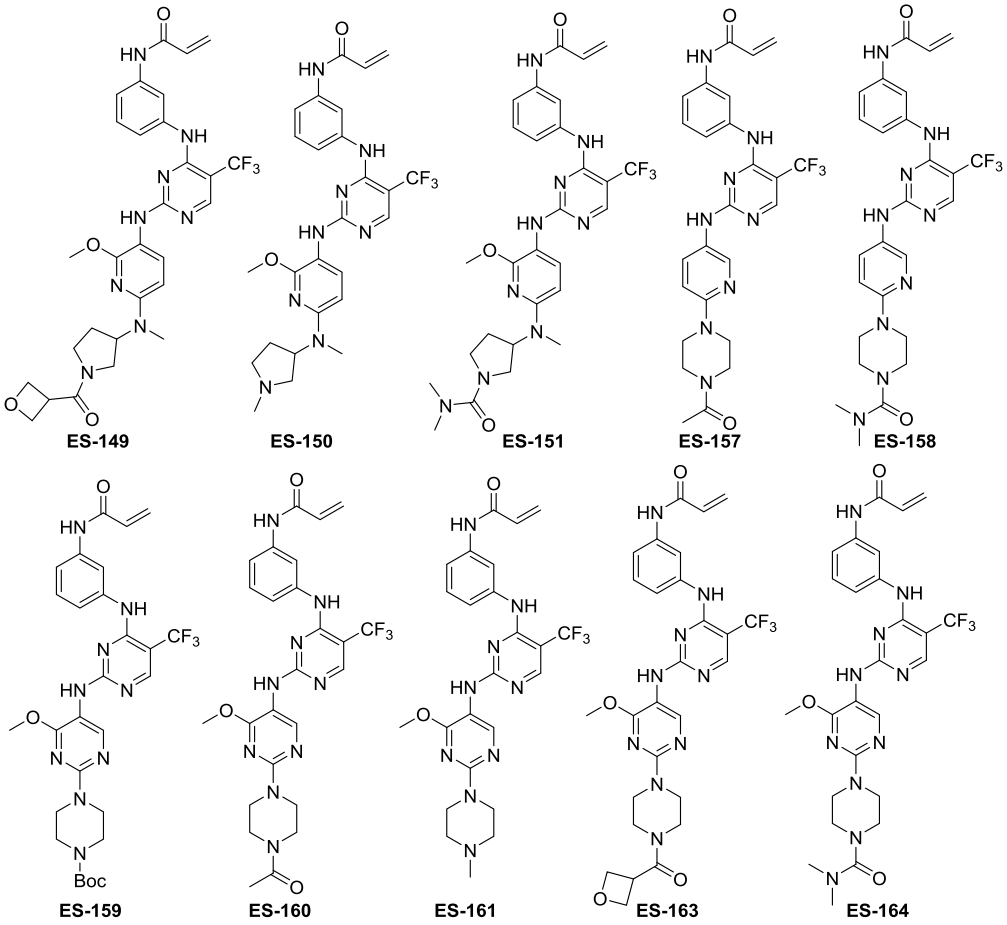
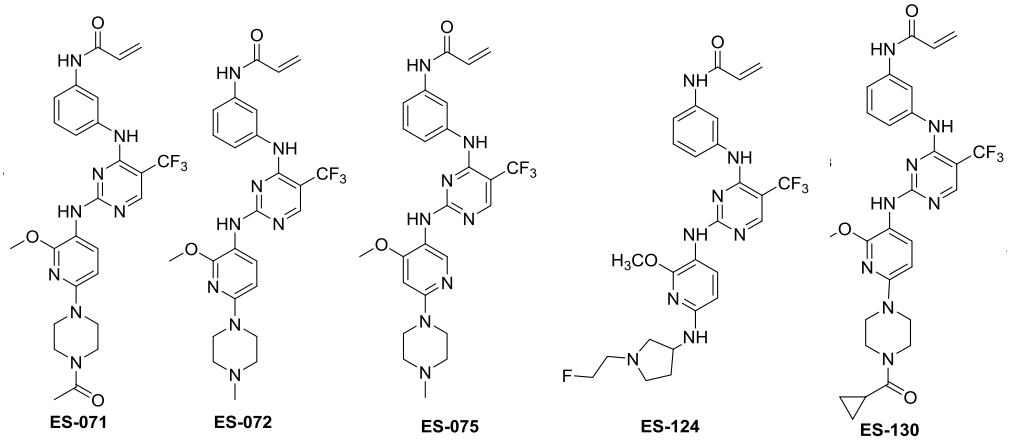
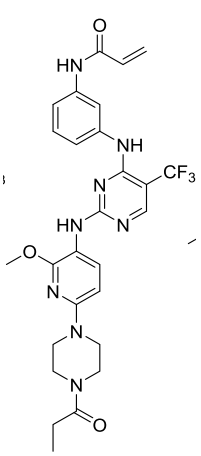


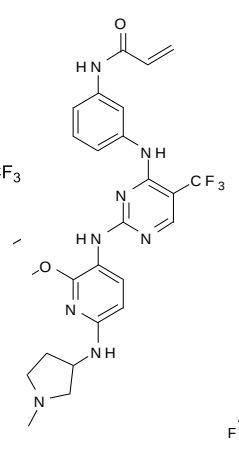
ES-148



5. The compound of claim 1, wherein the compound of formula (I) is selected from the following group:




ES-137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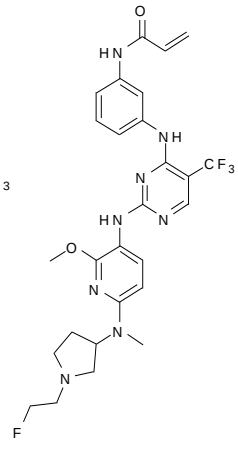
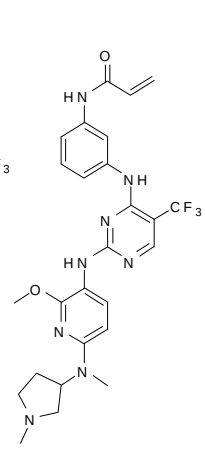
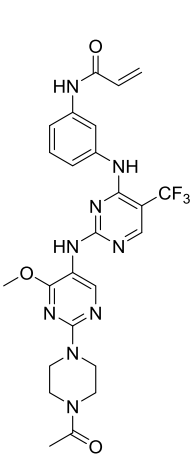

ES-148


ES-150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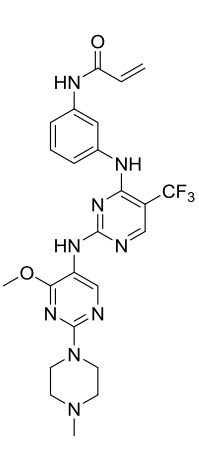
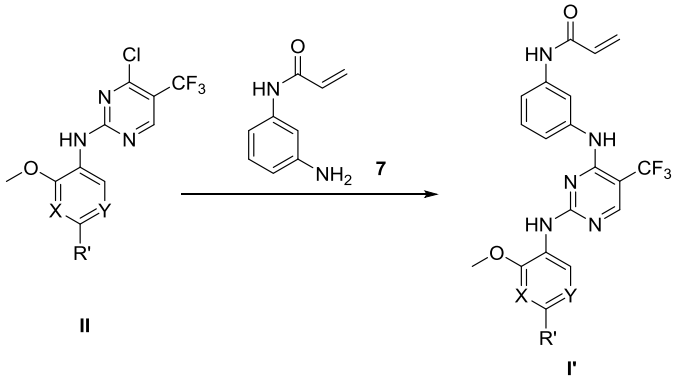

ES-161

6. A preparation method of the compound of claim 1, wherein comprising the following step:


II

7

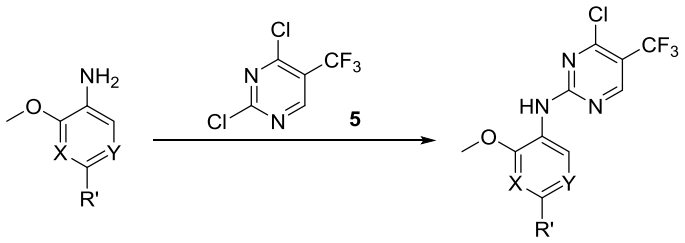
I'

in an inert solvent, reacting compound of formula II with compound of formula 7, thus obtaining compound of formula I';

where in R' is selected from the group consisting of: unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1-5 substituents, C1-C6 alkyl-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1-5 substituents), -NH-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1-5 substituents), -N(CH_3)-(unsubstituted 5-7 membered heterocycles or 5-7 membered heterocycles substituted by 1 - 5 substituents),; the substitution means one or more hydrogen atoms on the group are replaced by R_1 substituents; and the heterocycle is tetrahydrogenpyrrolyl or hexahydropyridinyl;

while X, Y, and R_1 have values as set by claim 1.

7. The preparation method of claim 6, wherein comprising the following step:



III

II

in an inert solvent, reacting compound of formula III with compound of formula 5, thus obtaining compound of formula II;

wherein, R' is as defined in Claim 6, and groups X and Y are defined as in Claim 1.

8. A pharmaceutical composition, wherein the pharmaceutical composition comprises: a therapeutically effective amount of one or more of the compound of formula (I) of claim 1, and optionally pharmaceutically acceptable carriers, excipients, adjuvants and/or diluents.

9. An EGFR inhibitor, wherein the inhibitor comprises: an inhibitory effective amount of one or more of the compound of formula I according to claim 1, and optionally pharmaceutically acceptable carriers, excipients, adjuvants and/or diluents.

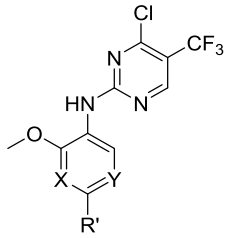
10. A use of the compound of formula (I) of claim 1 in one or more of the following group consisting of:

(a) preparing tyrosine kinase inhibitors;

(b) in vitro non-therapeutically inhibiting tyrosine kinase activity;

(d) in vitro non-therapeutic inhibiting tumor cell growth;

11. A compound of formula II:



II

wherein

X, Y are each independently selected from the group consisting of N, CH; with the proviso that X and Y are not CH at the same time;

R' is defined as in claim 6.