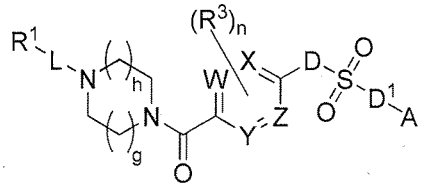
What is claimed is:

1. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; (2) a composition comprising a compound of formula I or a salt thereof, and a carrier or (3) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier: formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein:

W, X, Y and Z are each independently selected from CH or N;

D and D^1 are independently selected from a bond or NR^b;

A is optionally substituted aryl or optionally substituted heteroaryl;

L is a bond, -C(O)-, $-(CR^cR^c)_m$-, -OC(O)-, $-(CR^cR^c)_m$-OC(O)-, $-(CR^cR^c)_m$-C(O)-, $-NR^bC(S)$-, or $-NR^bC(O)$- (wherein the point of the attachment to R^1 is on the left-hand side);

R^1 is selected from alkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl; each of which is substituted with 0-5 occurrences of R^d;

each R^3 is independently selected from halo, haloalkyl, alkyl, hydroxyl and $-OR^a$, or two adjacent R^3 taken together with the carbon atoms to which they are attached form an optionally substituted cyclyl;

each R^a is independently selected from alkyl, acyl, hydroxyalkyl and haloalkyl;

each R^b is independently selected from hydrogen and alkyl;

each R^c is independently selected from hydrogen, halo, alkyl, alkoxy and halo alkoxy or two R^c taken together with the carbon atoms to which they are attached form an optionally substituted cycloalkyl;

each R^d is independently selected from halo, haloalkyl, haloalkoxy, alkyl, alkynyl, nitro, cyano, hydroxyl, $-C(O)R^a$, $-OC(O)R^a$, $-C(O)OR^a$, $-SR^a$, $-NR^aR^b$ and $-OR^a$, or two R^d taken together with the carbon atoms to which they are attached form an optionally substituted heterocyclyl;

n is 0, 1, or 2;

m is 1, 2 or 3;

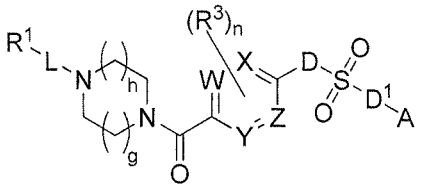
h is 0, 1, 2; and

g is 0, 1 or 2,

in the manufacture of a medicament for increasing the lifetime of red blood cells (RBCs) in need thereof.

2. The use of claim 1, wherein the compound is added directly to whole blood or packed cells extracorporeally.
3. The use of claim 1, wherein the pharmaceutical composition is to be administered to a subject in need thereof.
4. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; (2) a composition comprising a compound of formula I or a salt thereof, and a carrier or (3) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for regulating 2,3-diphosphoglycerate levels in blood in need thereof.
5. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating hereditary non-spherocytic hemolytic anemia.
6. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating sickle cell anemia.
7. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutical composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating thalassemia, e.g., beta-thalassemia; hereditary spherocytosis; hereditary elliptocytosis; abetalipoproteinemia or Bassen-Kornzweig syndrome; paroxysmal nocturnal hemoglobinuria; acquired hemolytic anemia, e.g., congenital anemias, e.g., enzymopathies; or anemia of chronic diseases.

8. The use of any one of claims 1-7, wherein the compound is represented by formula (I):



(I)

wherein:

W, X, Y and Z are each independently selected from CH or N;

D and D^1 are independently selected from a bond or NR^b;

A is optionally substituted bicyclic heteroaryl;

L is a bond, -C(O)-, $-(CR^cR^c)_m$-, -OC(O)-, $-(CR^cR^c)_m$-OC(O)-, $-(CR^cR^c)_m$-C(O)-, $-NR^bC(S)$-, or $-NR^bC(O)$- (wherein the point of the attachment to R^1 is on the left-hand side);

R^1 is selected from alkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl; each of which is substituted with 0-5 occurrences of R^d;

each R^3 is independently selected from halo, haloalkyl, alkyl, hydroxyl and $-OR^a$ or two adjacent R^3 taken together with the carbon atoms to which they are attached form an optionally substituted cyclyl;

each R^a is independently selected from alkyl, acyl, hydroxyalkyl and haloalkyl;

each R^b is independently selected from hydrogen and alkyl;

each R^c is independently selected from hydrogen, halo, alkyl, alkoxy and halo alkoxy or two R^c taken together with the carbon atoms to which they are attached form an optionally substituted cycloalkyl;

each R^d is independently selected from halo, haloalkyl, haloalkoxy, alkyl, alkynyl, nitro, cyano, hydroxyl, $-C(O)R^a$, $-OC(O)R^a$, $-C(O)OR^a$, $-SR^a$, $-NR^aR^b$ and $-OR^a$, or two R^d taken together with the carbon atoms to which they are attached form an optionally substituted heterocyclyl;

n is 0, 1, or 2;

m is 1, 2 or 3;

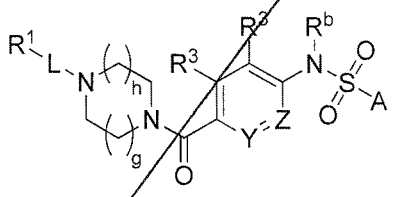
h is 0, 1, 2; and

g is 0, 1 or 2.

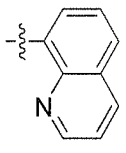
9. The use of claim 8, wherein h is 1 and g is 1.

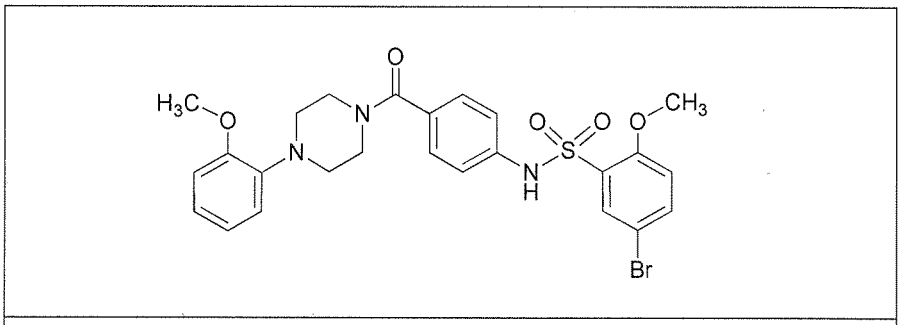
10. The use of claim 9, wherein W, X, Y and Z are CH.

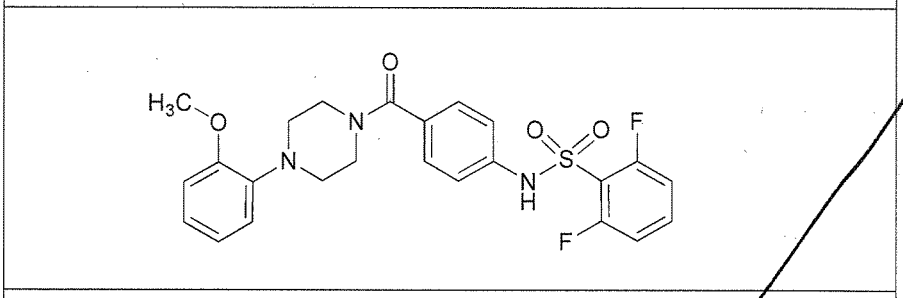
11. The use of claim 10, wherein D is NR^b and D^1 is a bond.
12. The use of claim 11, wherein R^b is H, methyl or ethyl.
13. The use of any one of claims 8-12, wherein L is a bond, $-(CR^cR^c)_m$-, - $NR^bC(O)$-,–$(CR^cR^c)_m$-C(O)-, -C(O)-, or -O(CO)-.
14. The use of claim 13, wherein L is a bond and R^1 is alkyl, aryl or heteroaryl substituted with 0-5 occurrences of R^d.
15. The use of claim 13, wherein L is $-(CR^cR^c)_m$- and R^1 is cycloalkyl, aryl, heteroaryl or heterocyclyl substituted with 0-5 occurrences of R^d.
16. The use of claim 13, wherein L is $-NR^bC(O)$-, R^b is hydrogen and R^1 is aryl substituted with 0-5 occurrences of R^d.
17. The use of claim 13, wherein L is $-(CR^cR^c)_m$-C(O)- and R^1 is cycloalkyl, aryl or heteroaryl substituted with 0-5 occurrences of R^d.
18. The use of claim 13, wherein L is -C(O)- and R^1 is aryl, alkyl, or heteroaryl substituted with 0-5 occurrences of R^d.
19. The use of claim 13, wherein L is –OC(O)- and R^1 is alkyl, aryl or heterocyclyl substituted with 0-5 occurrences of R^d.
20. The use of claim 13, wherein L is $-(CR^cR^c)_m$-OC(O)- and R^1 is heterocyclyl or cycloalkyl substituted with 0-5 occurrences of R^d.
21. The use of any one of claims 13-20, wherein n is 0.
22. The use of any one of claims 13-20, wherein n is 1 and R^3 is CH_3, CH_2CH_3, OCH_3, OCH_2CH_3, OH, F, Cl, or CF_3.
23. The use of any one of claims 1-7, wherein the compound is represented by formula (Id):

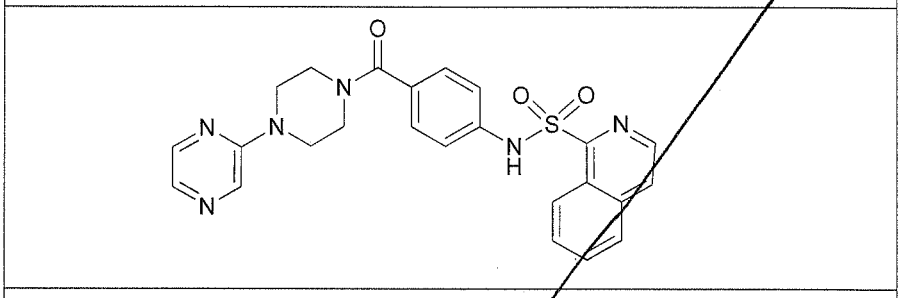


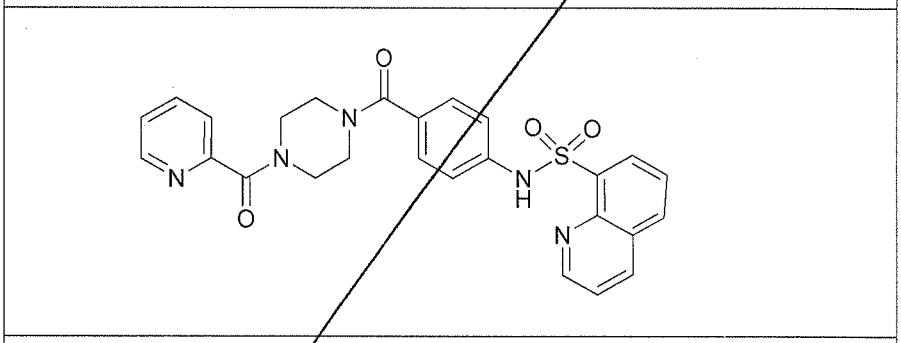
(Id).

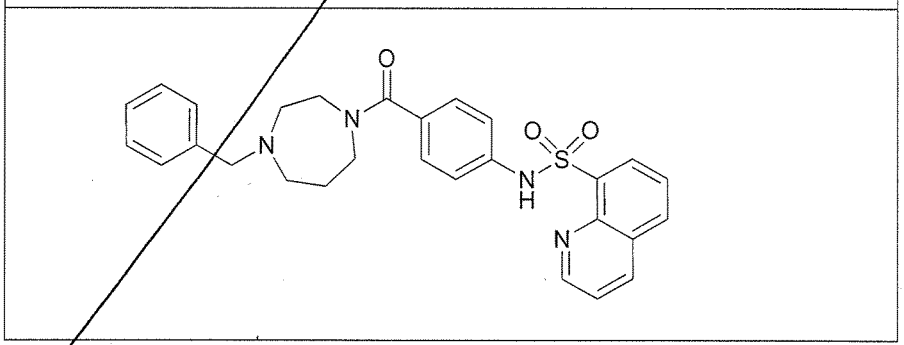
24. The use of any one of claims 8-23, wherein A is optionally substituted quinolinyl.
25. The use of any one of claims 8-23, wherein A is .
26. The use of any one of claims 1-7, wherein the compound is selected from:

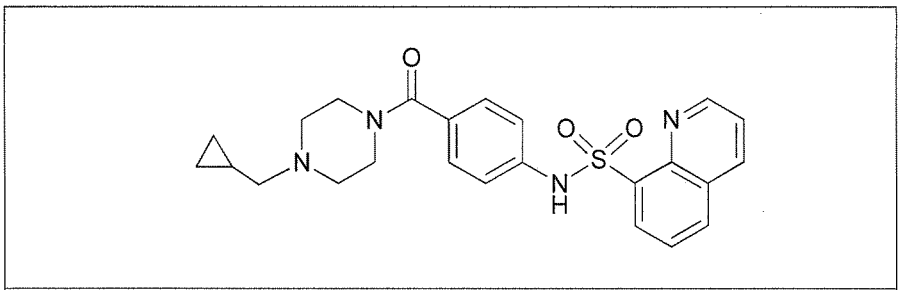


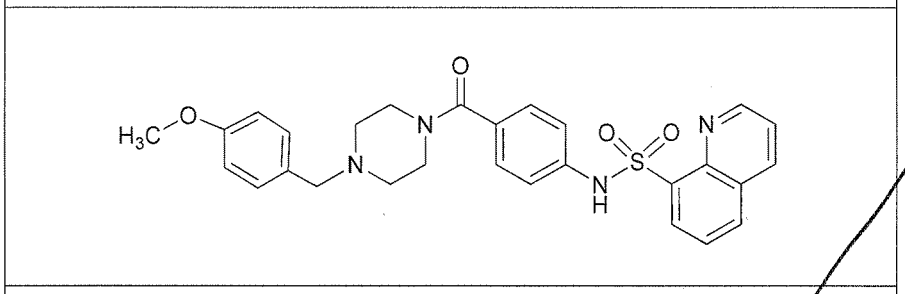


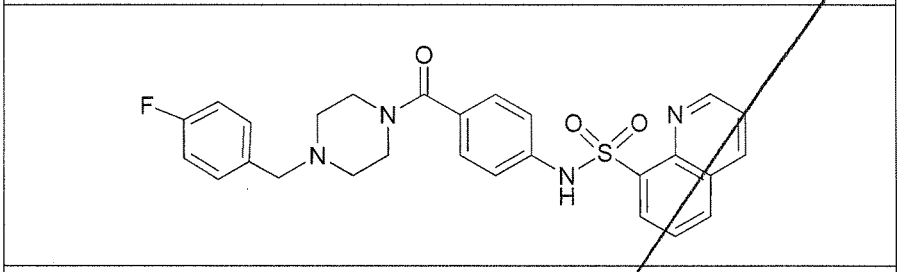


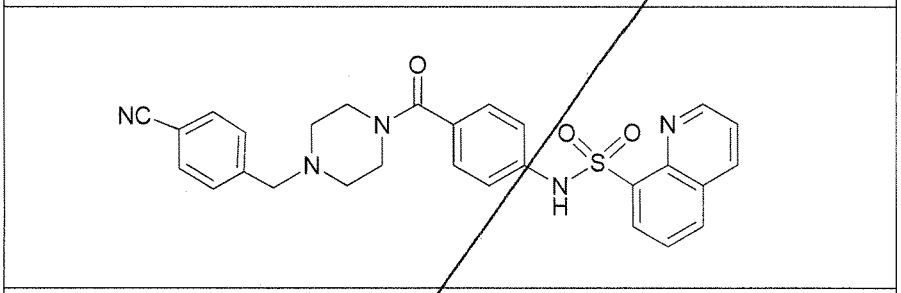


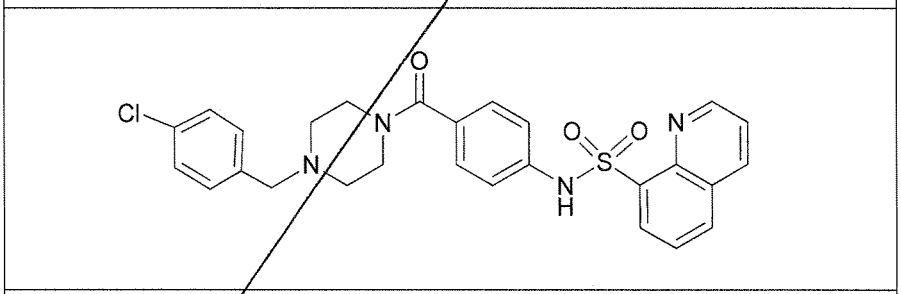


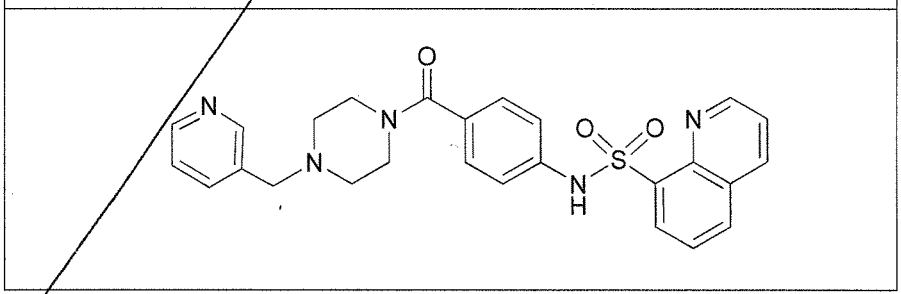


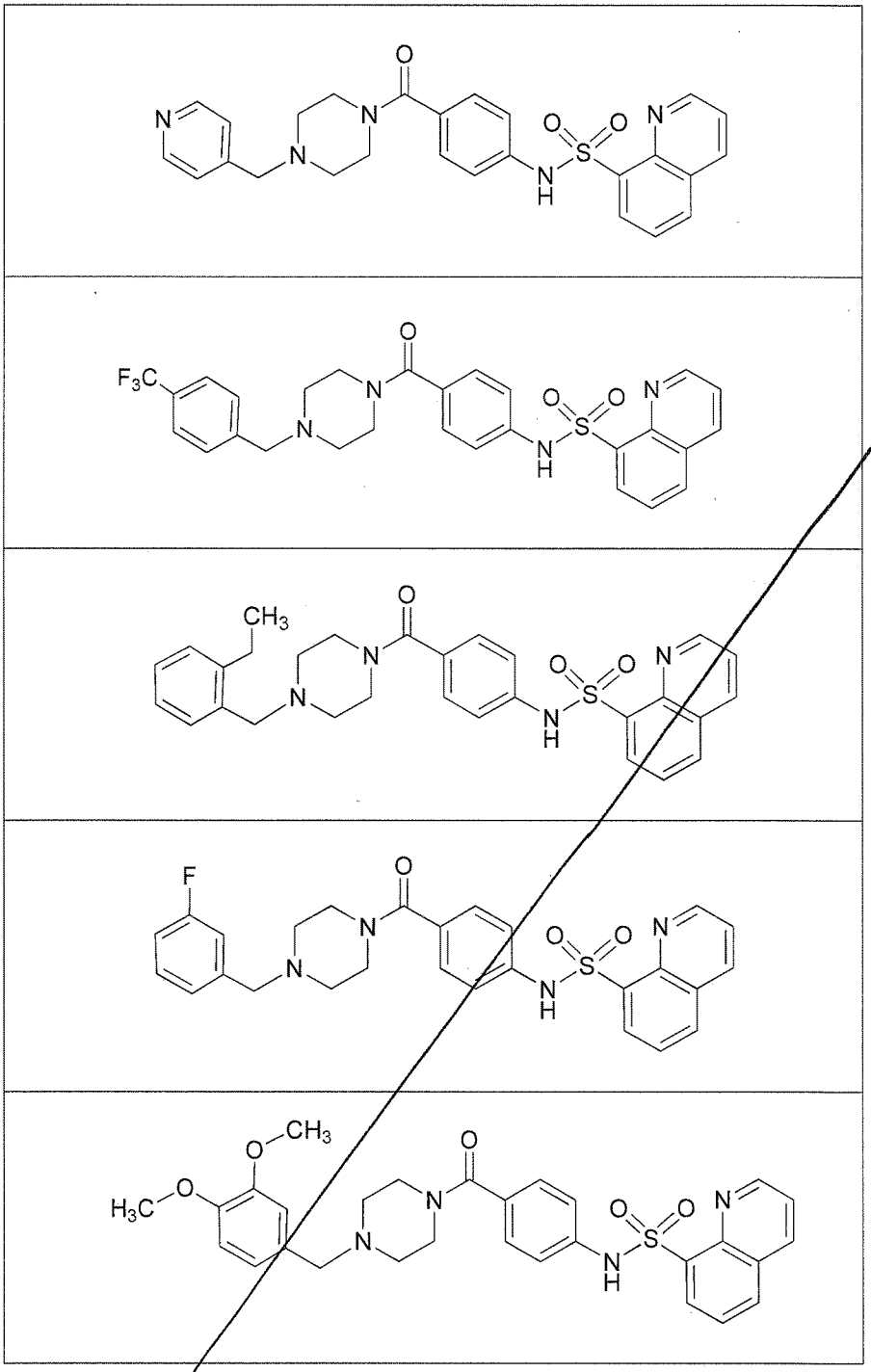


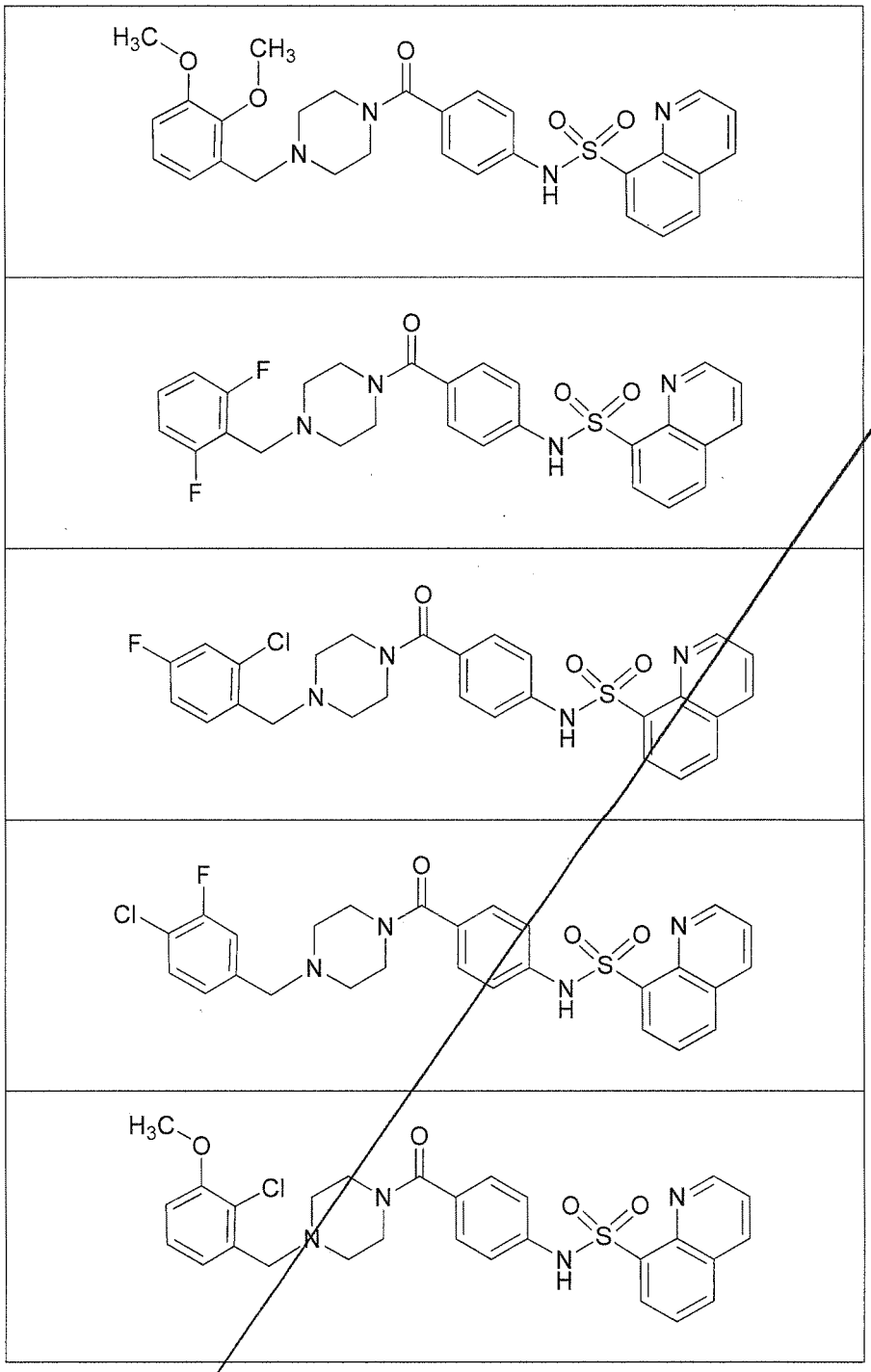


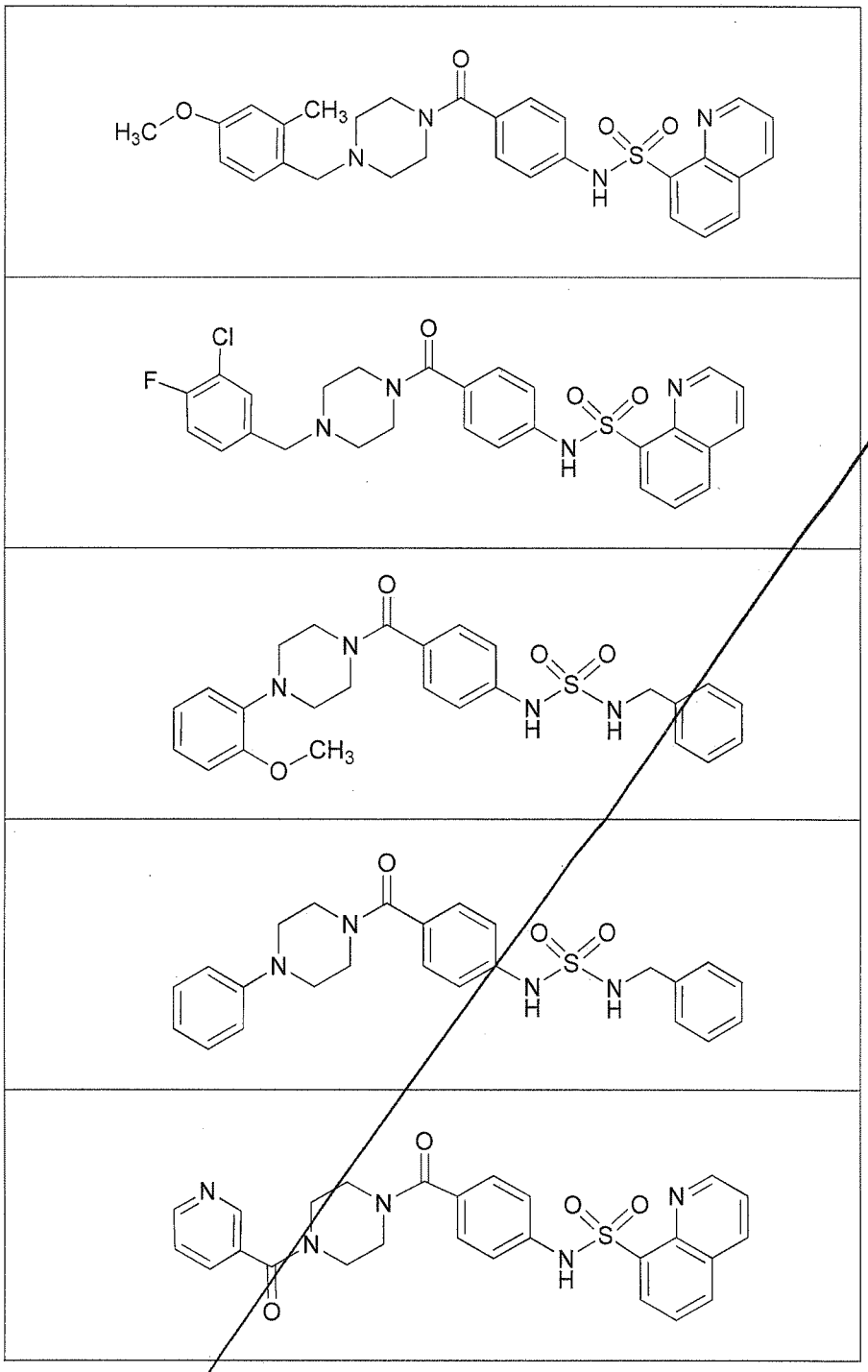


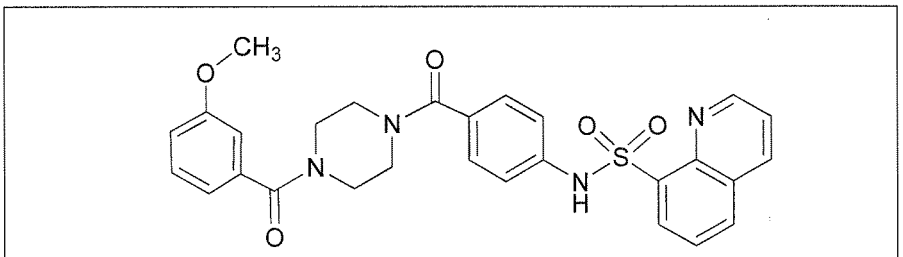


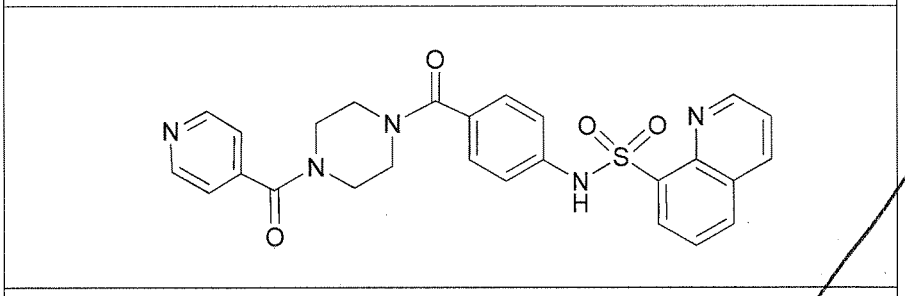


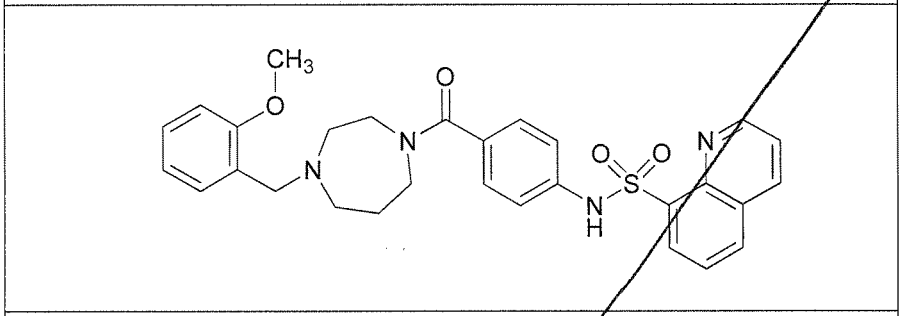


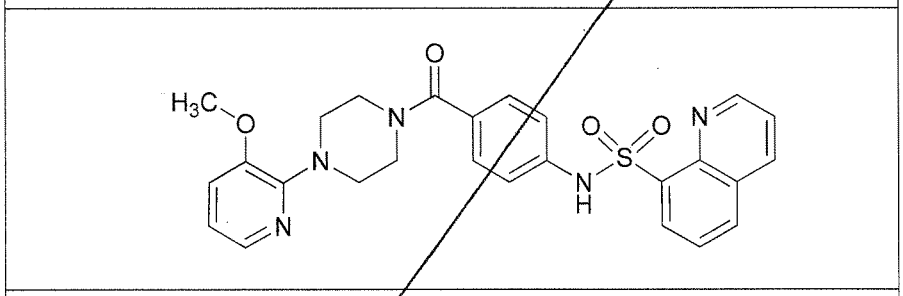


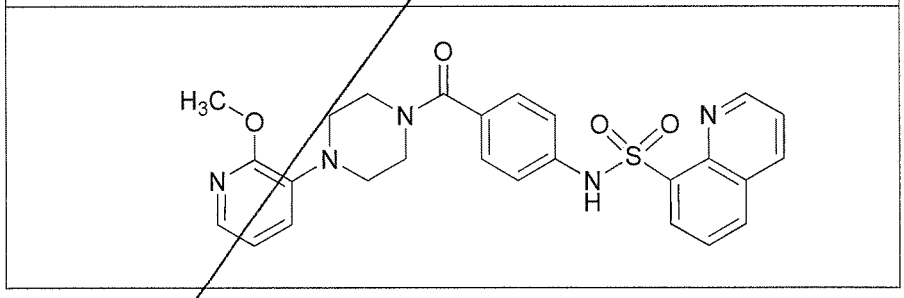


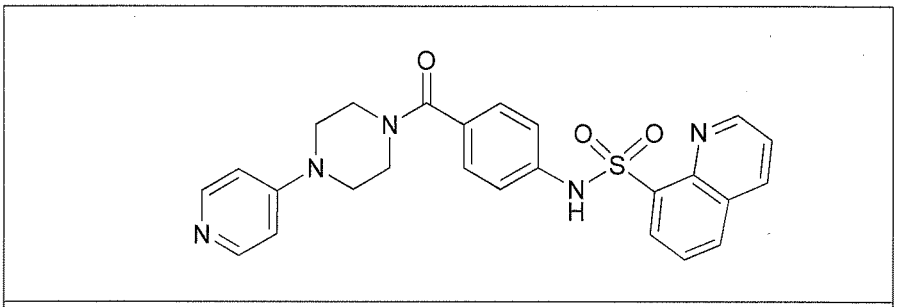


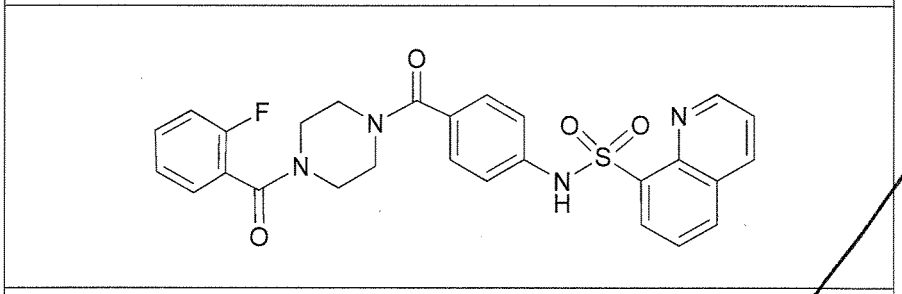


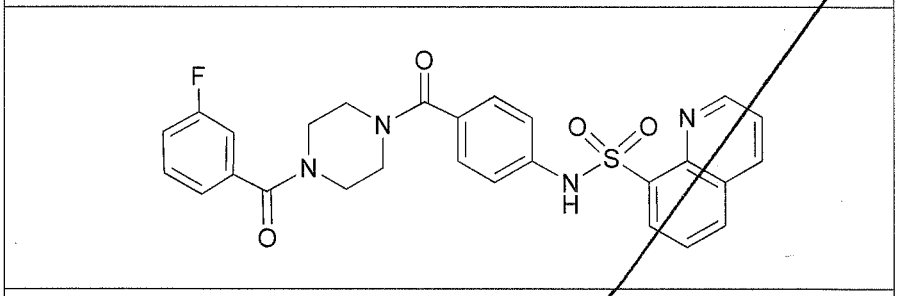


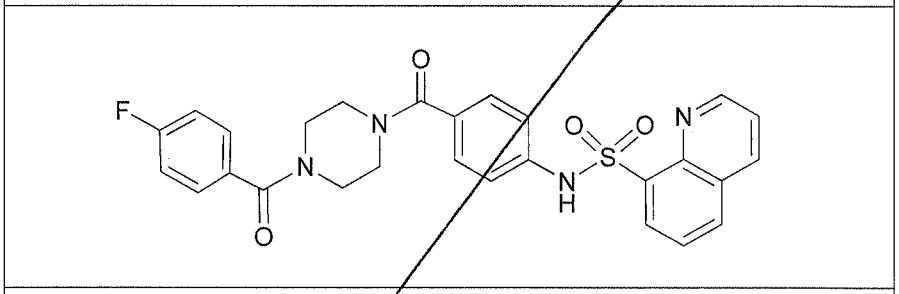


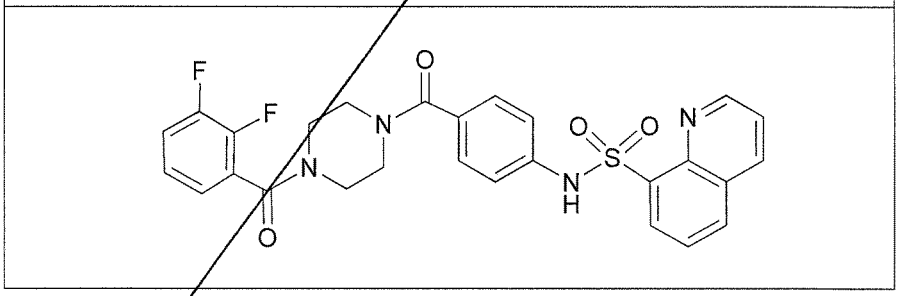


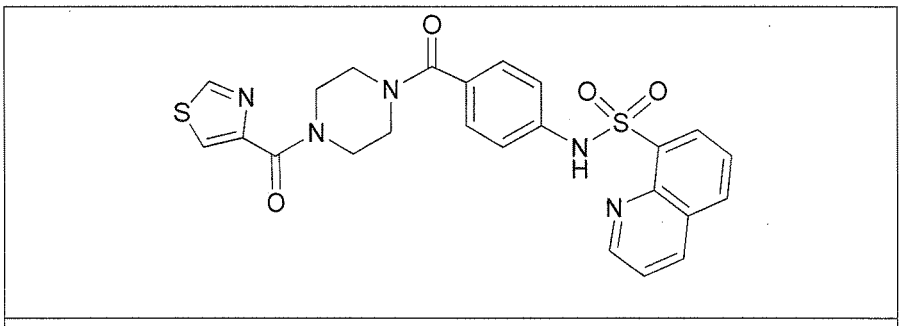


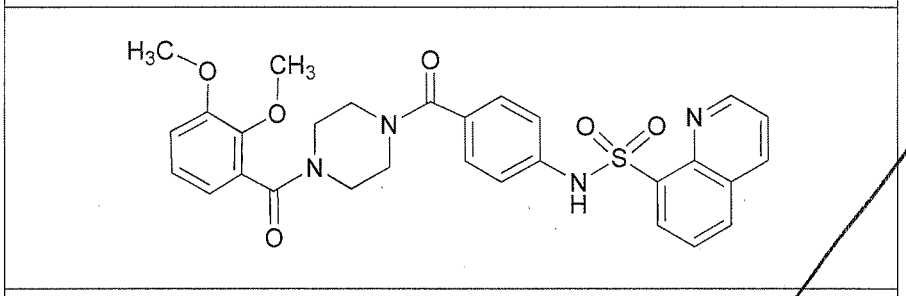


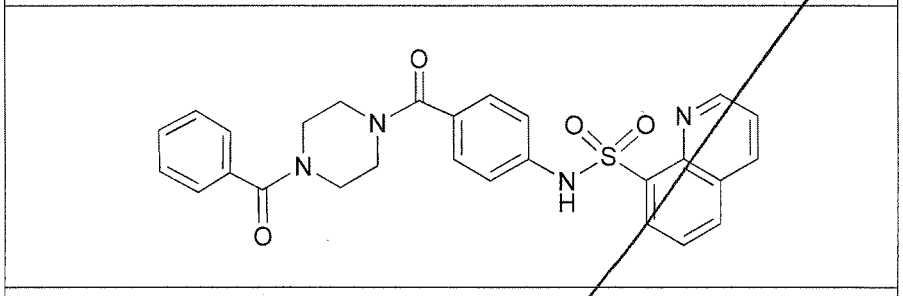


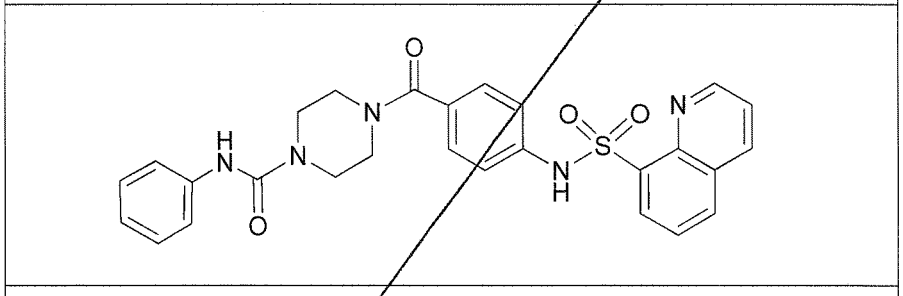


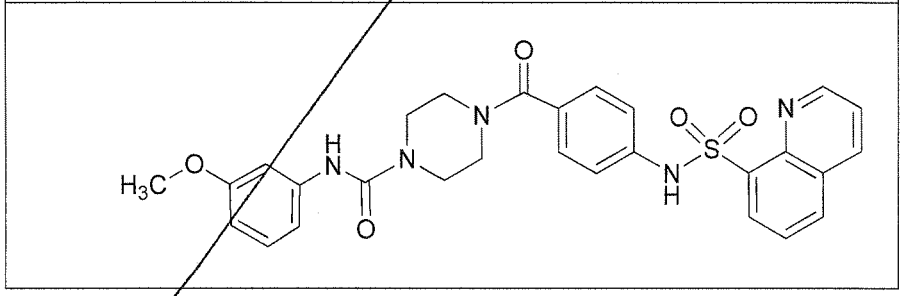


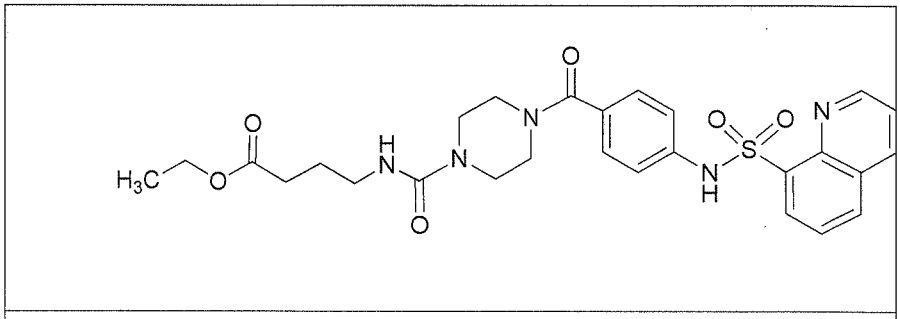


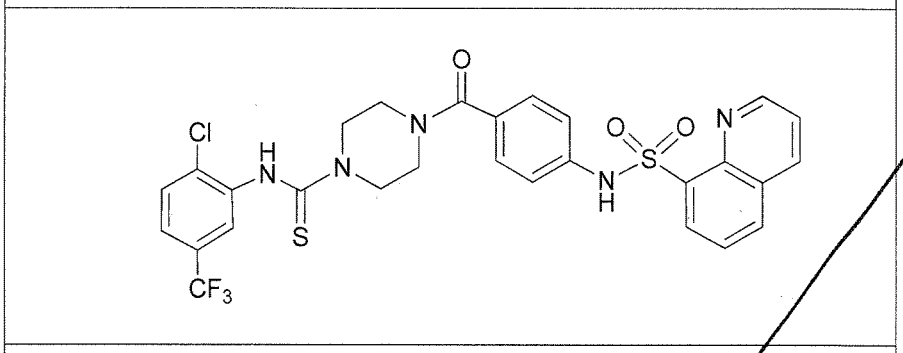


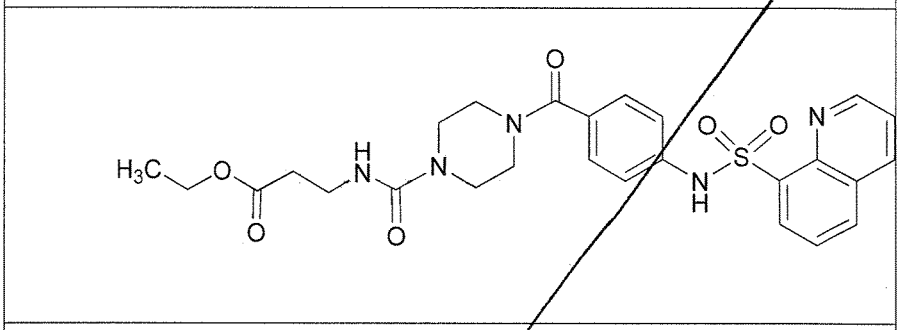


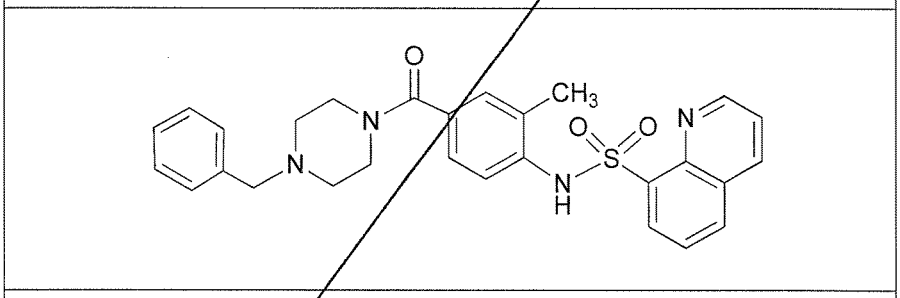


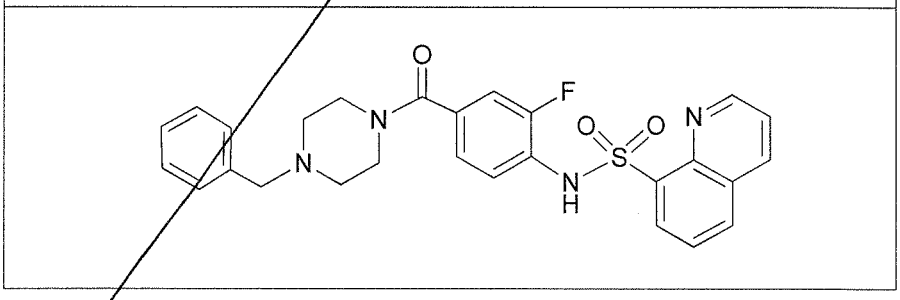


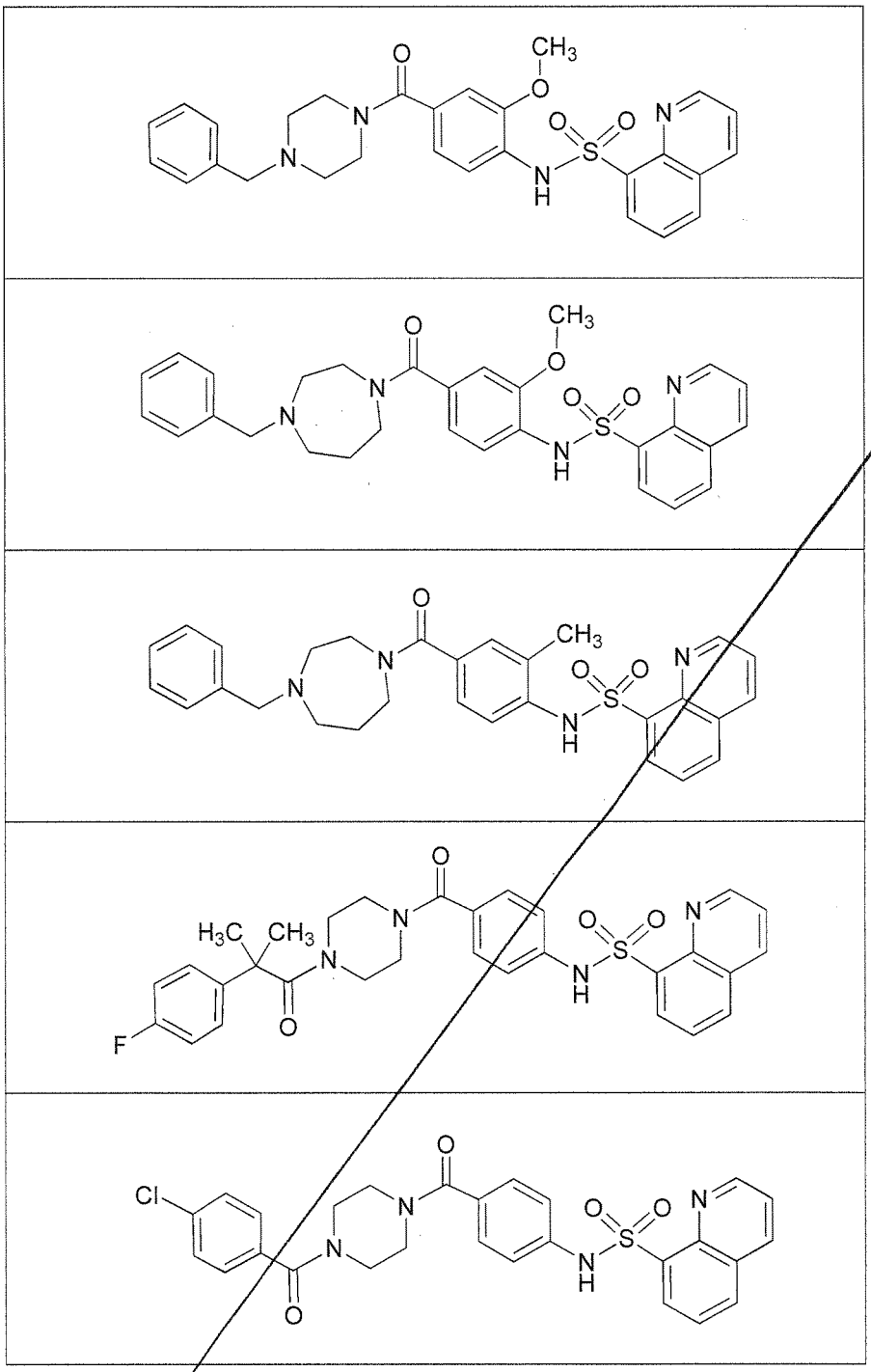


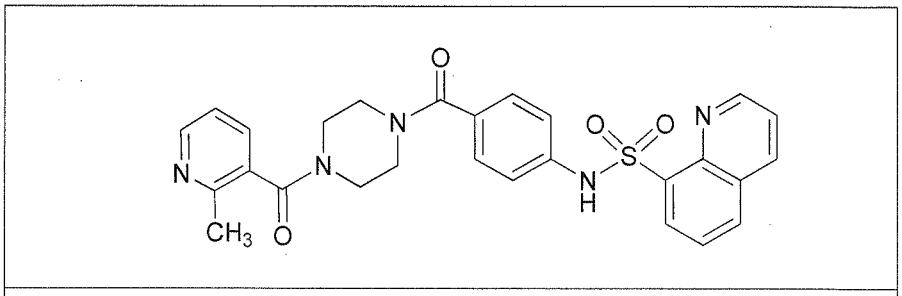


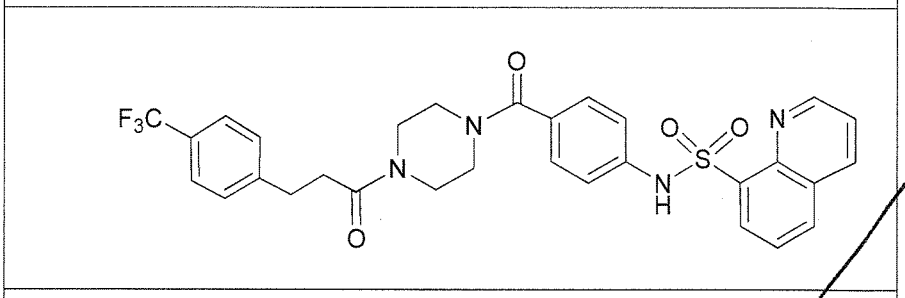


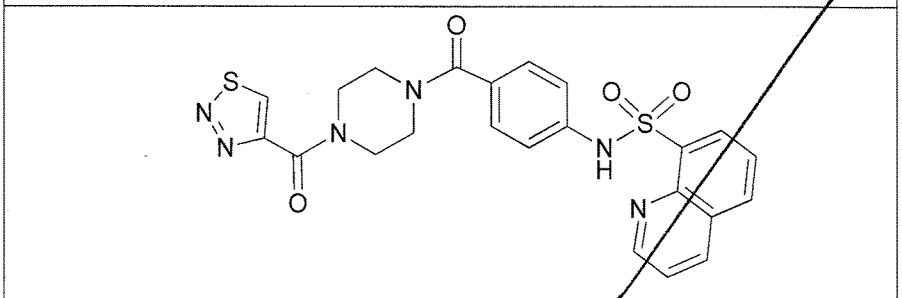


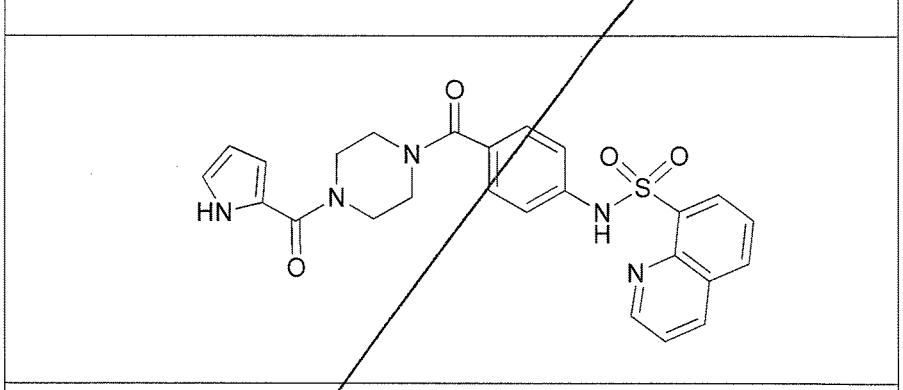


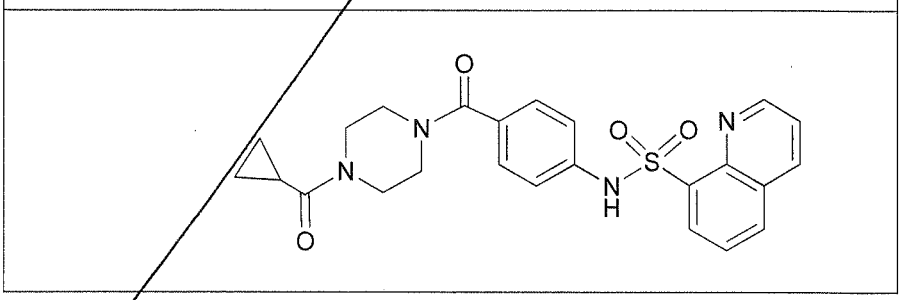


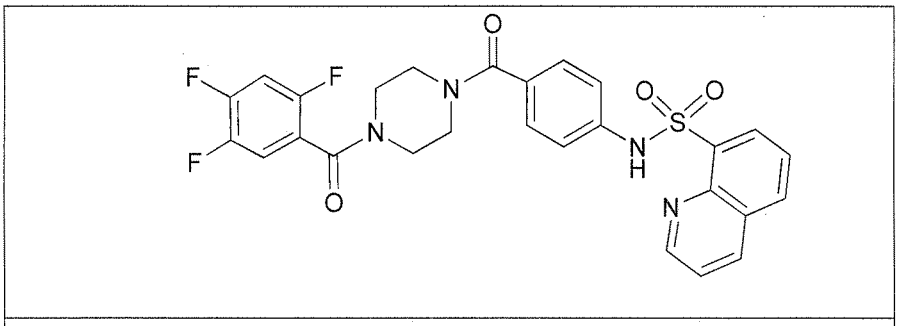


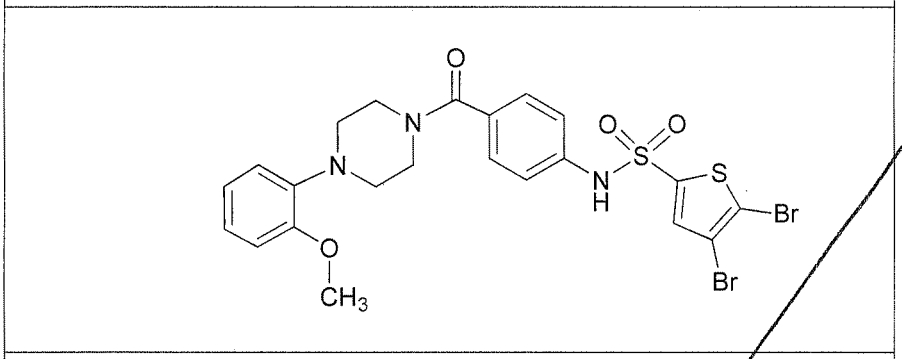


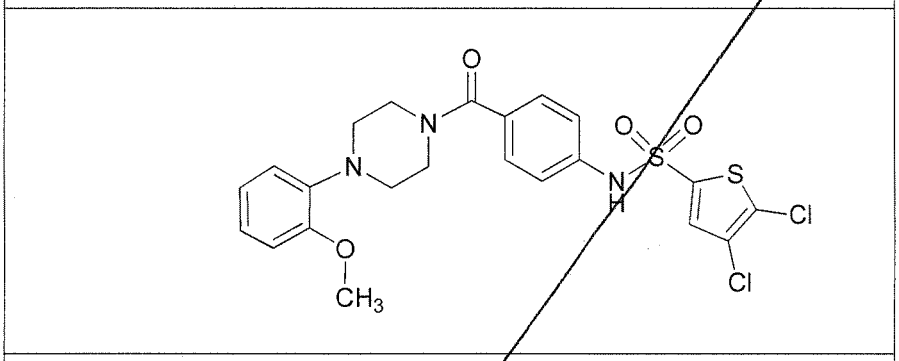


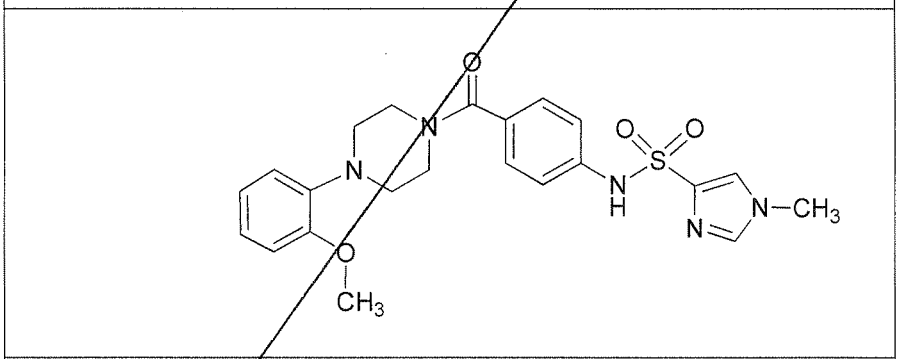


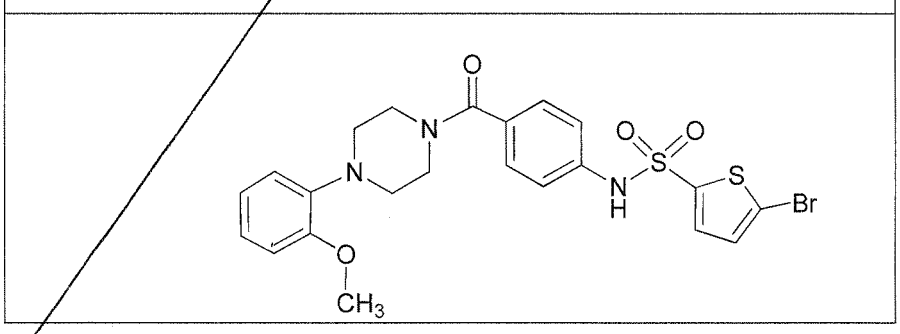


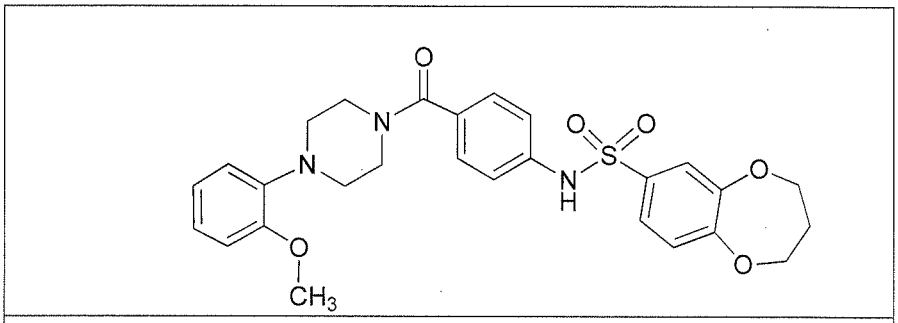


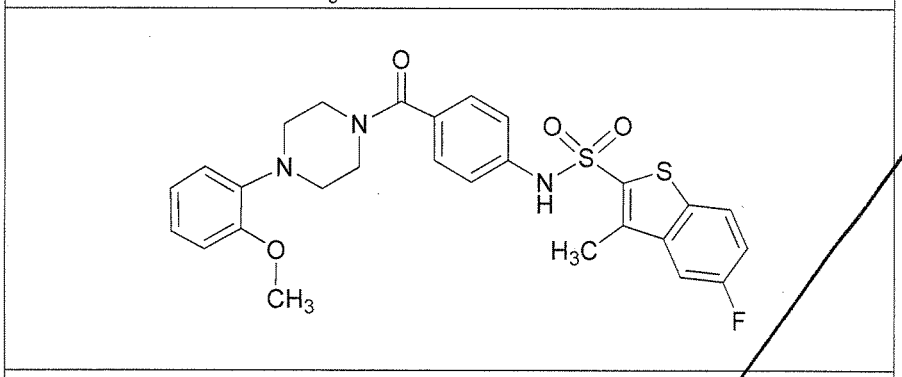


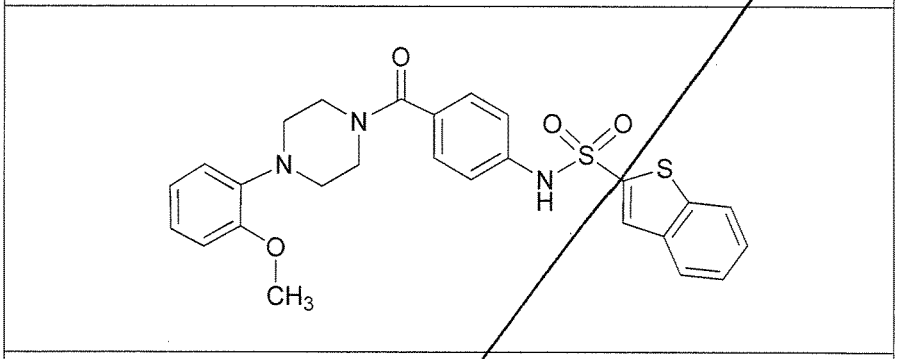


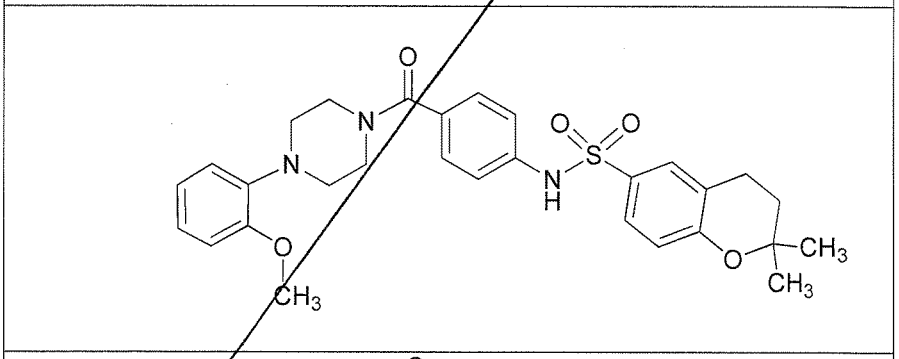


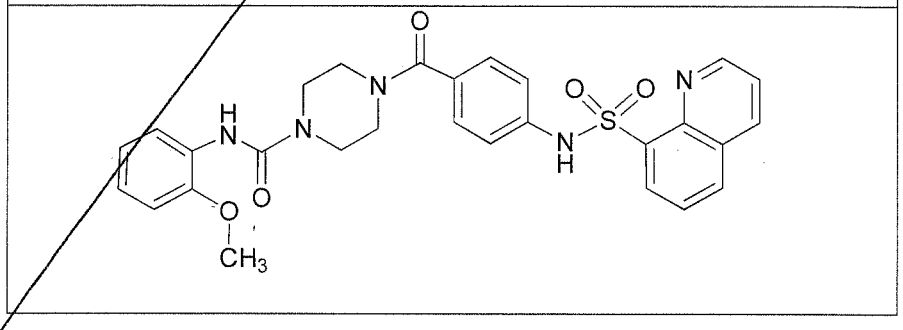


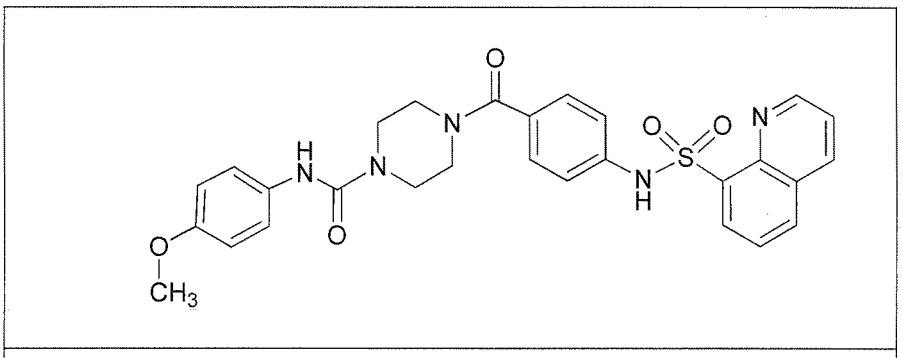


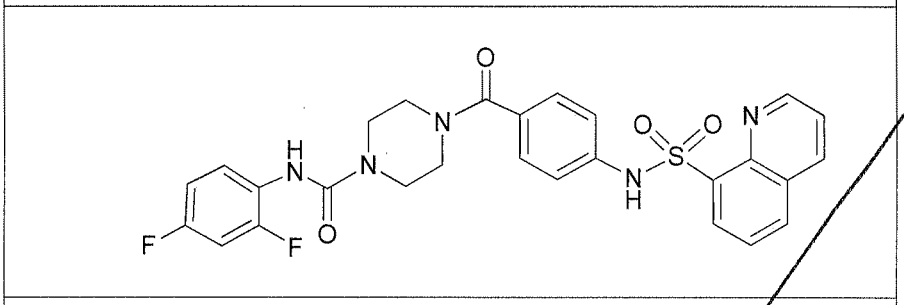


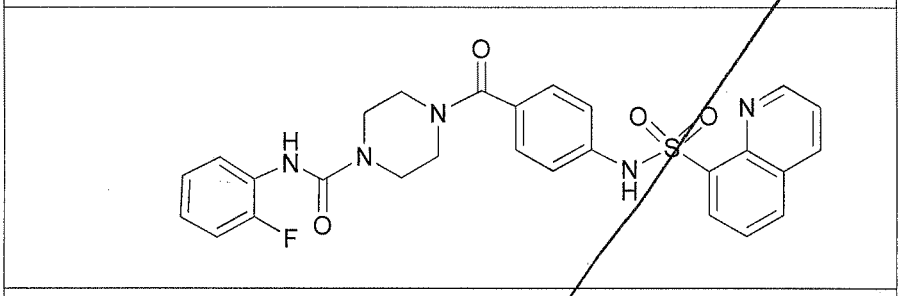


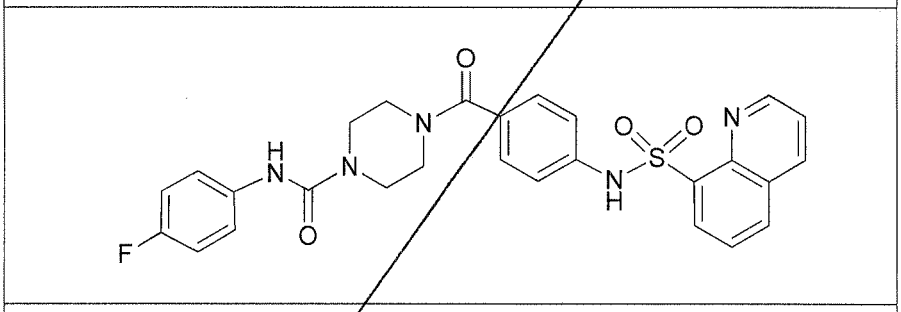


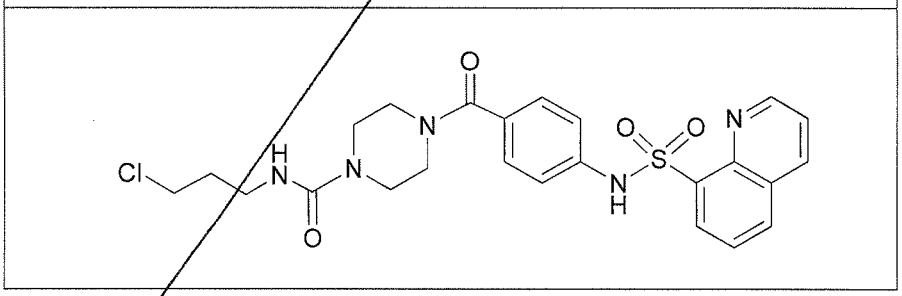


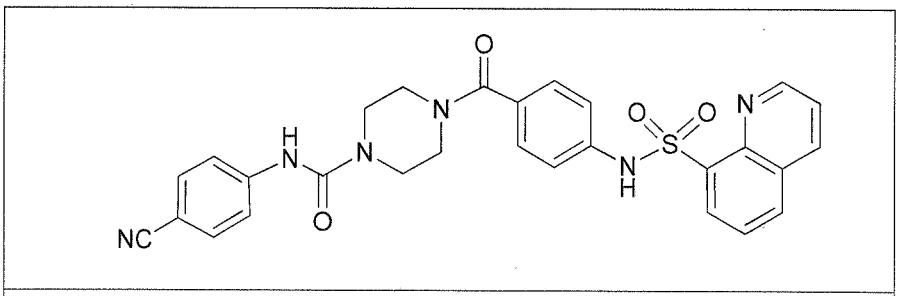


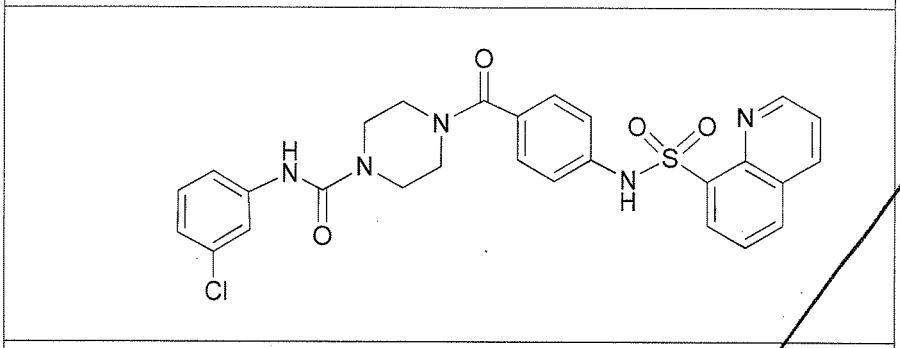


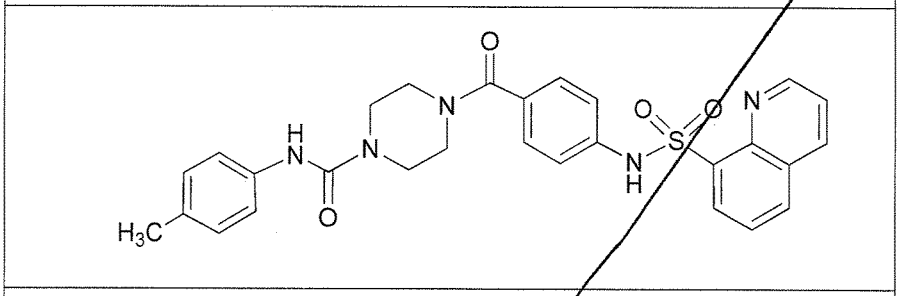


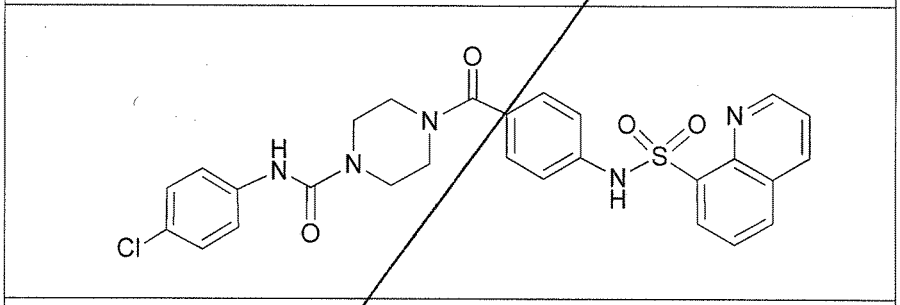


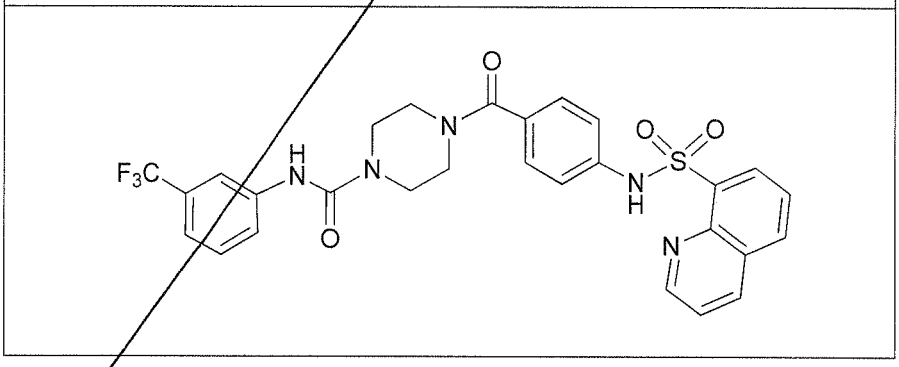


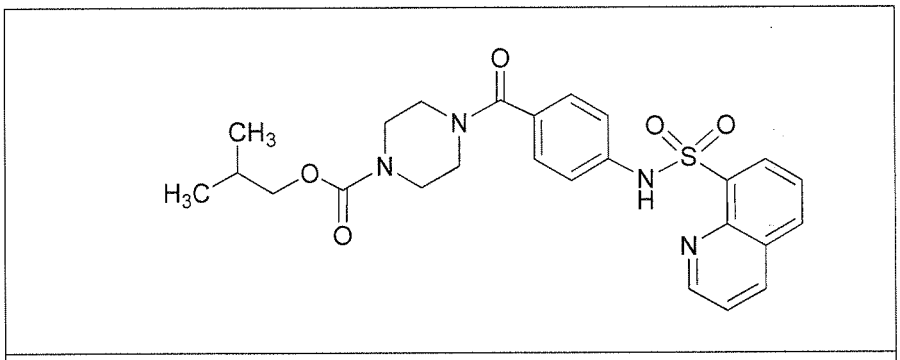


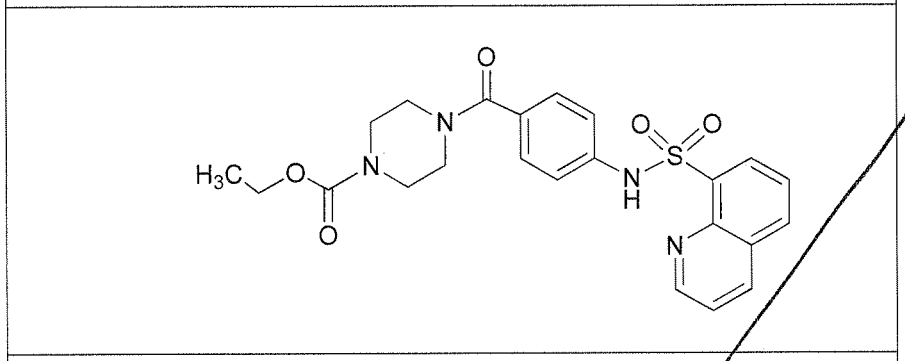


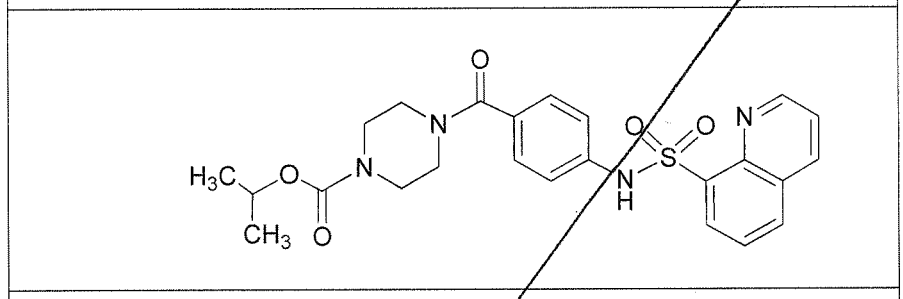


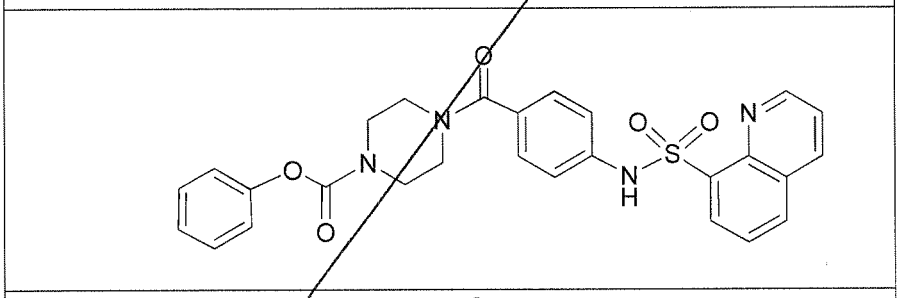


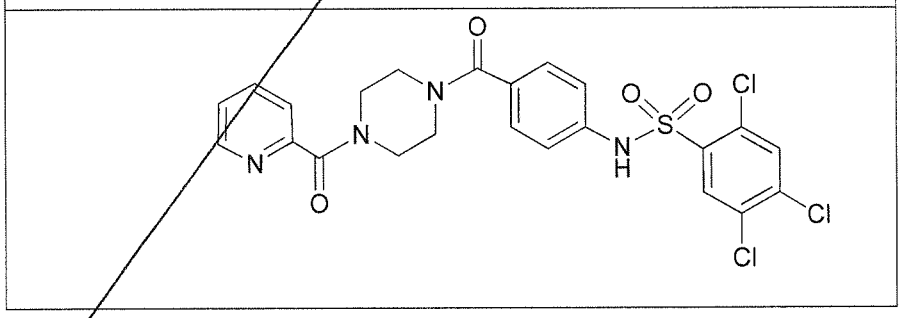


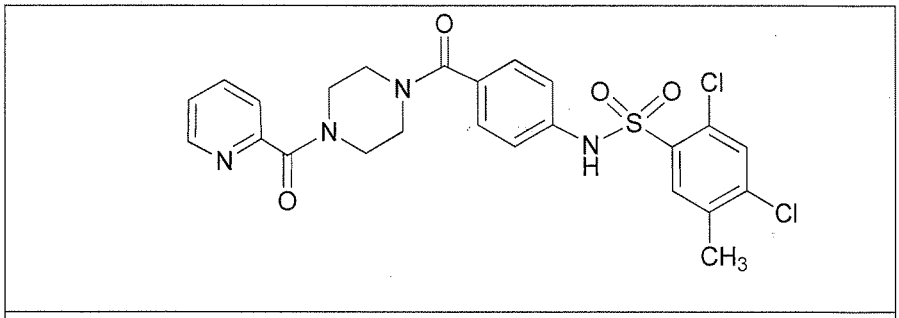


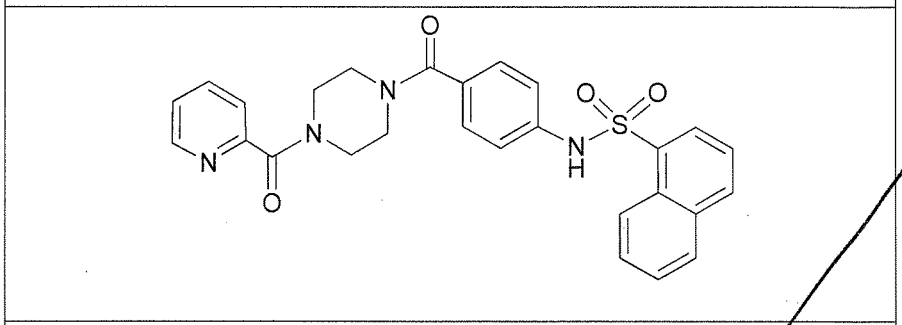


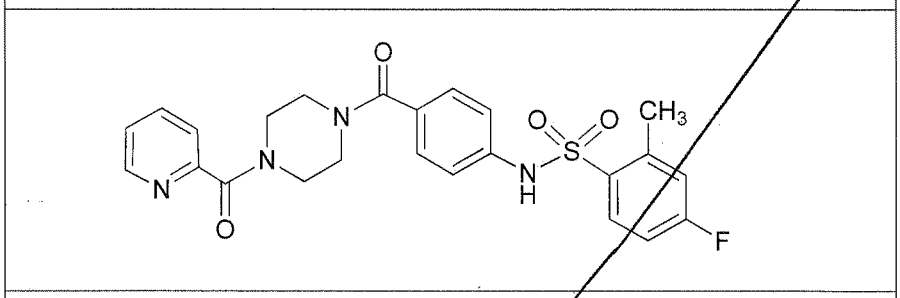


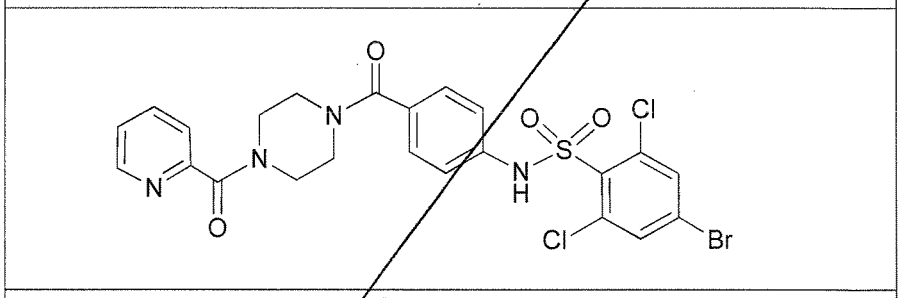


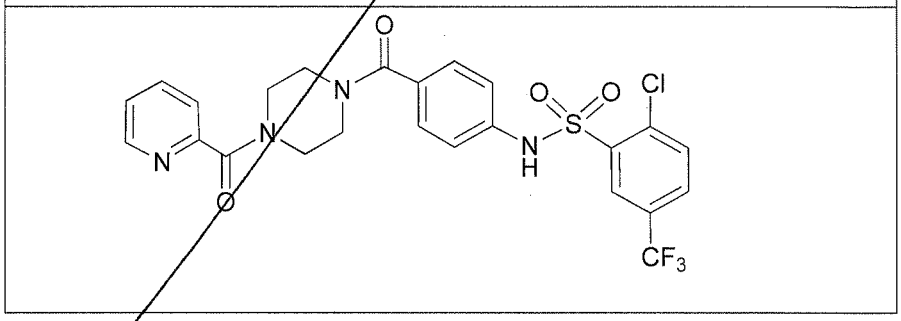


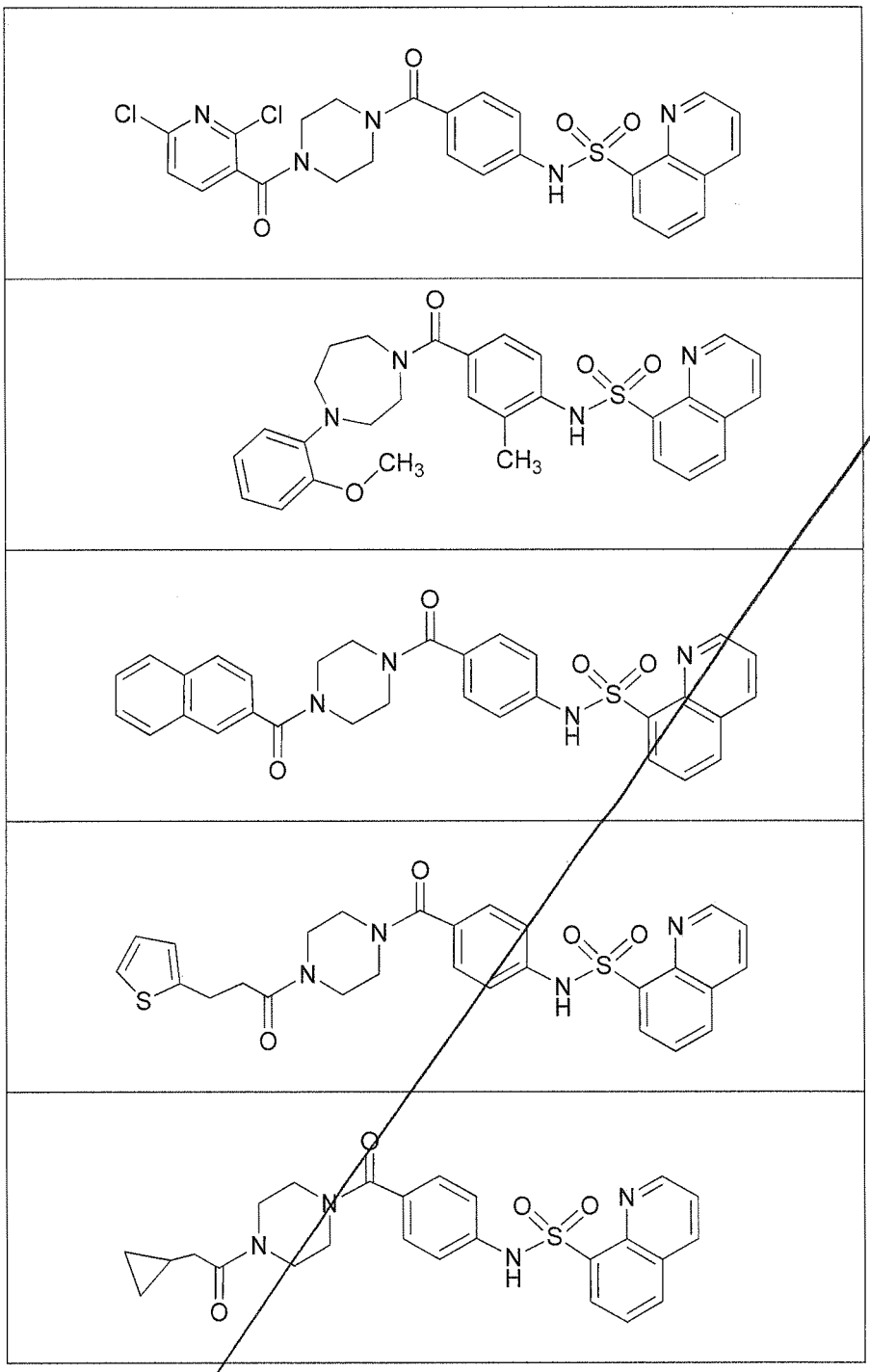


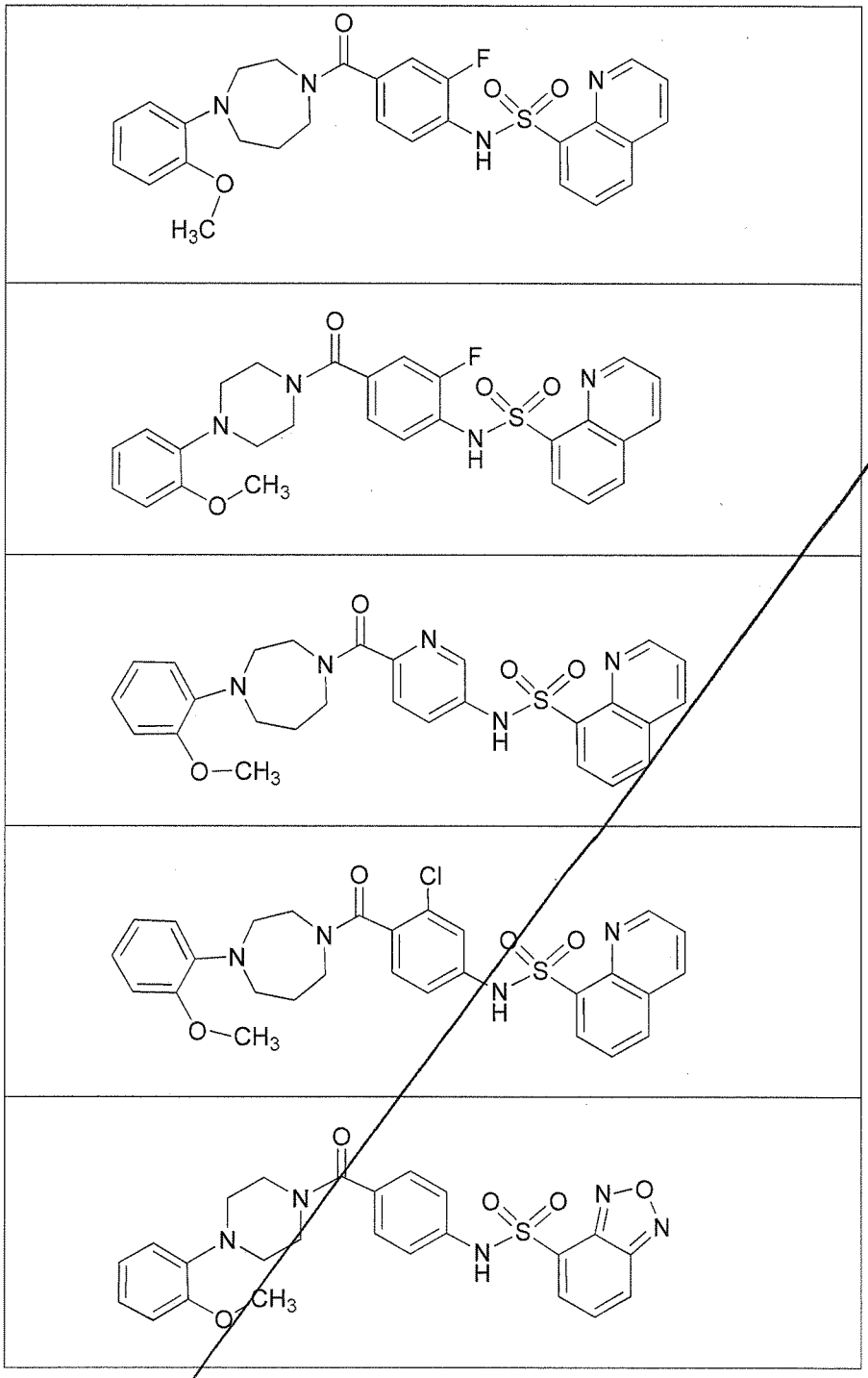


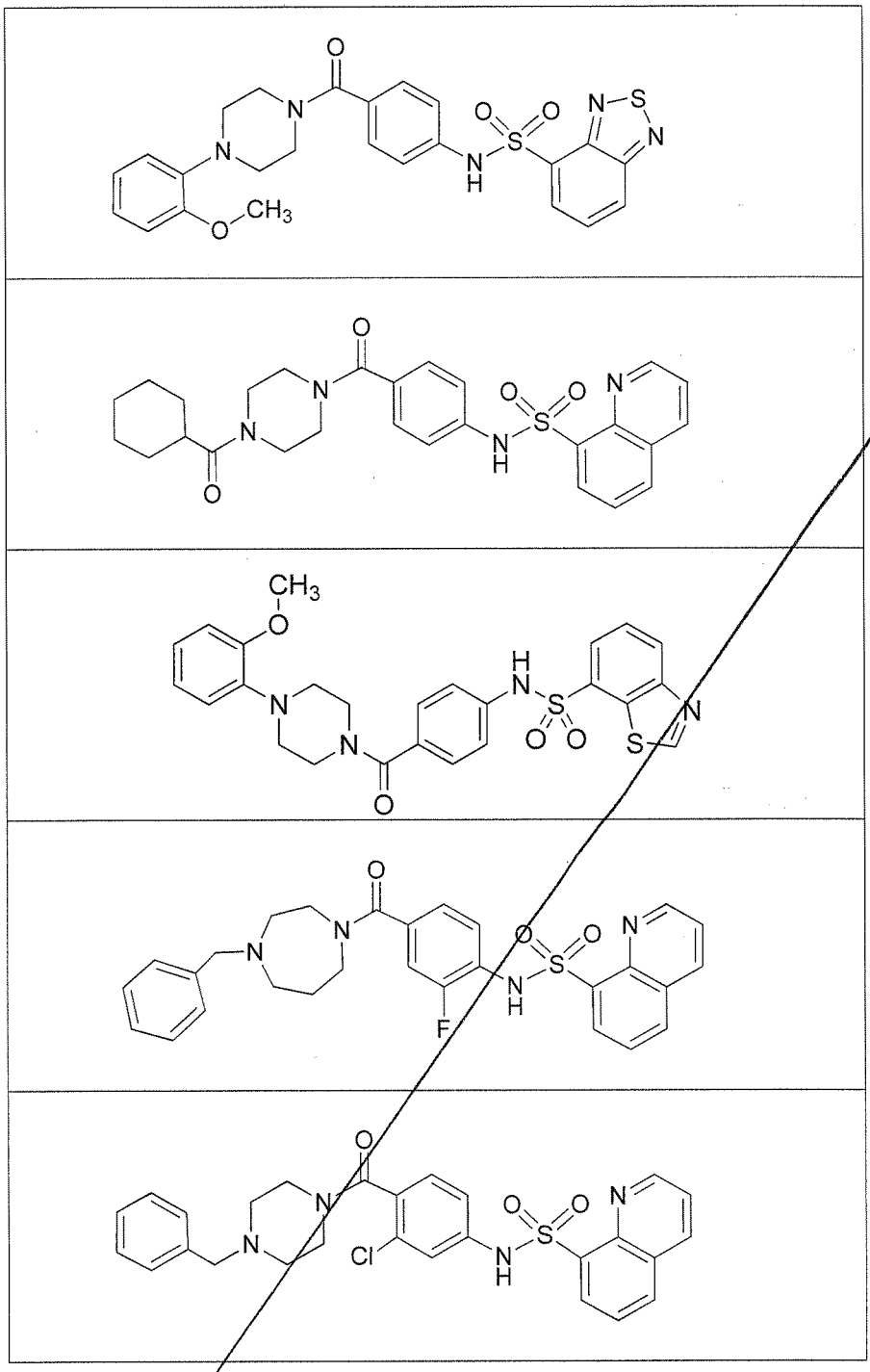


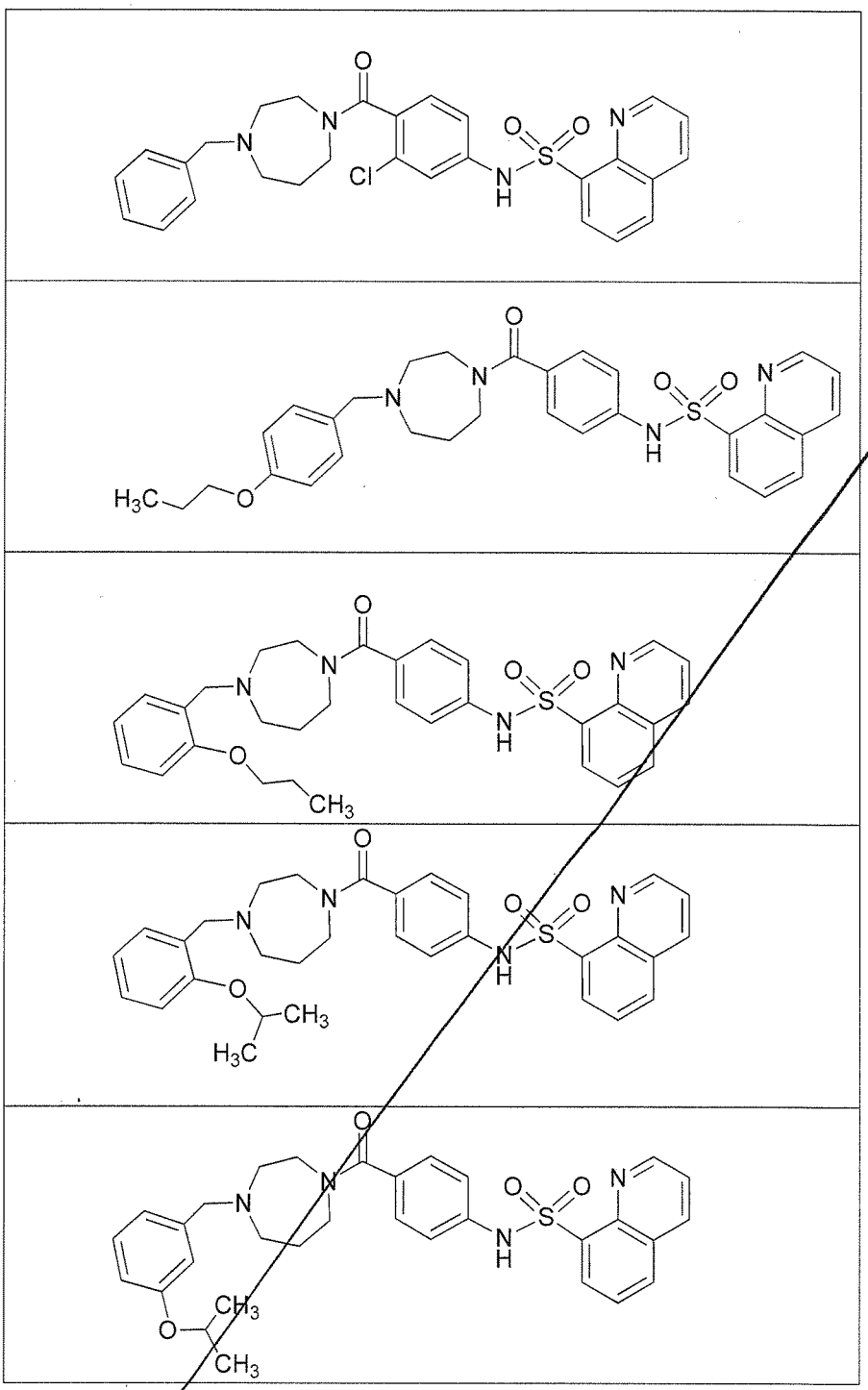


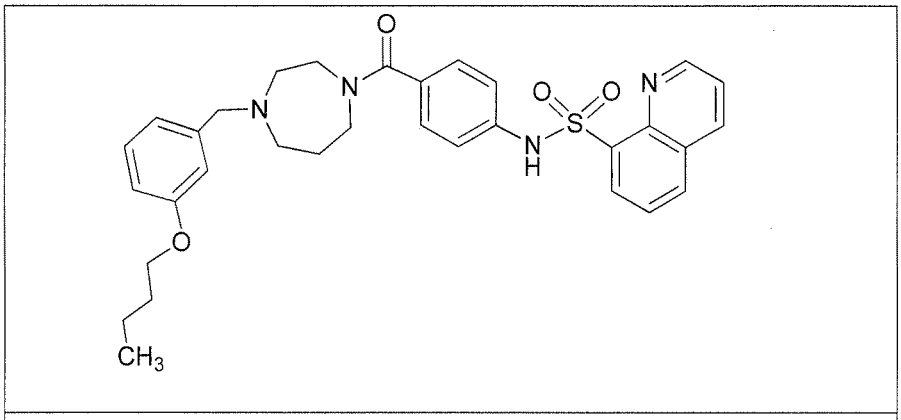


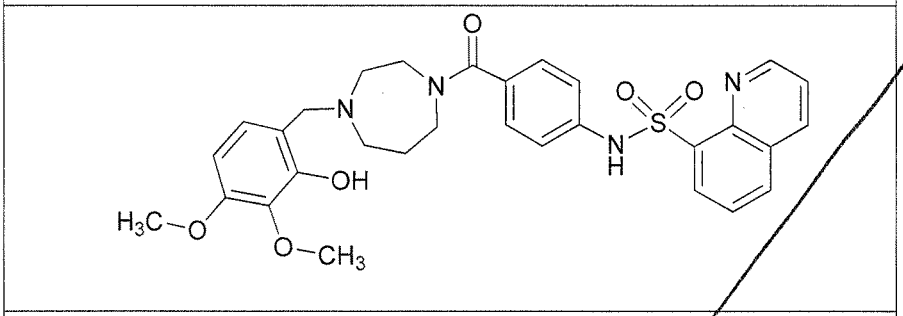


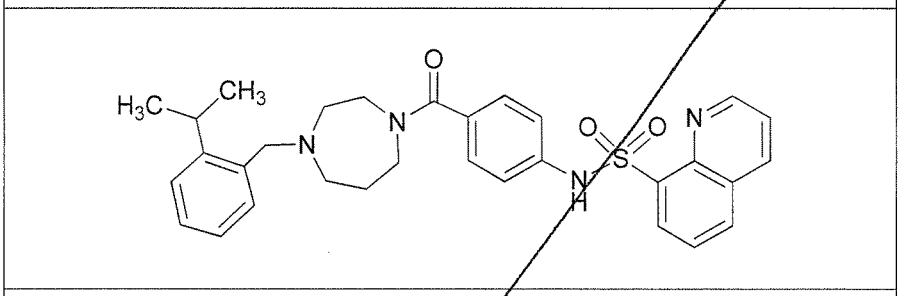


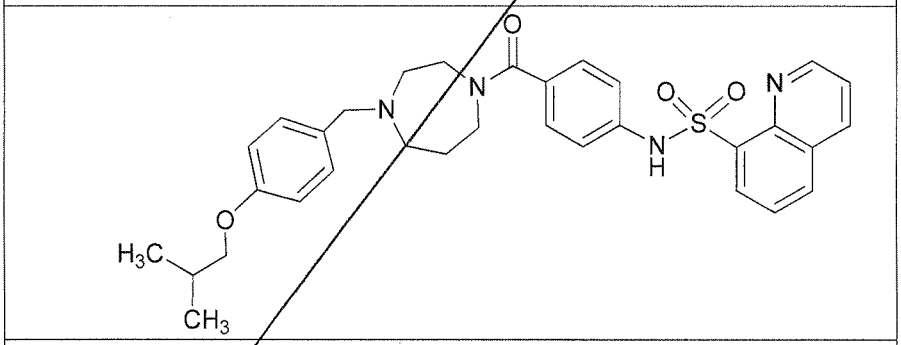


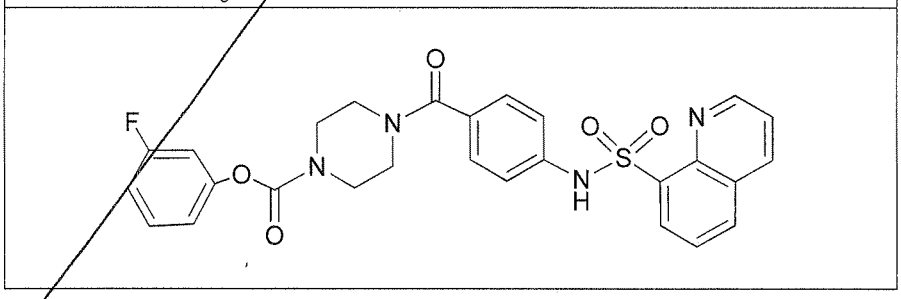


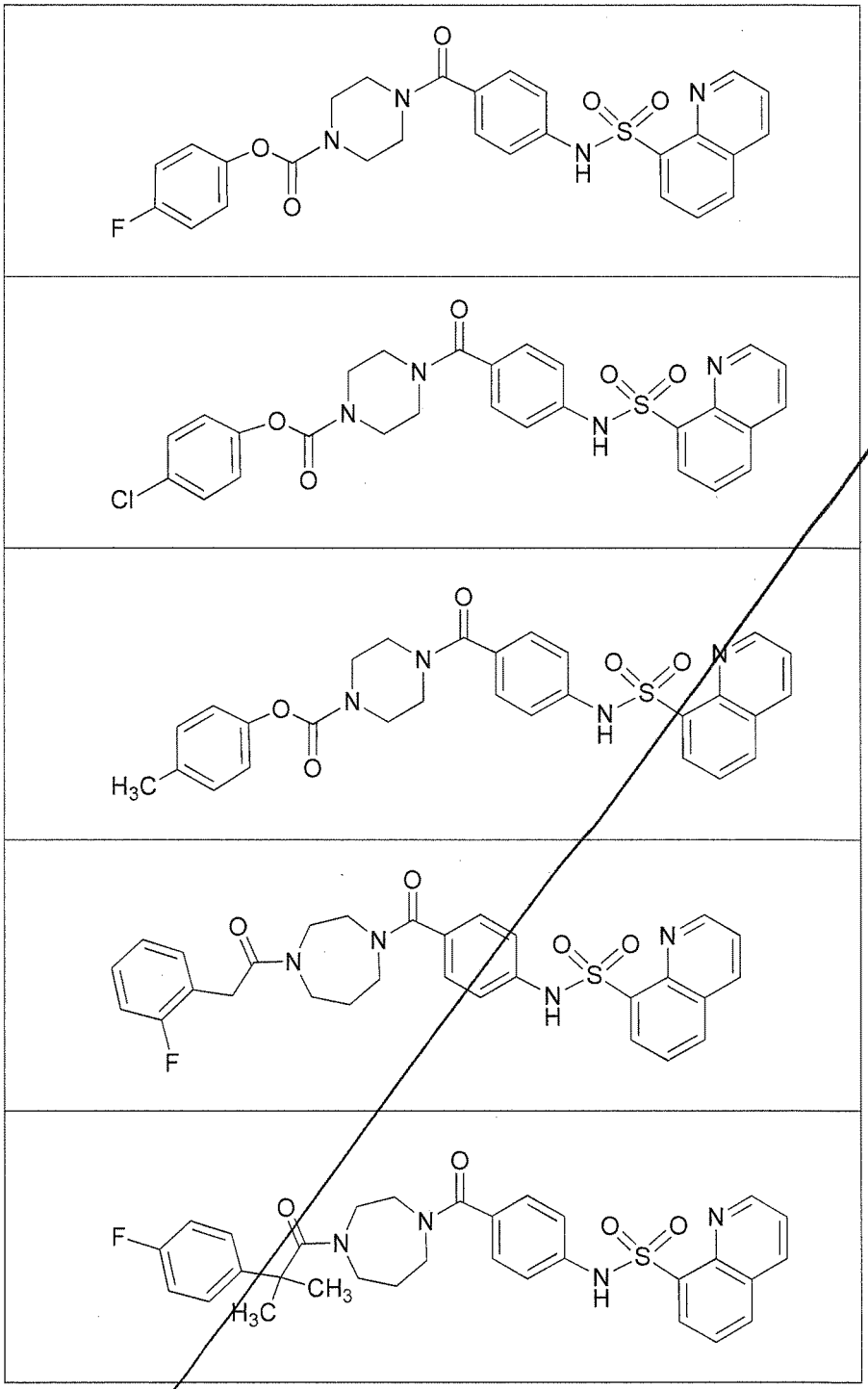


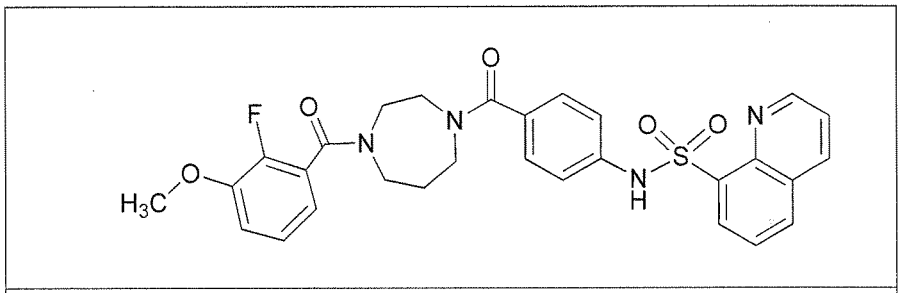


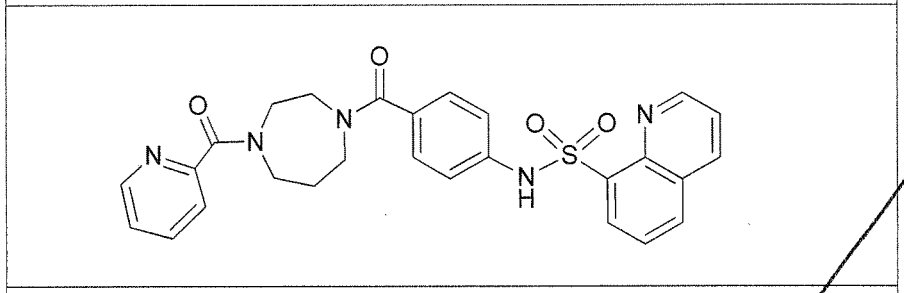


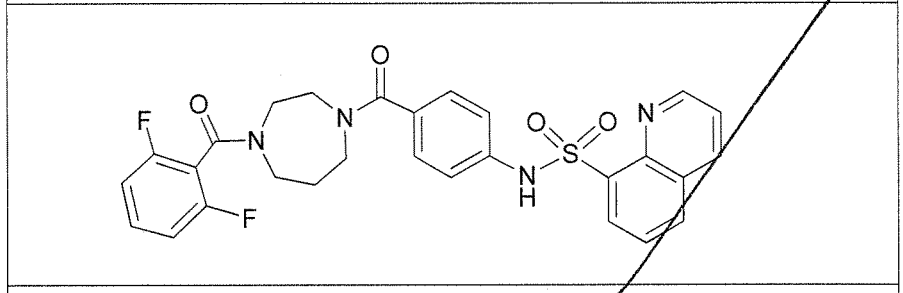


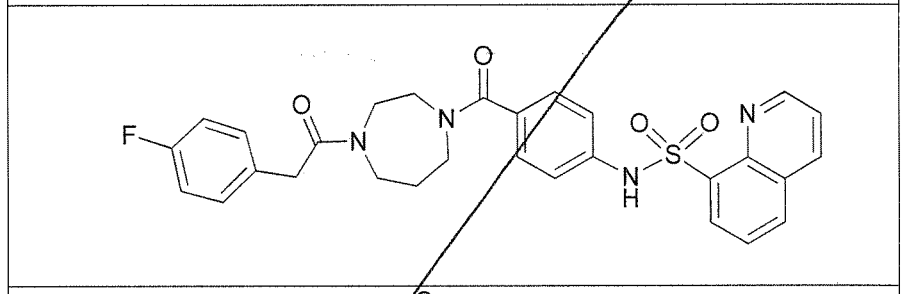


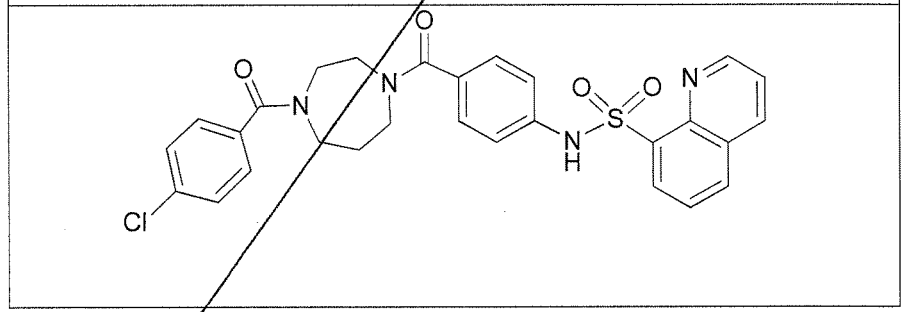


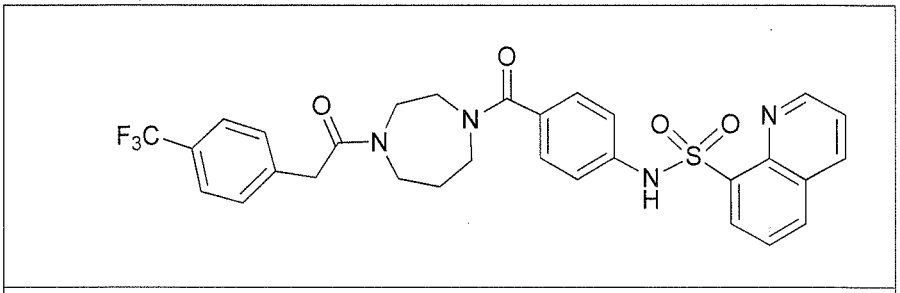


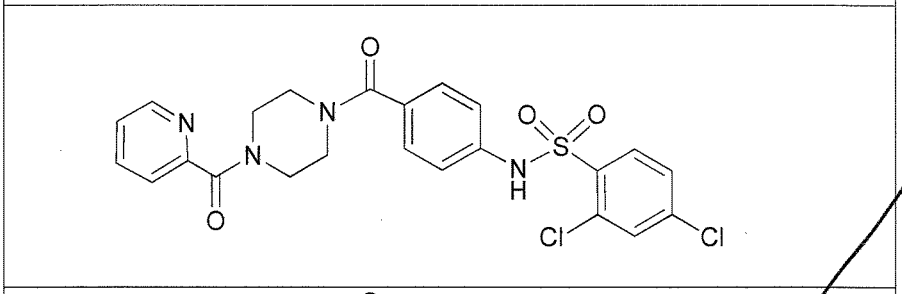


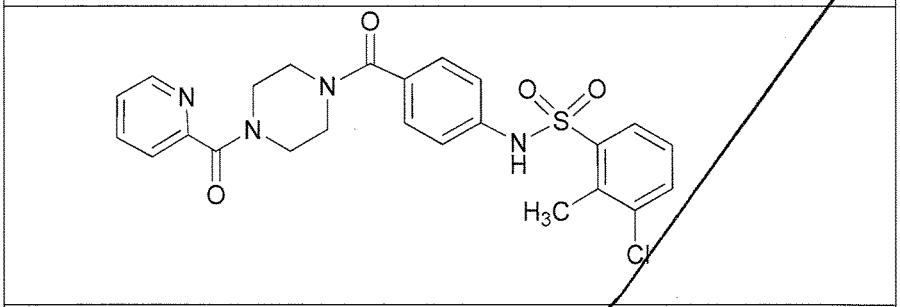


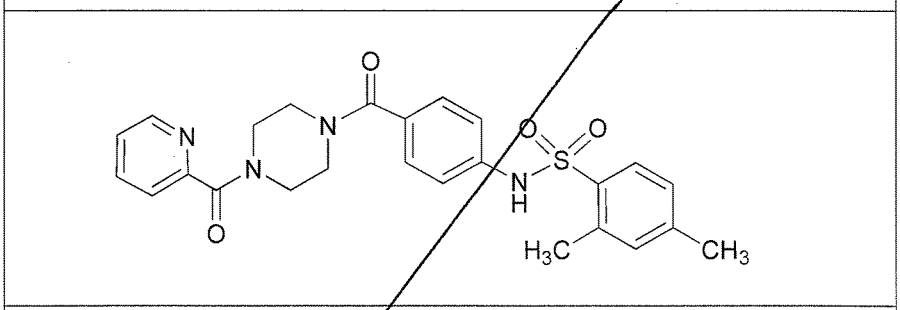


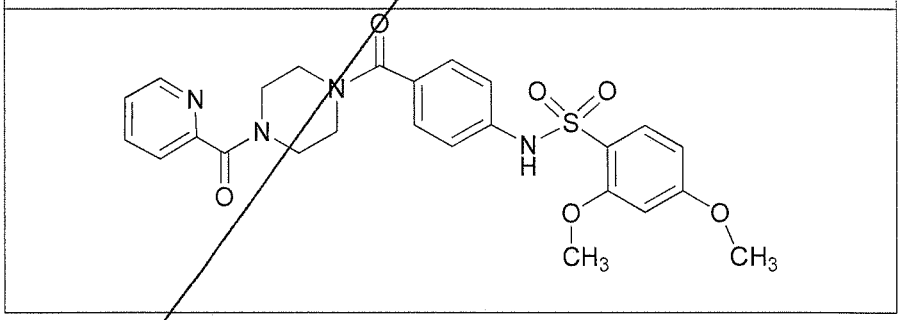


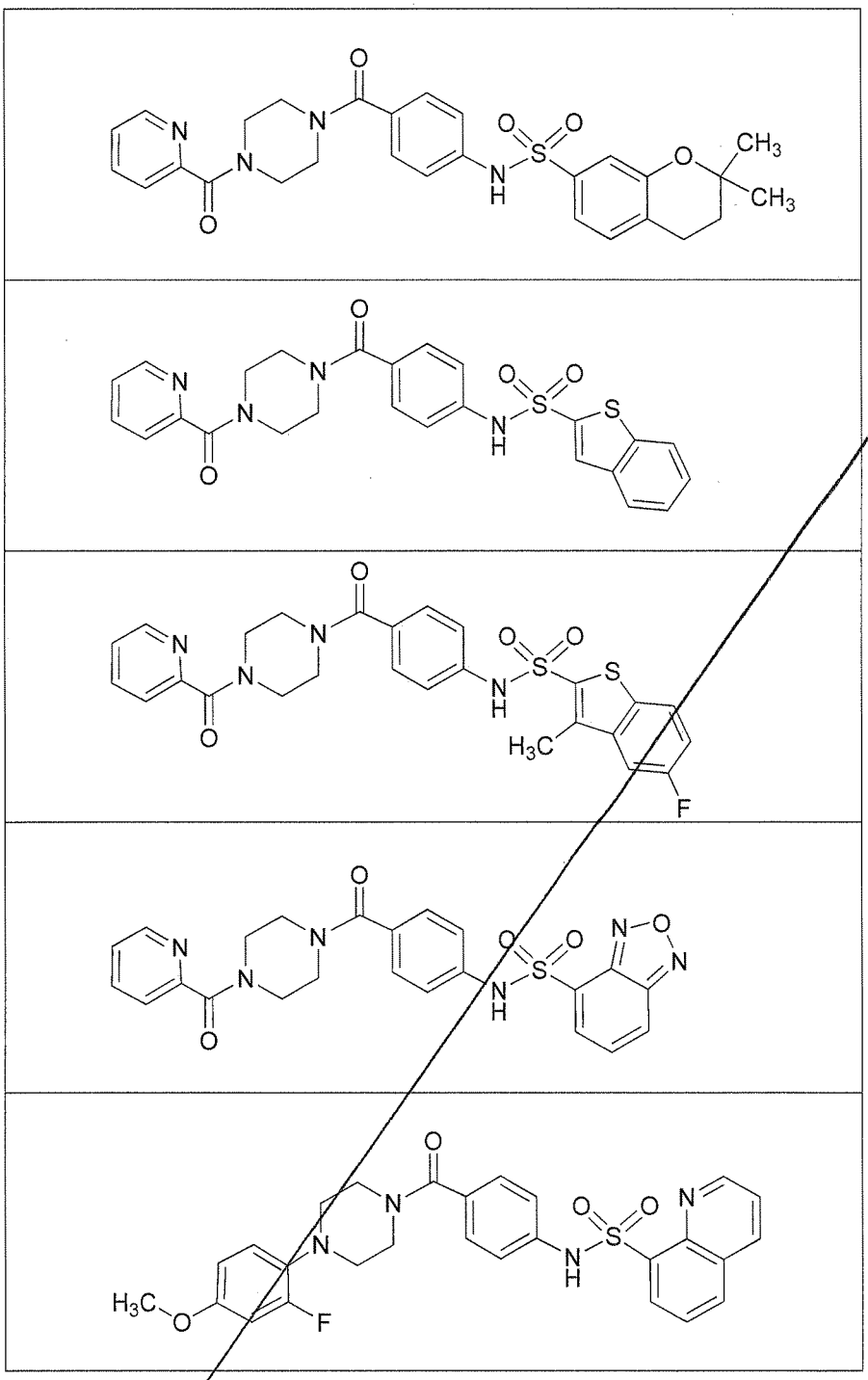


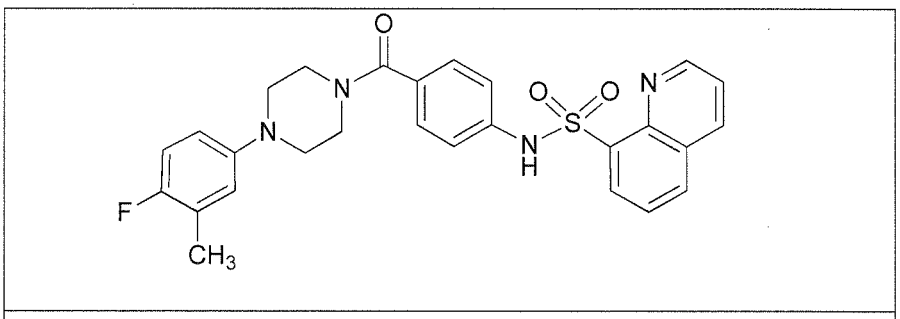


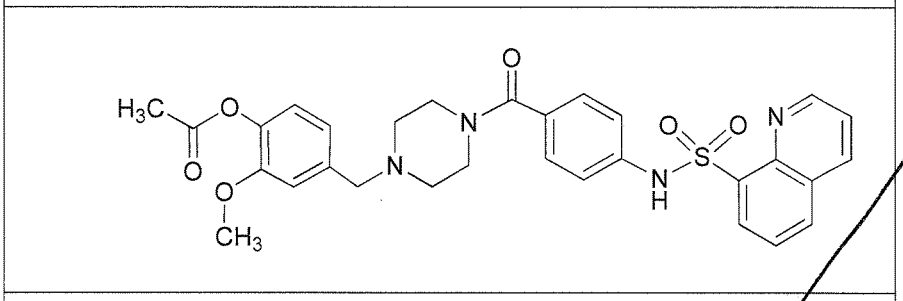


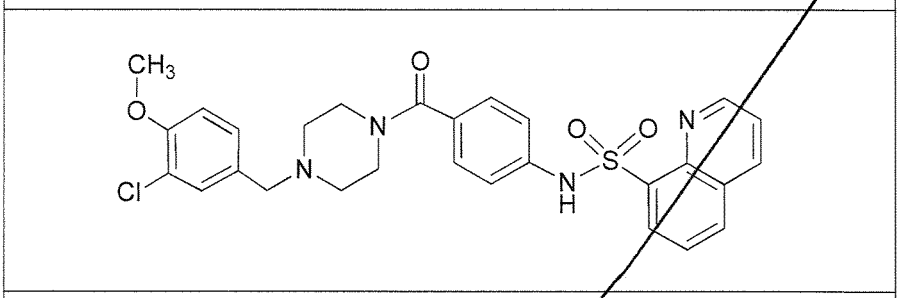


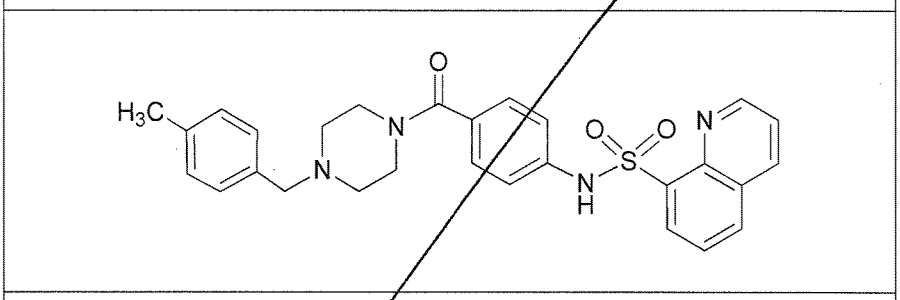


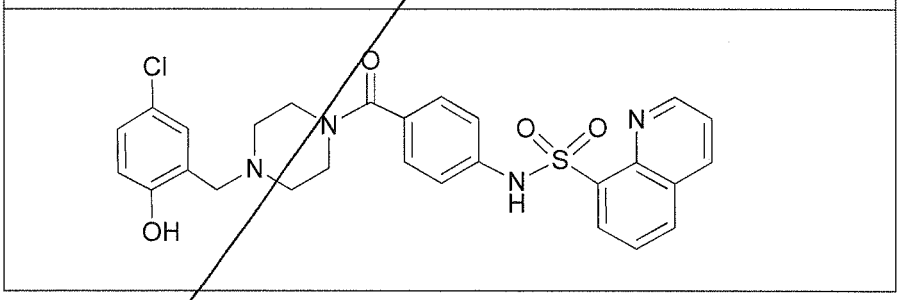


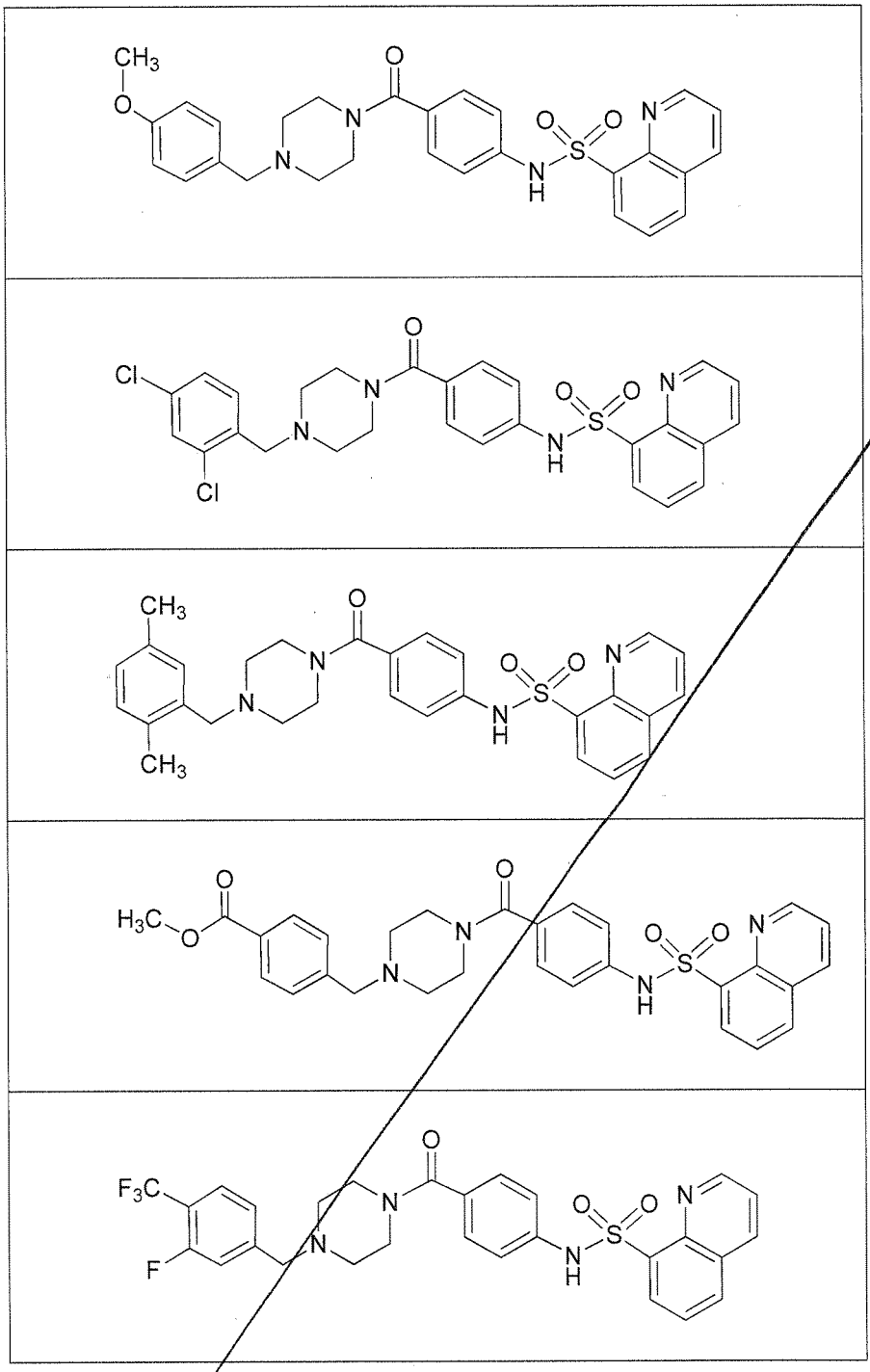


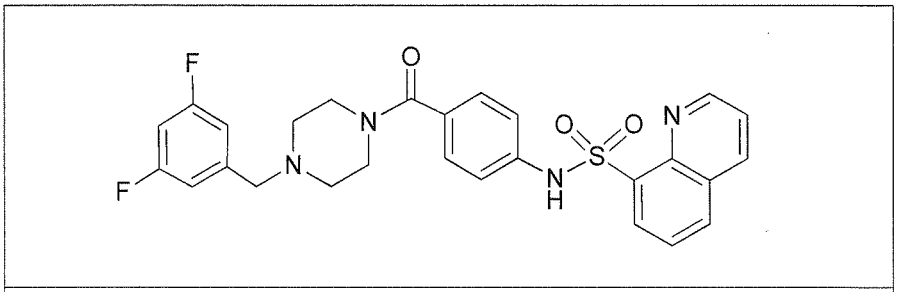


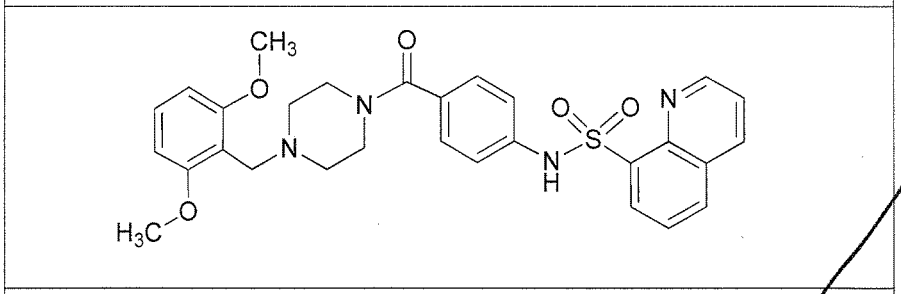


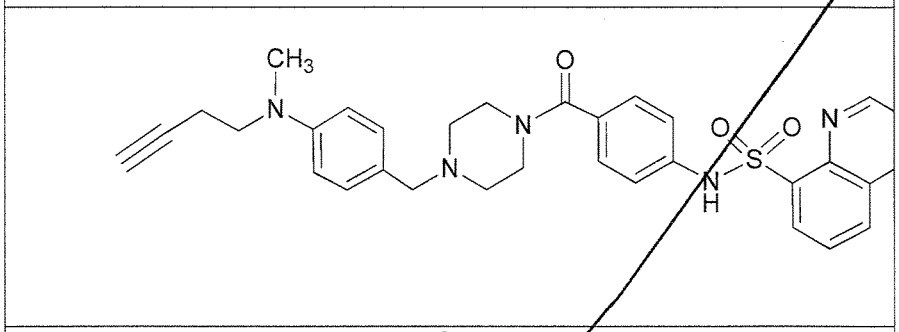


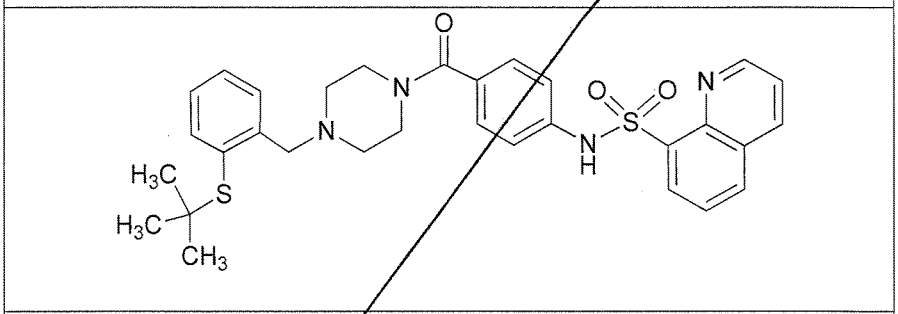


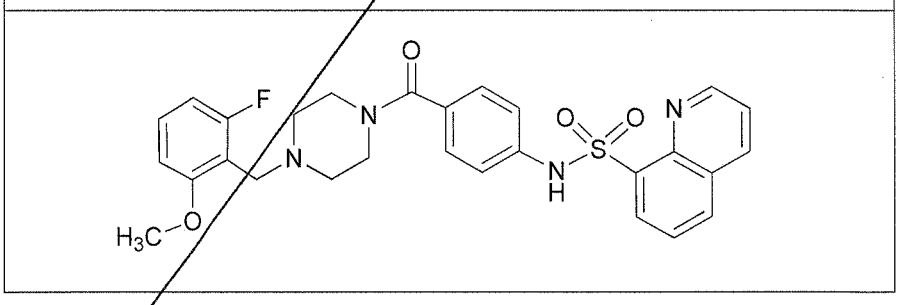


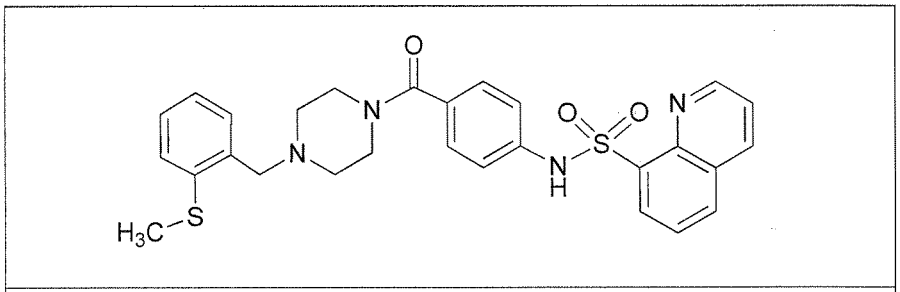


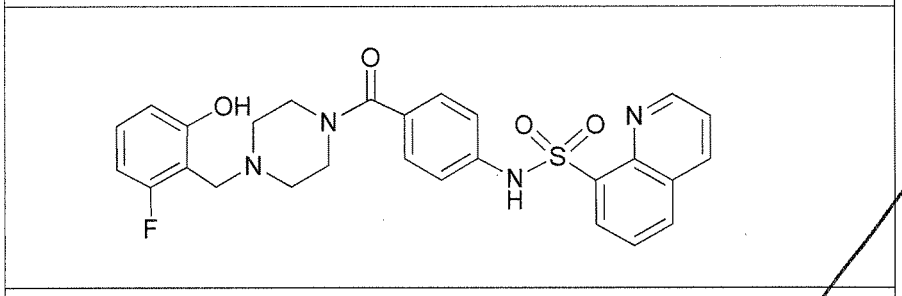


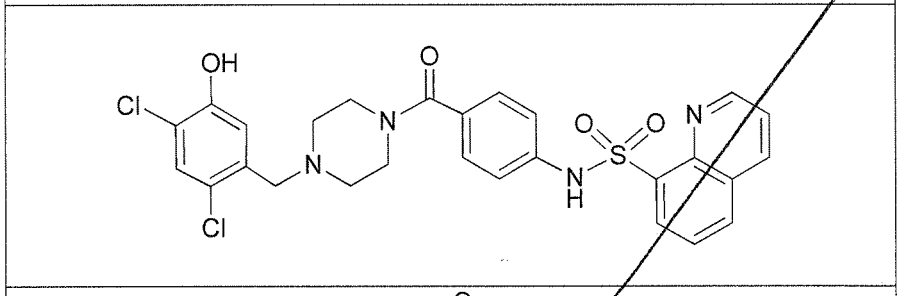


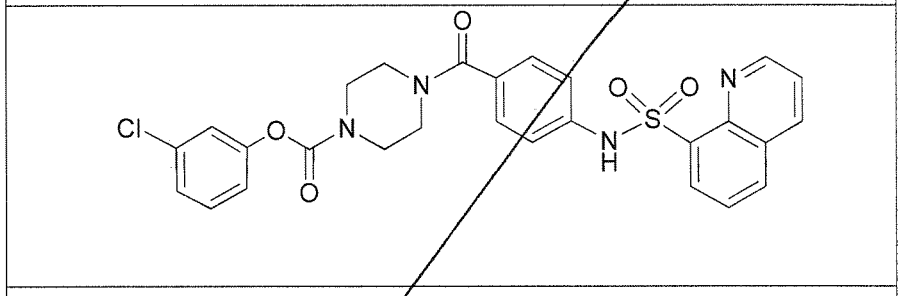


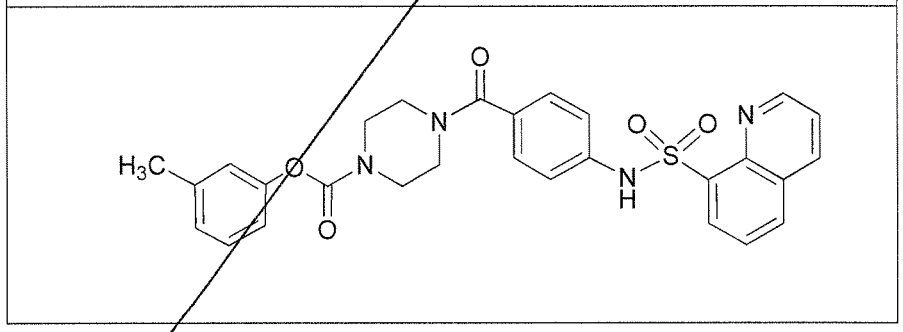


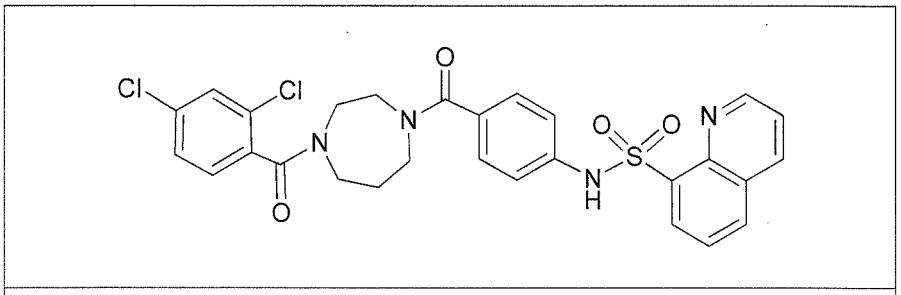


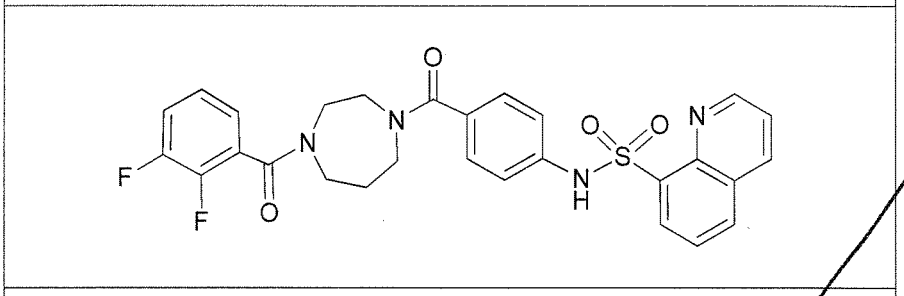


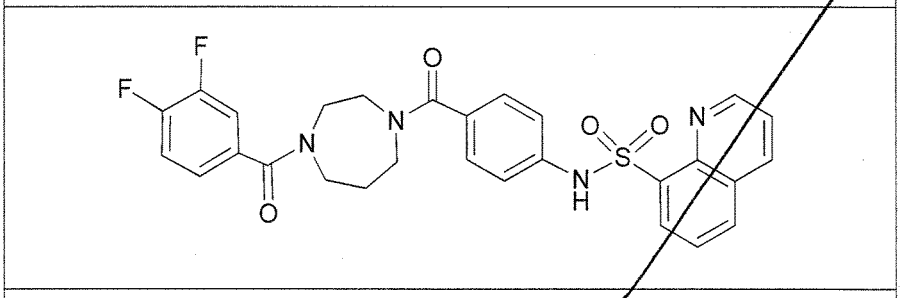


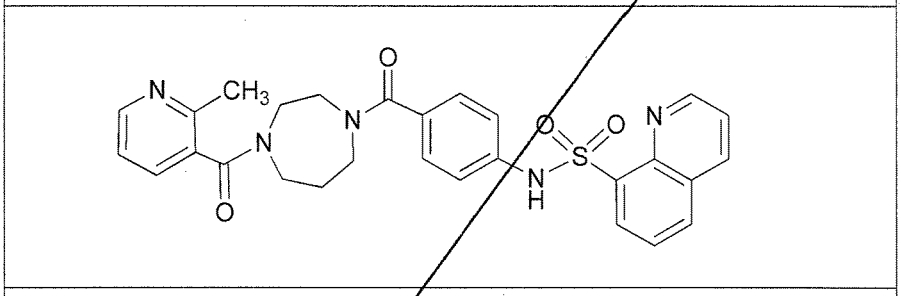


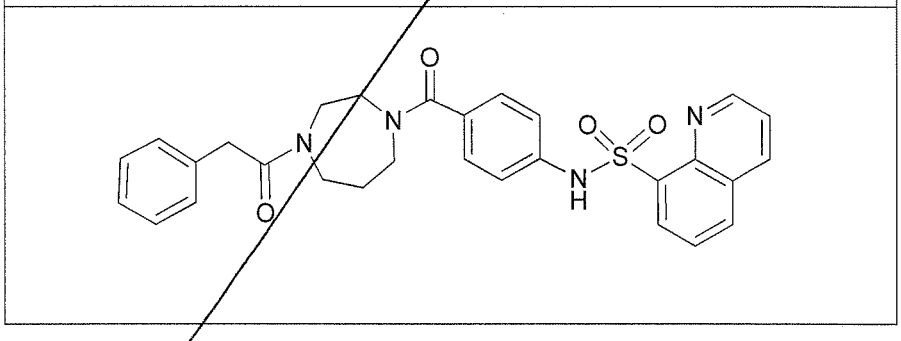


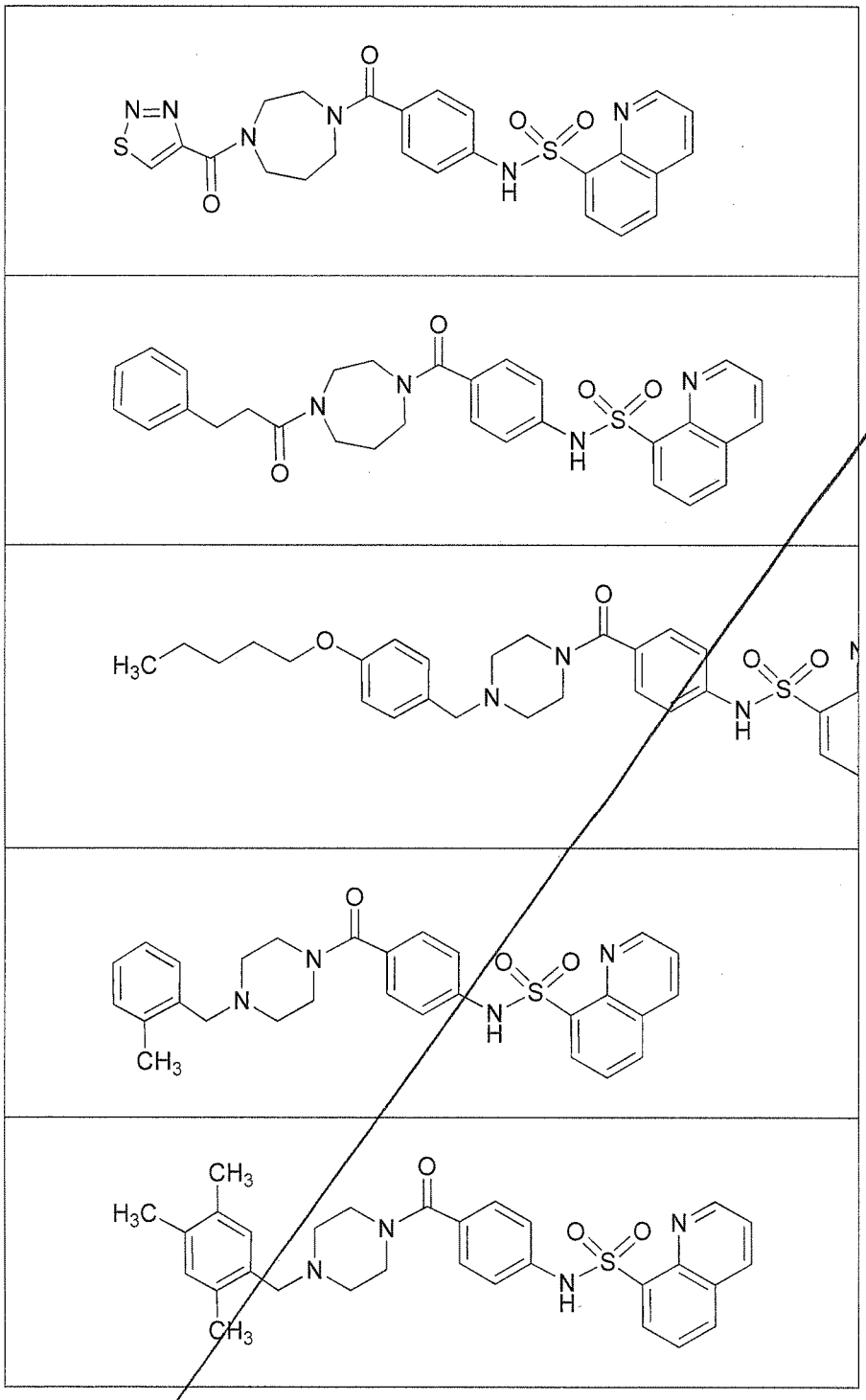


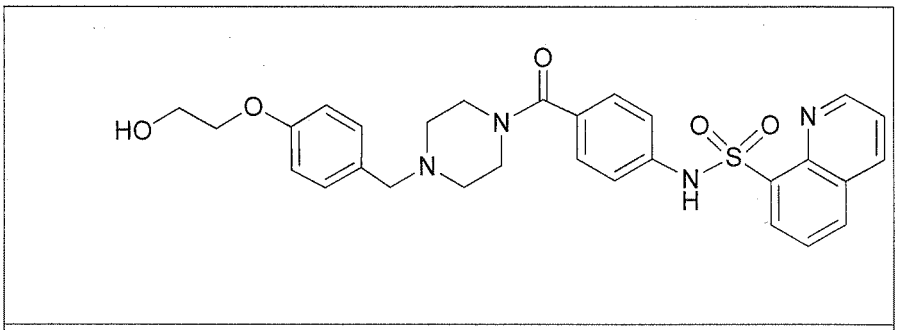


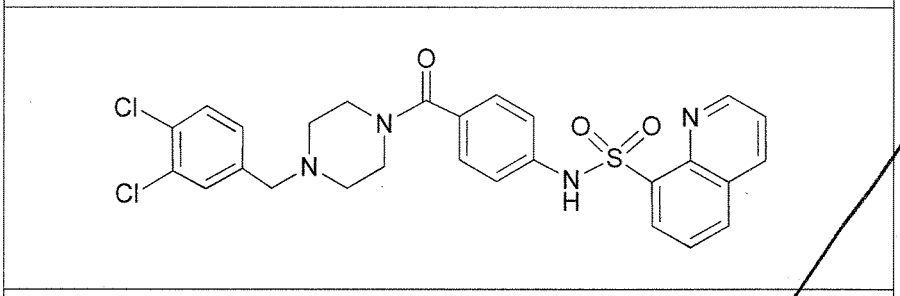


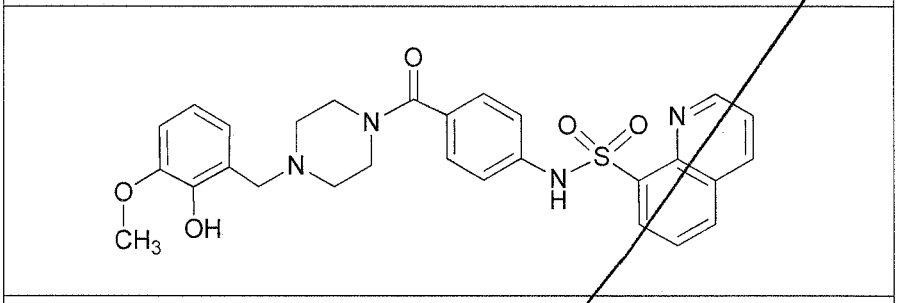


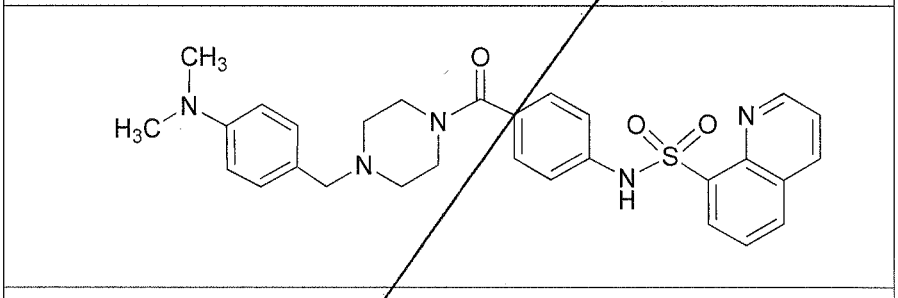


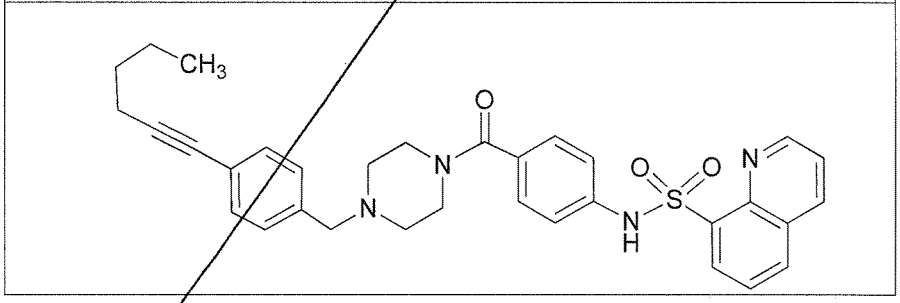


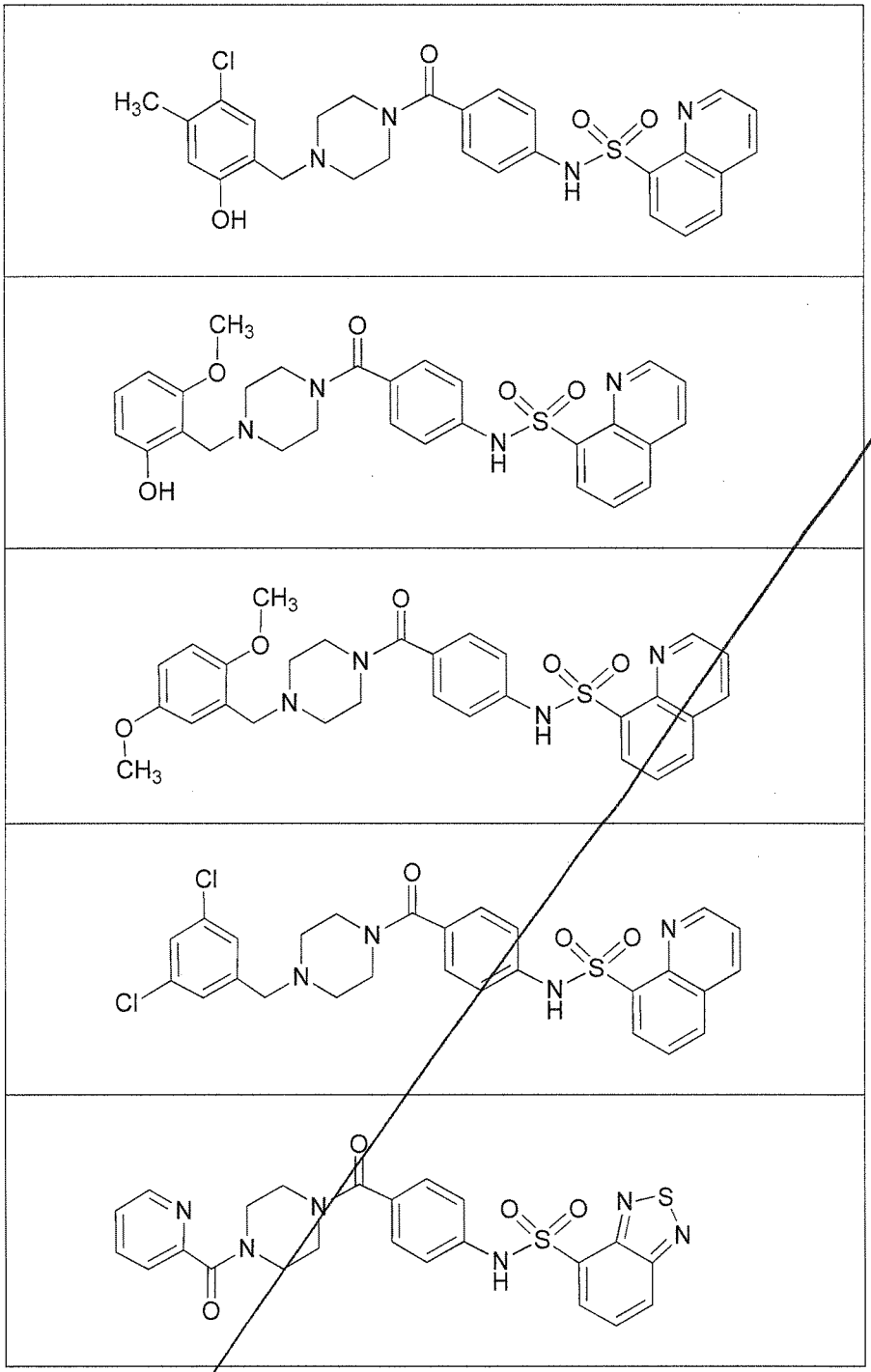


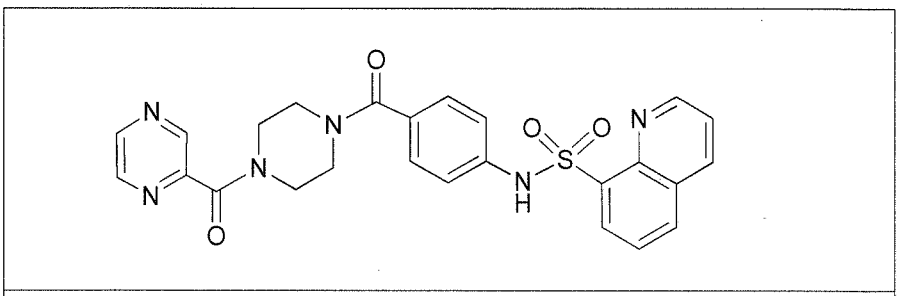


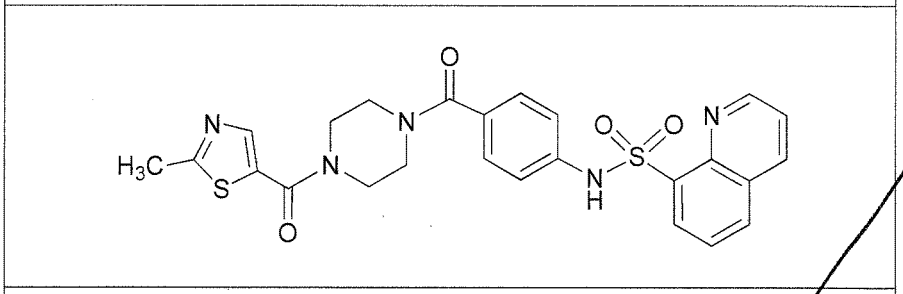


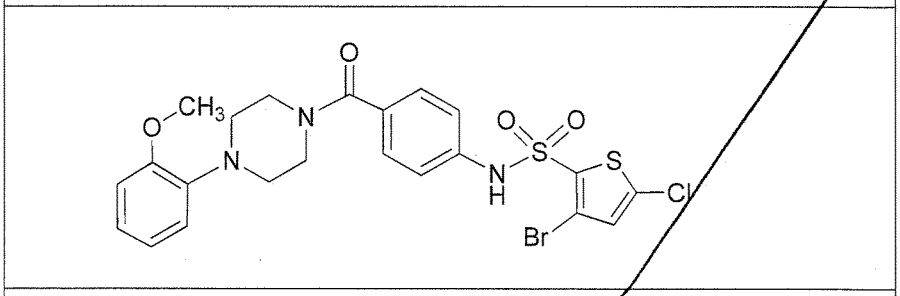


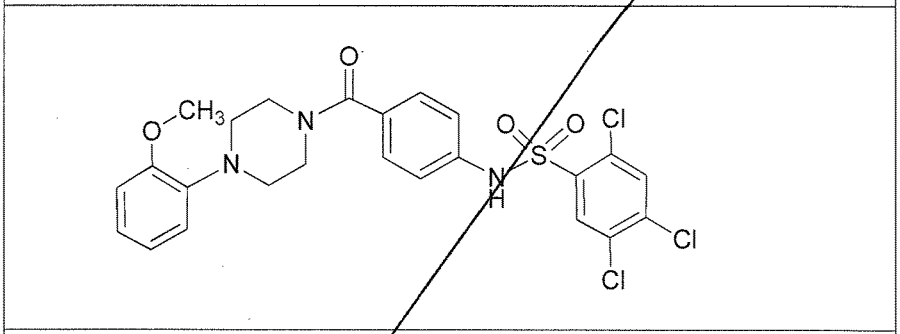


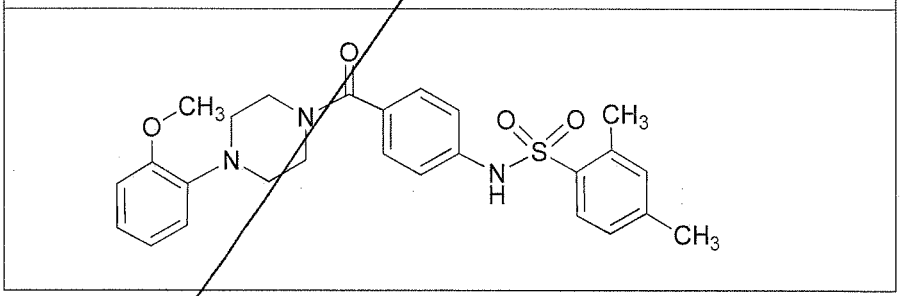


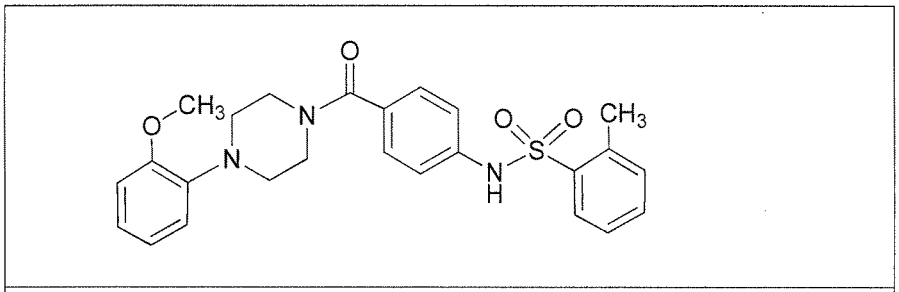


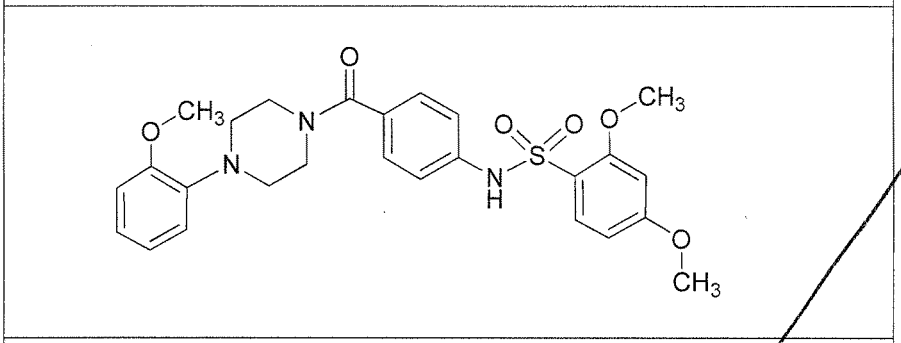


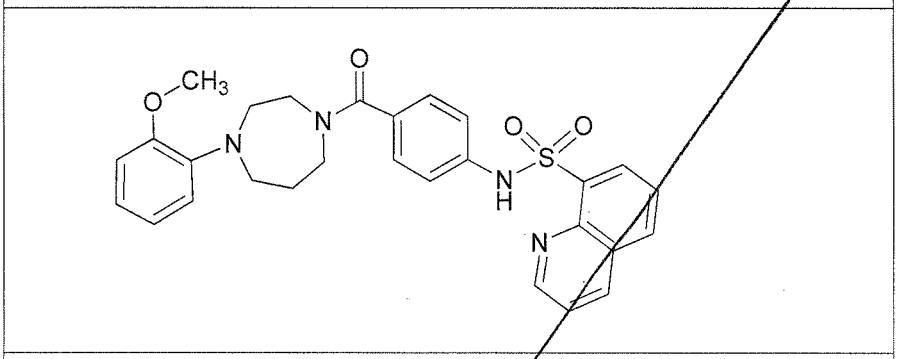


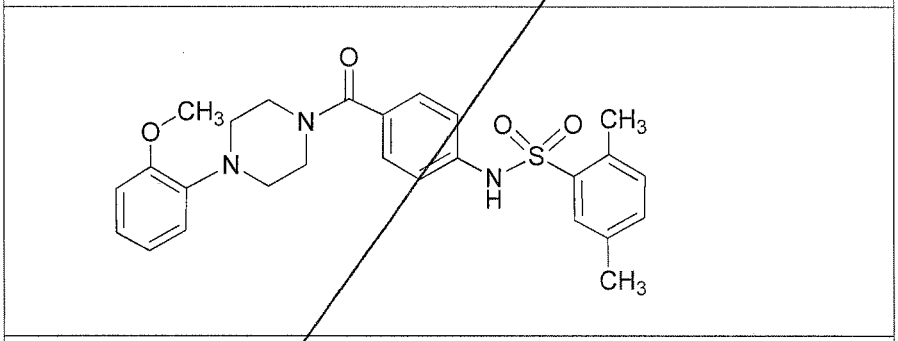


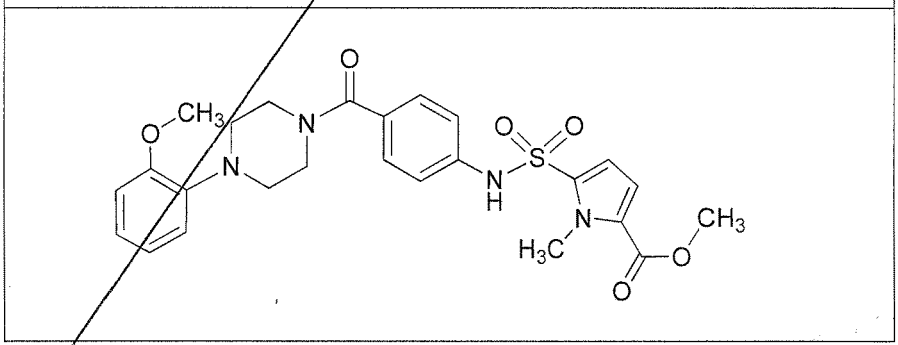


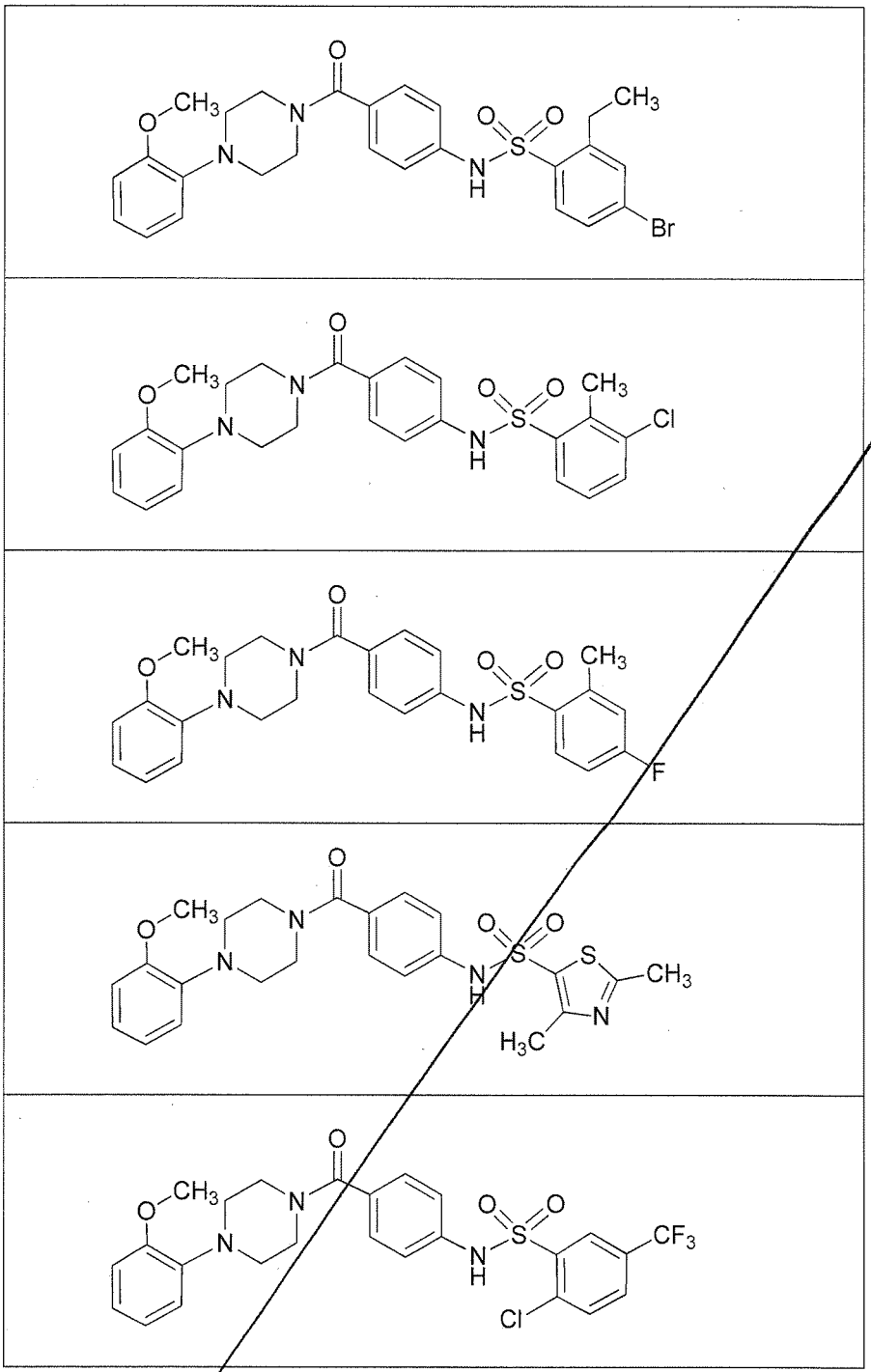


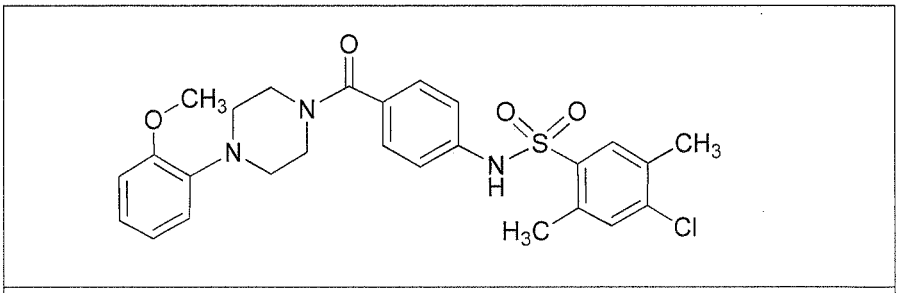


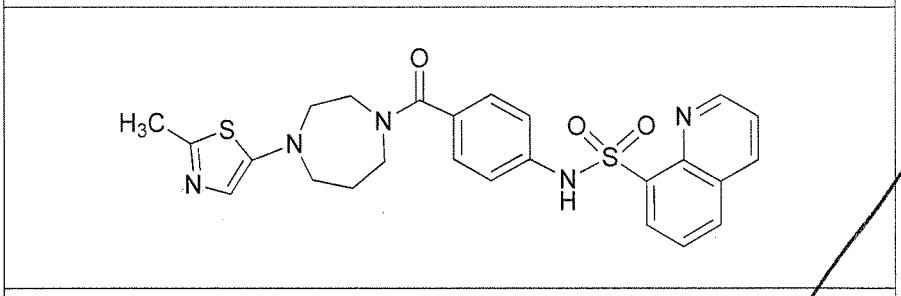


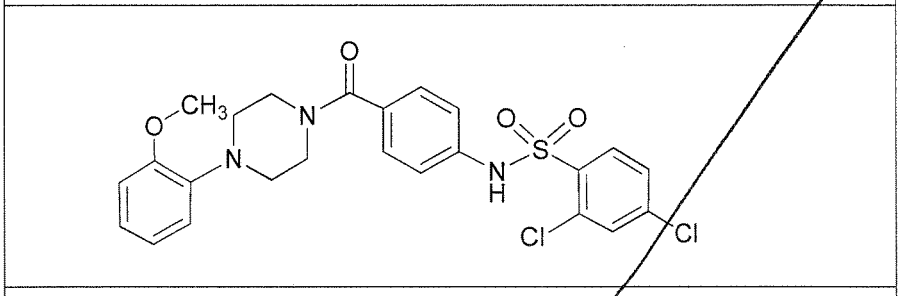


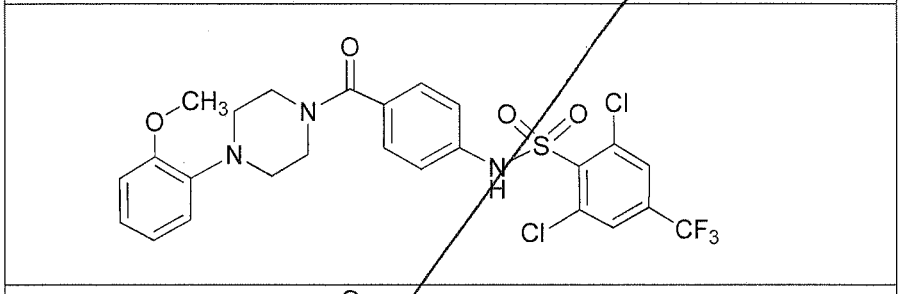


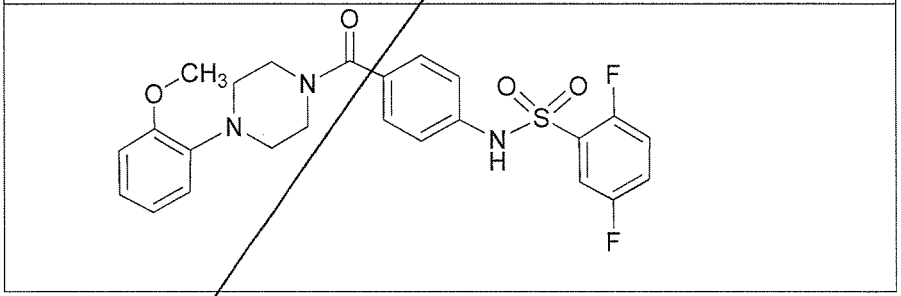


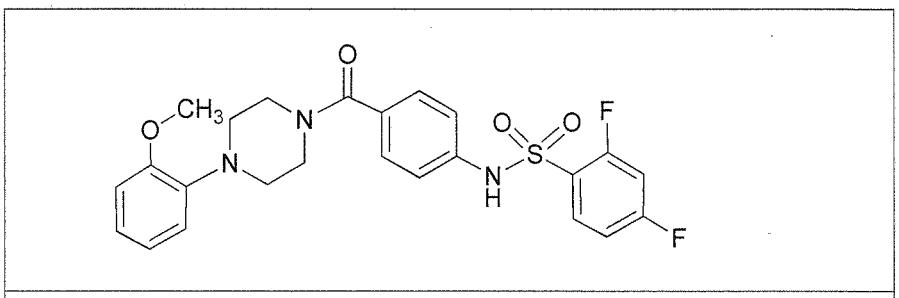


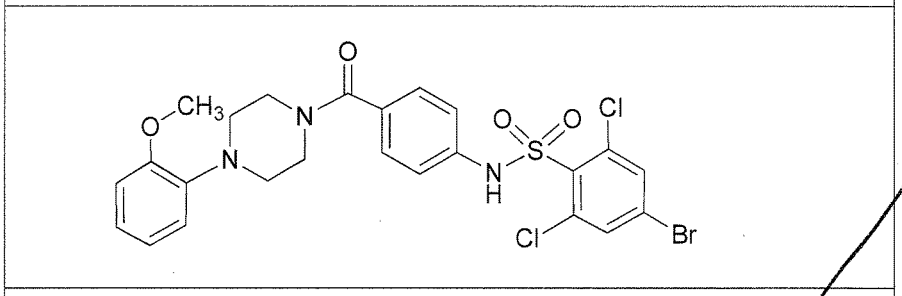


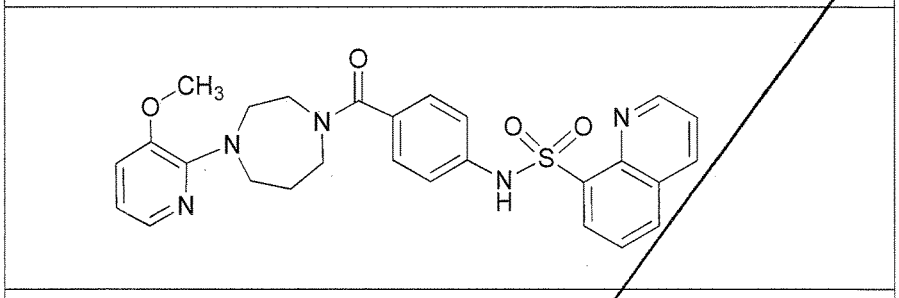


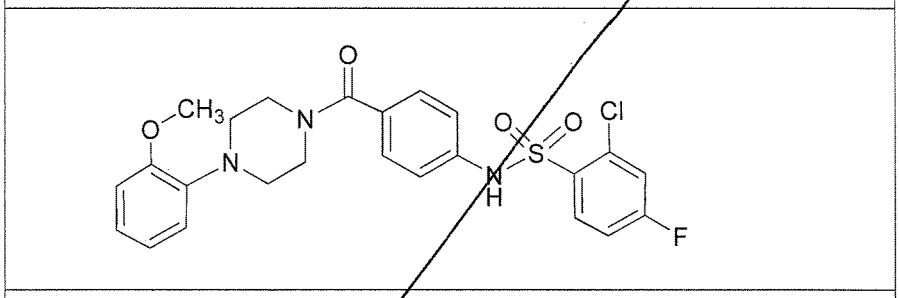


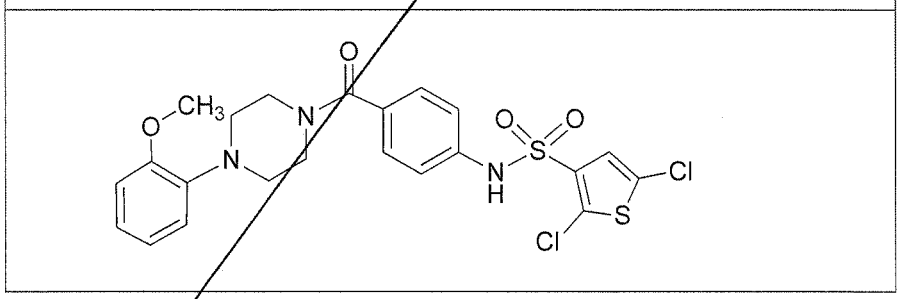


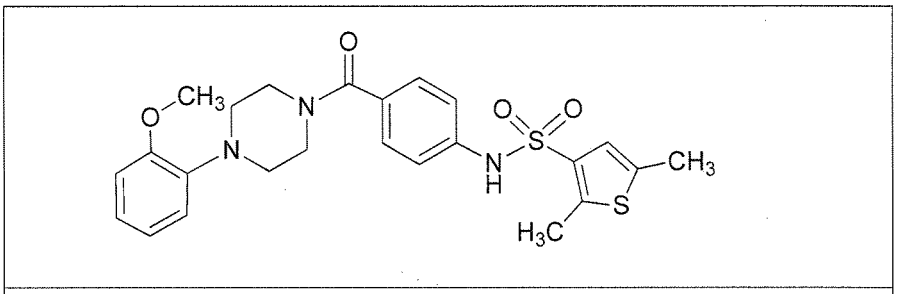


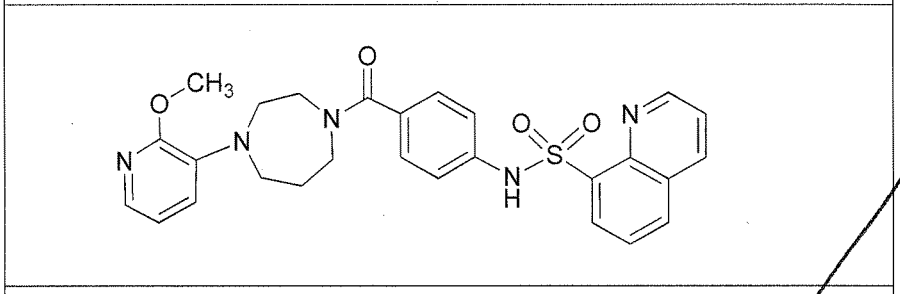


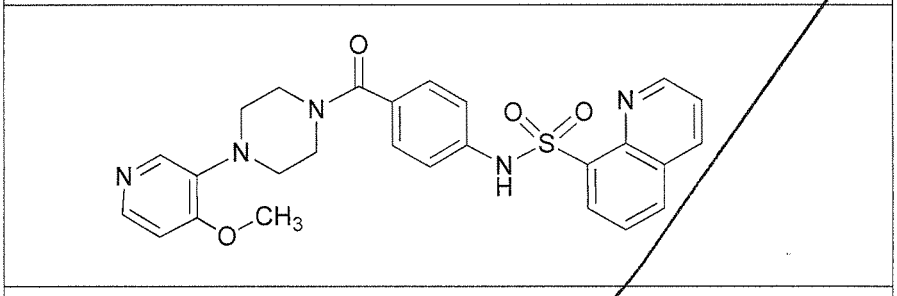


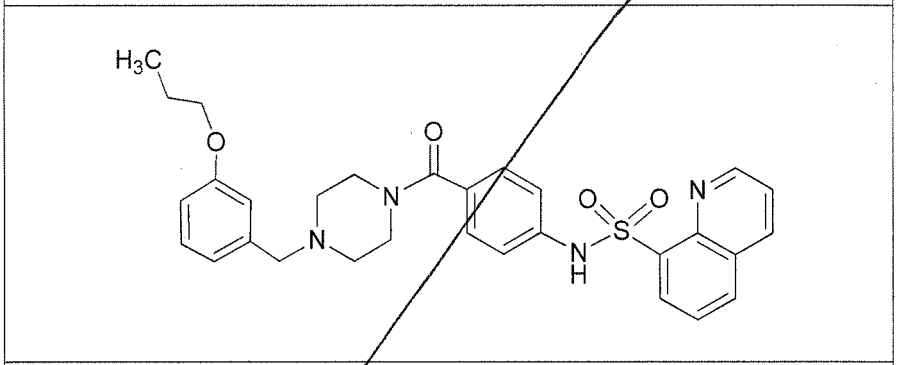


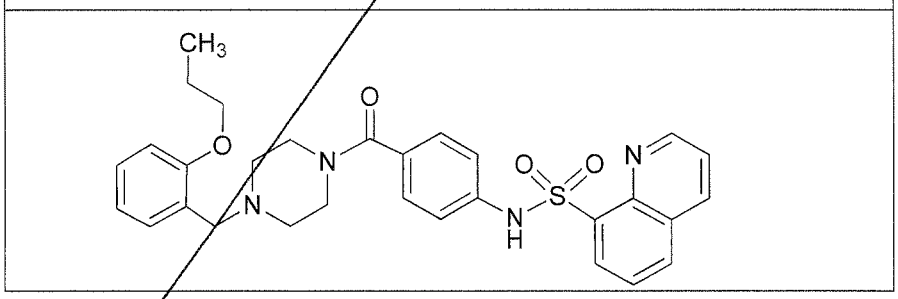


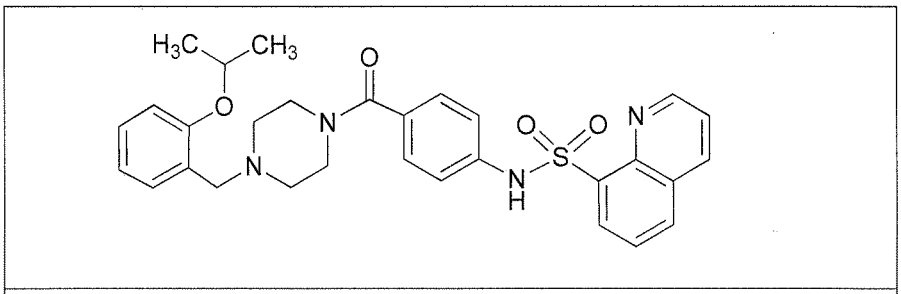


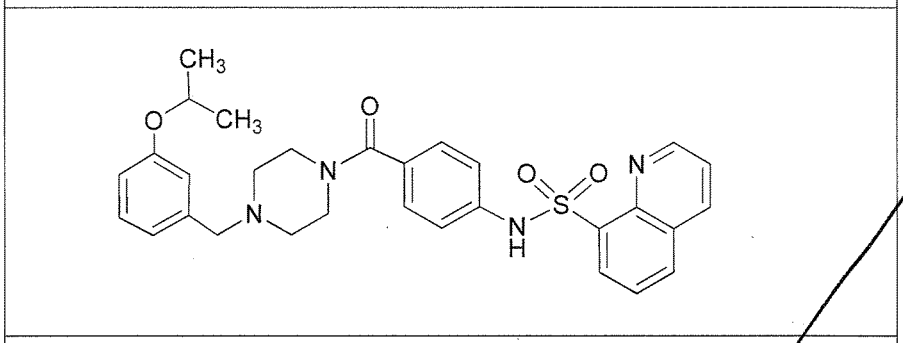


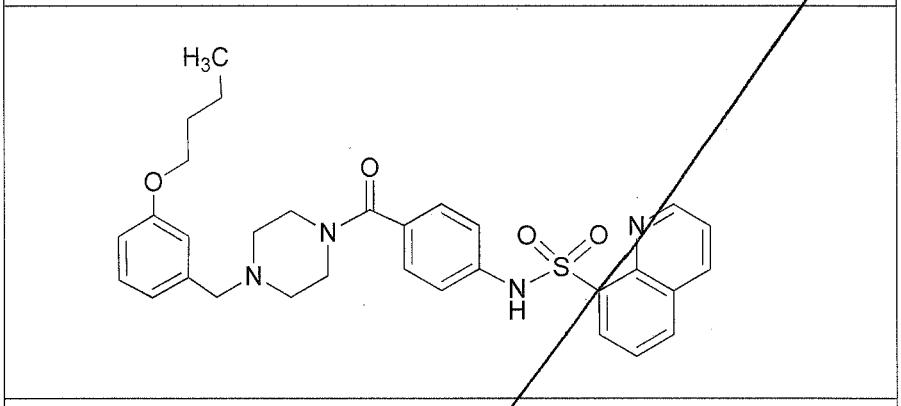


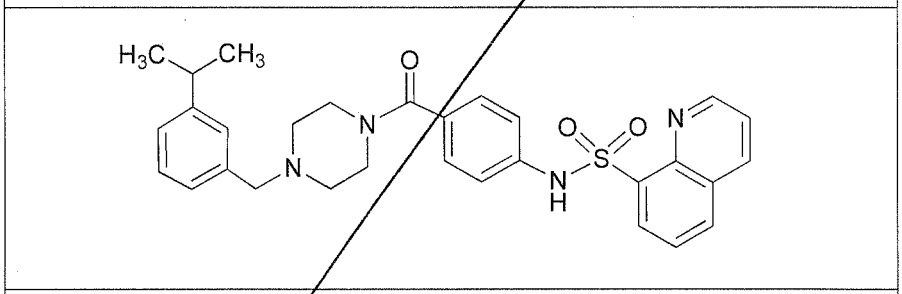


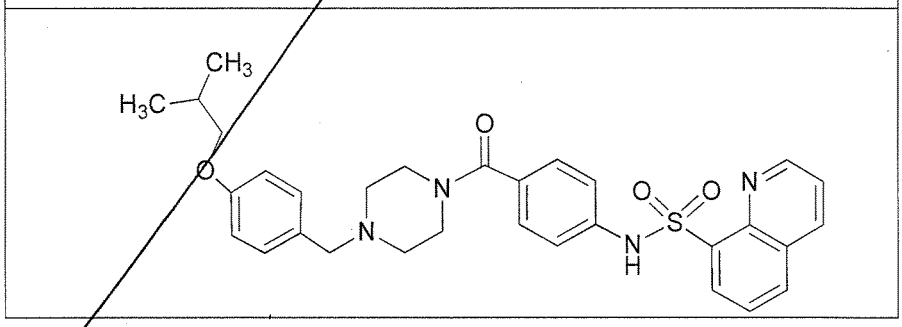


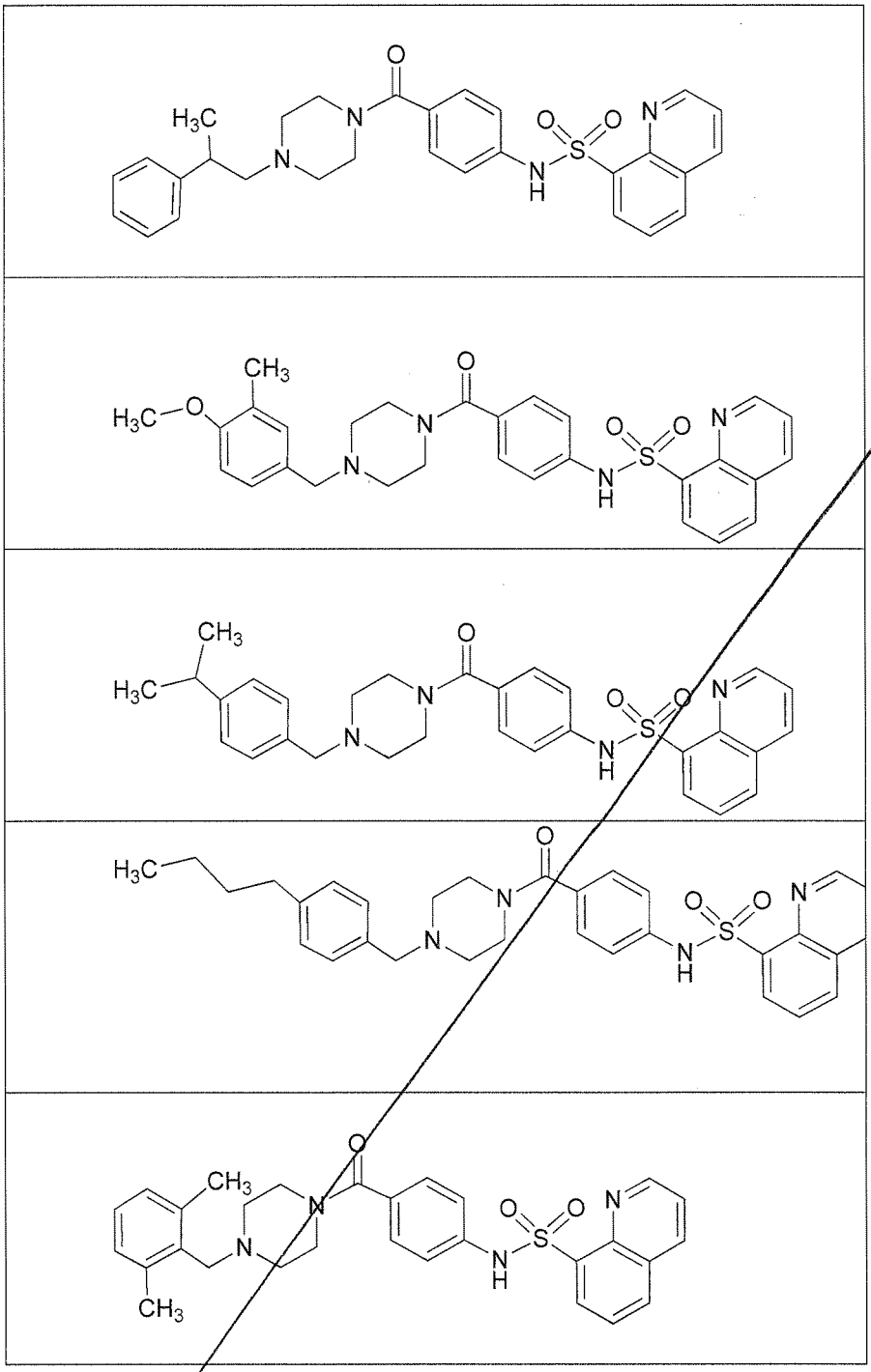


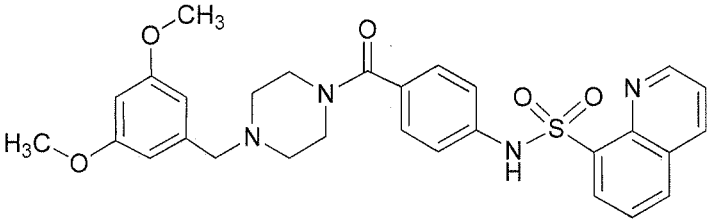


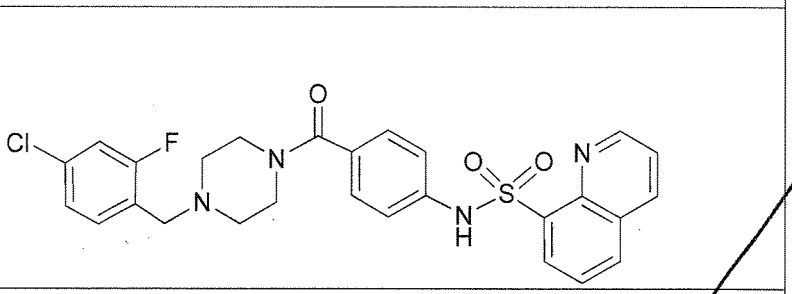


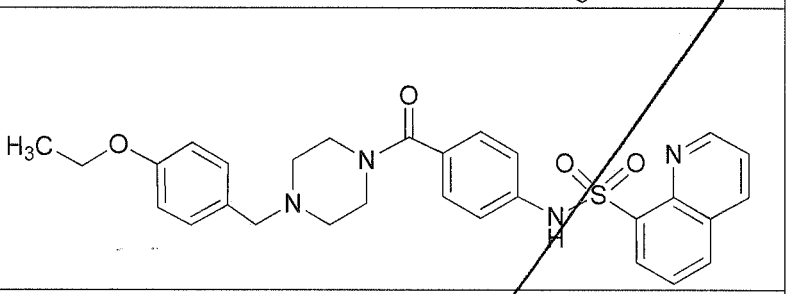


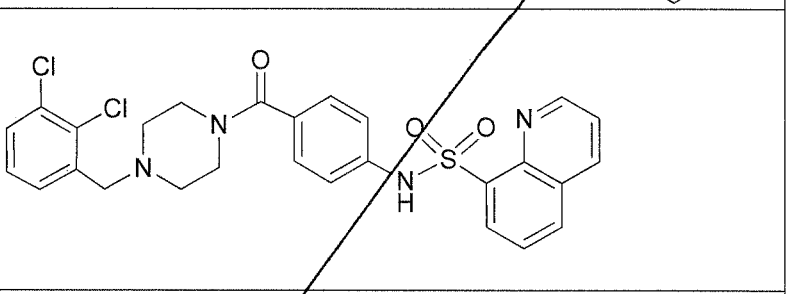


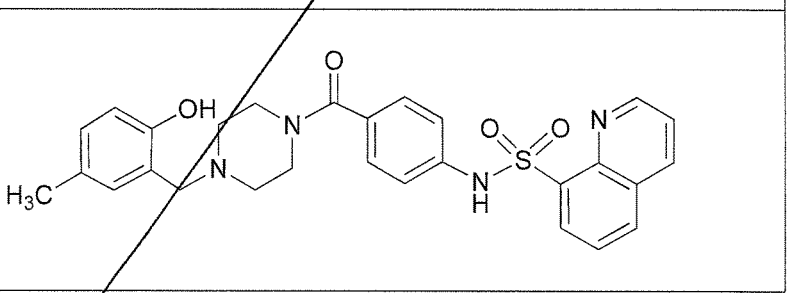


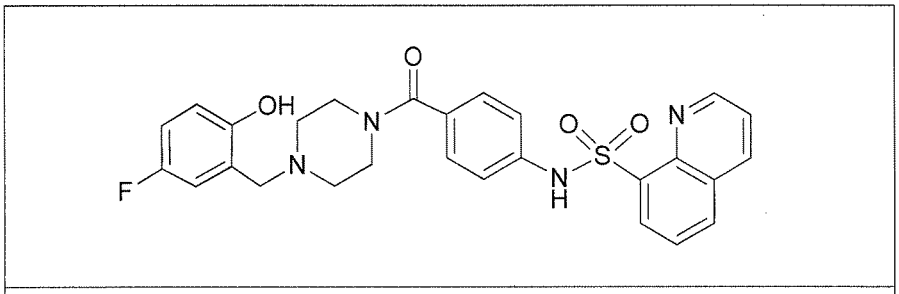


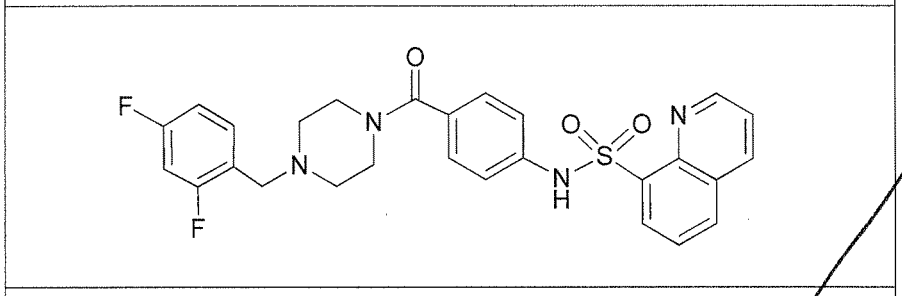


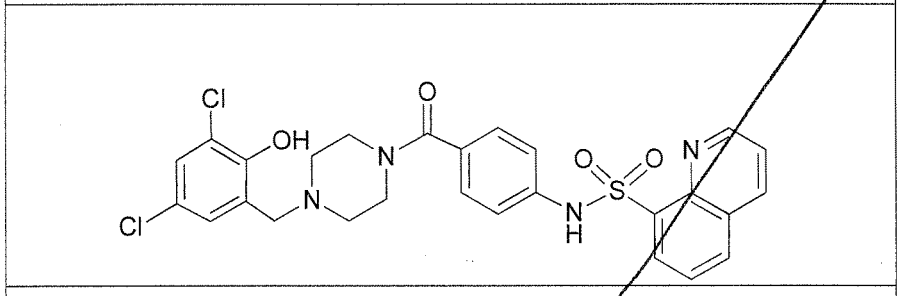


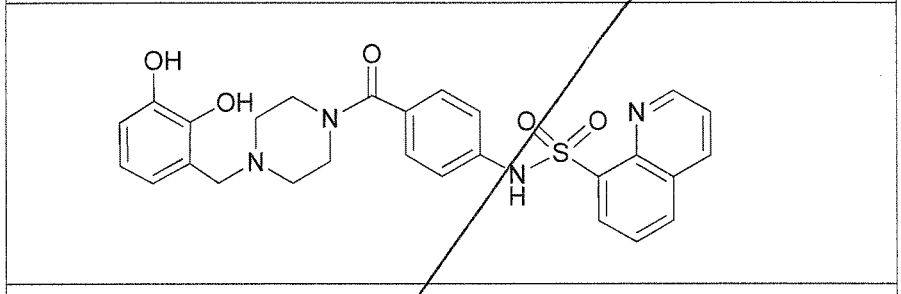


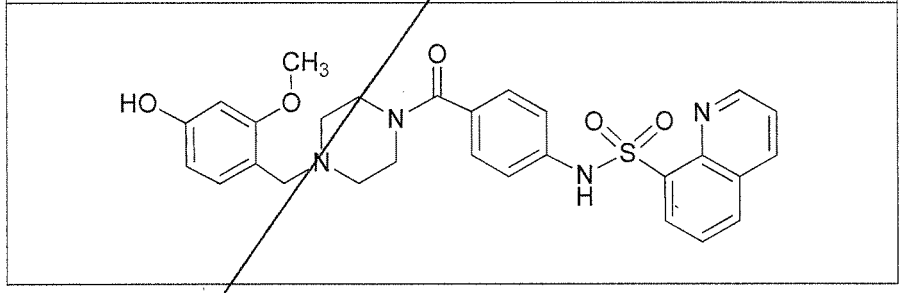


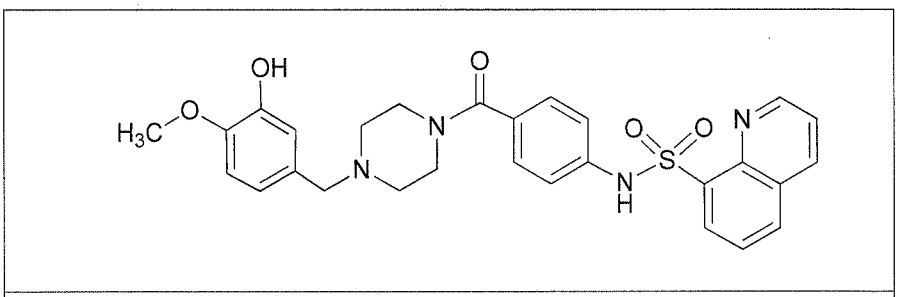


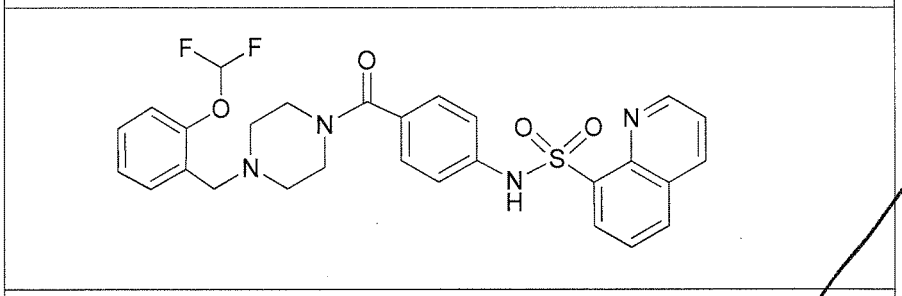


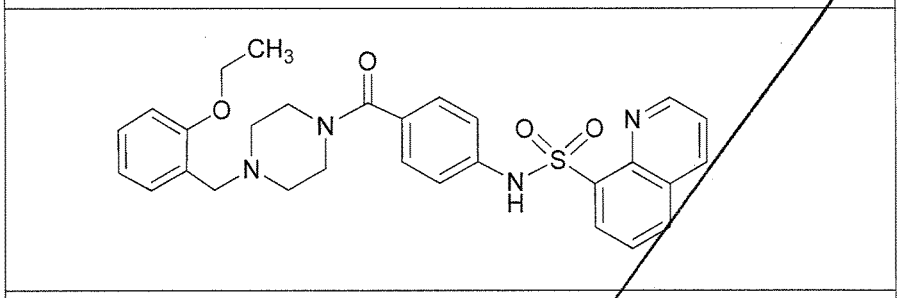


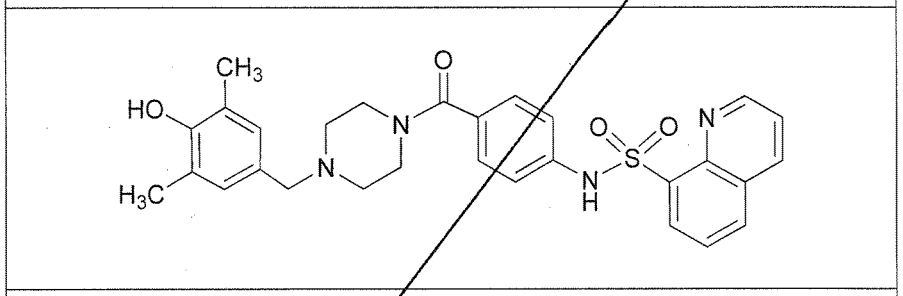


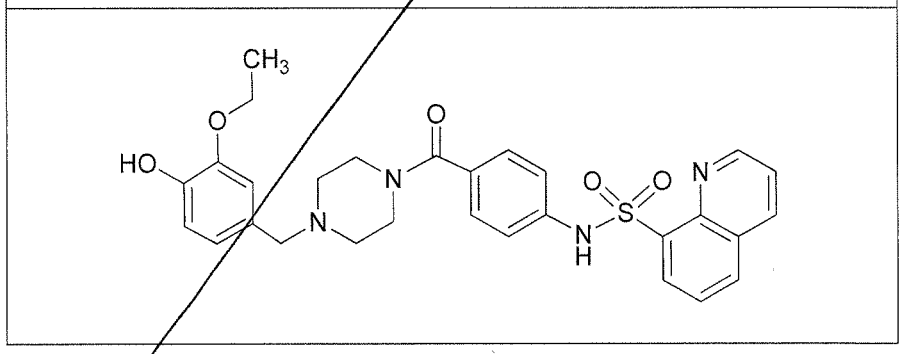


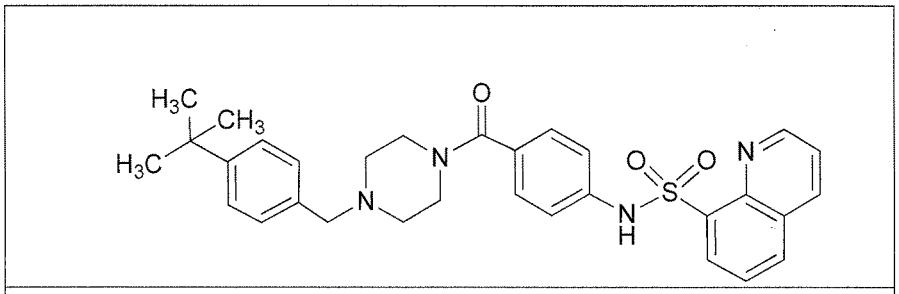


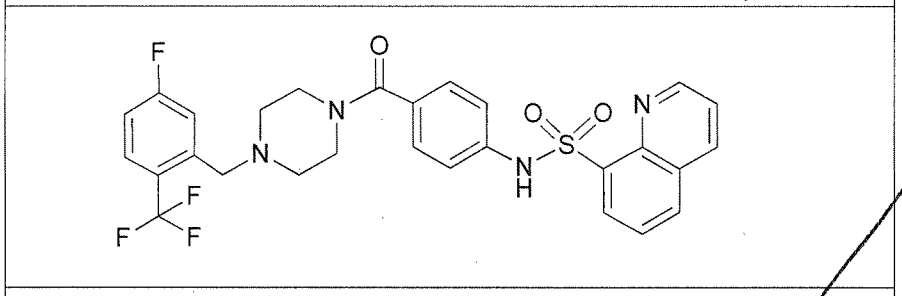


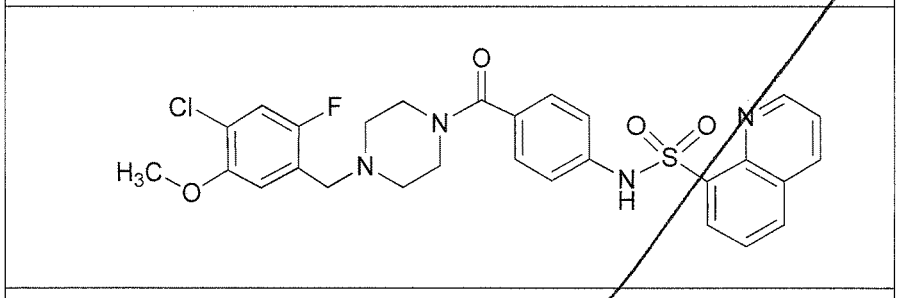


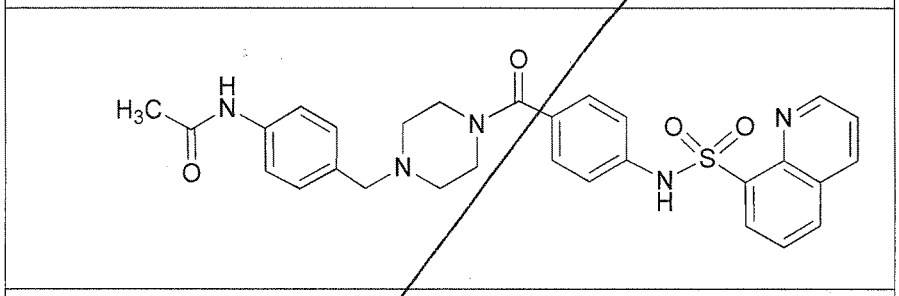


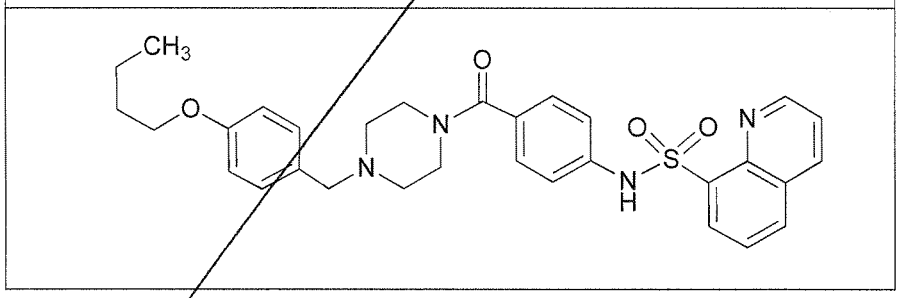


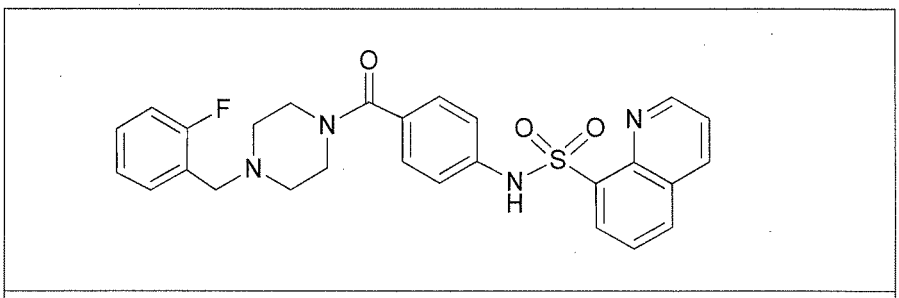


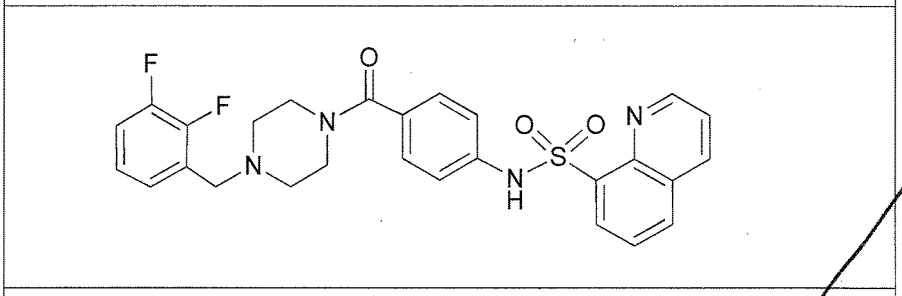


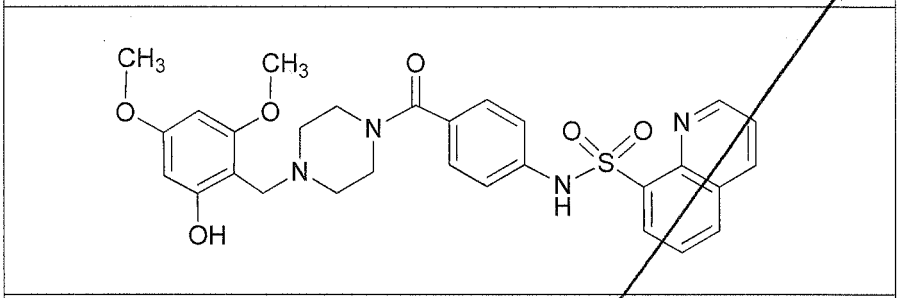


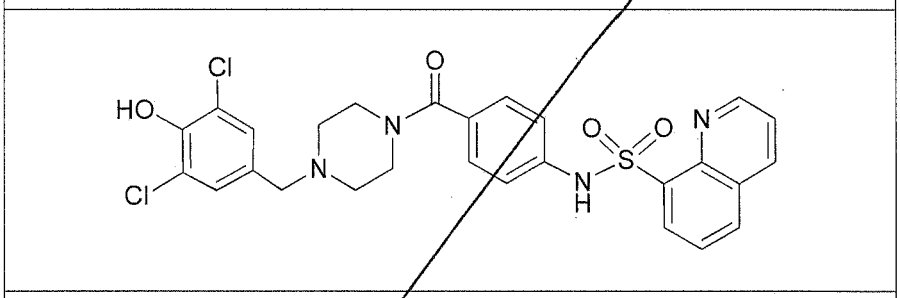


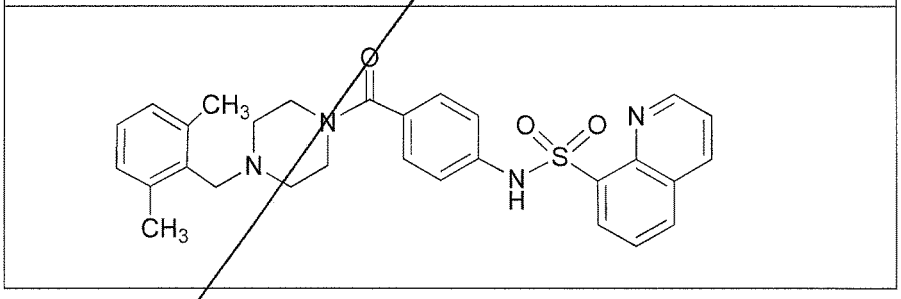


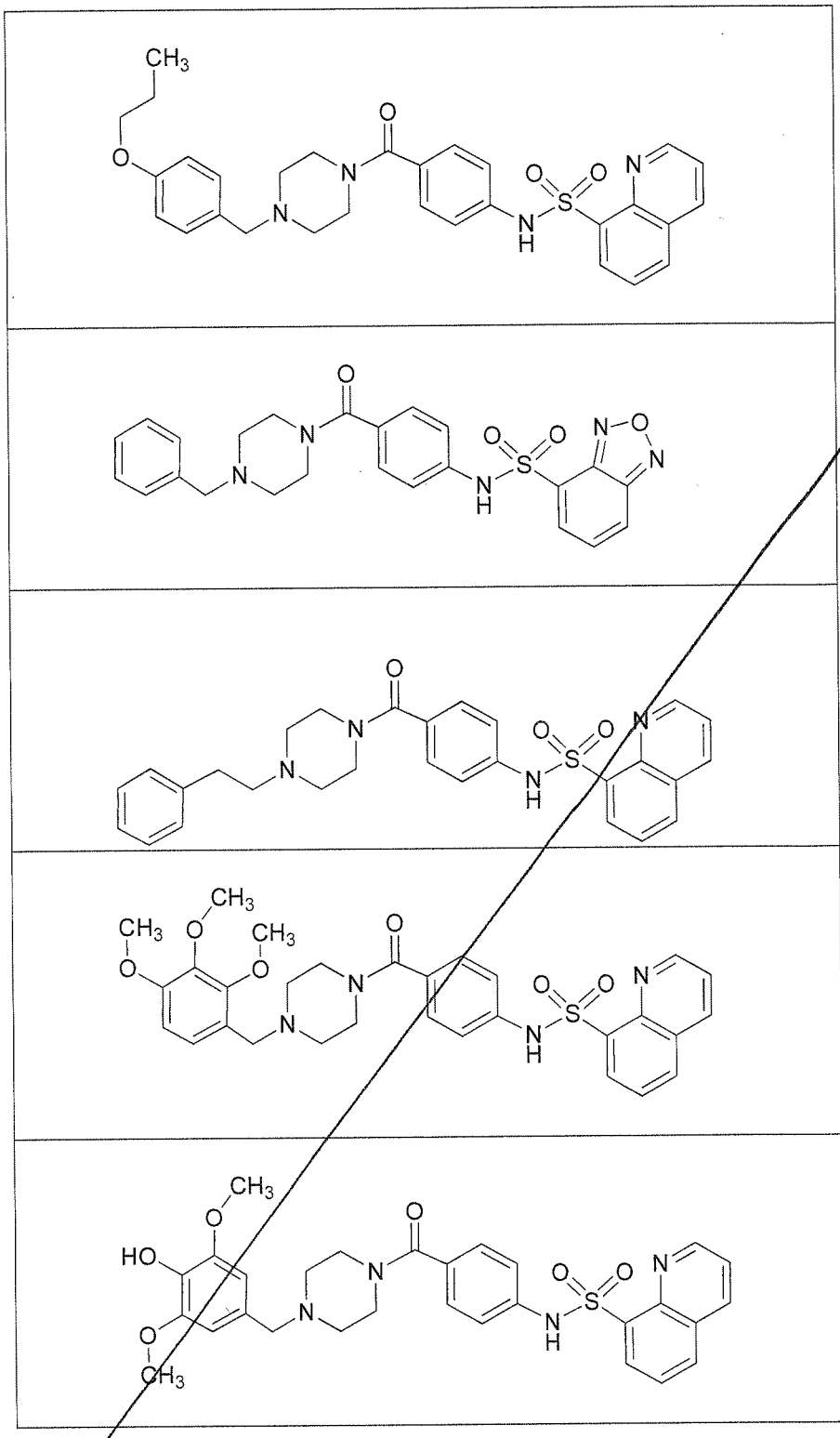


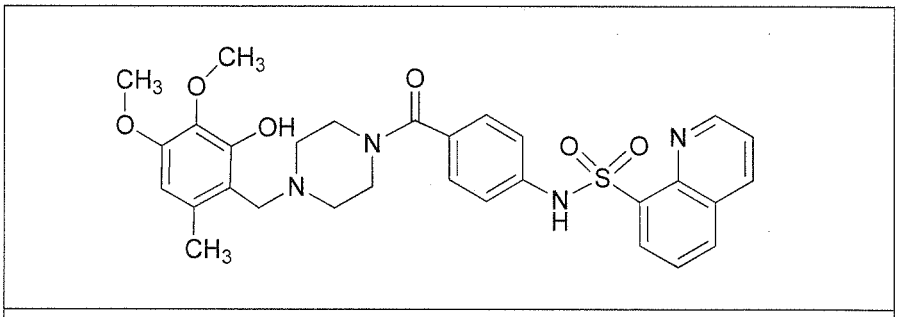


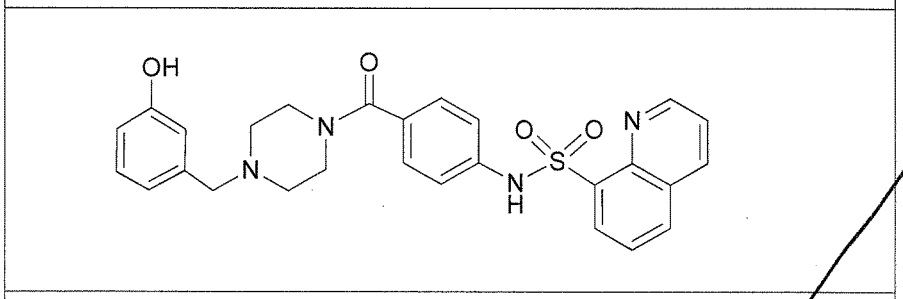


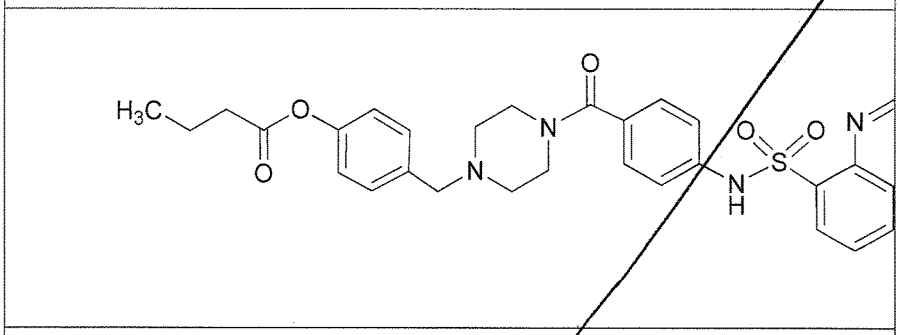


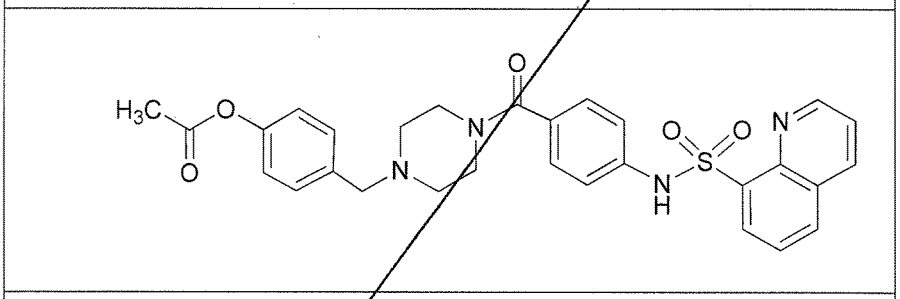


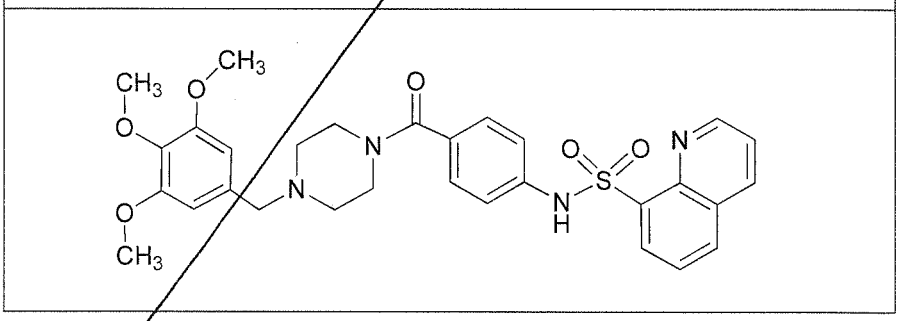


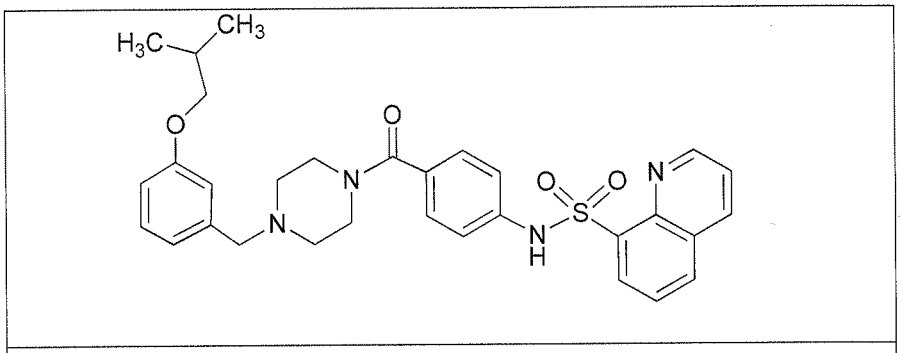


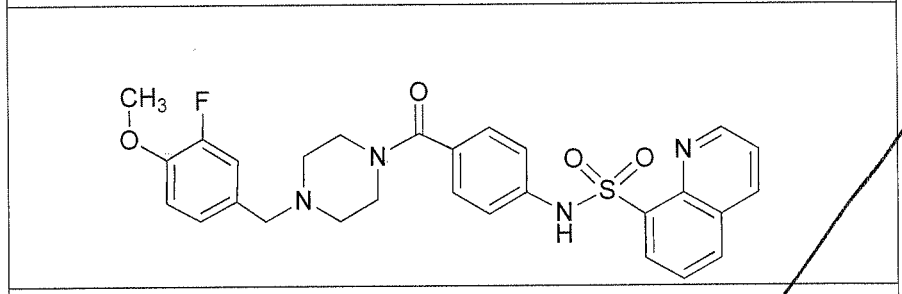


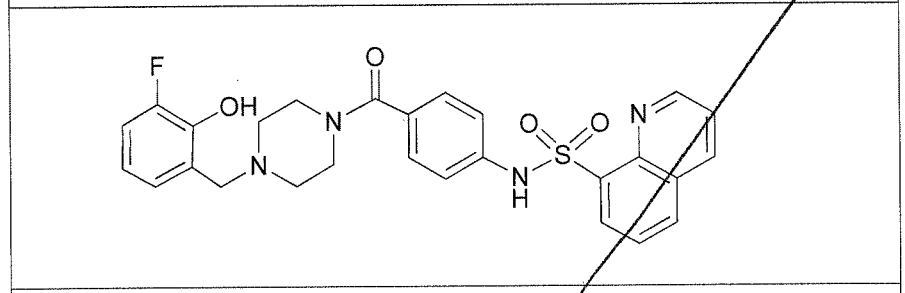


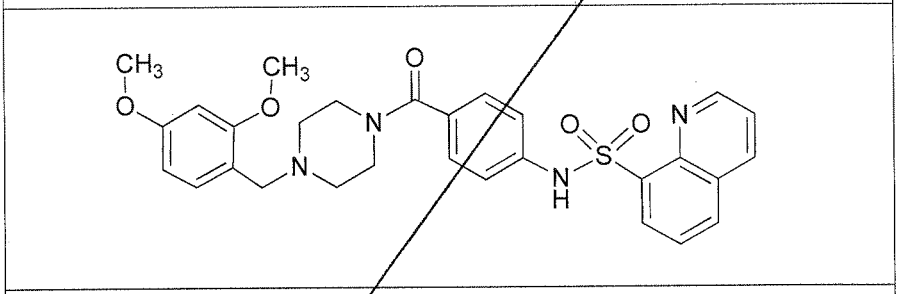


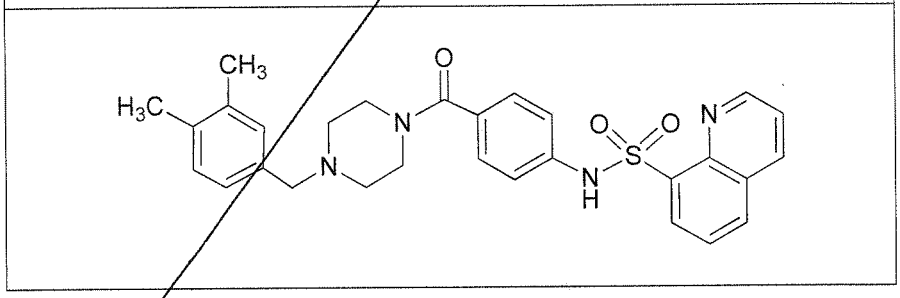


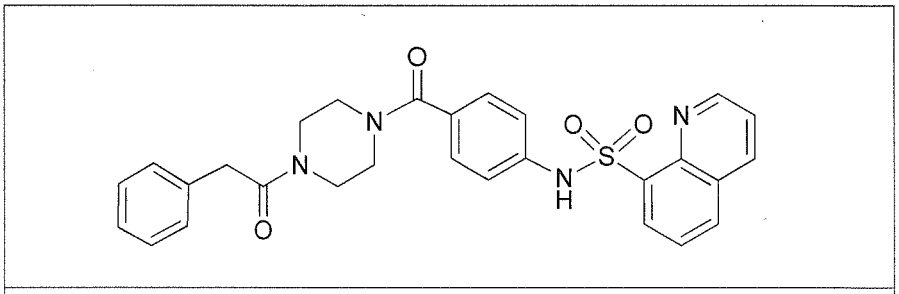


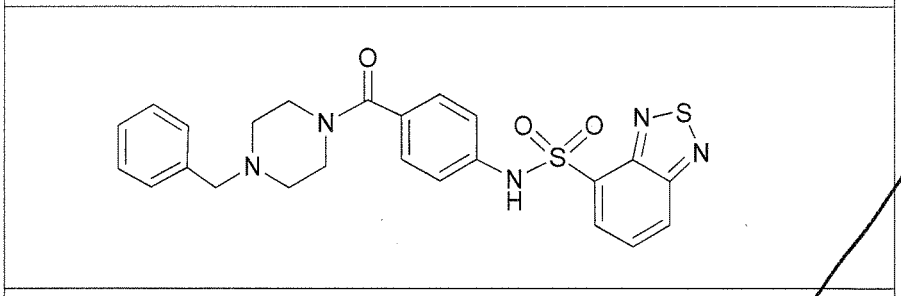


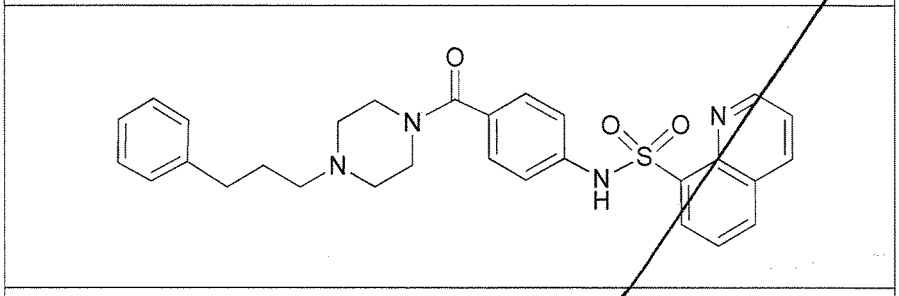


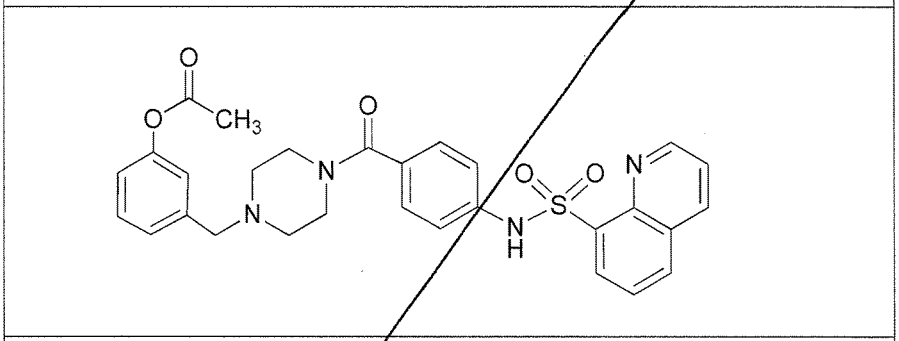


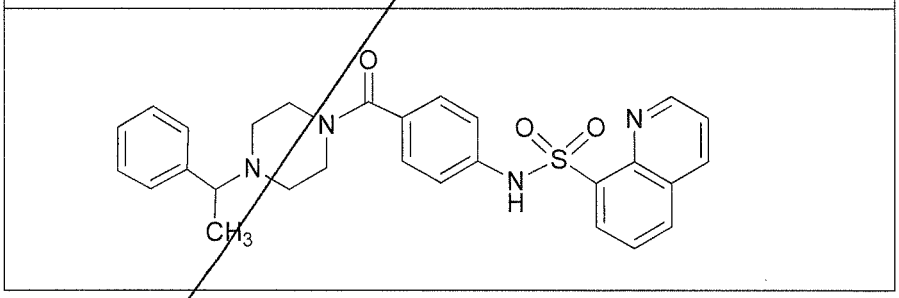


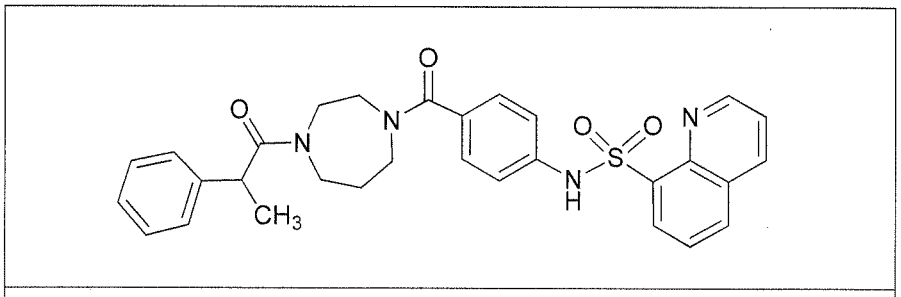


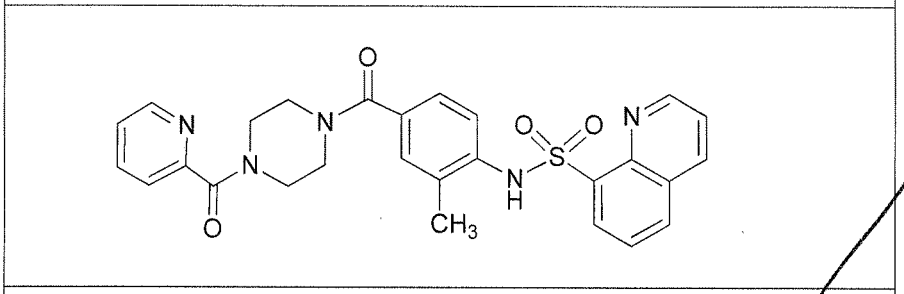


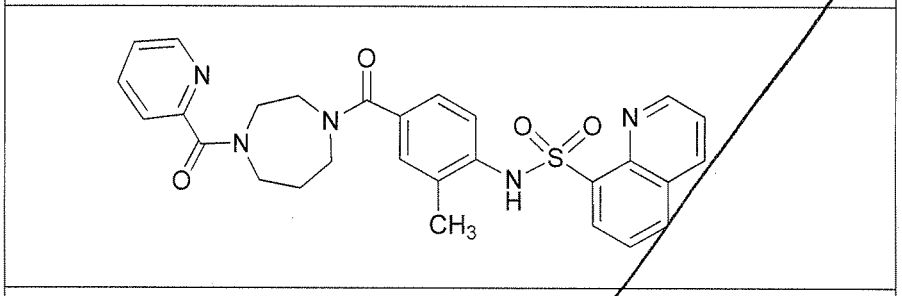


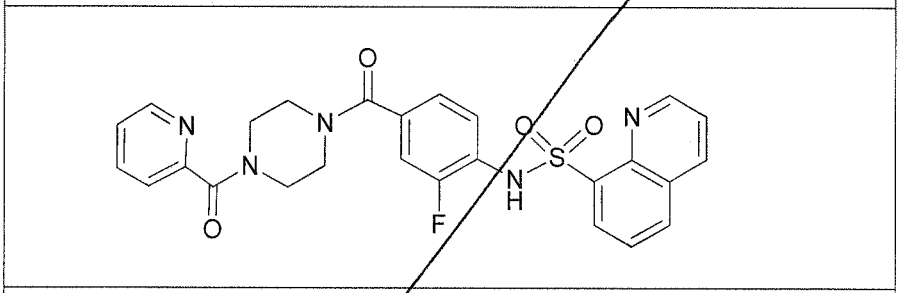


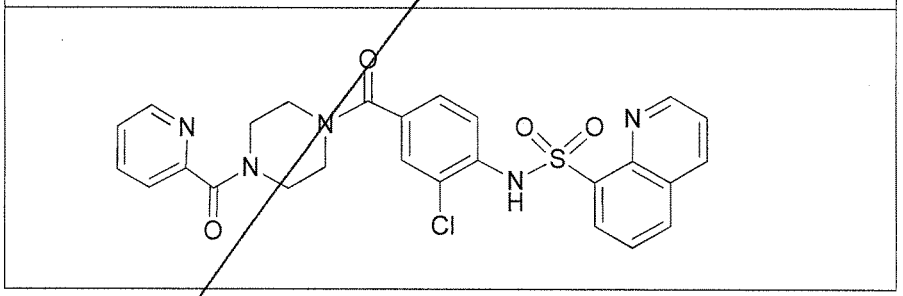


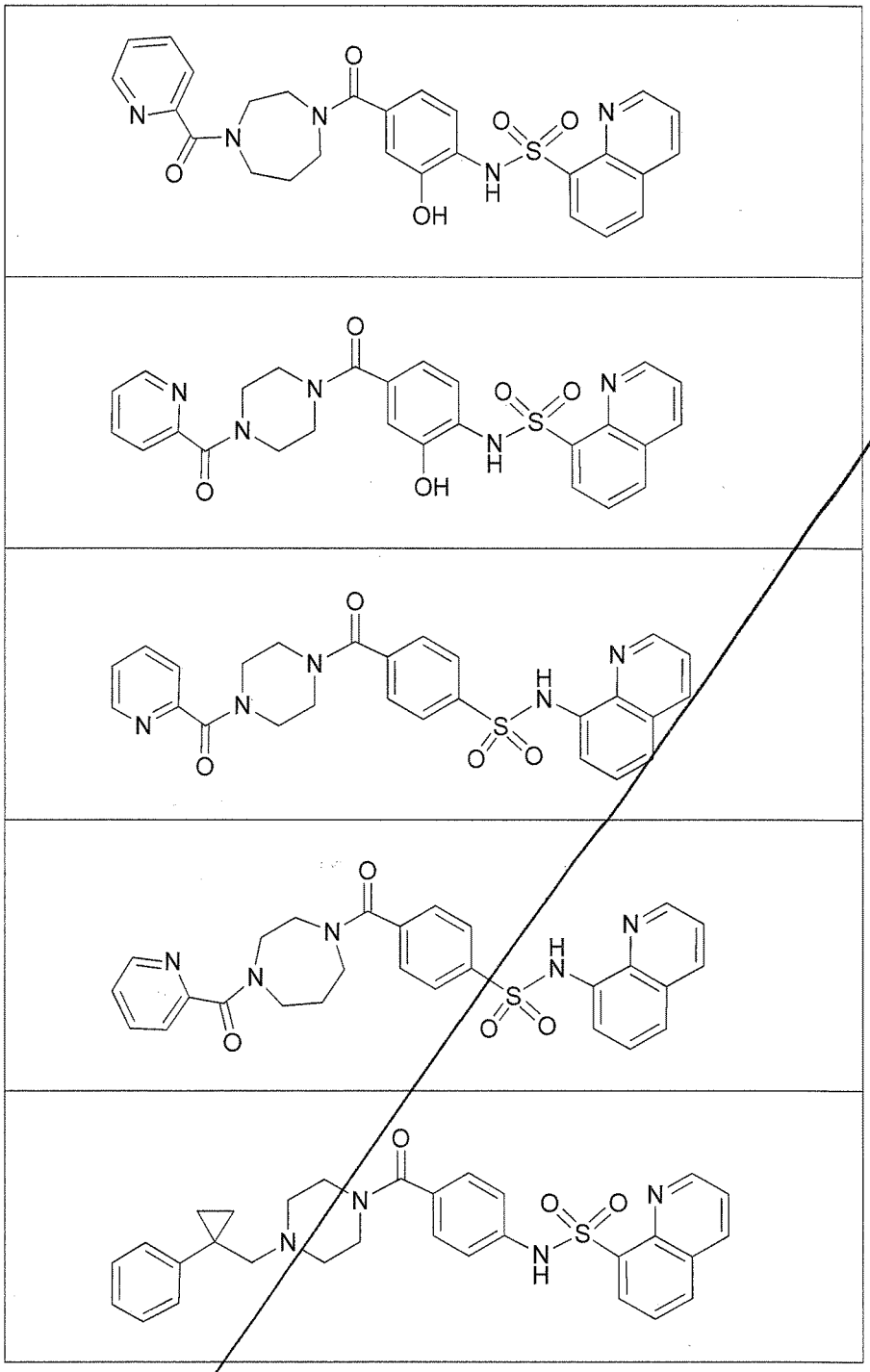


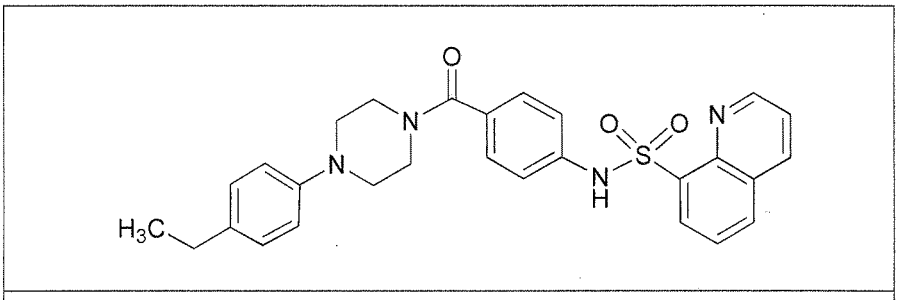


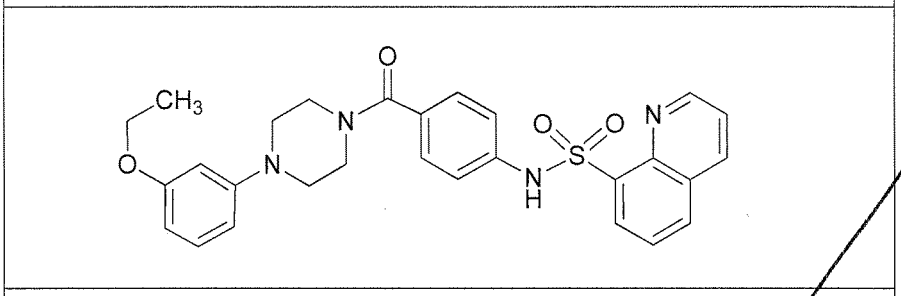


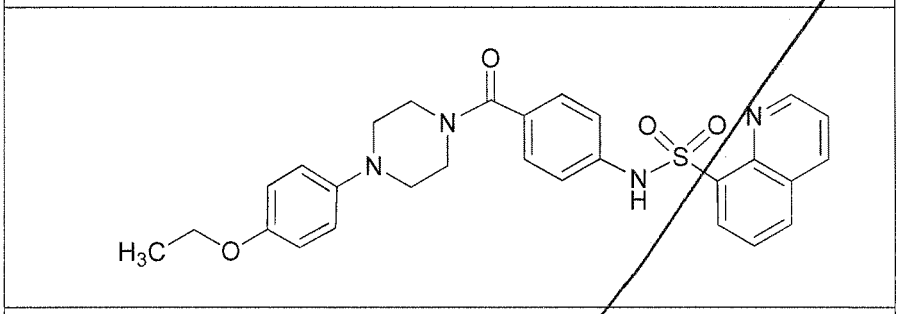


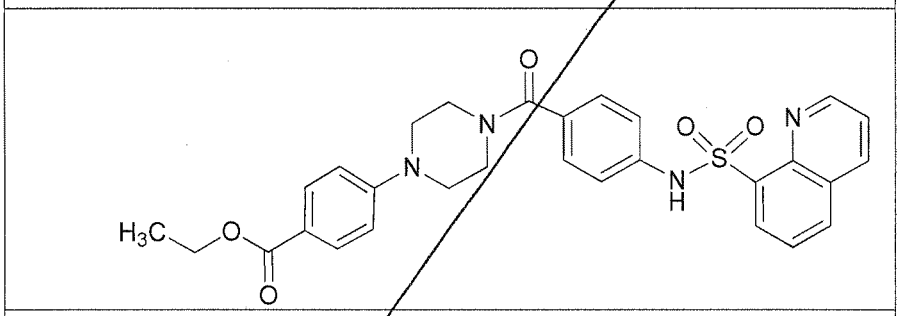


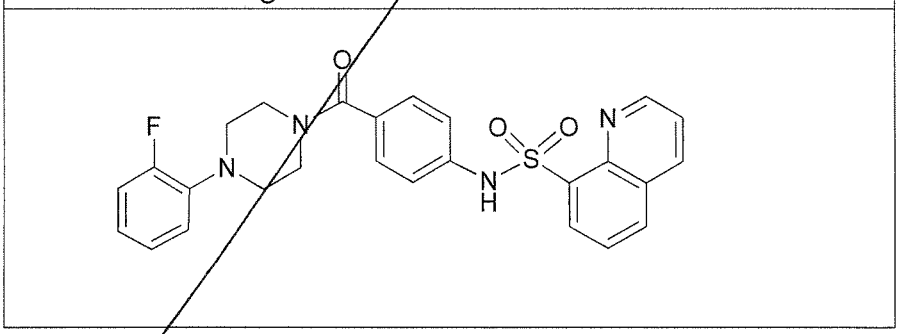


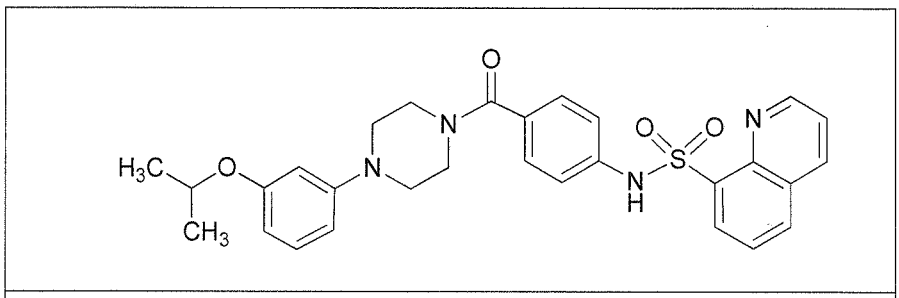


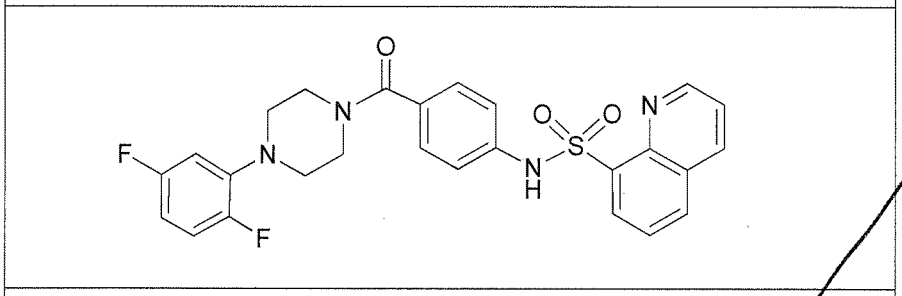


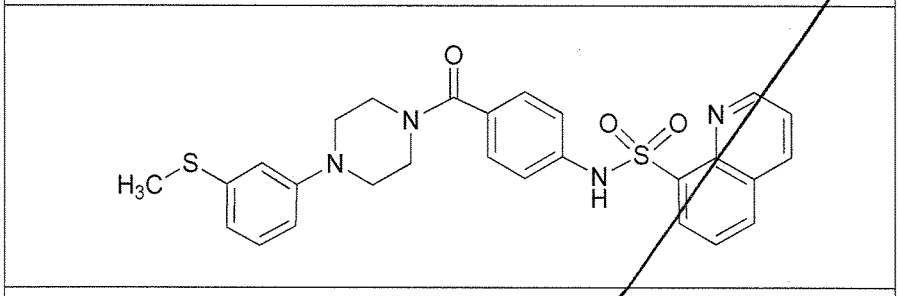


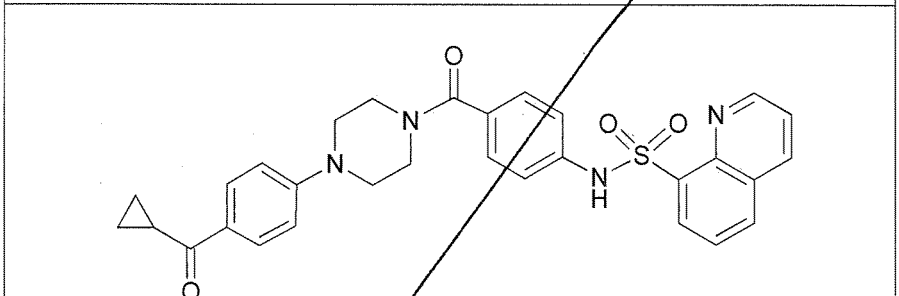


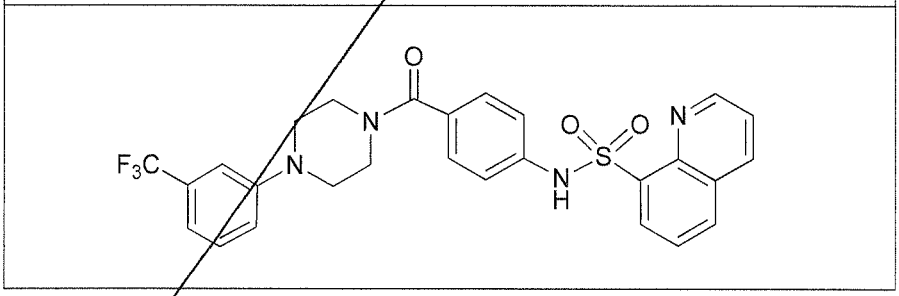


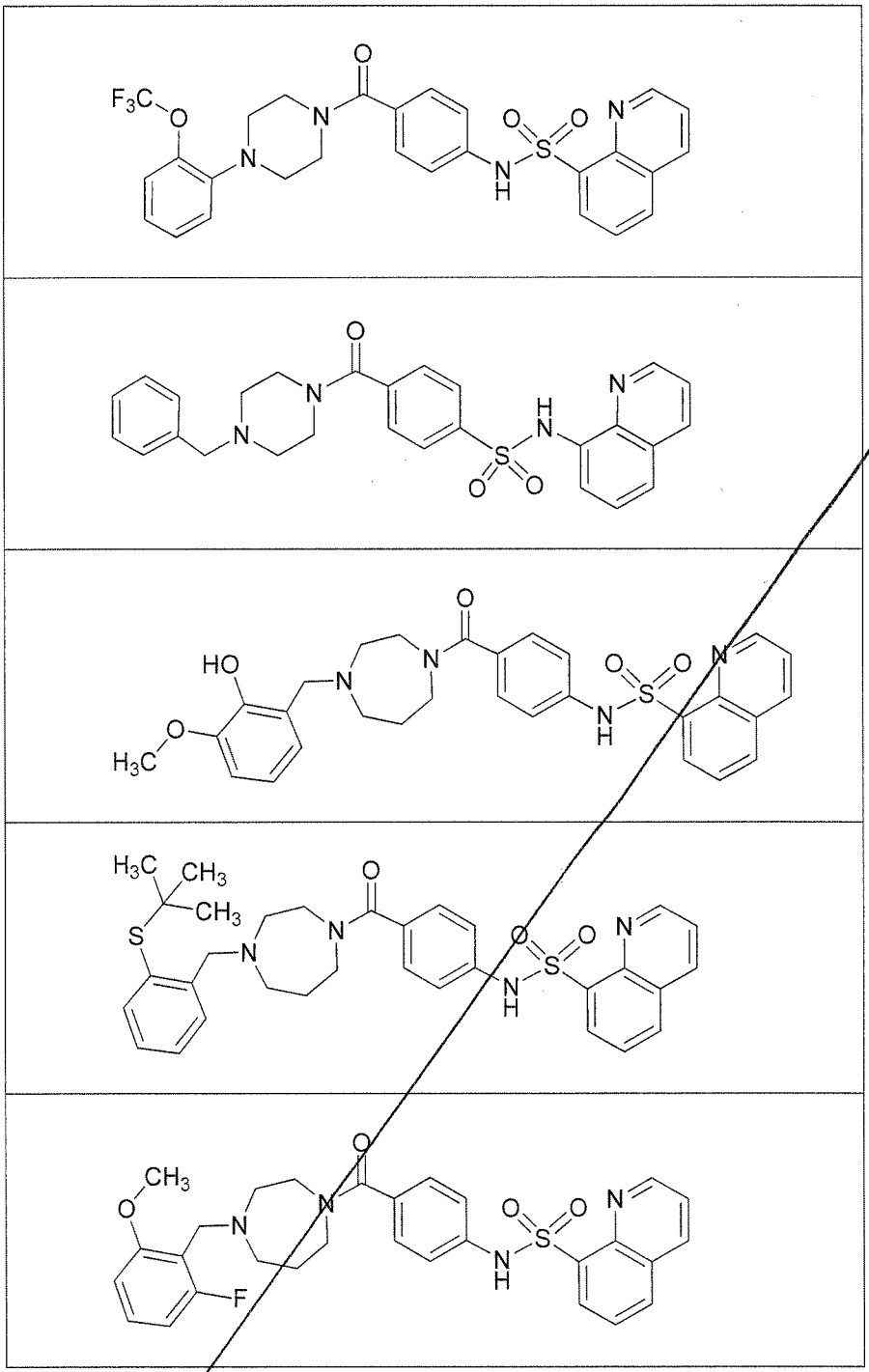


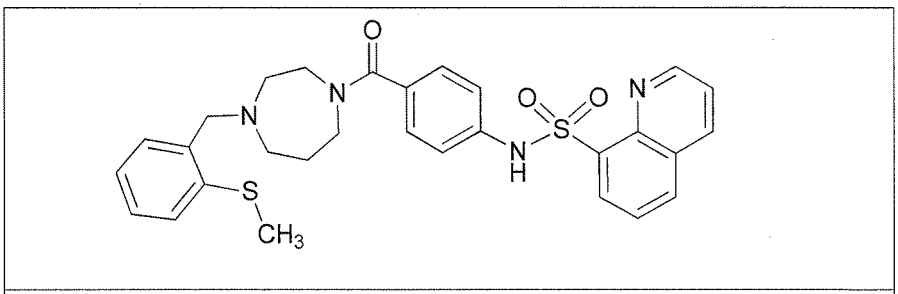


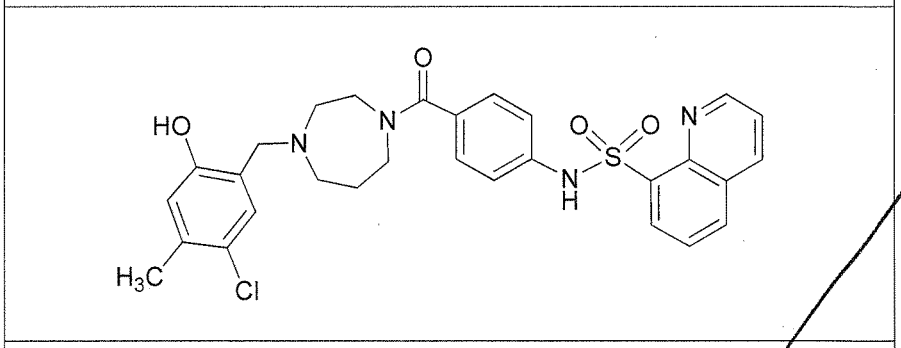


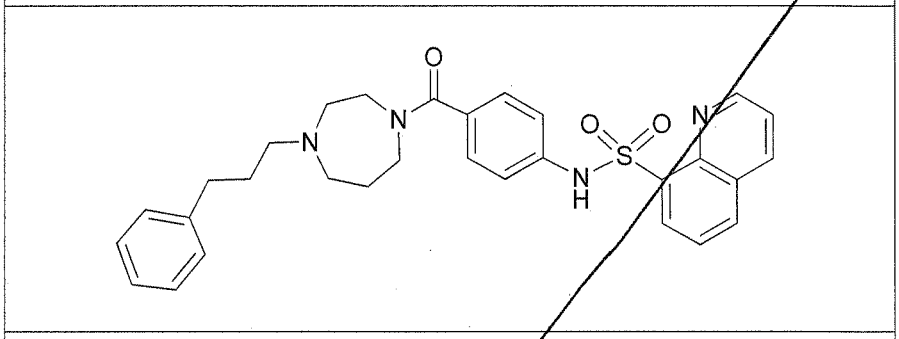


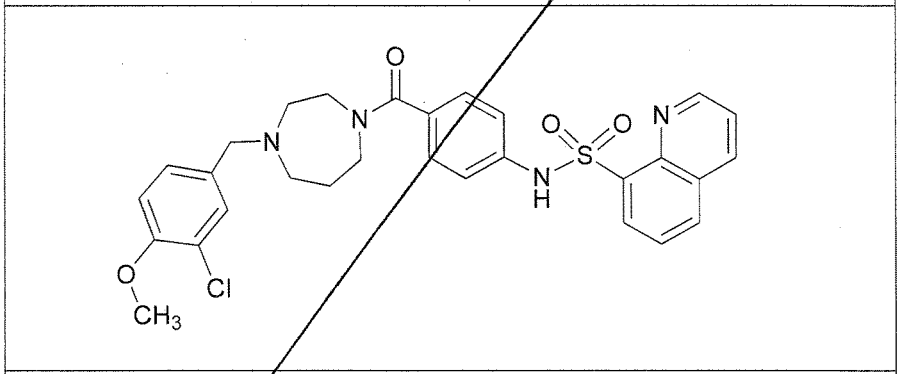


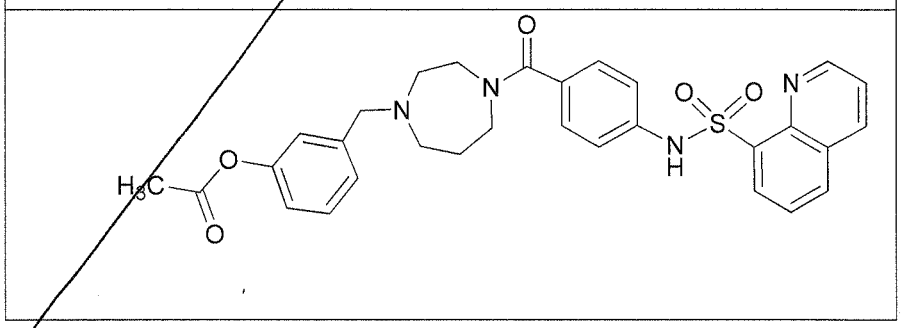


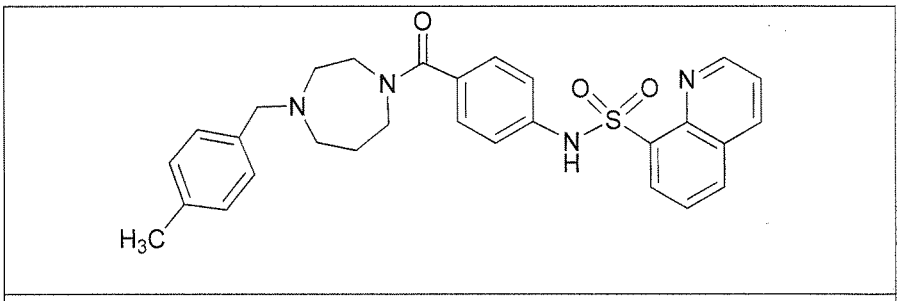


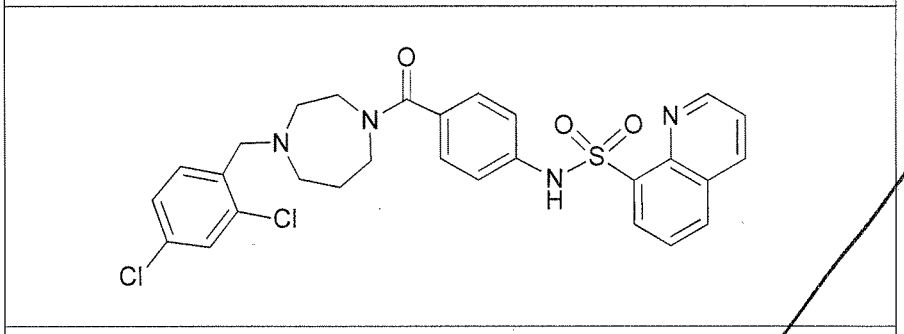


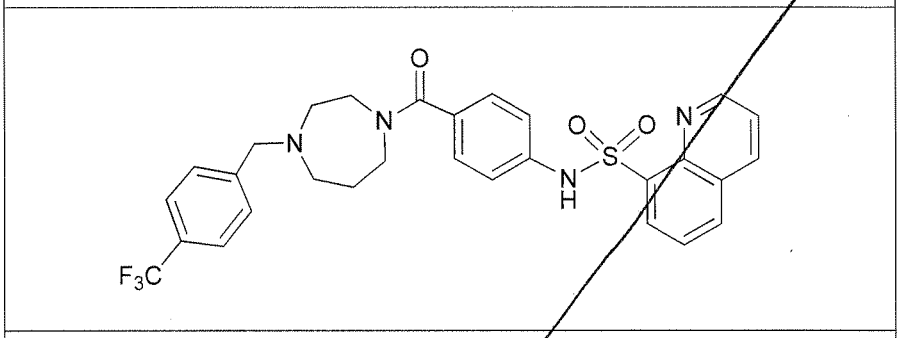


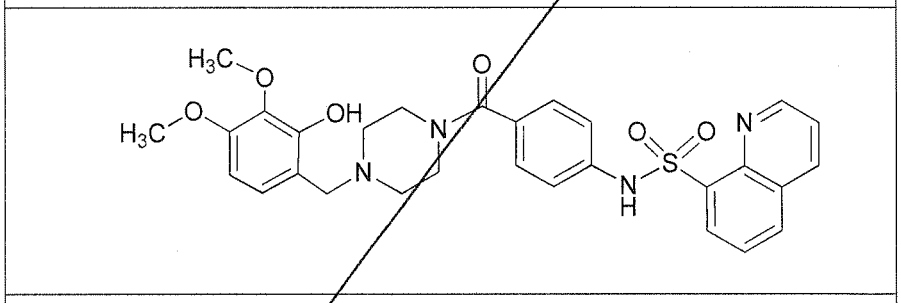


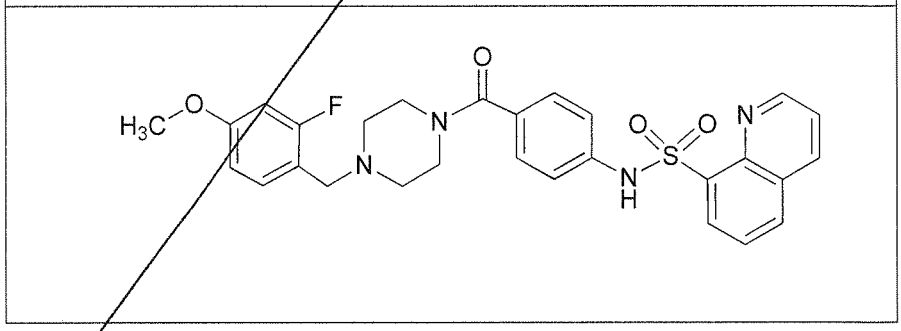


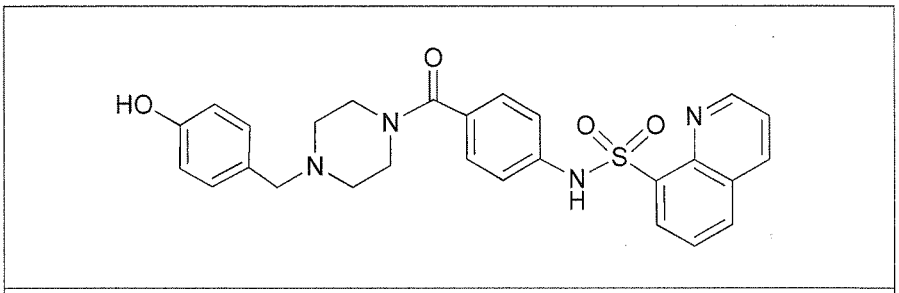


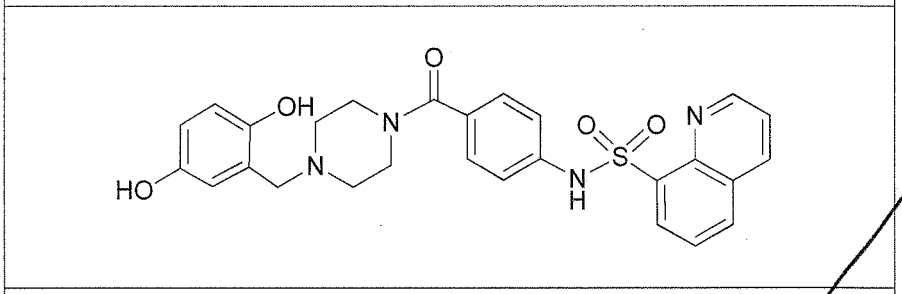


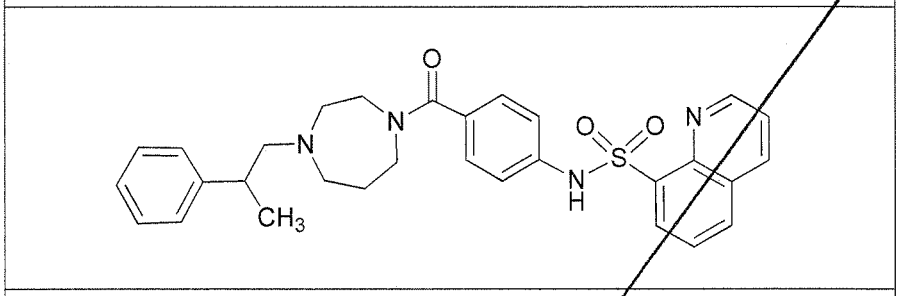


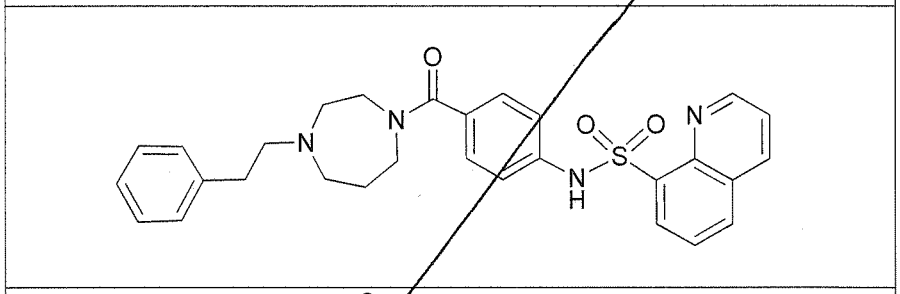


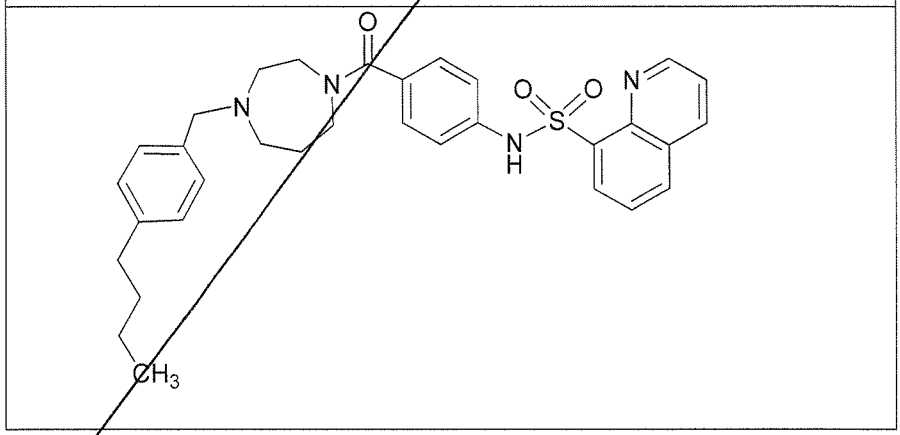


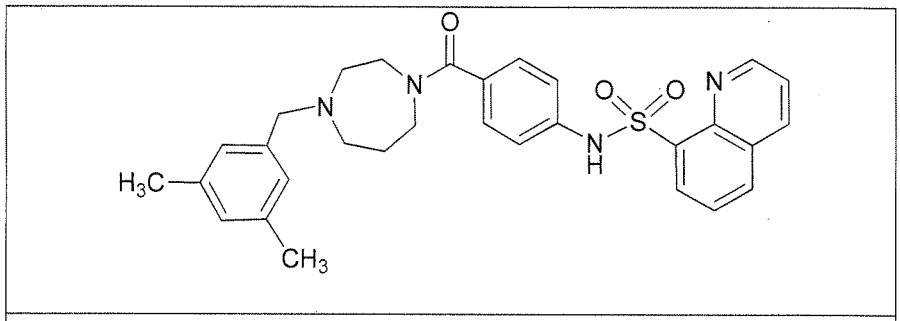


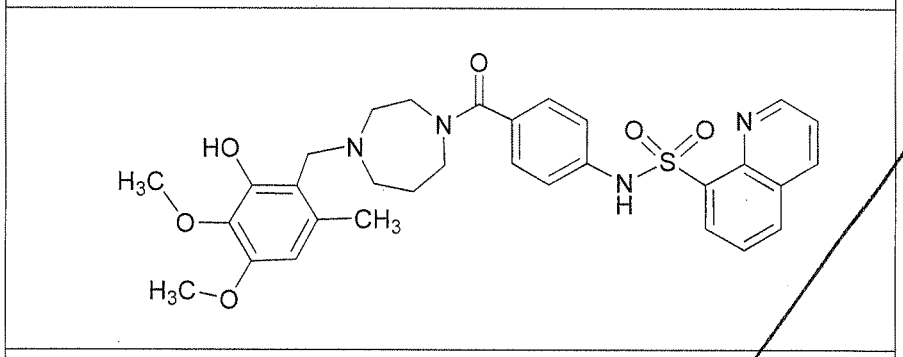


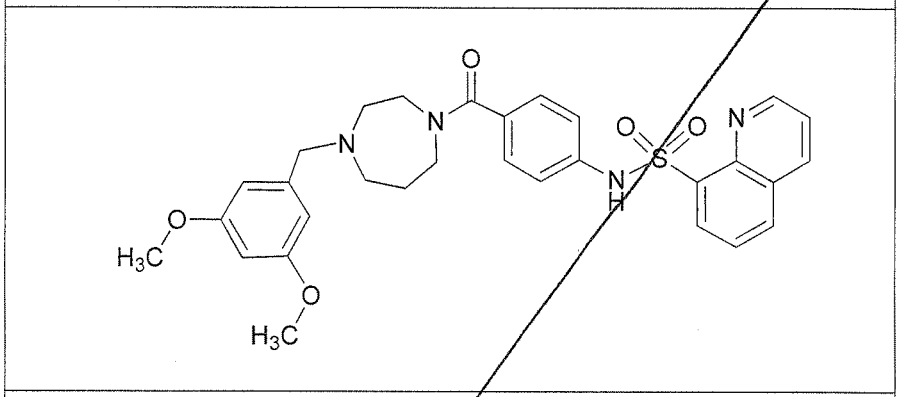


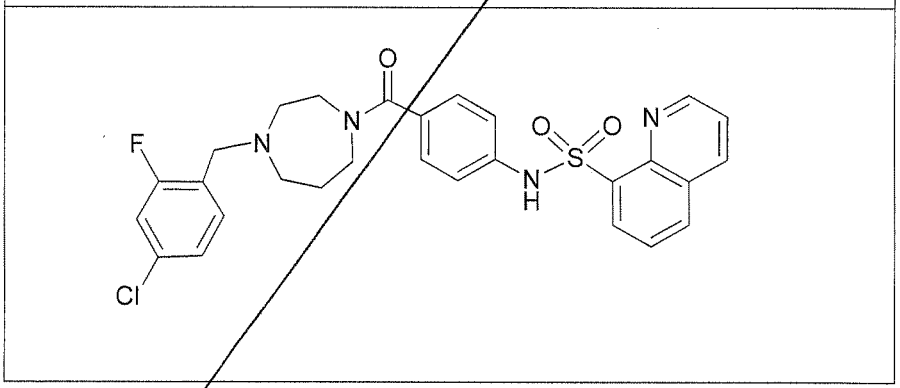


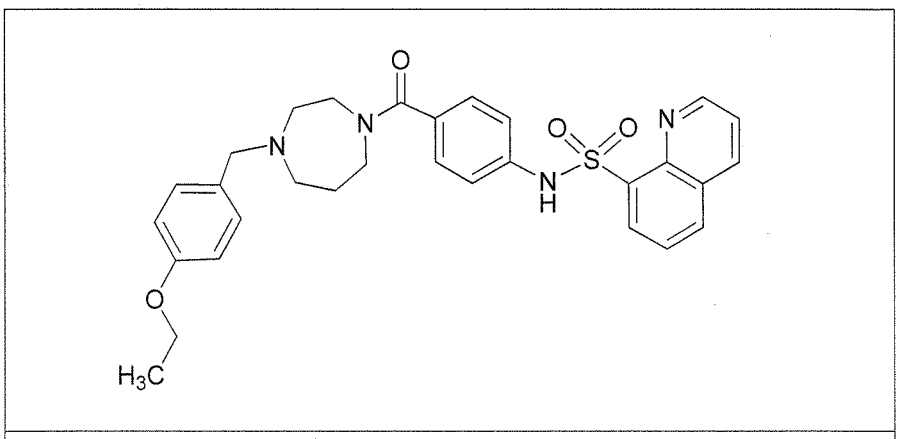


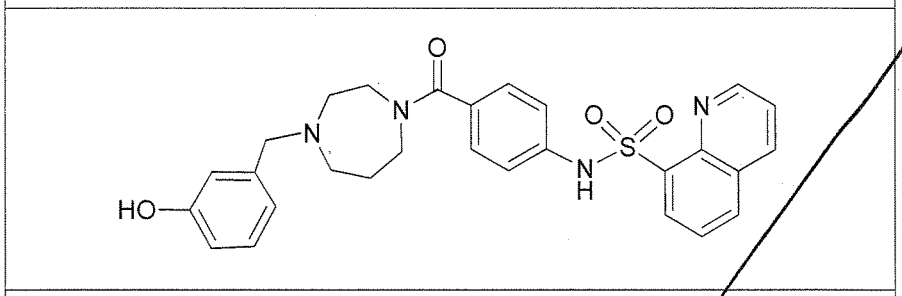


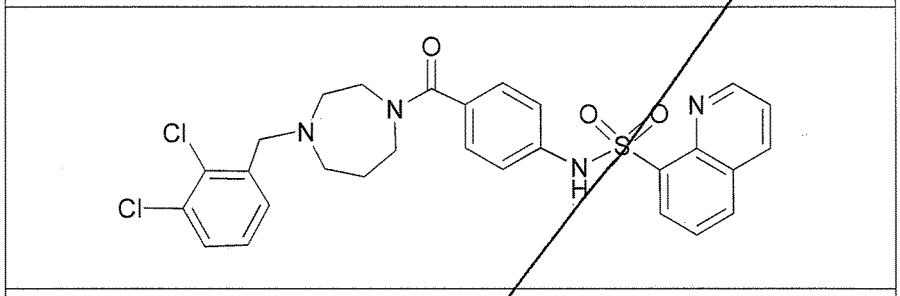


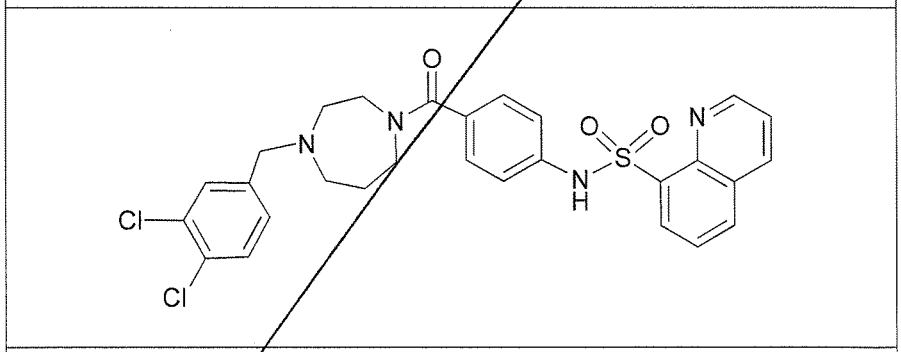


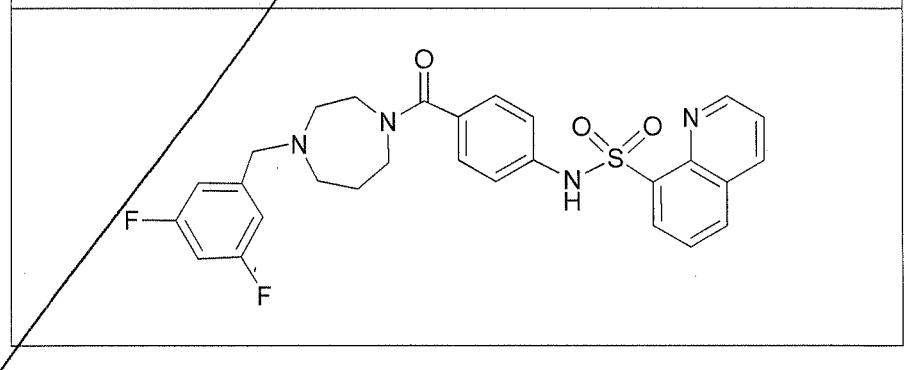


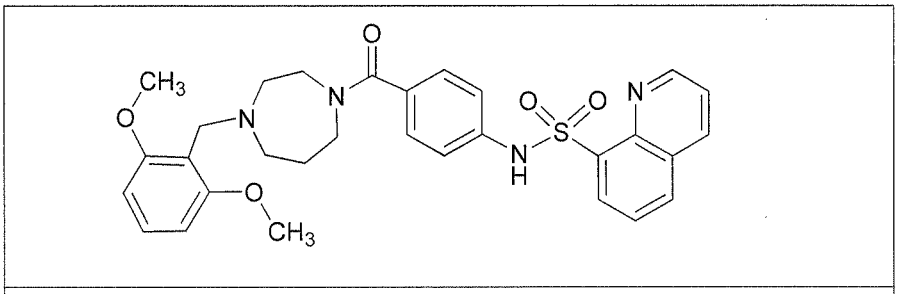


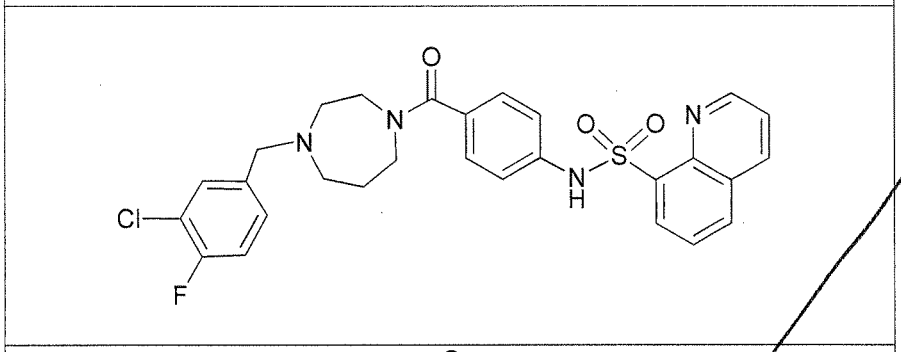


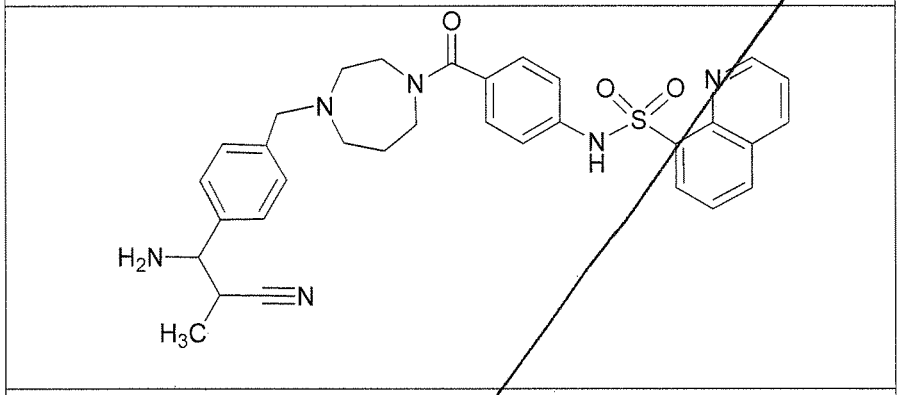


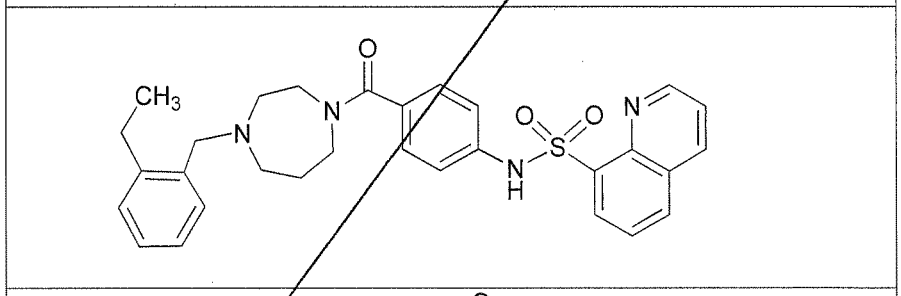


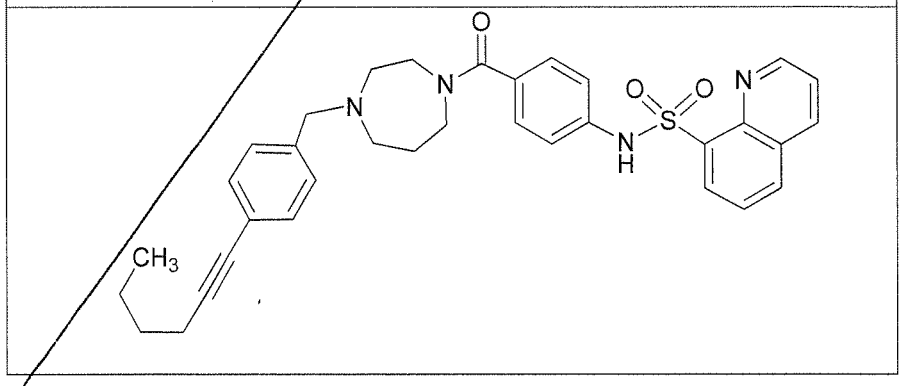


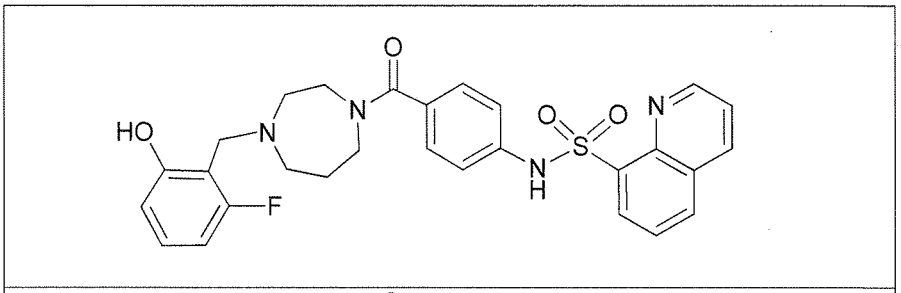


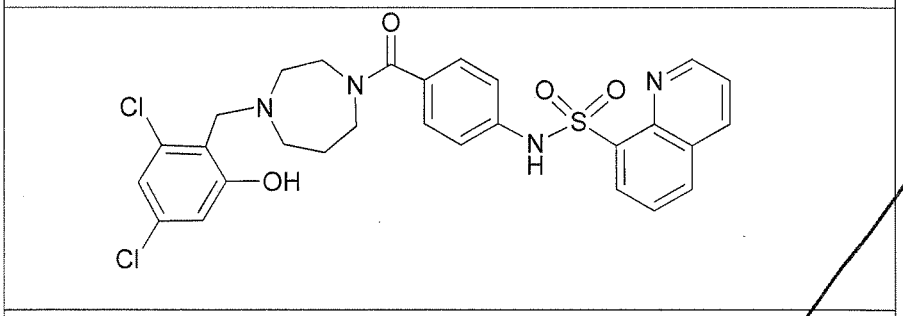


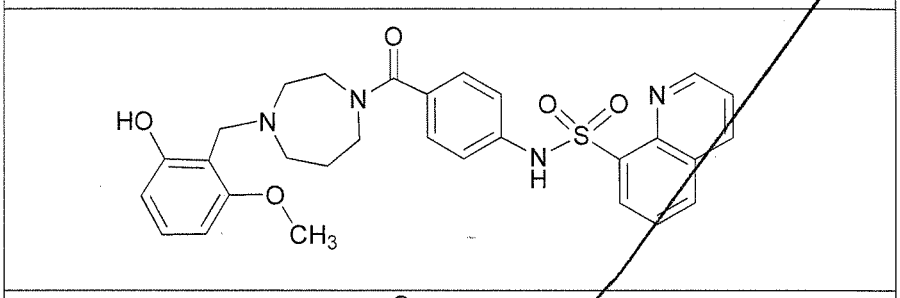


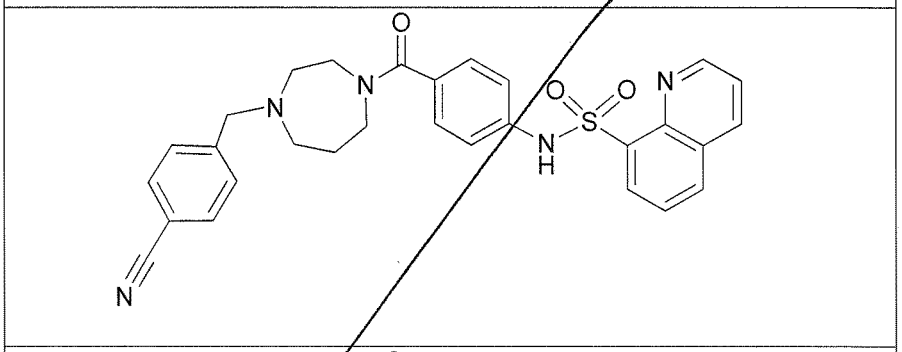


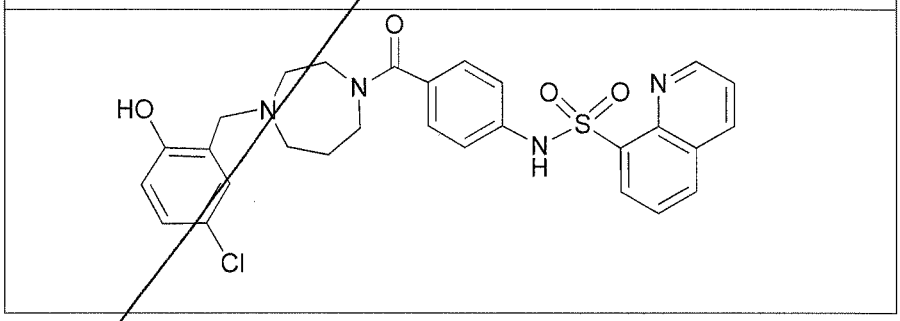


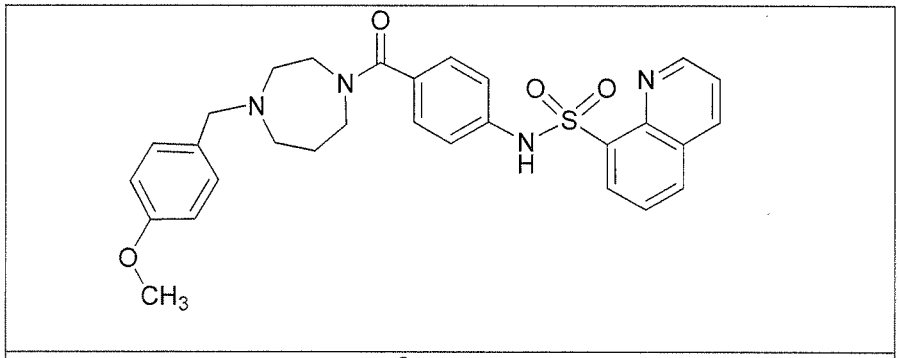


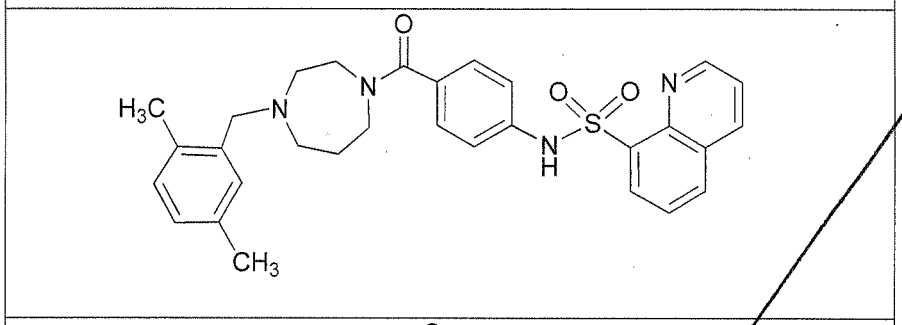


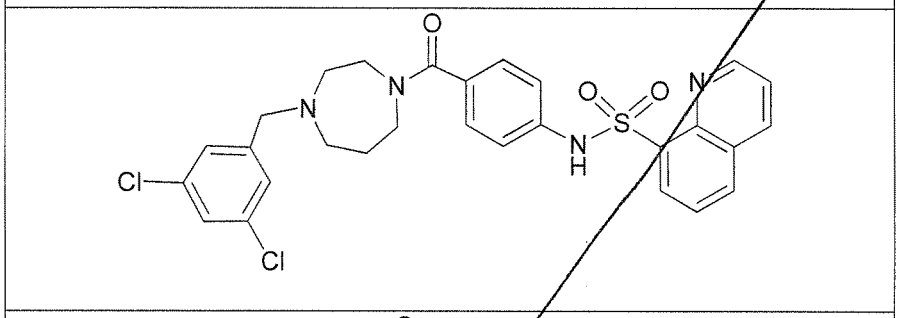


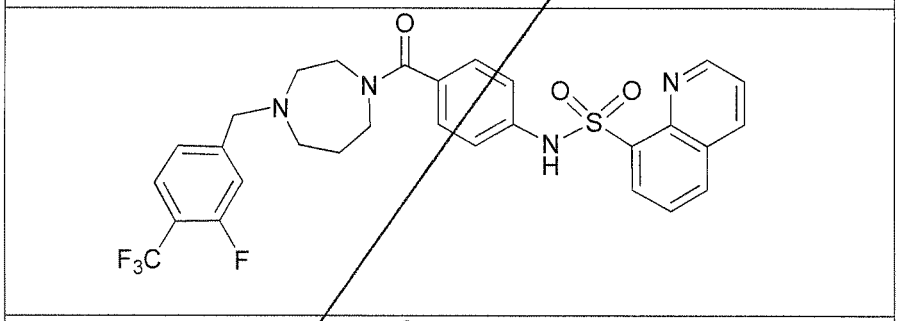


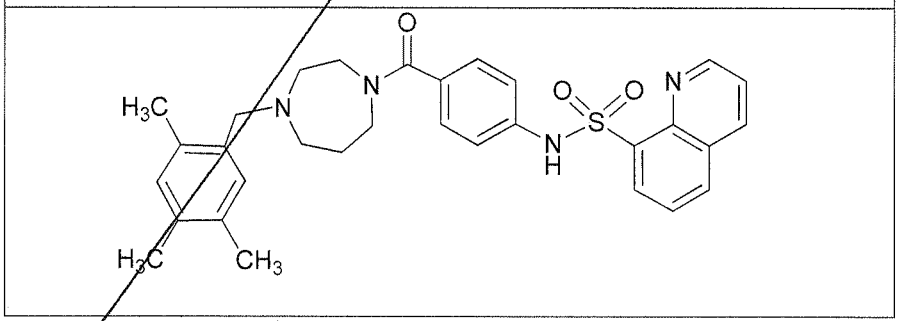


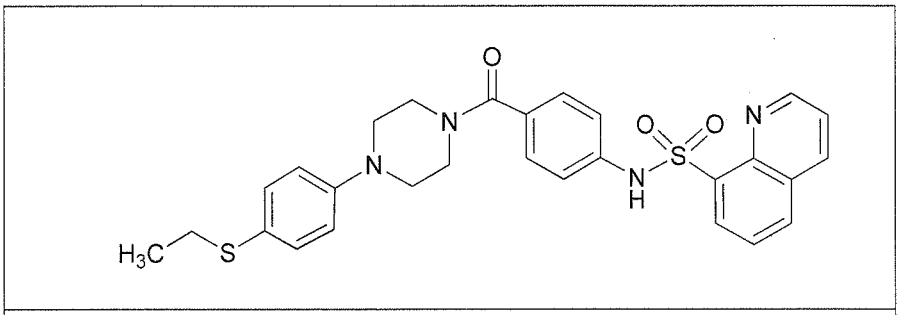


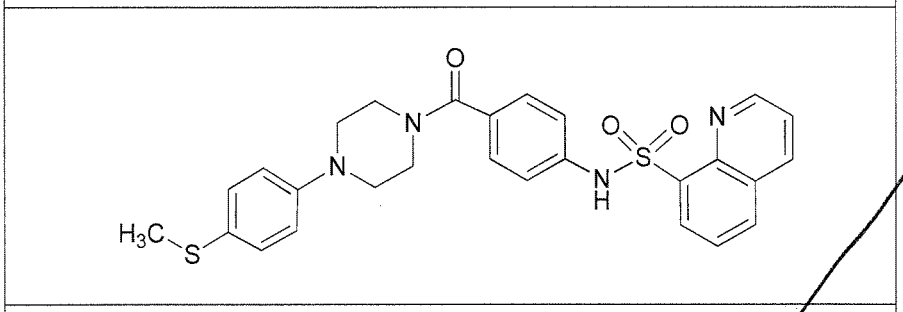


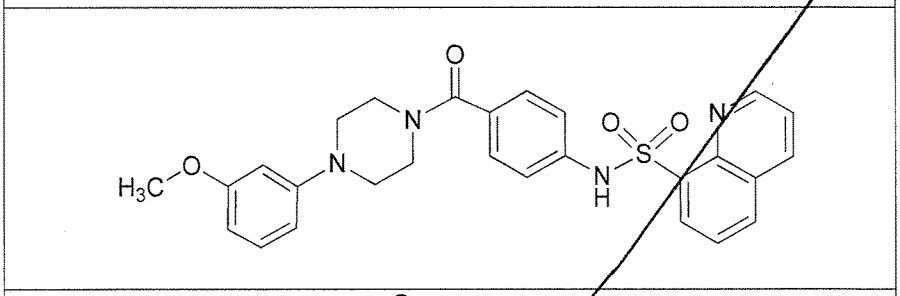


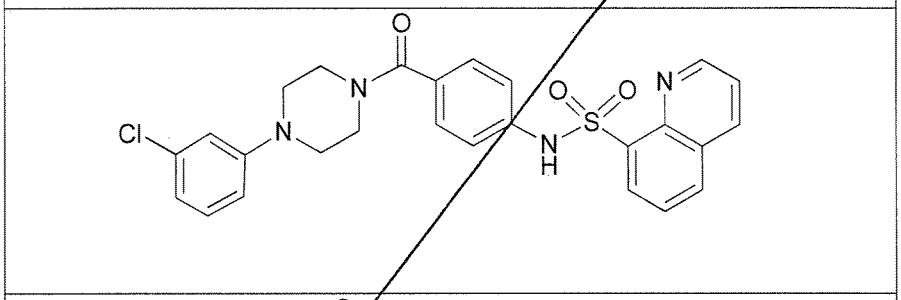


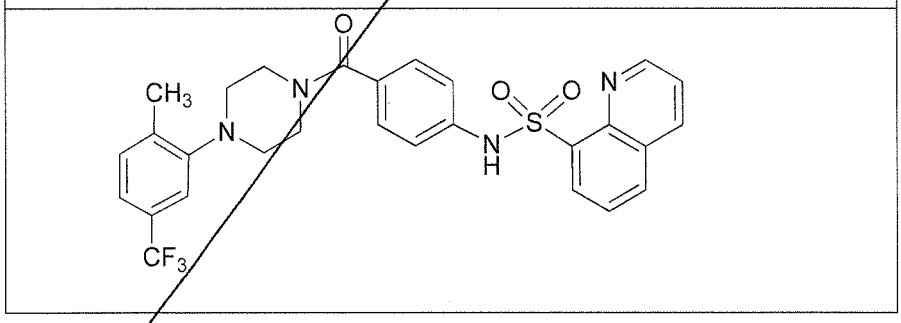


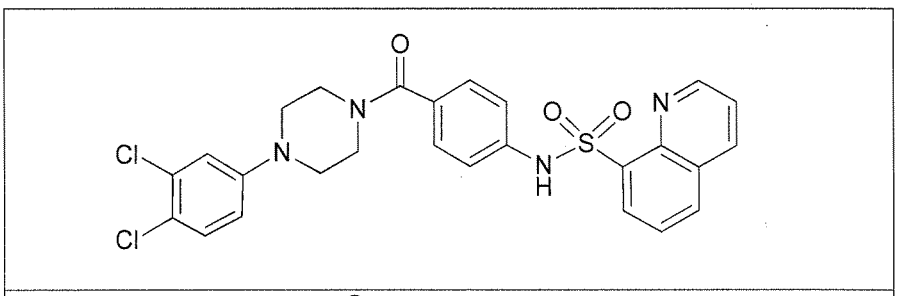


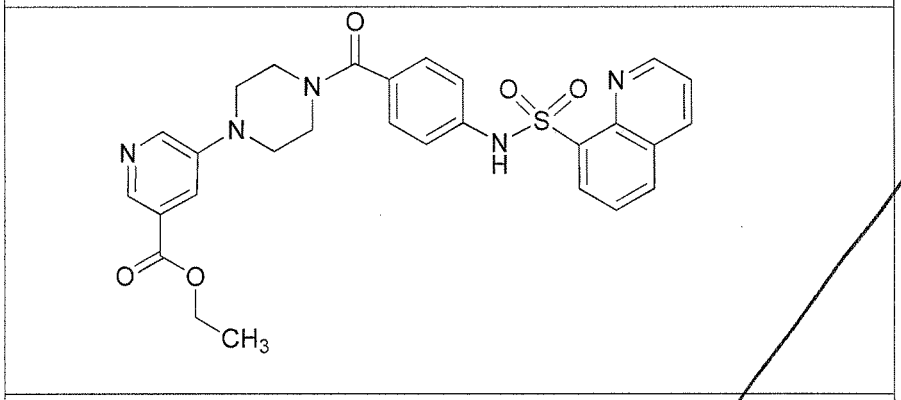


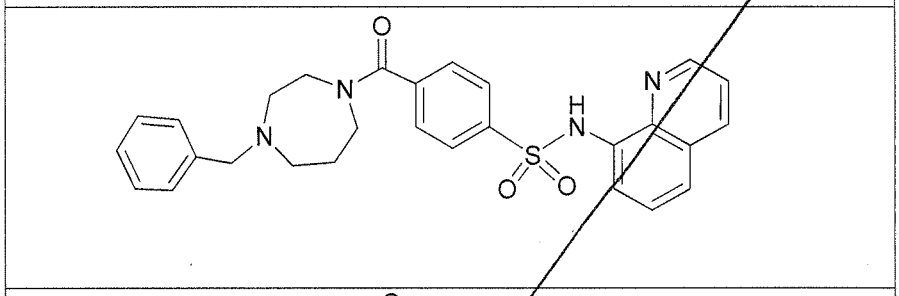


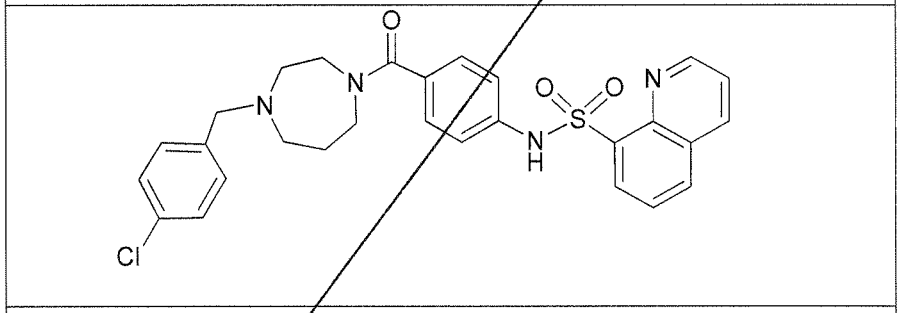


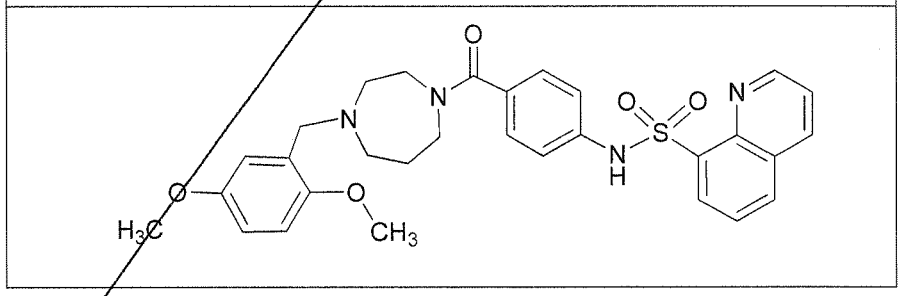


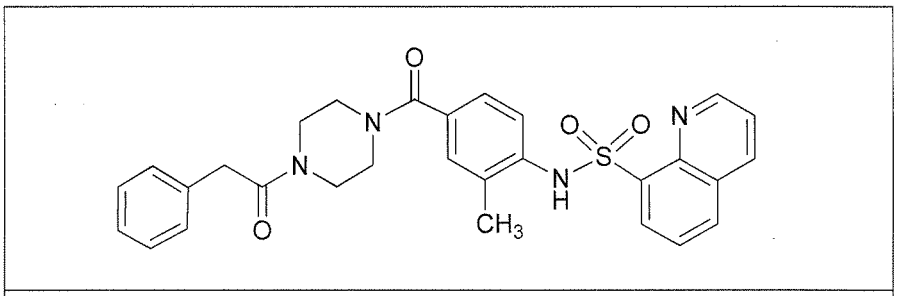


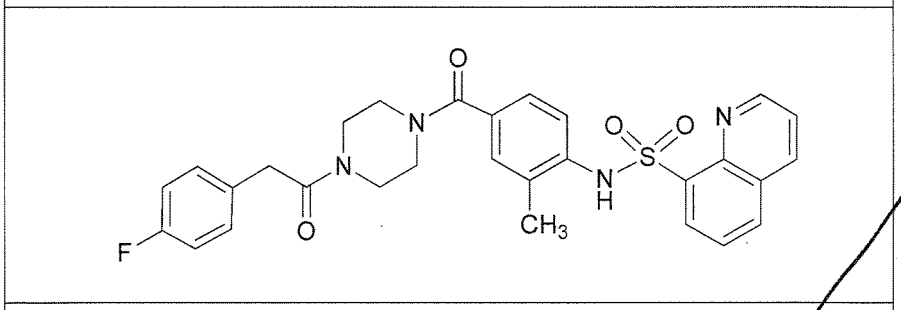


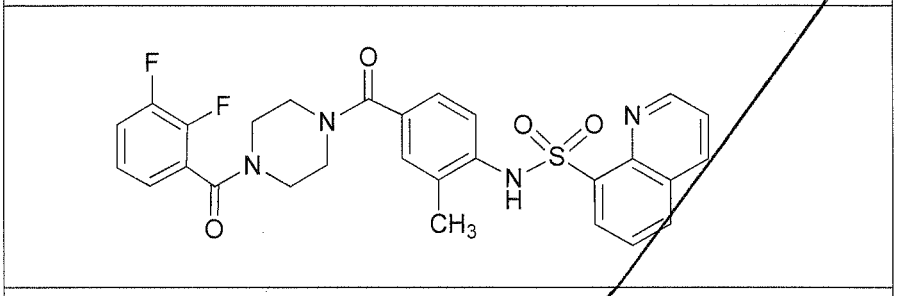


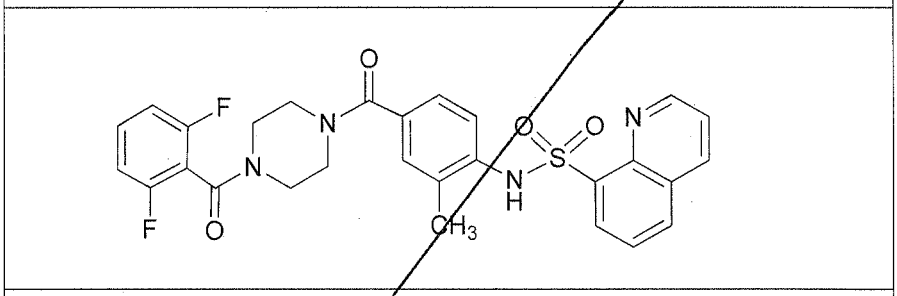


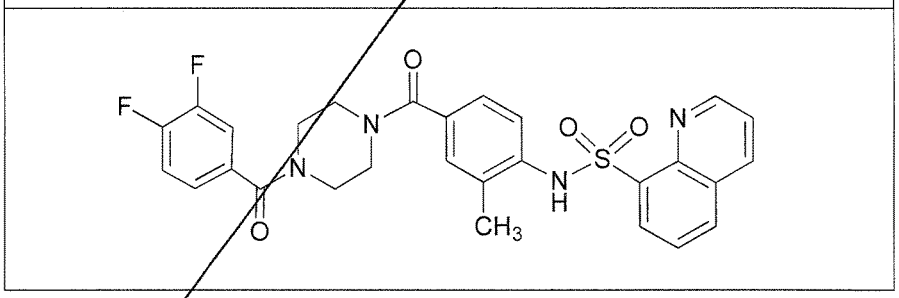


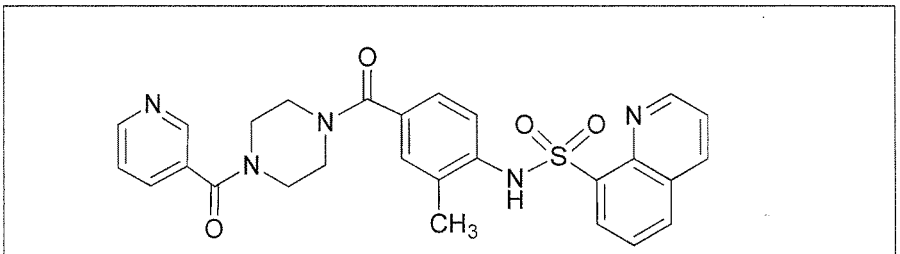


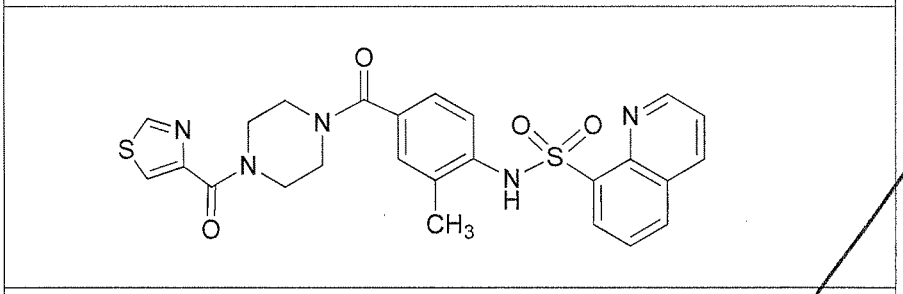


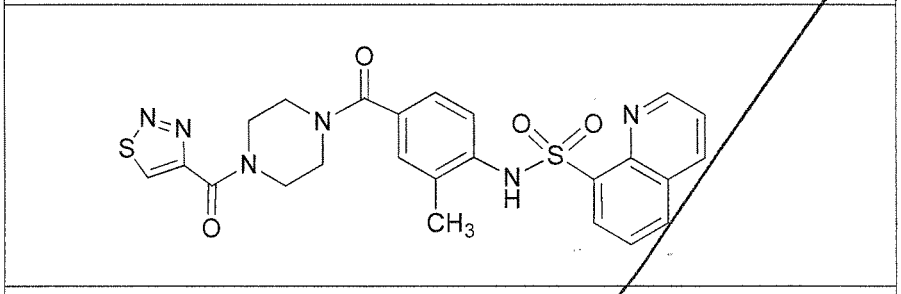


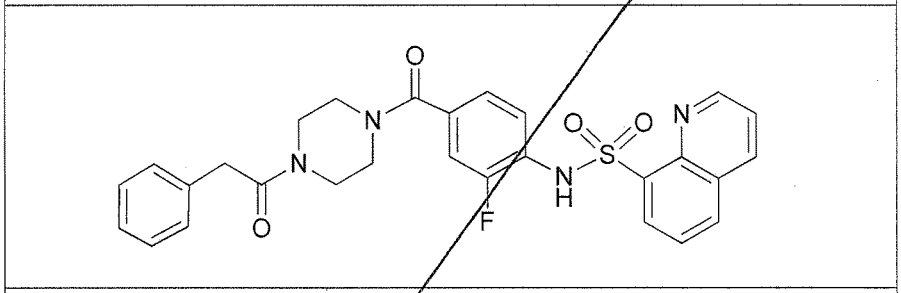


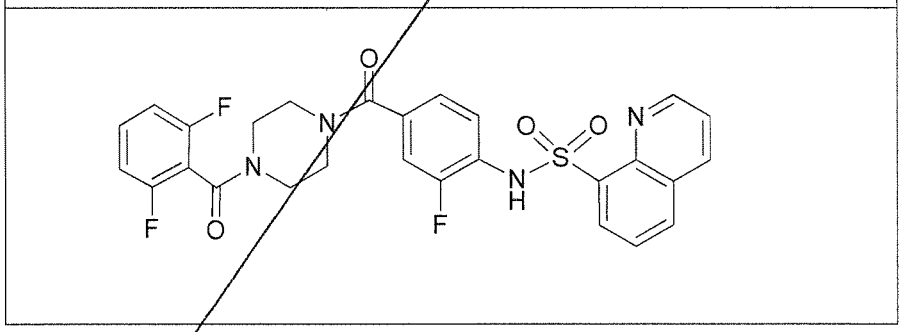


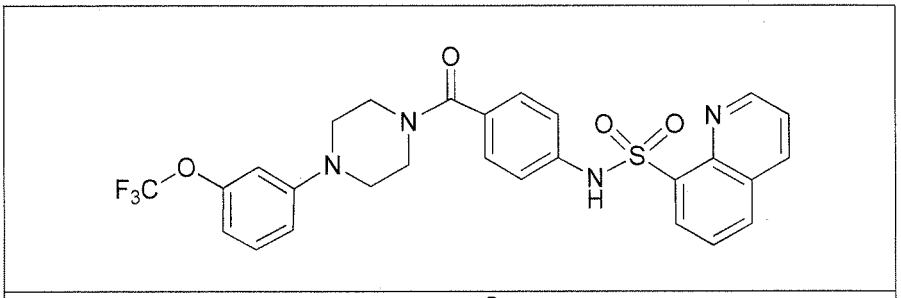


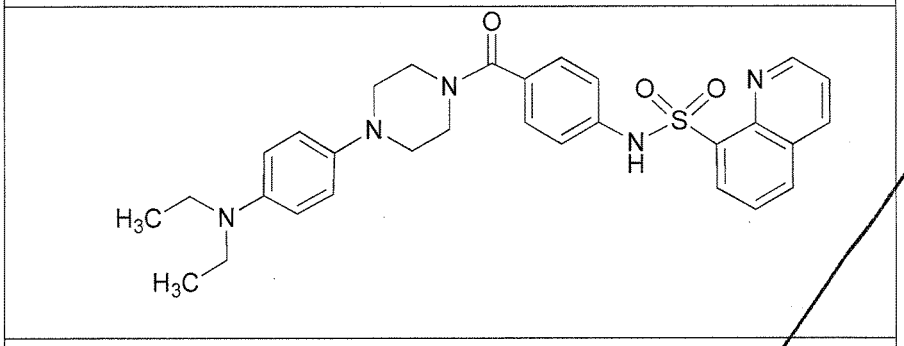


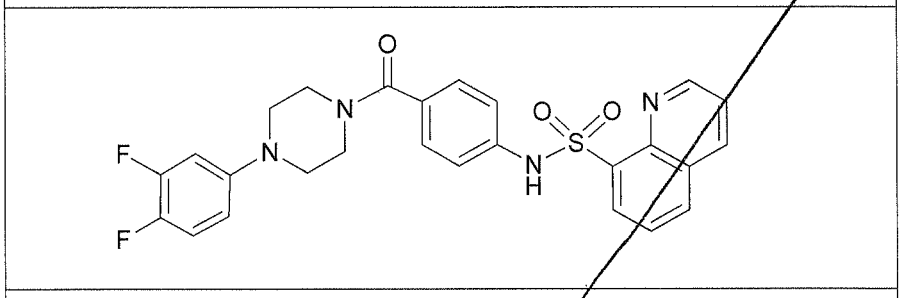


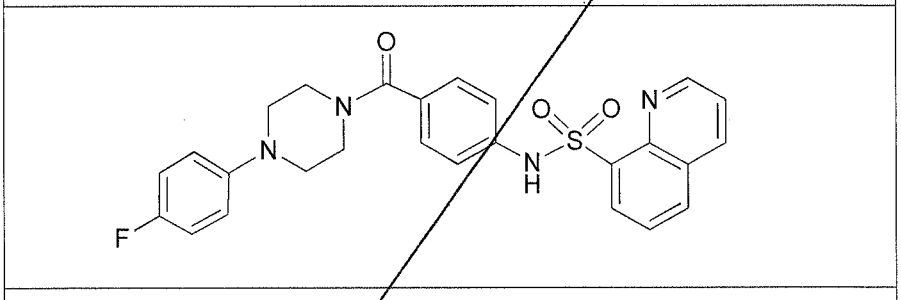


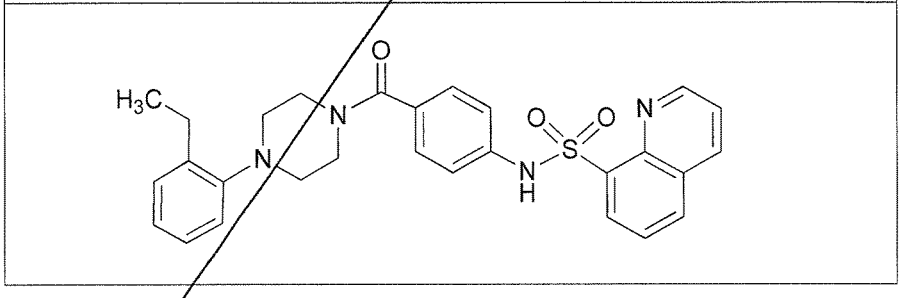


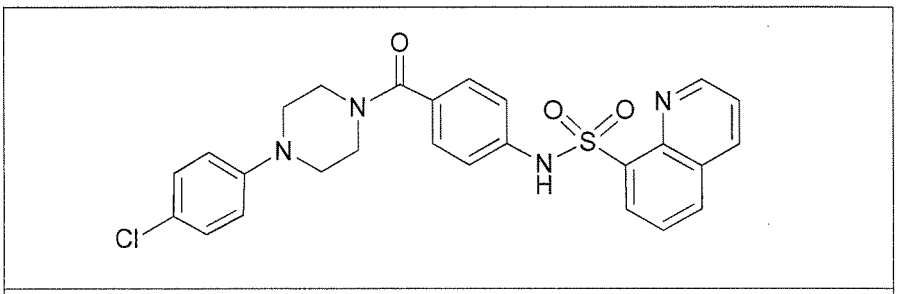


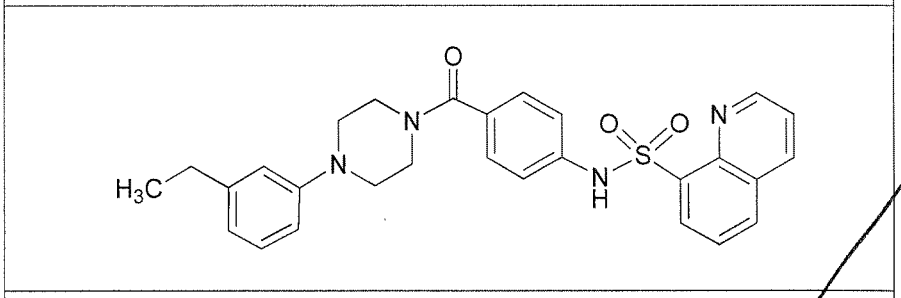


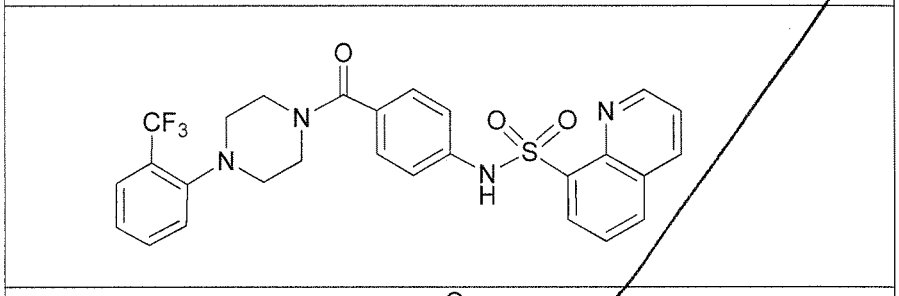


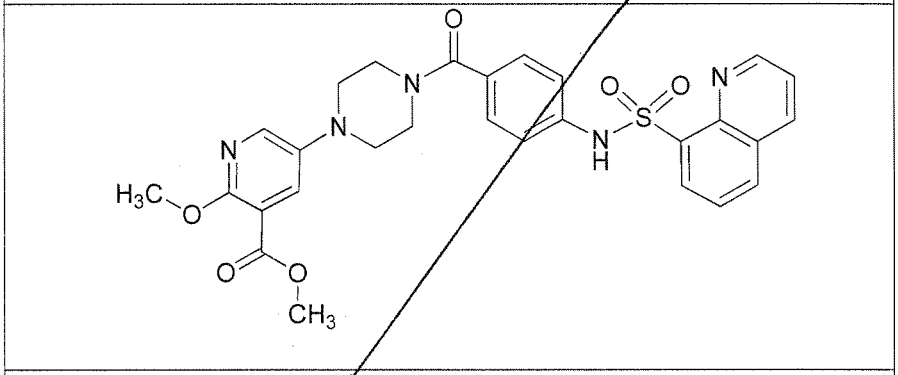


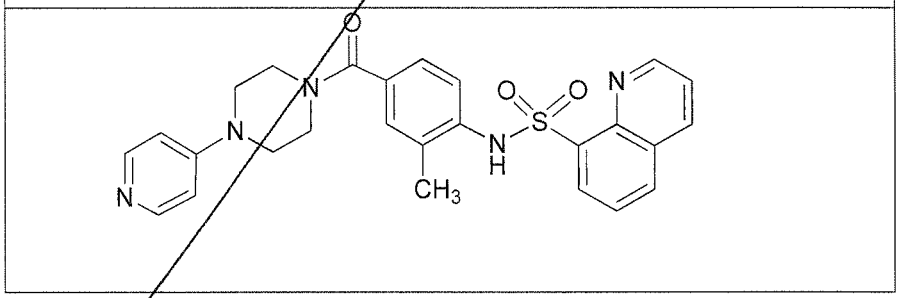


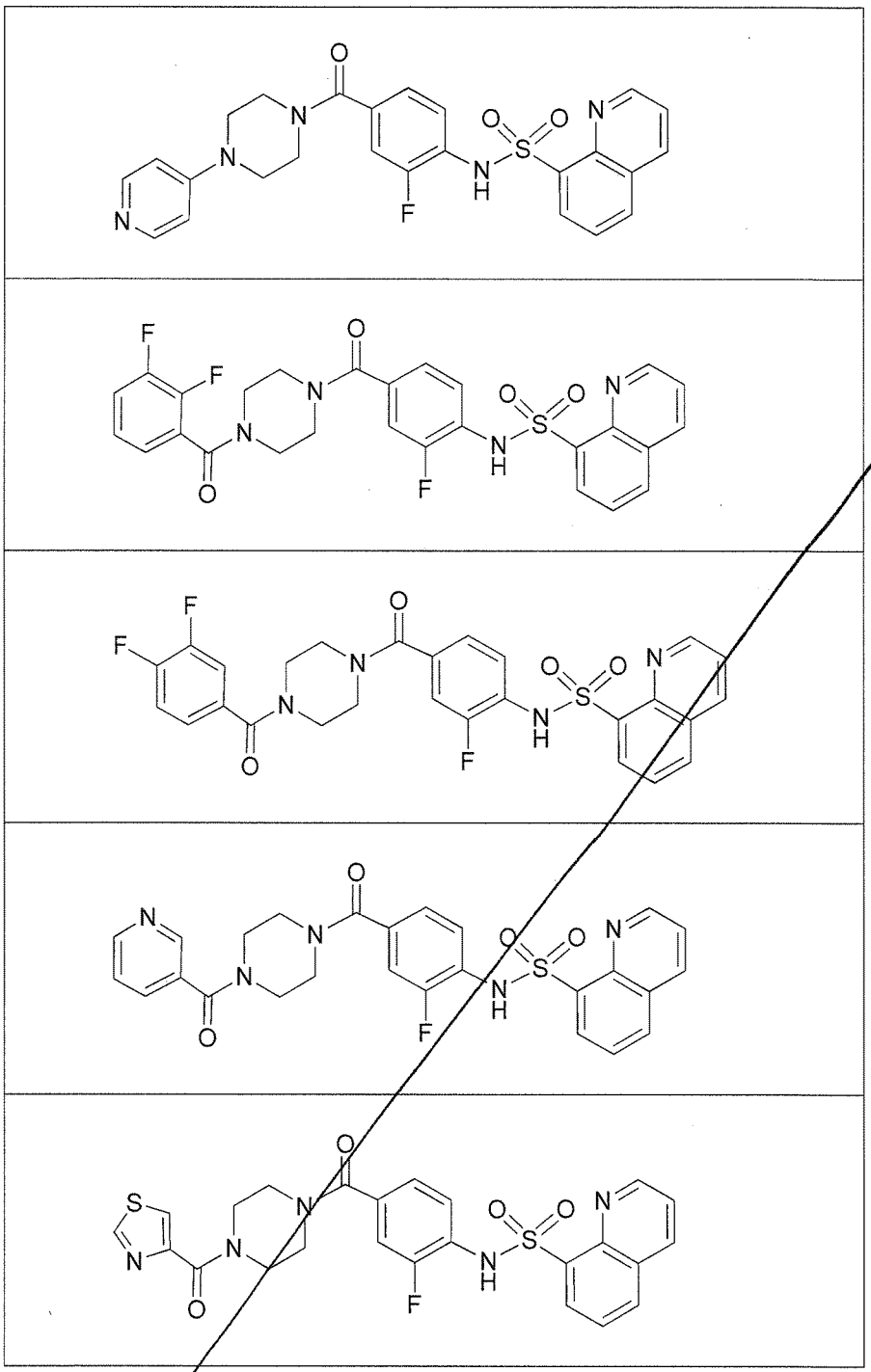


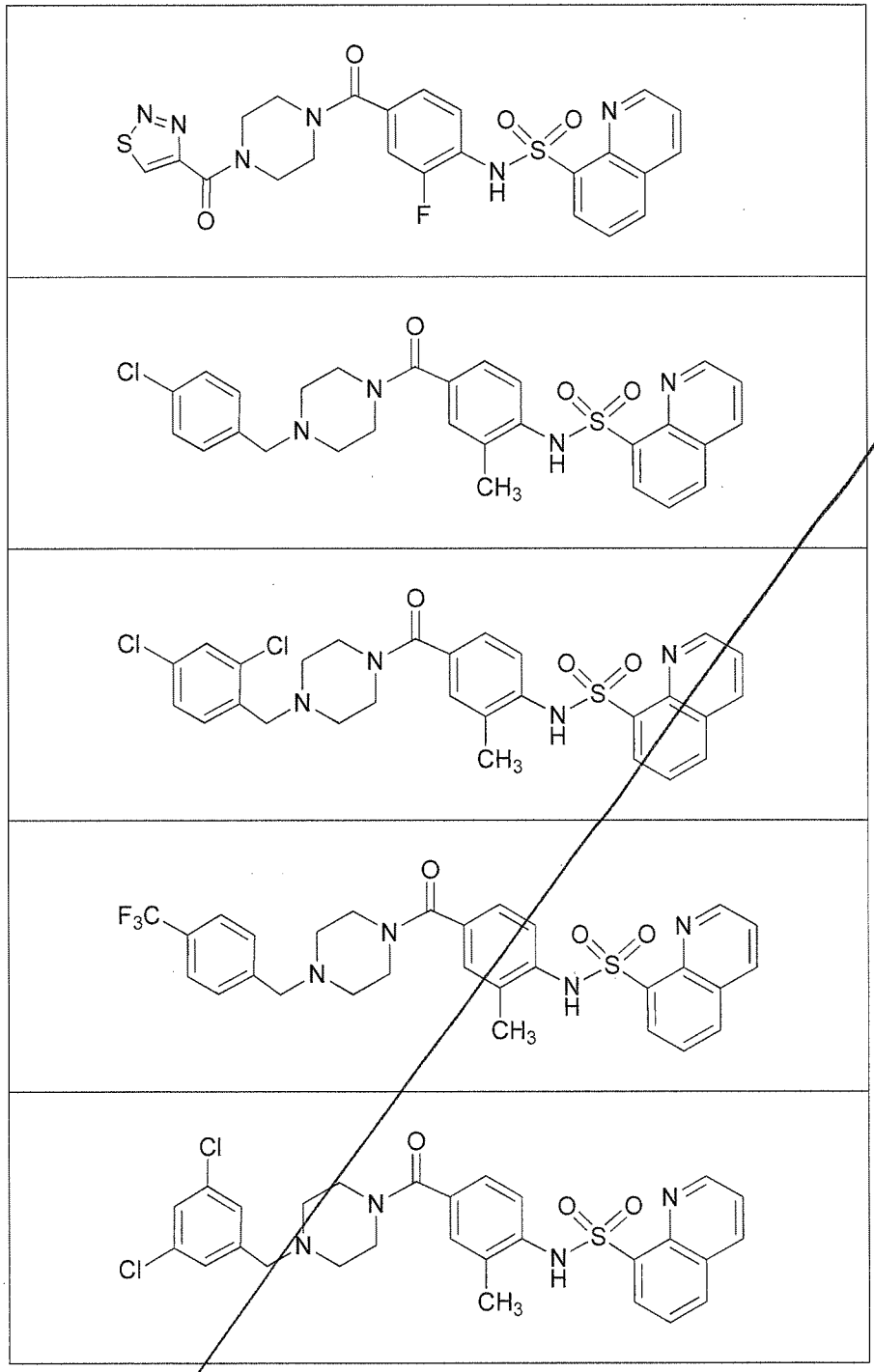


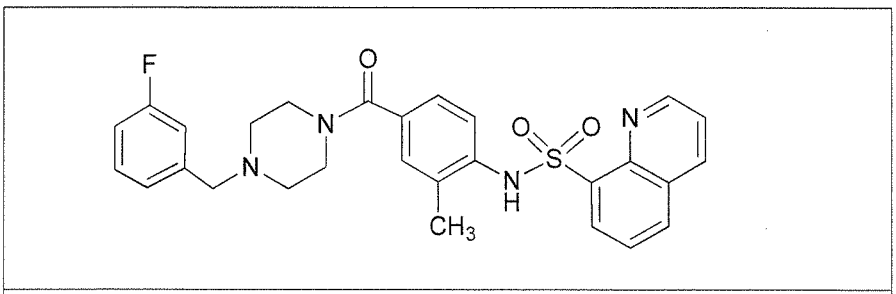


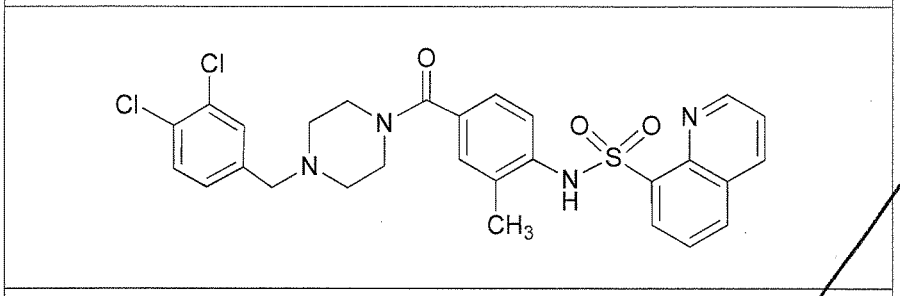


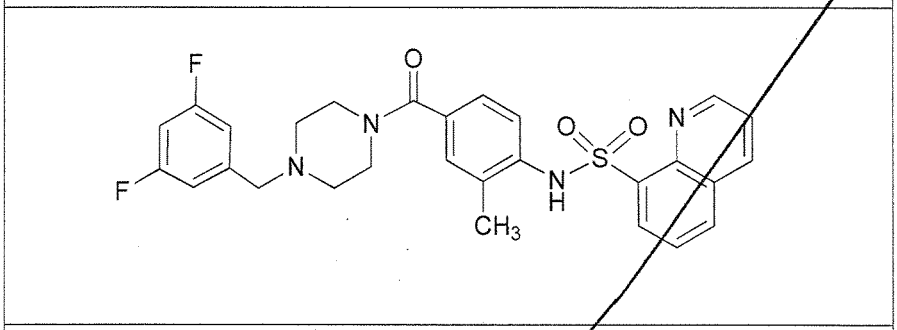


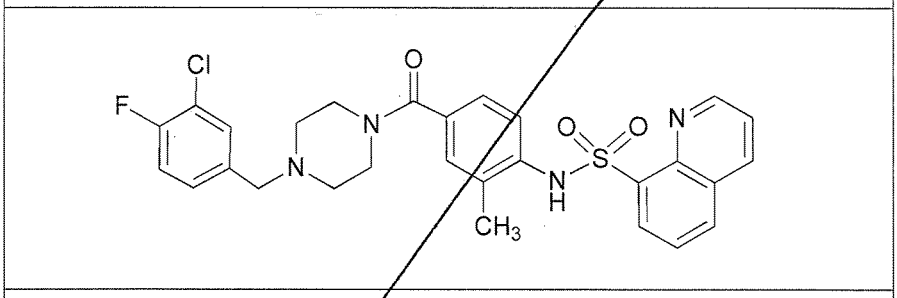


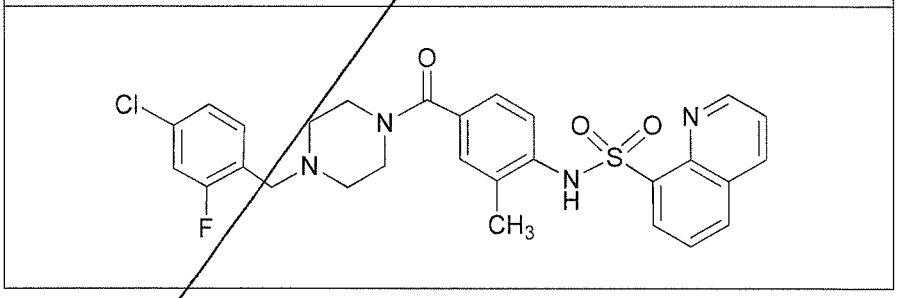


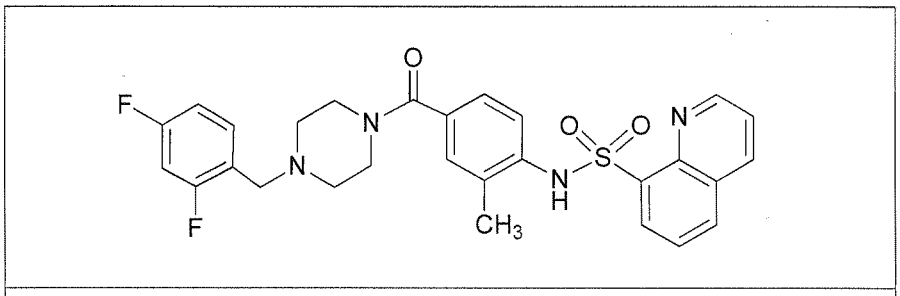


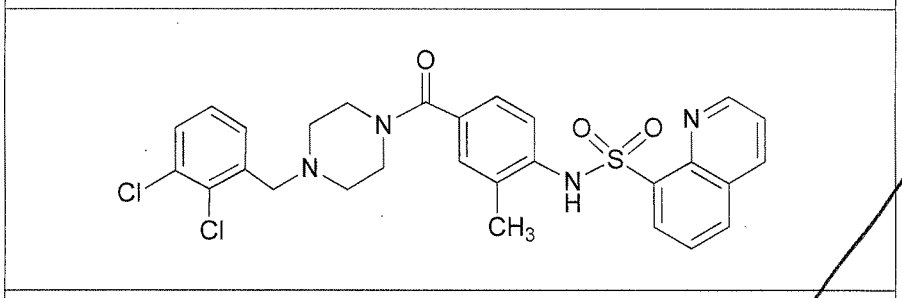


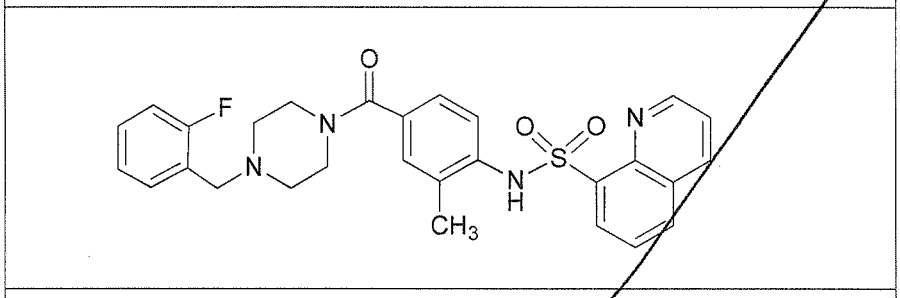


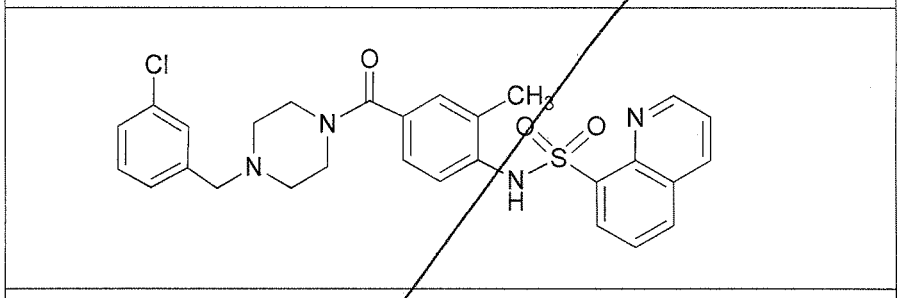


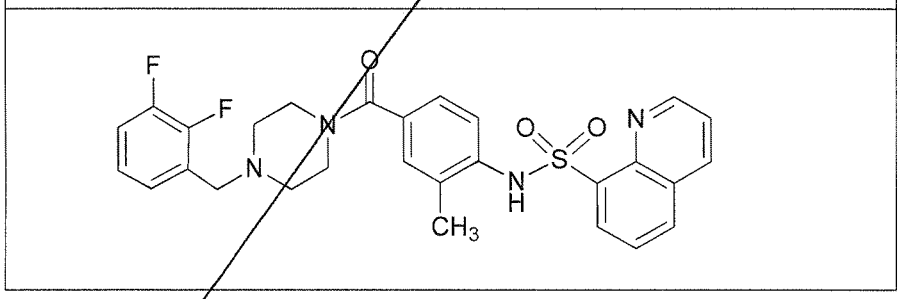


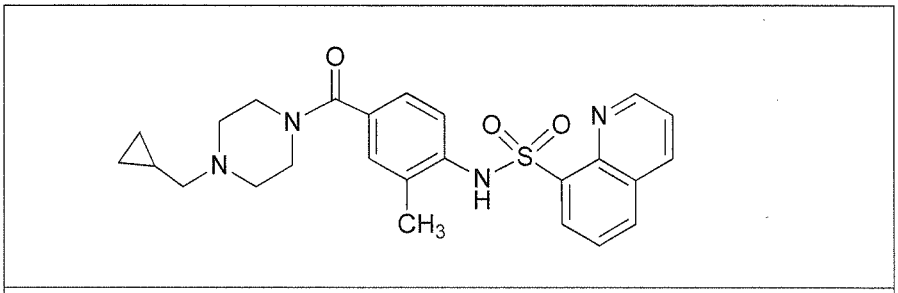


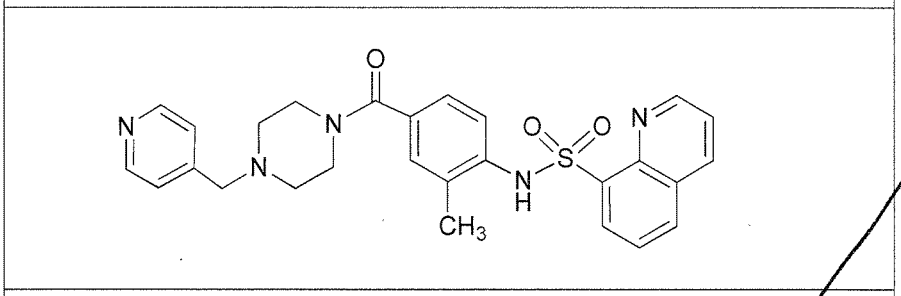


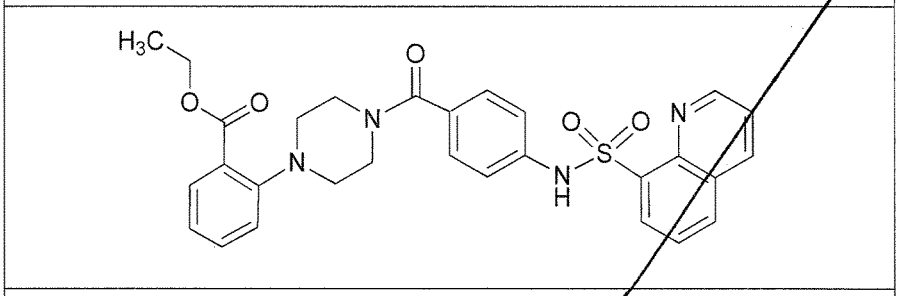


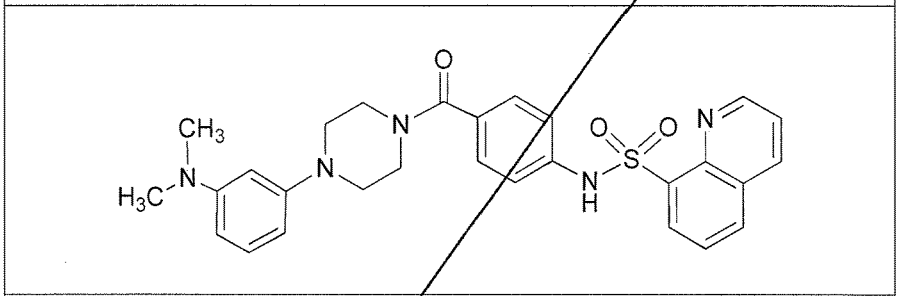


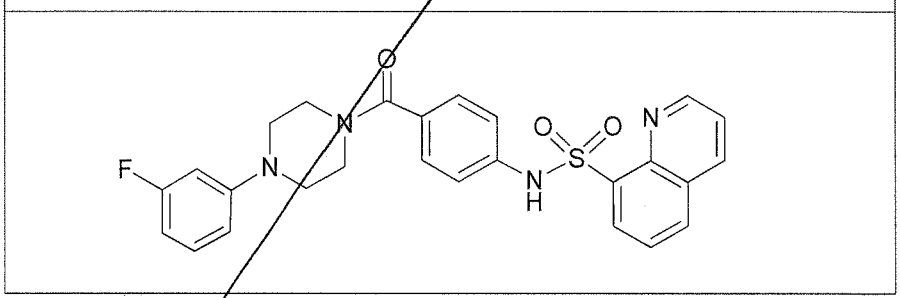


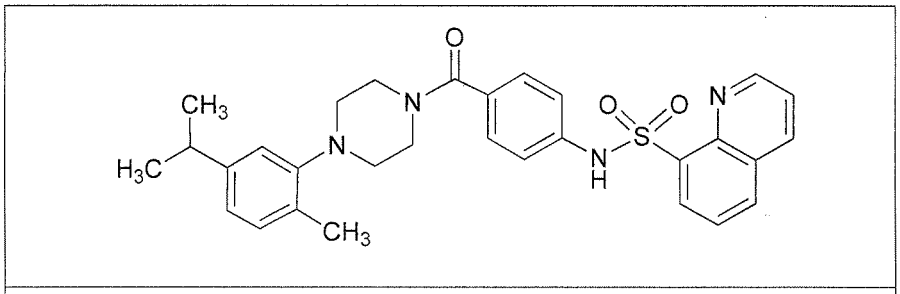


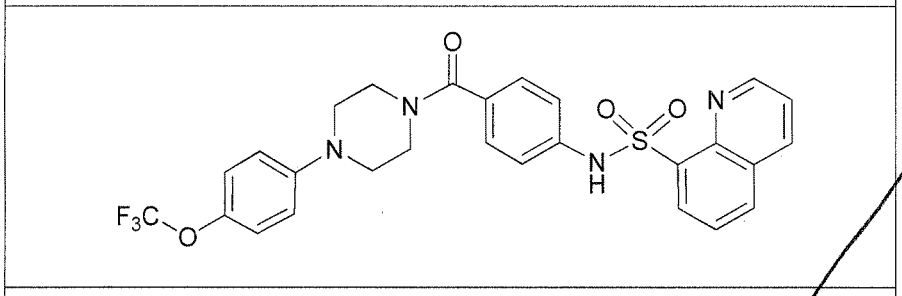


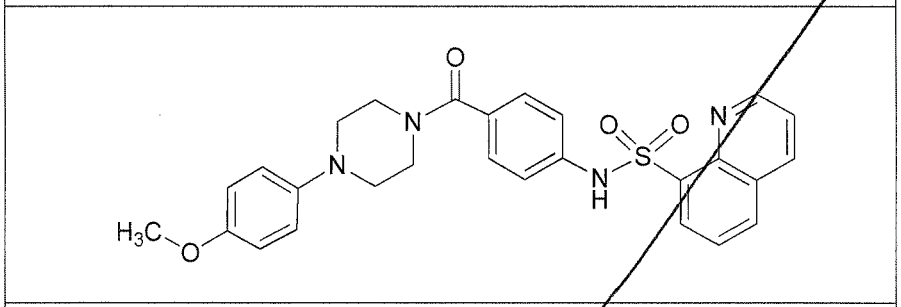


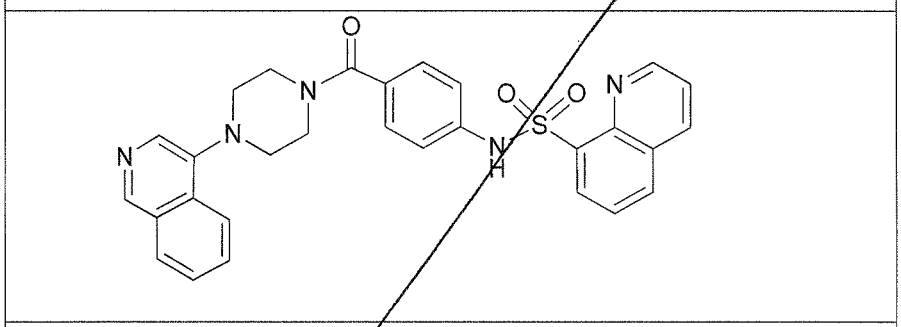


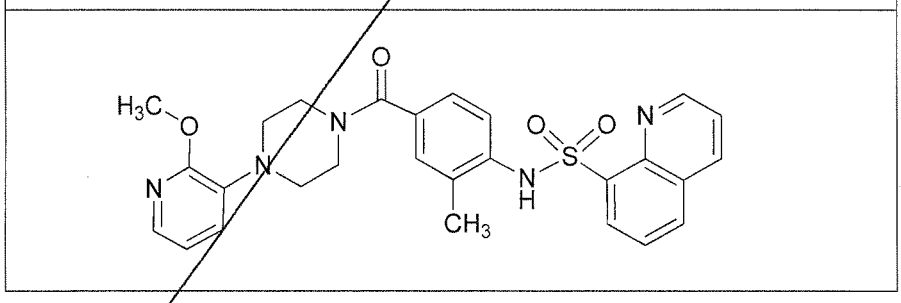


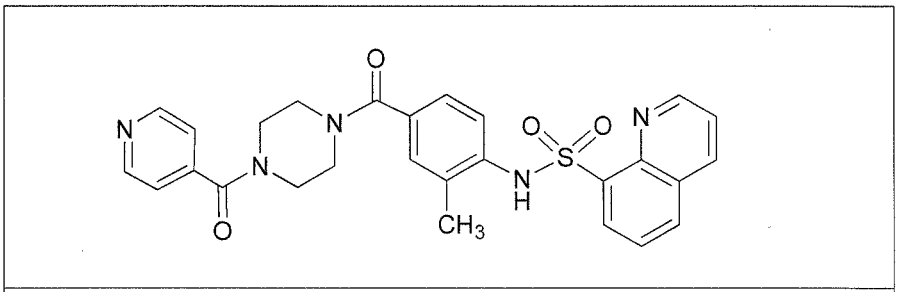


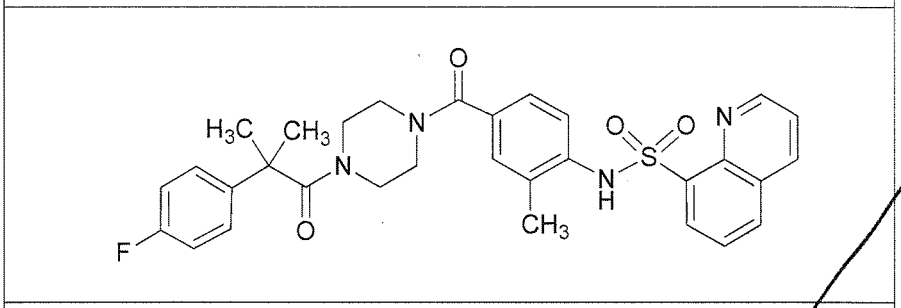


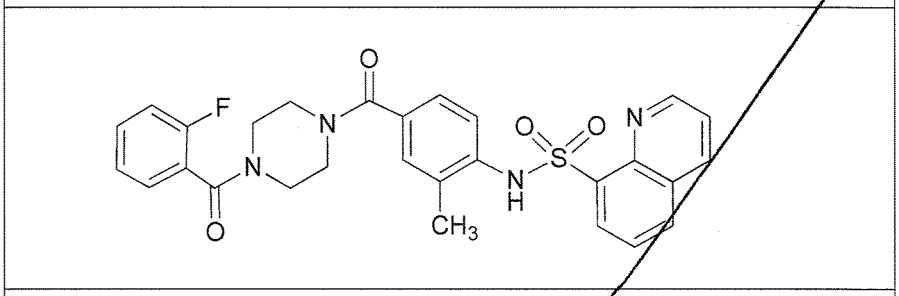


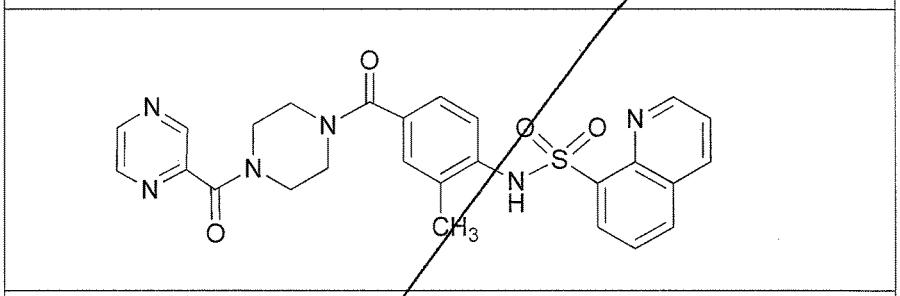


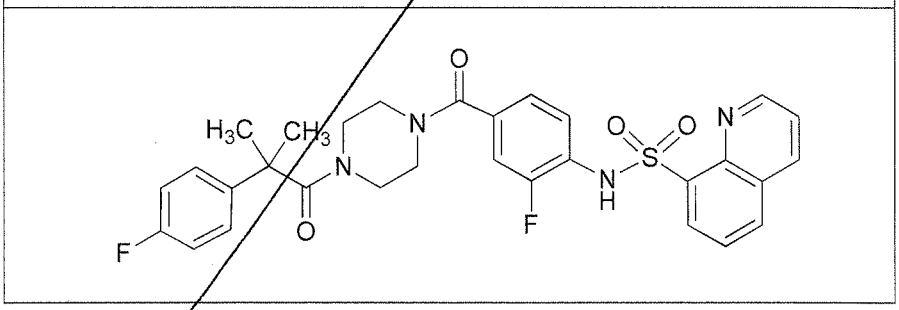


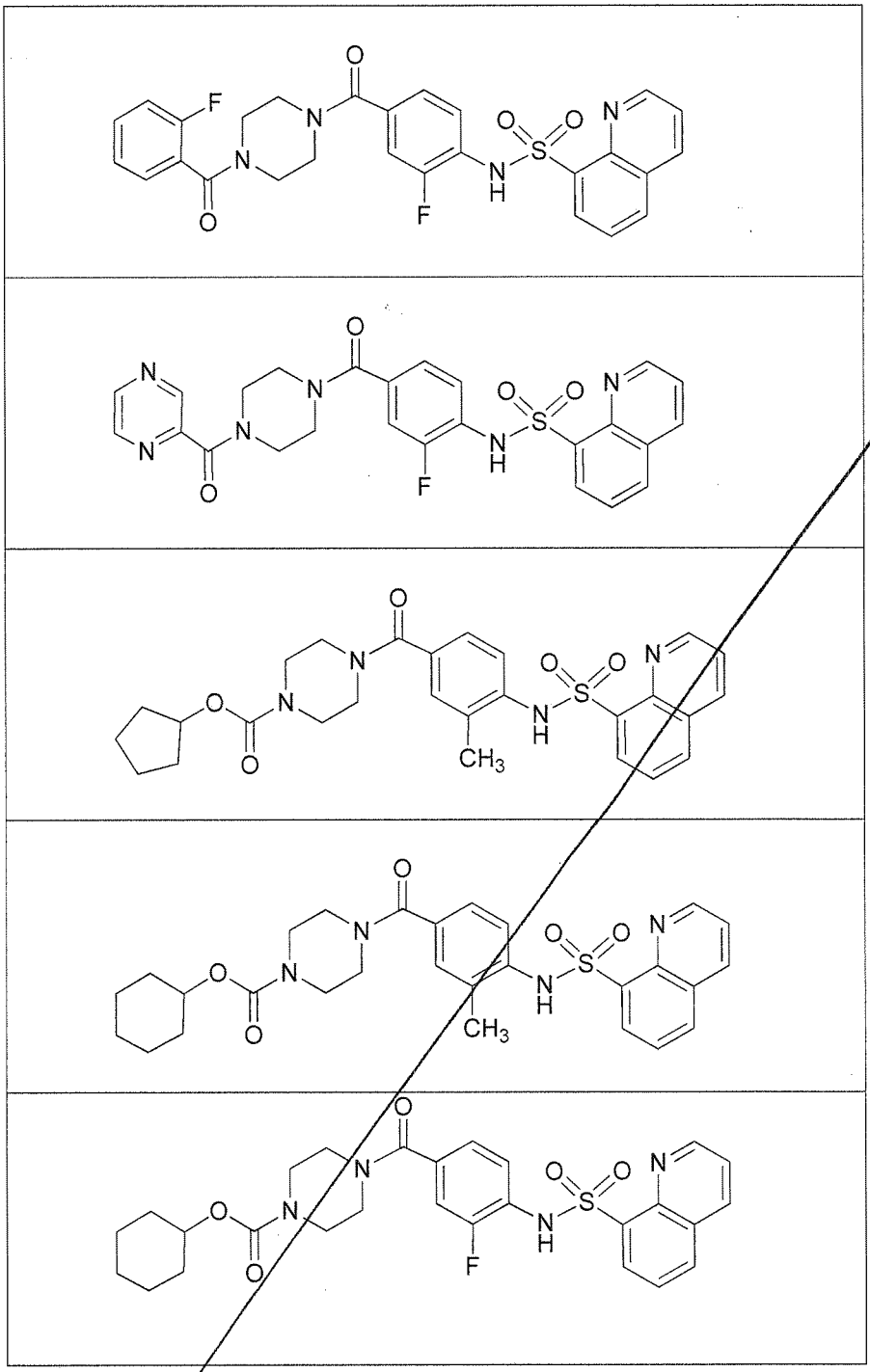


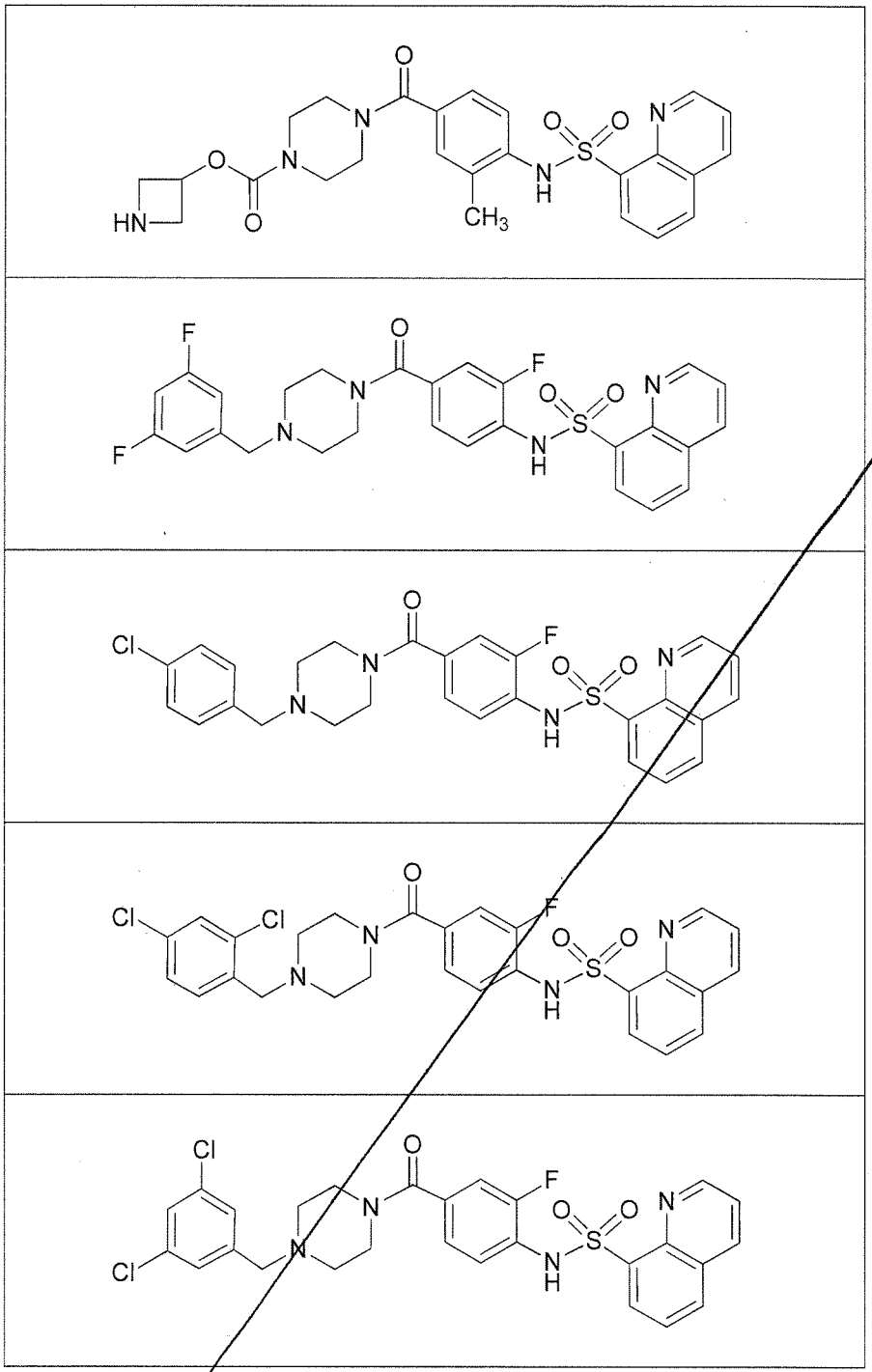


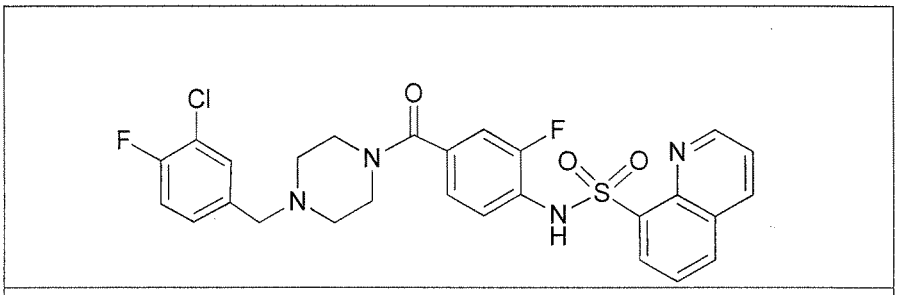


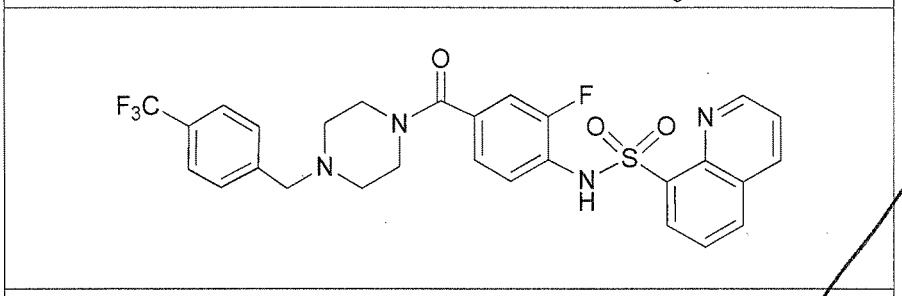


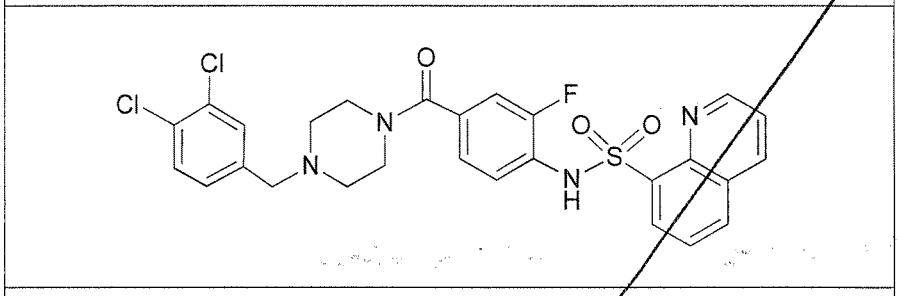


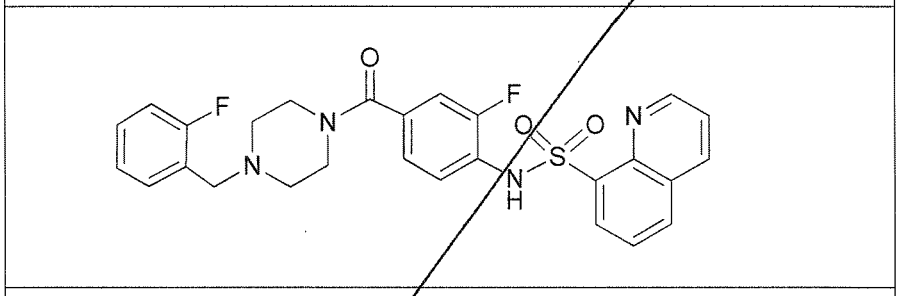


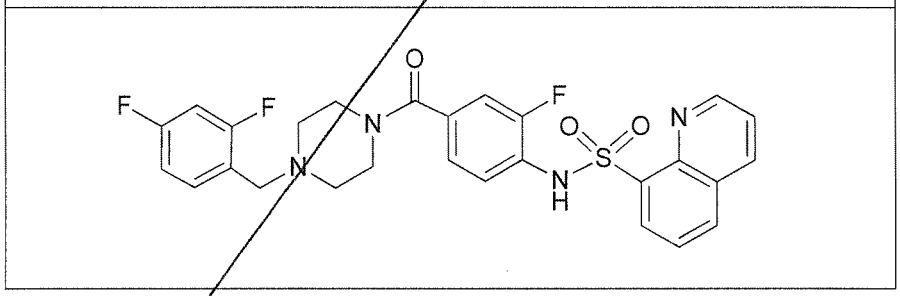


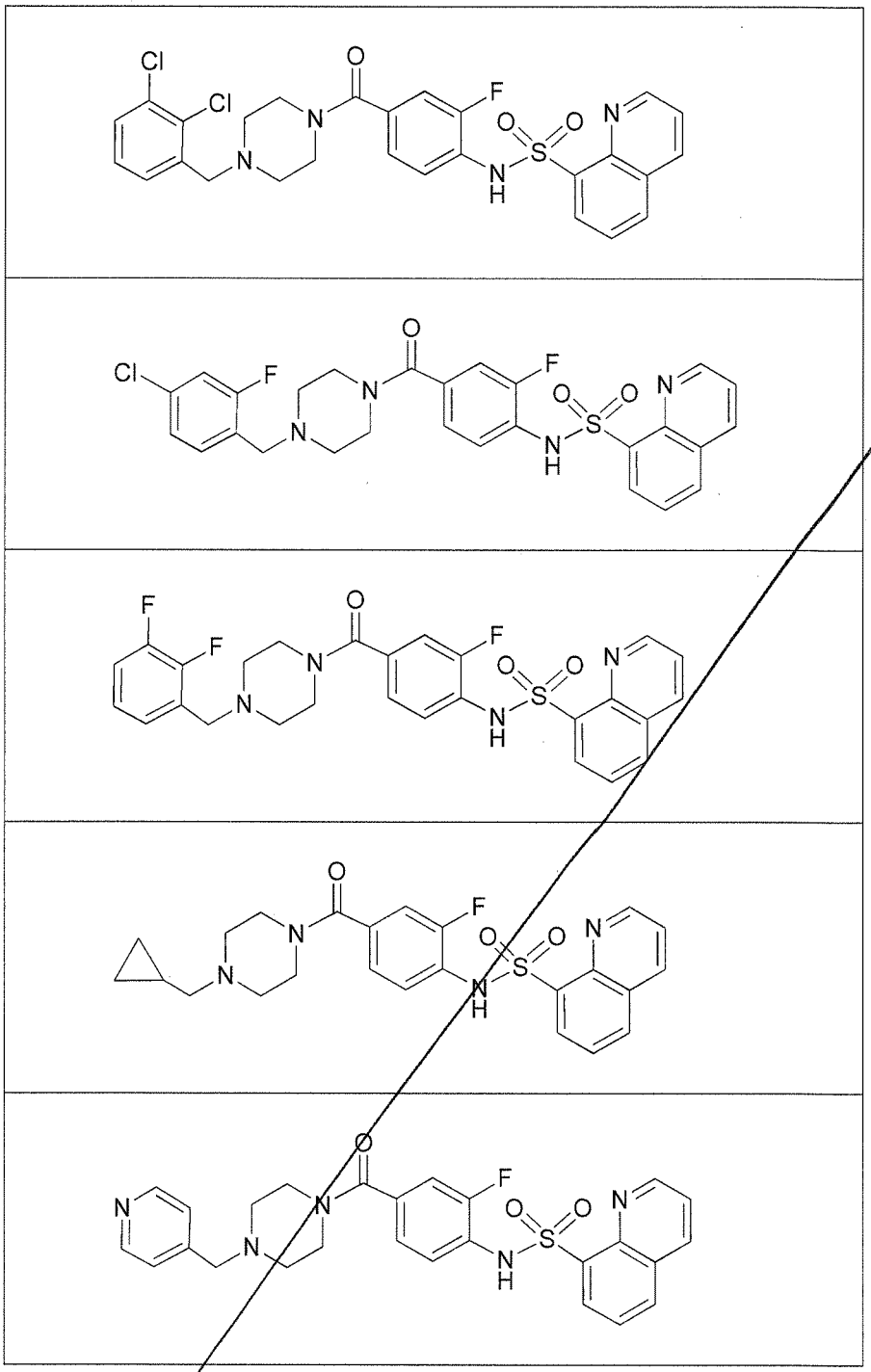


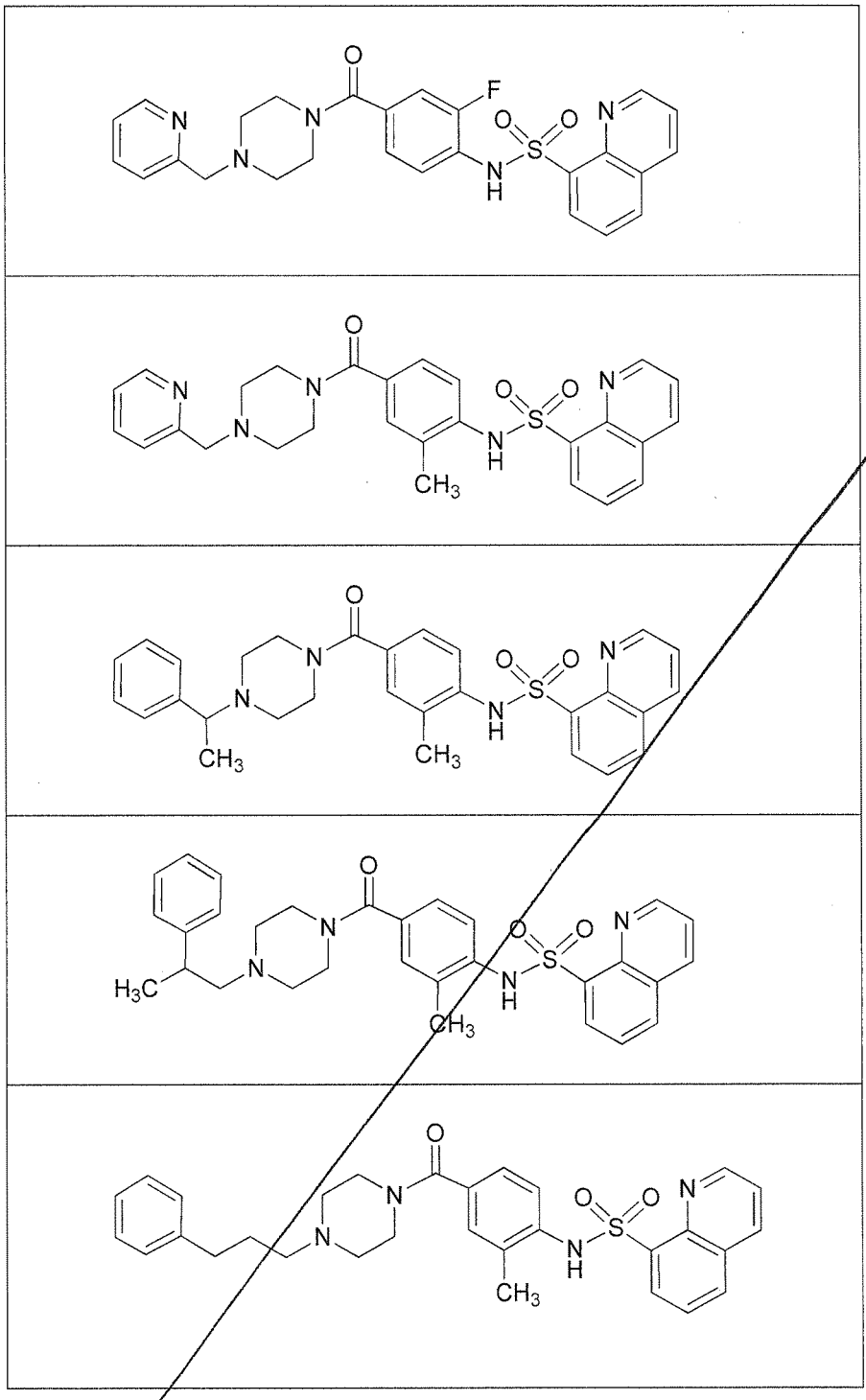


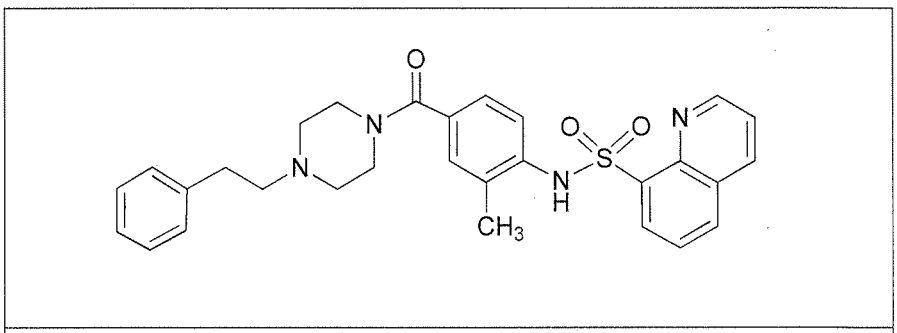


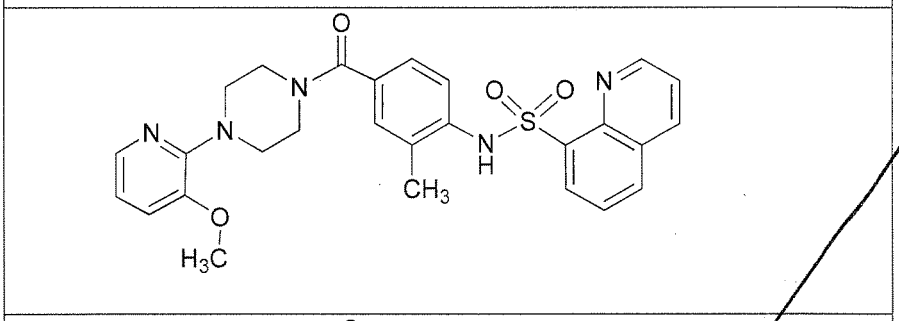


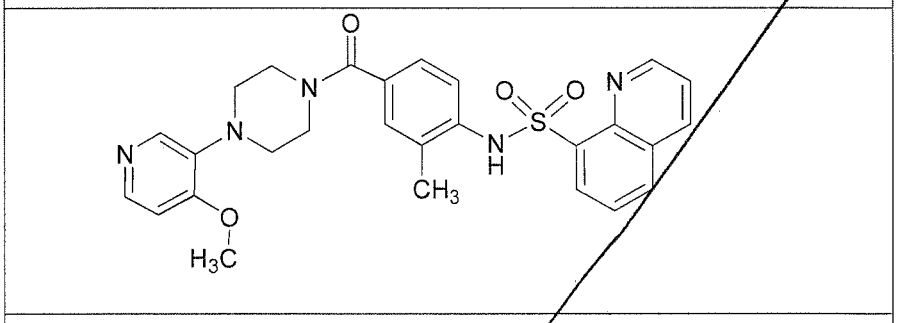


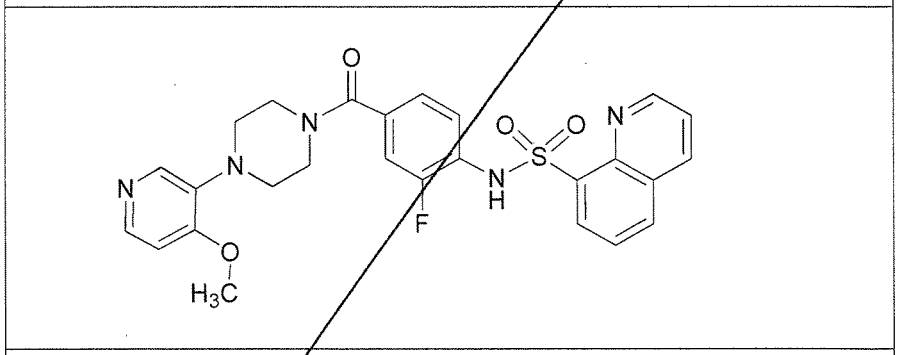


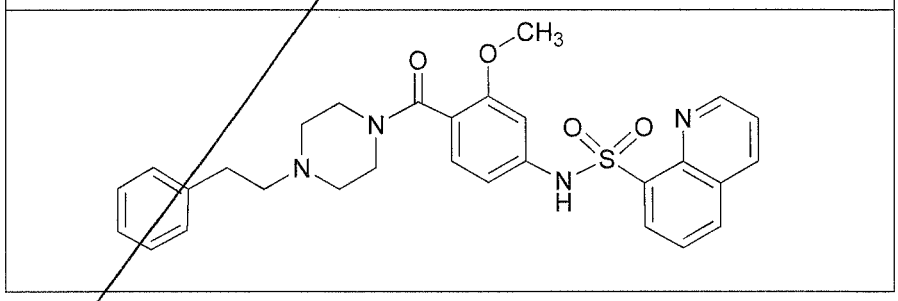


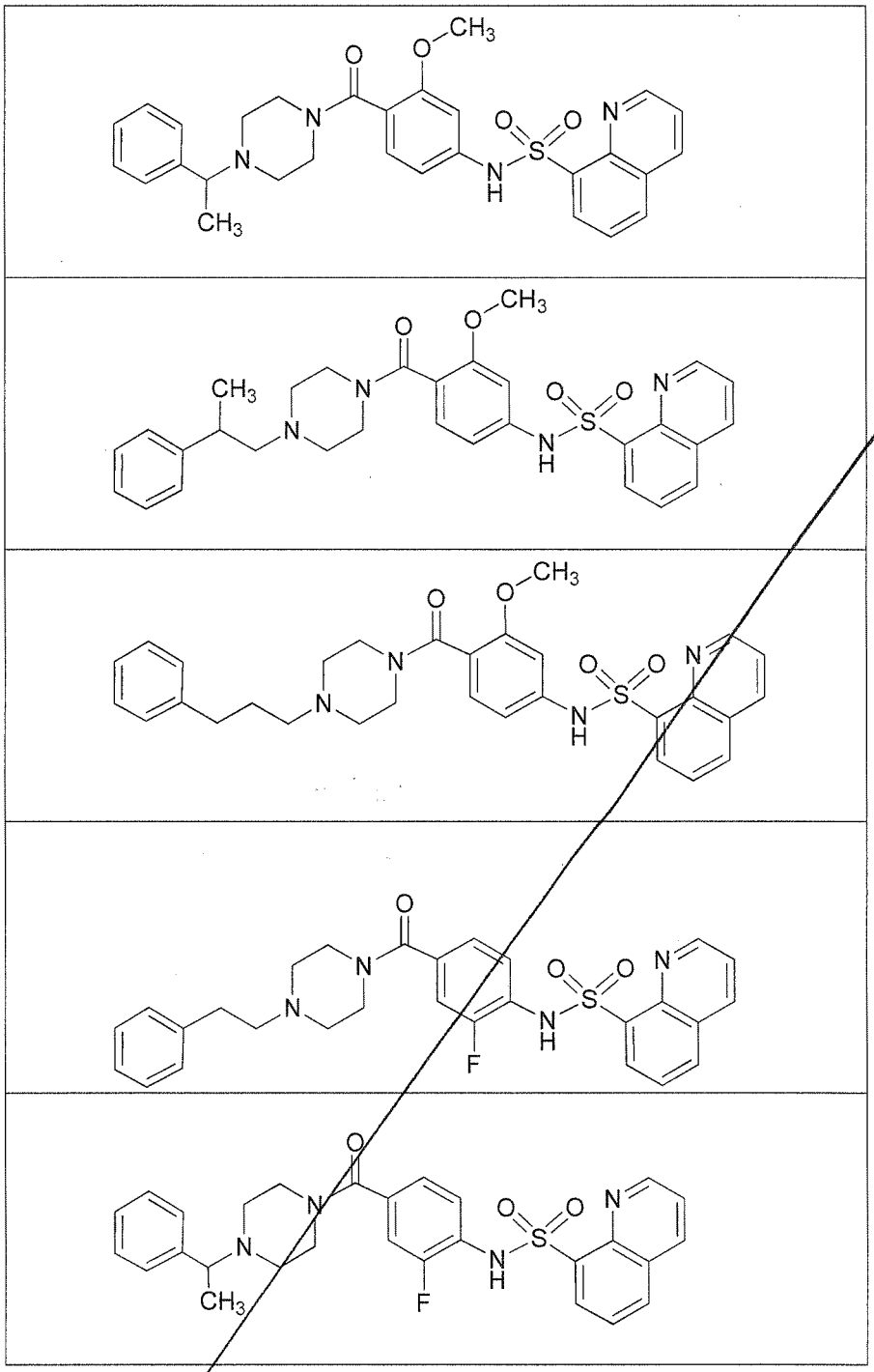


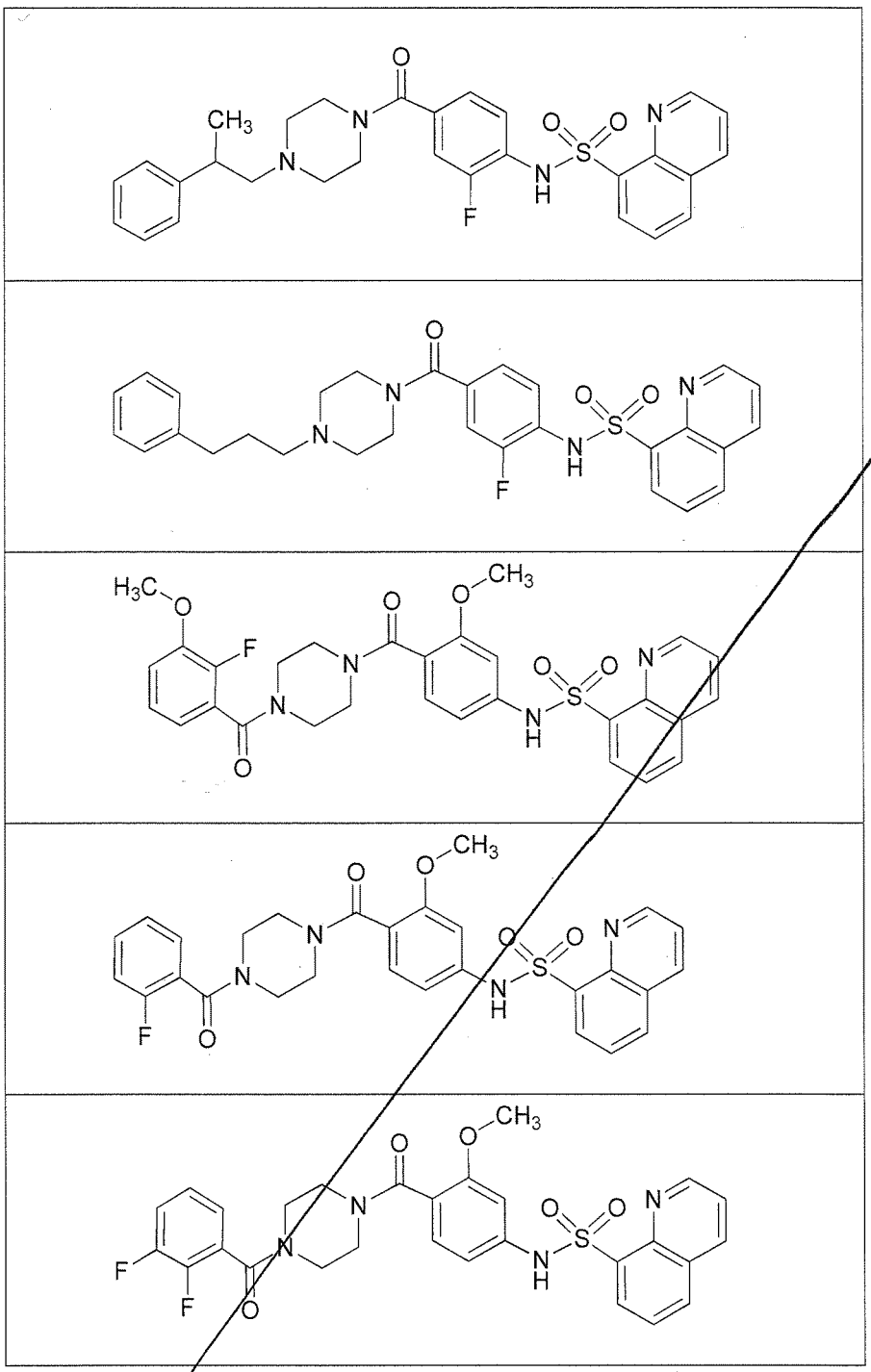


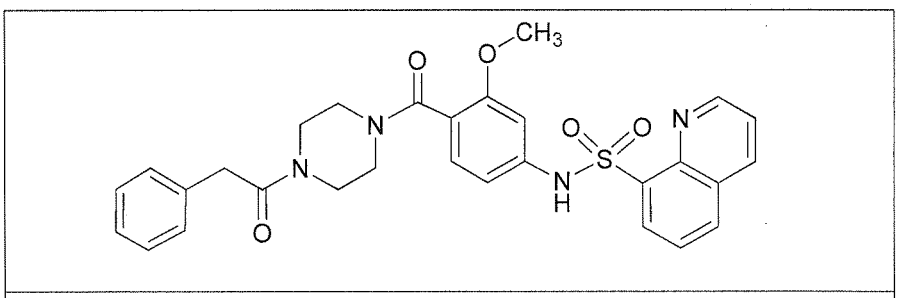


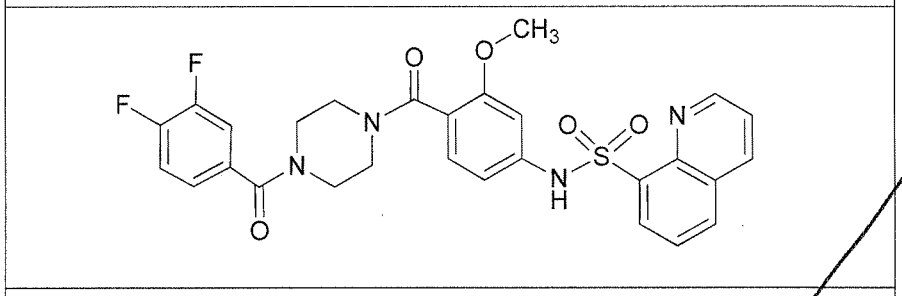


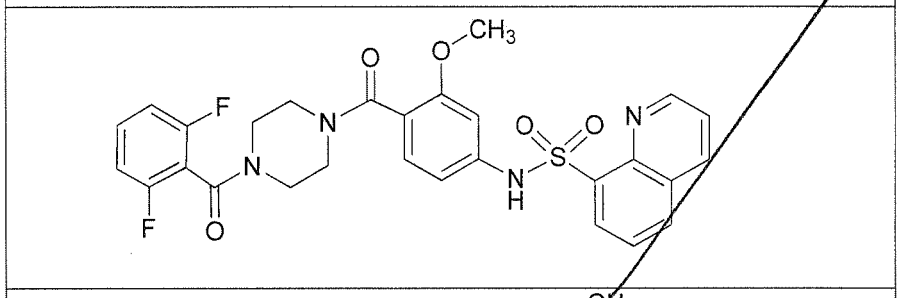


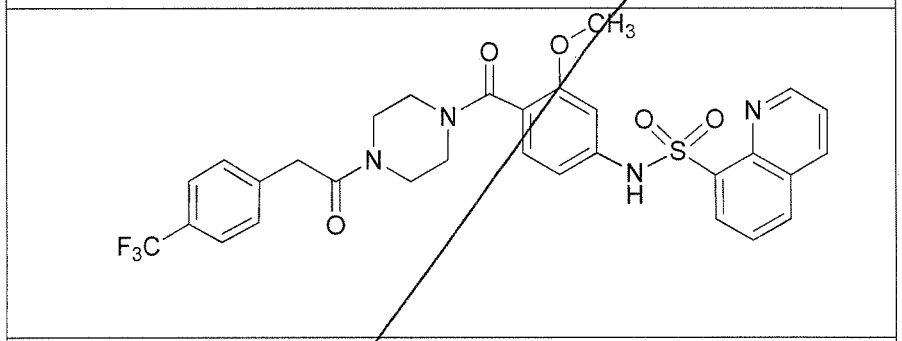


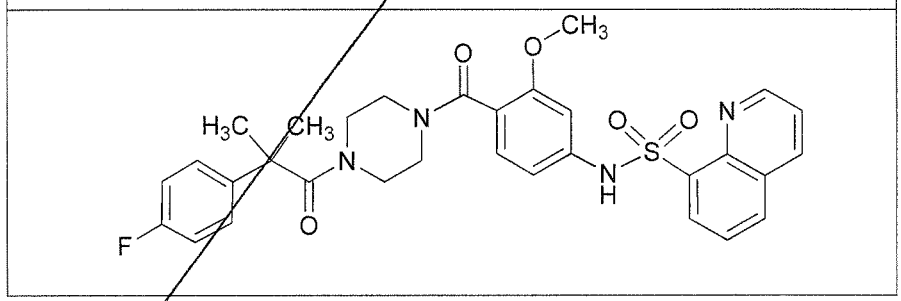


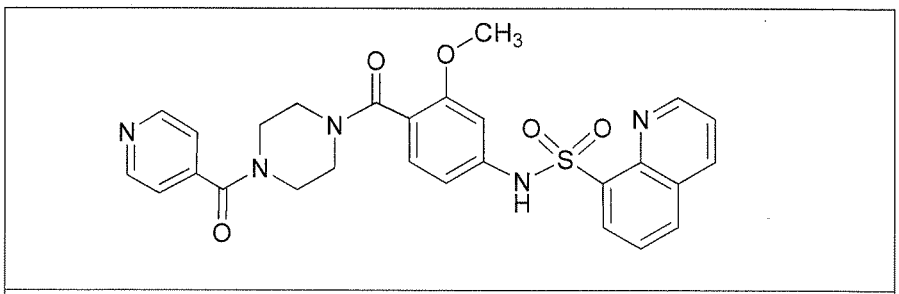


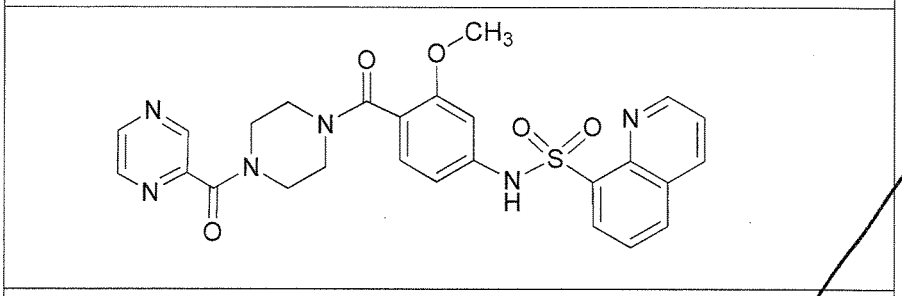


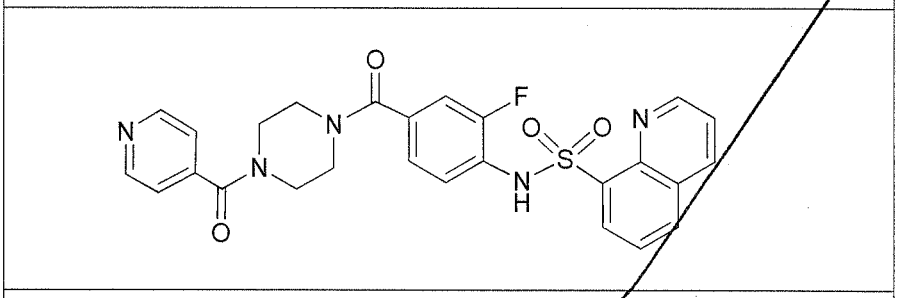


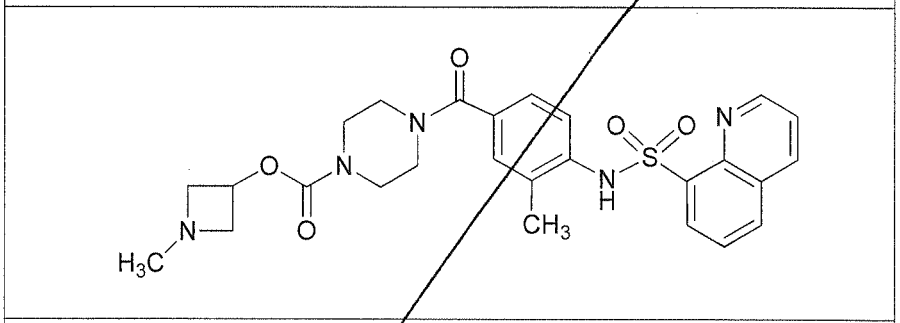


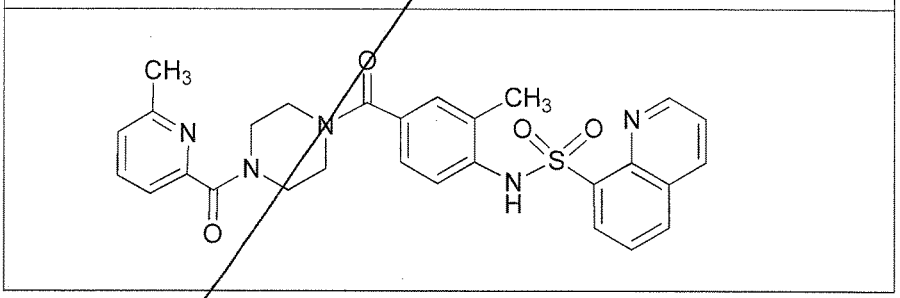


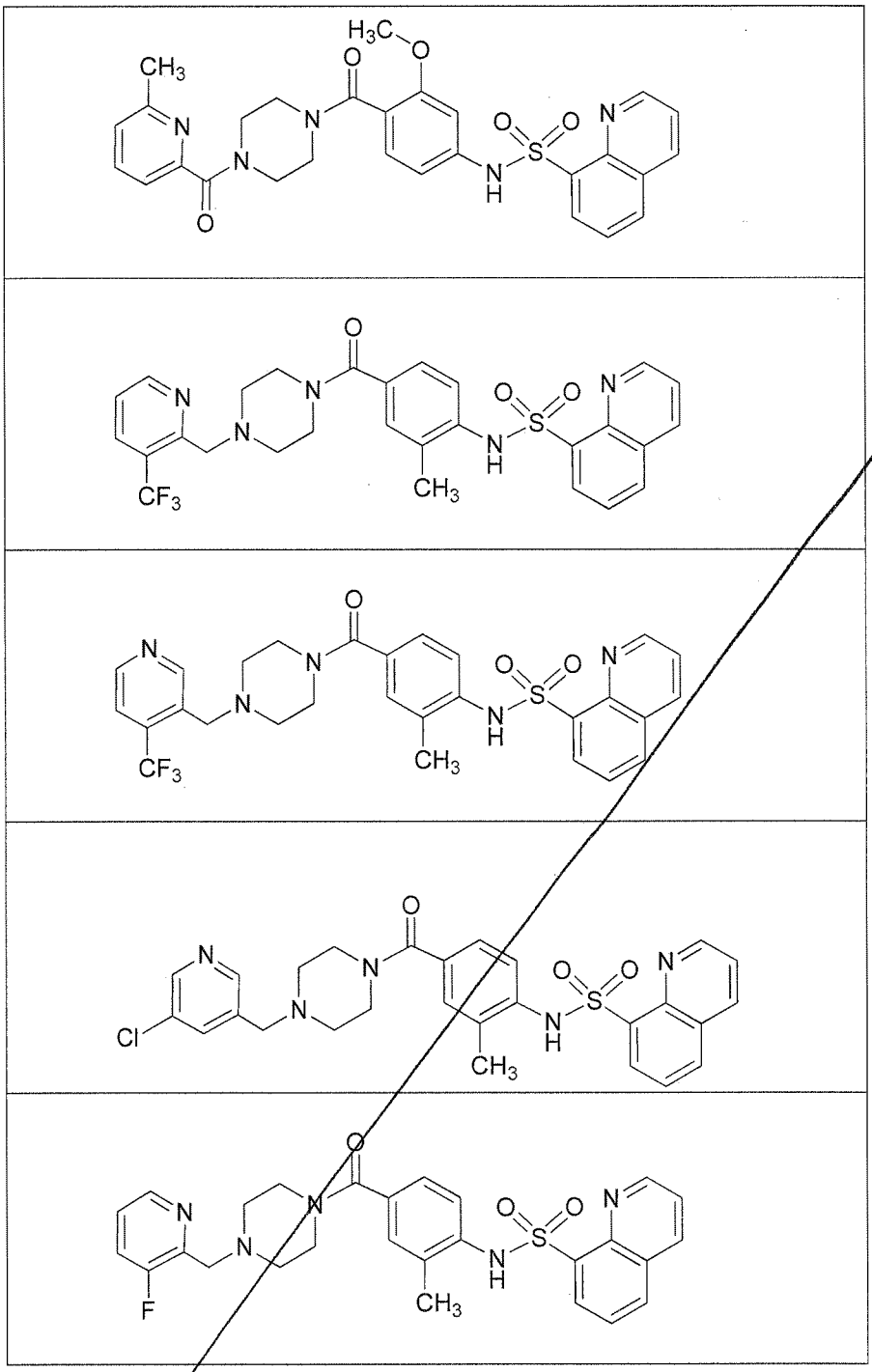


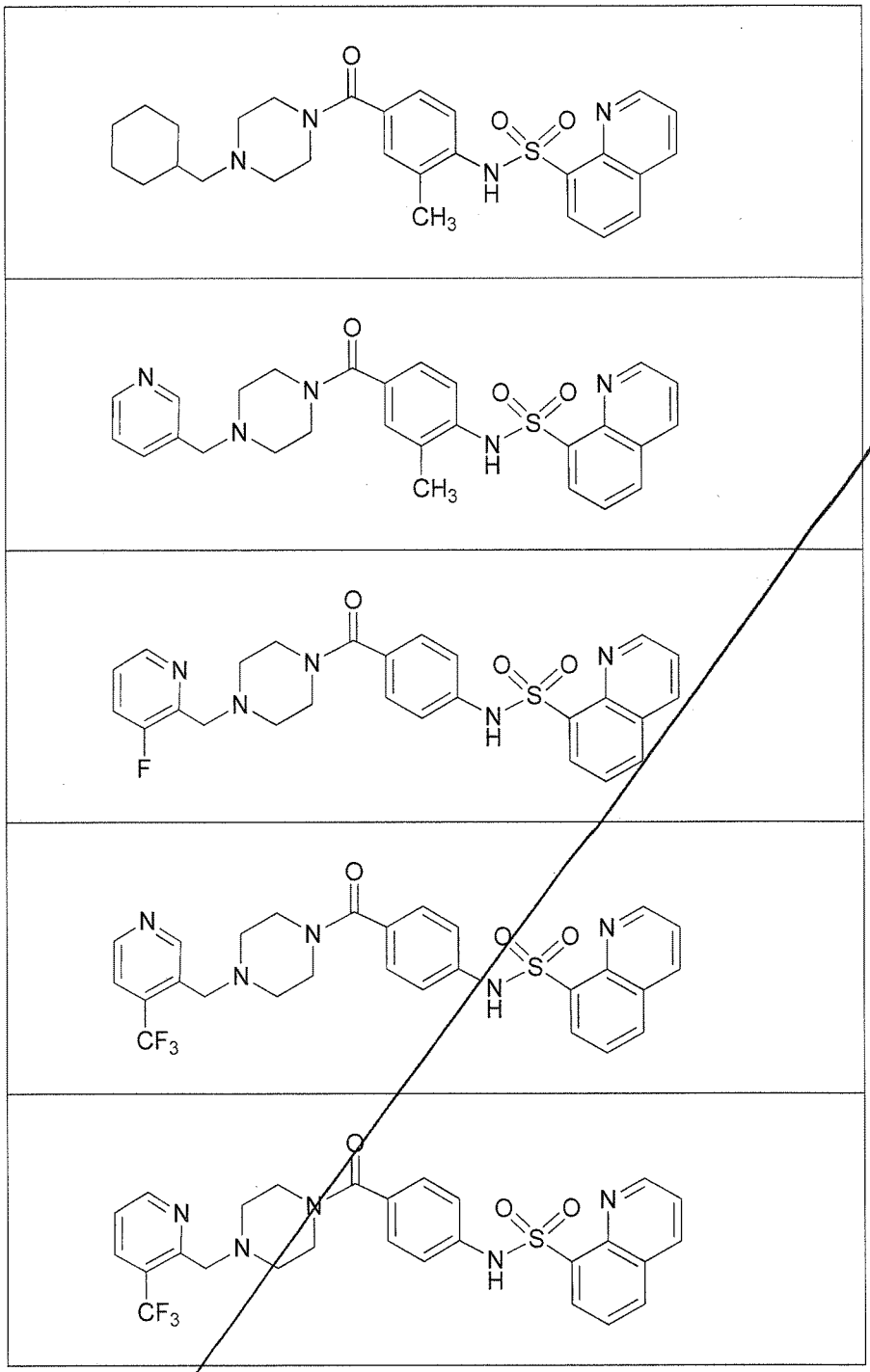


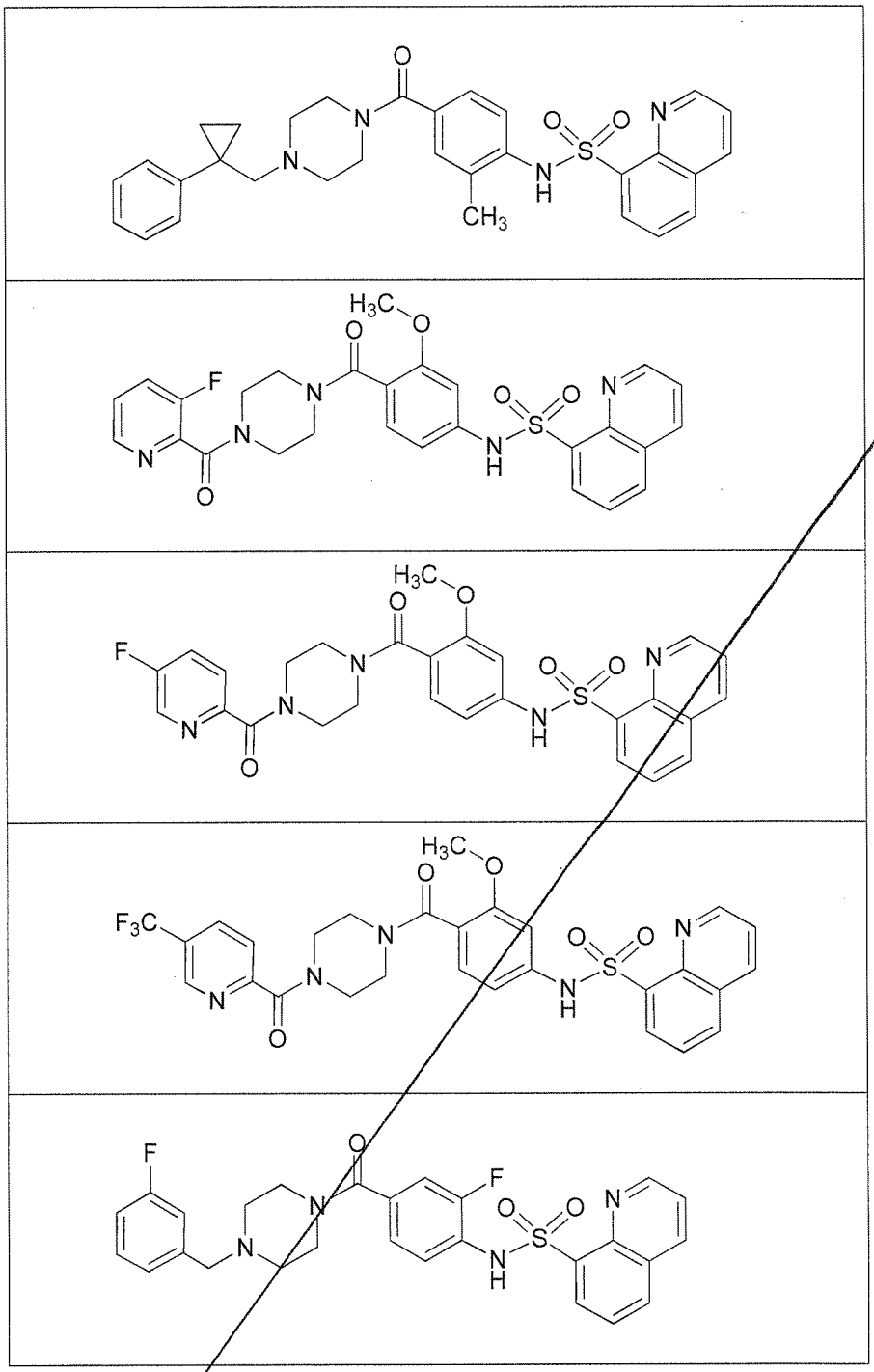


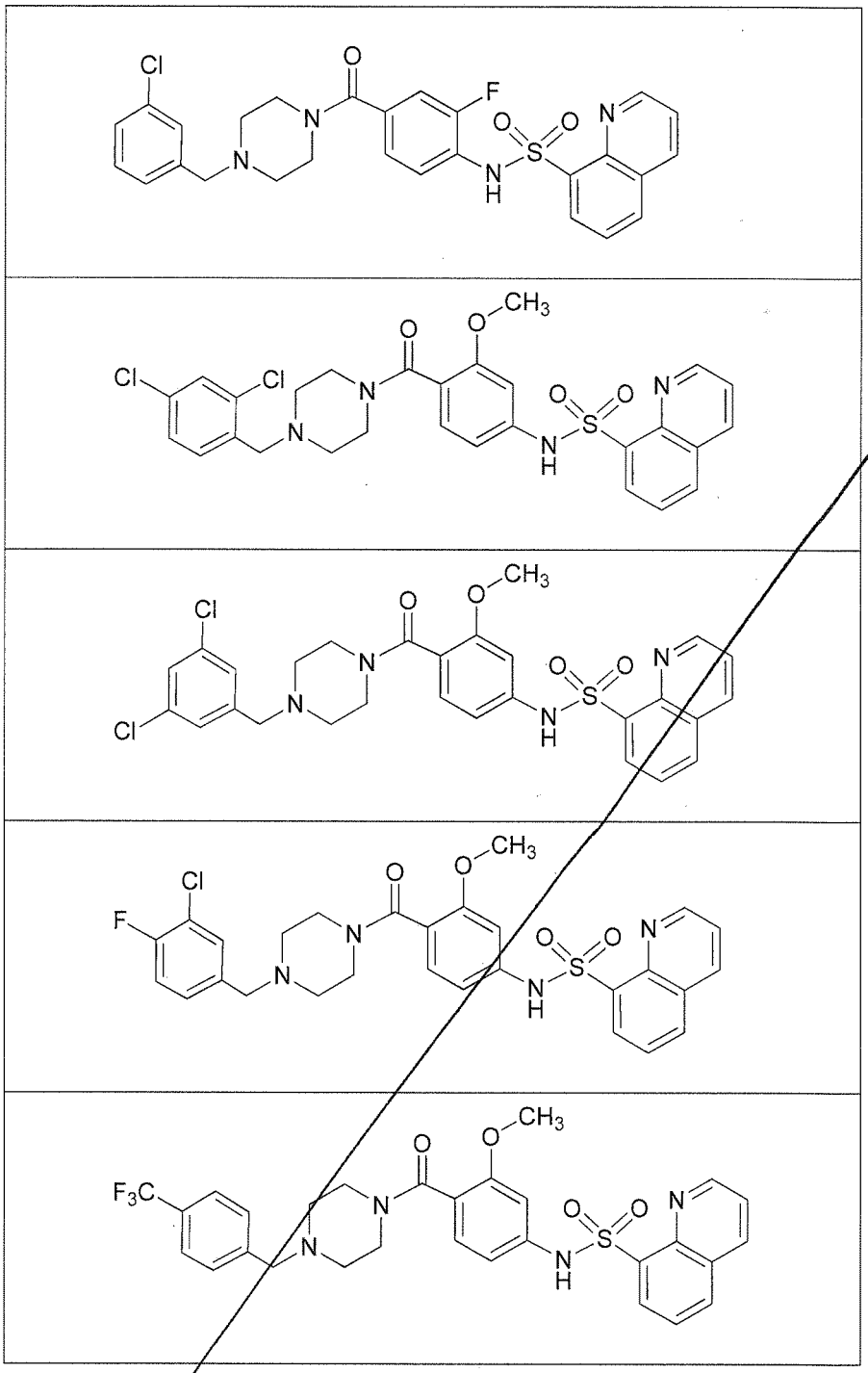


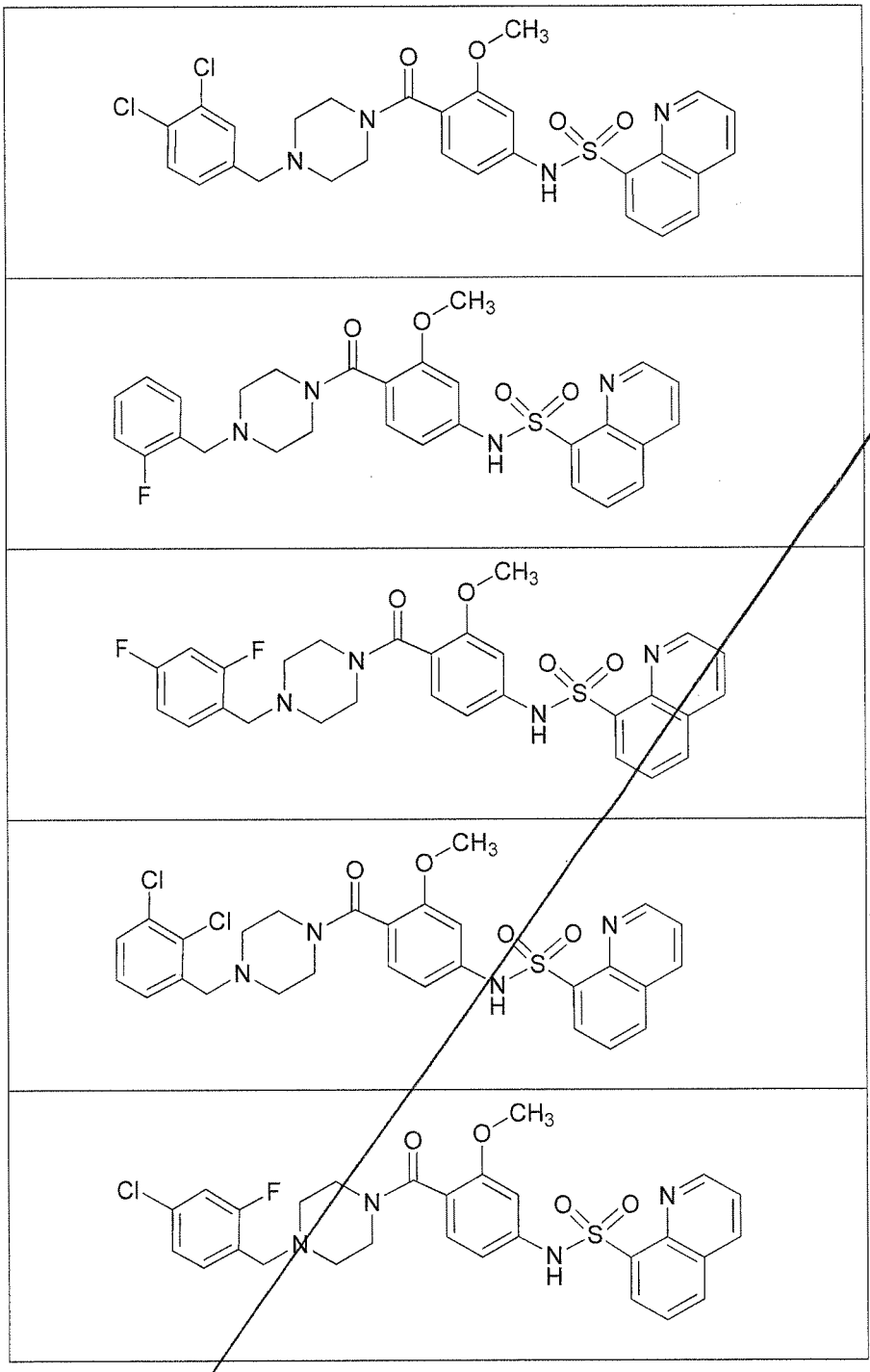


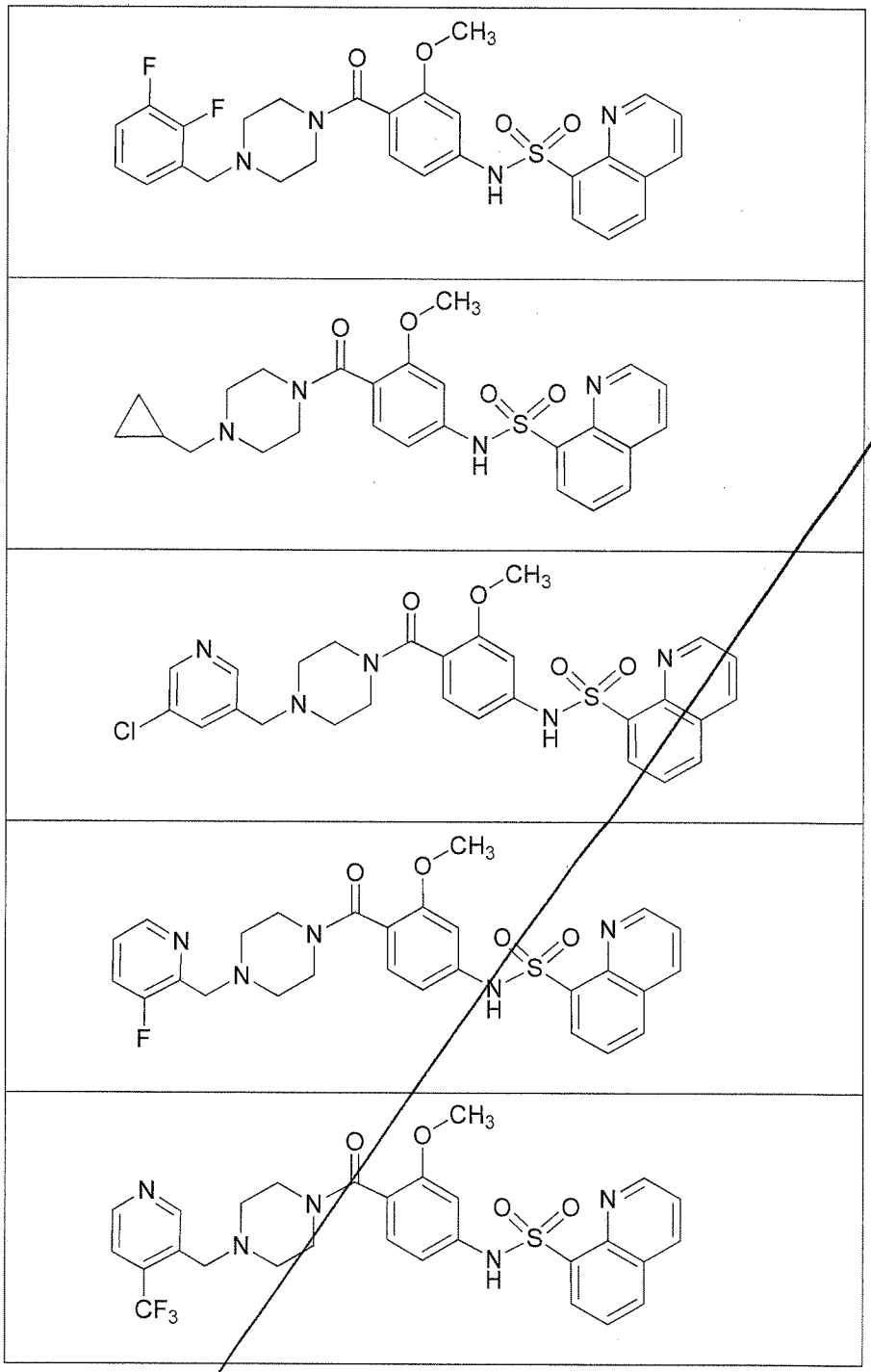


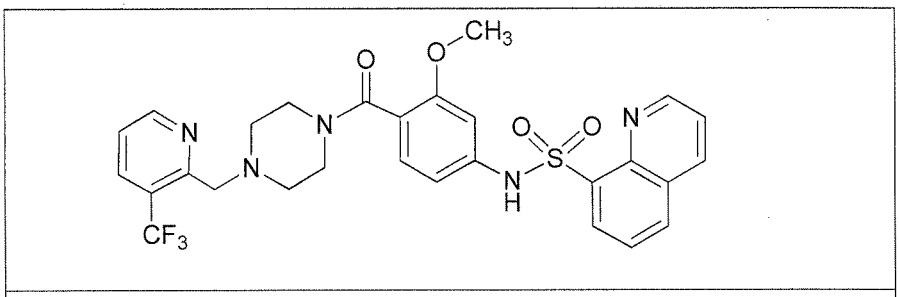


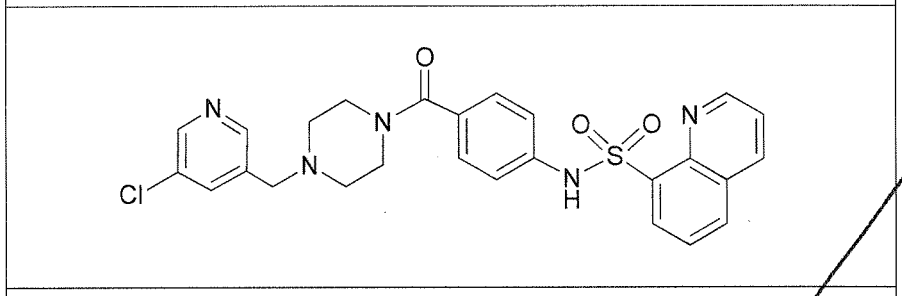


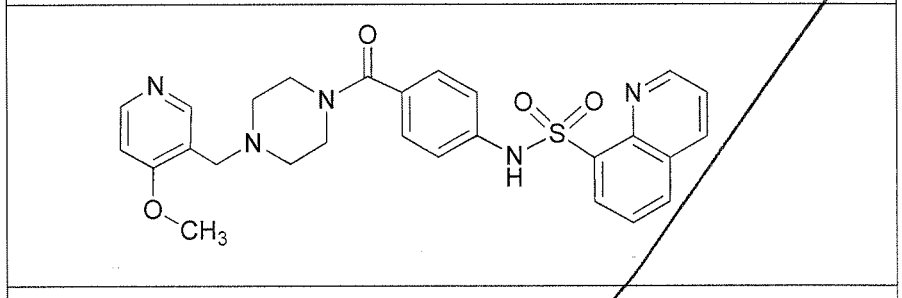


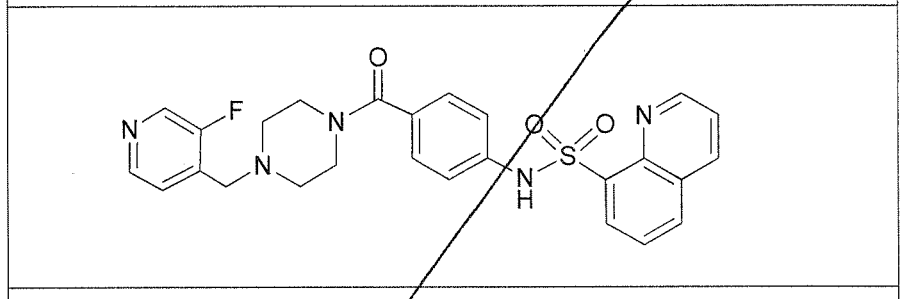


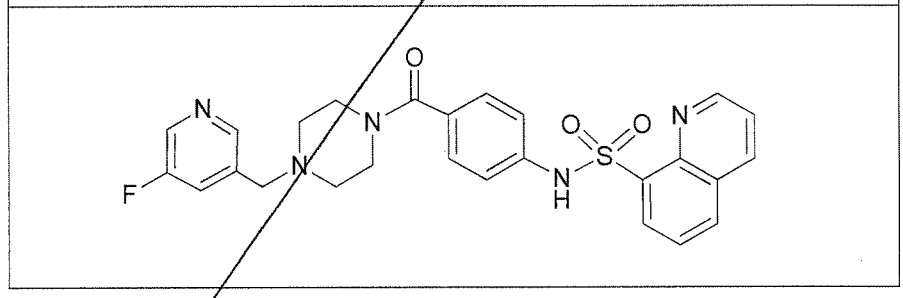


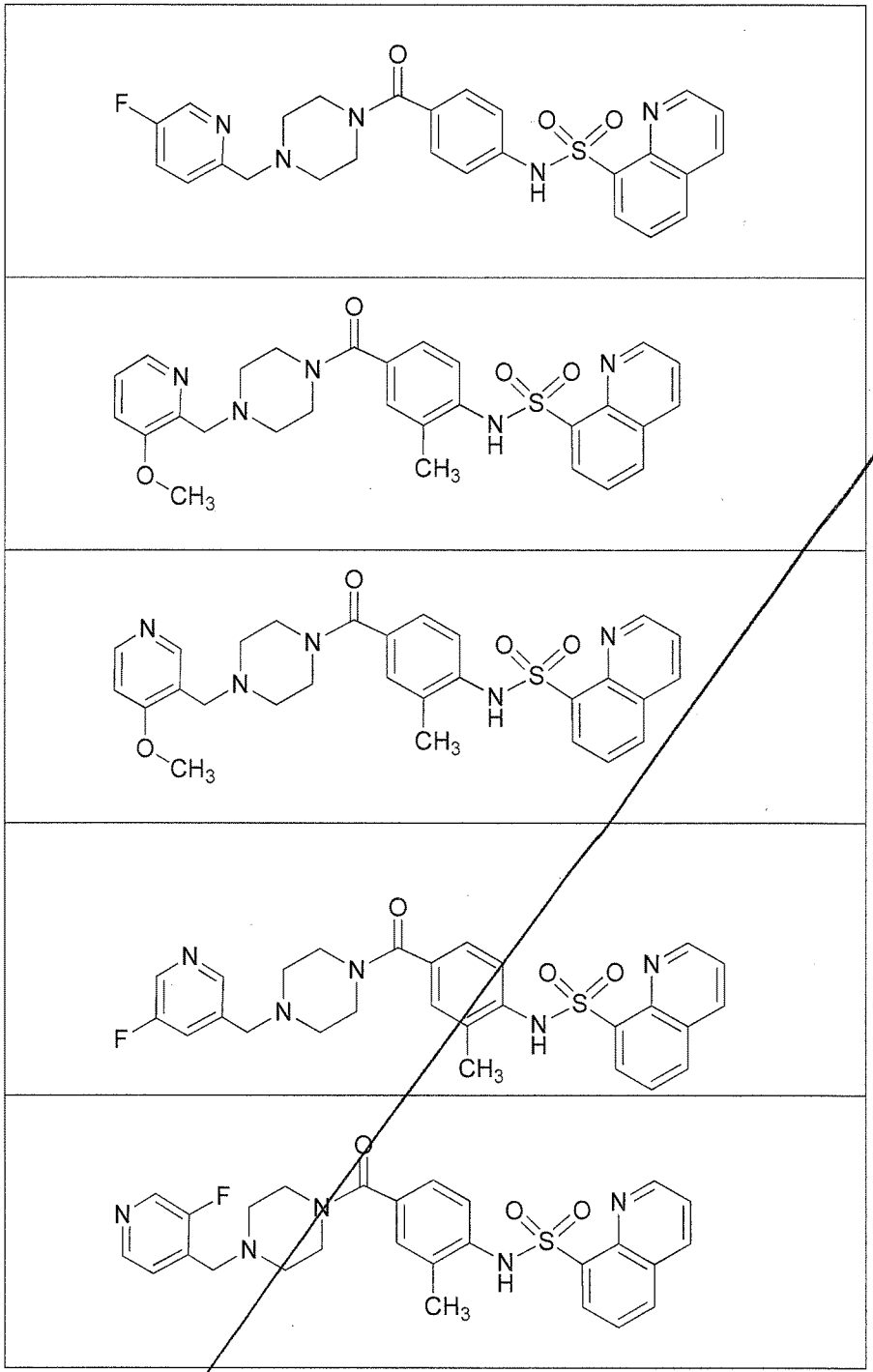


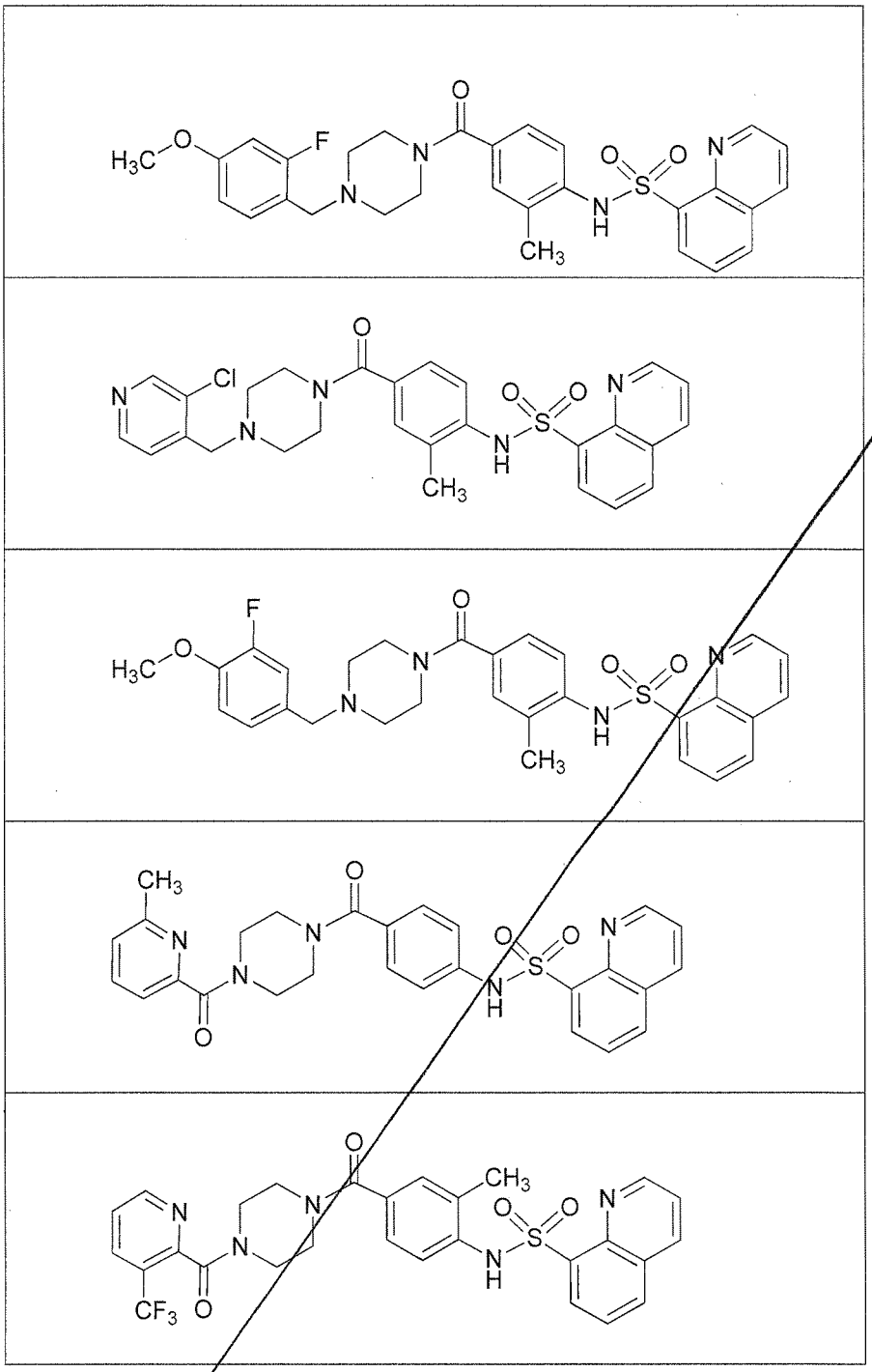


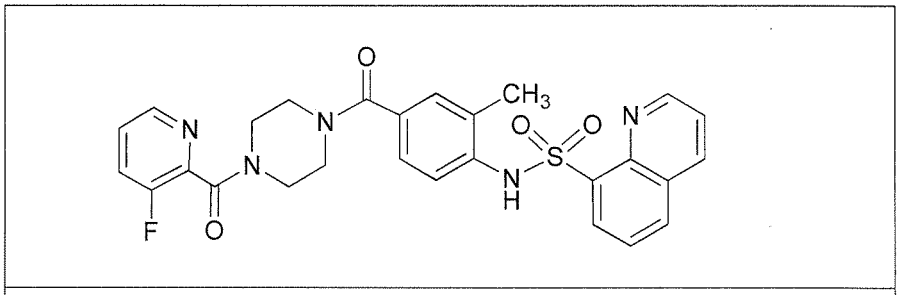


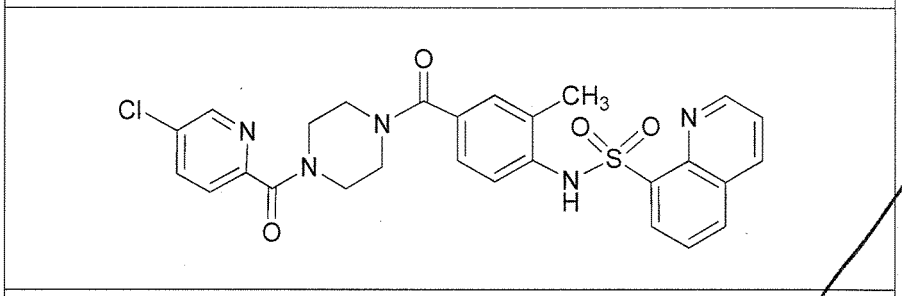


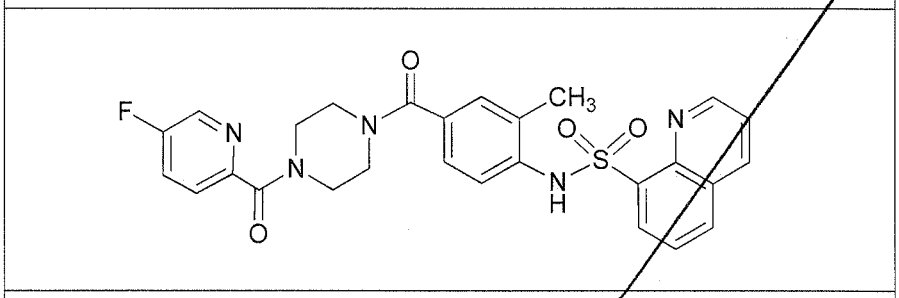


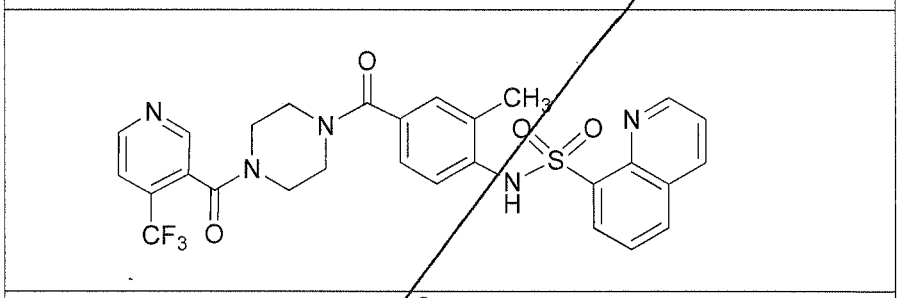


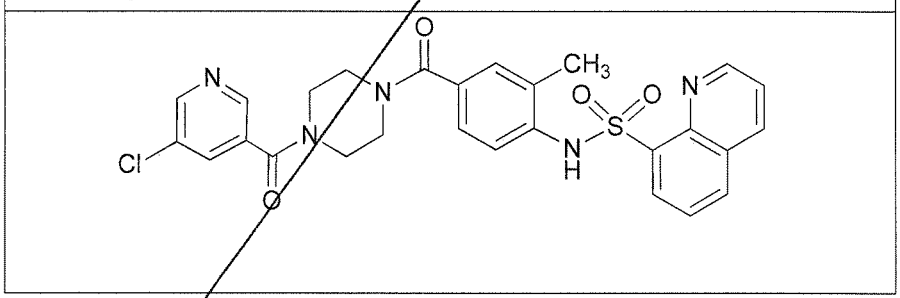


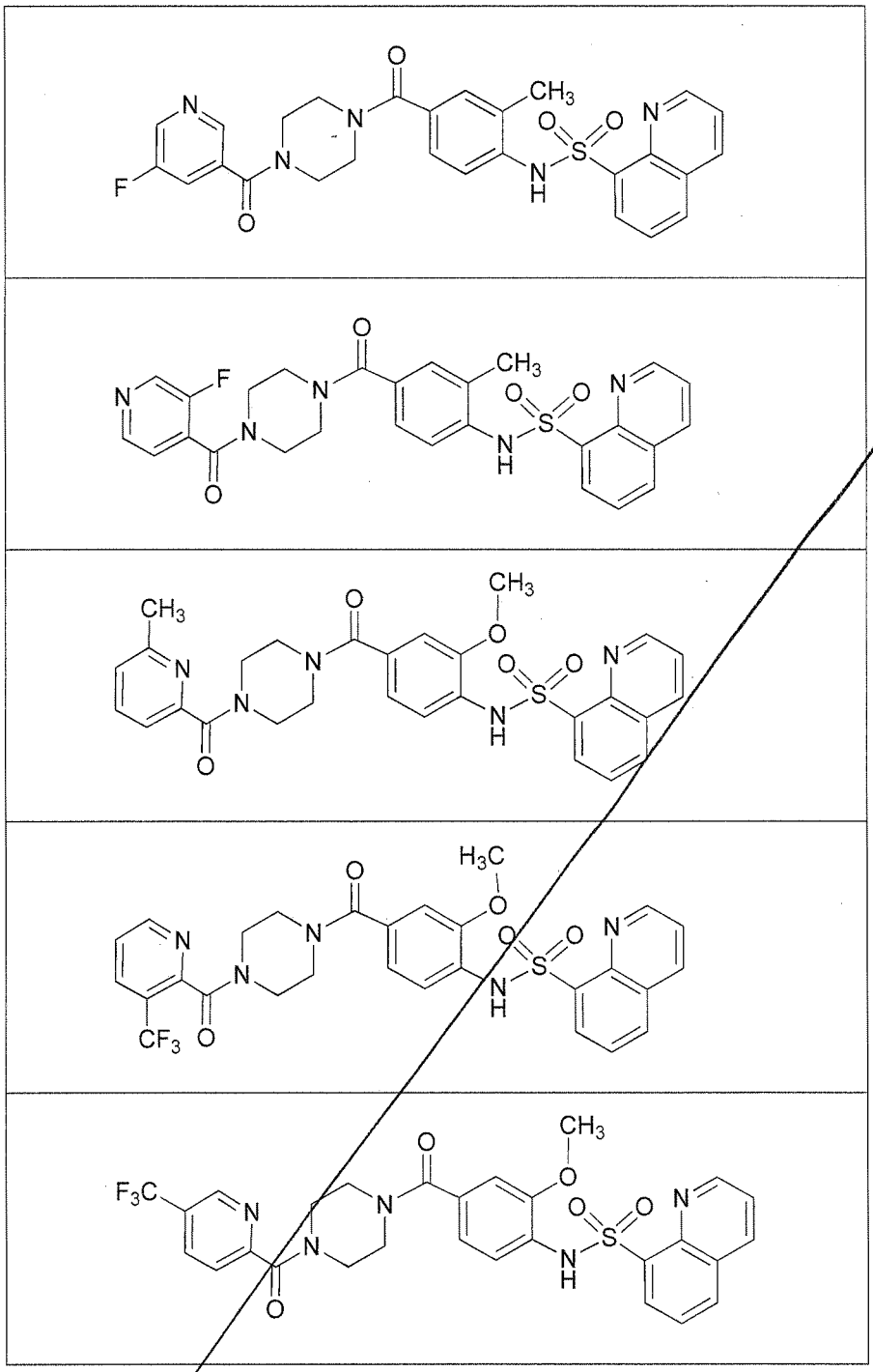


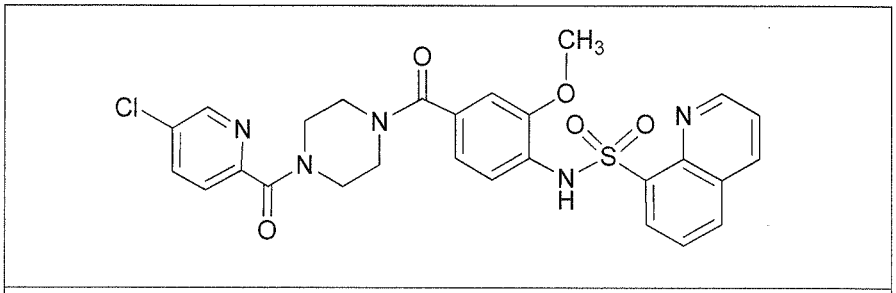


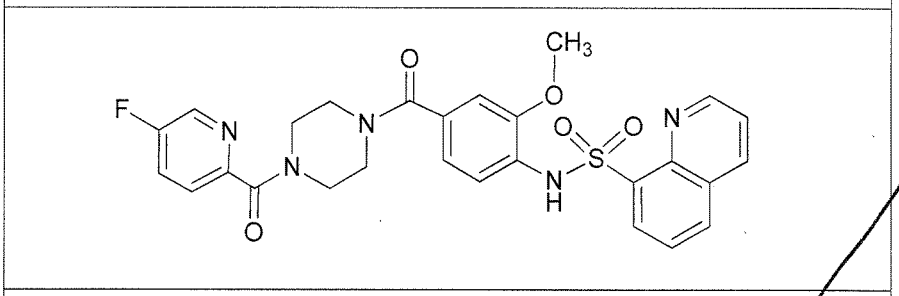


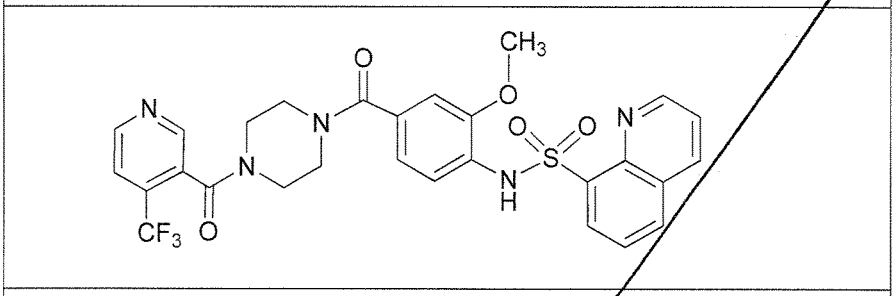


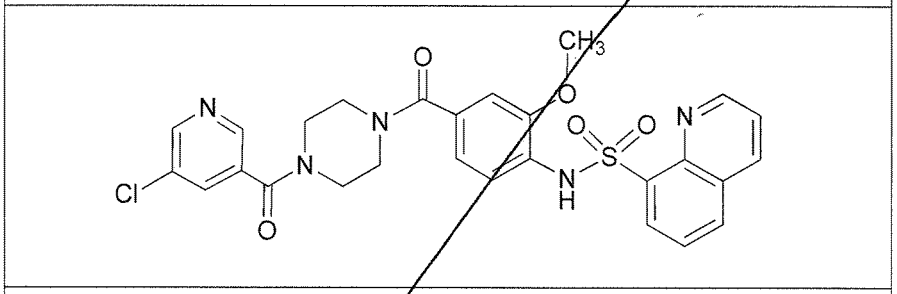


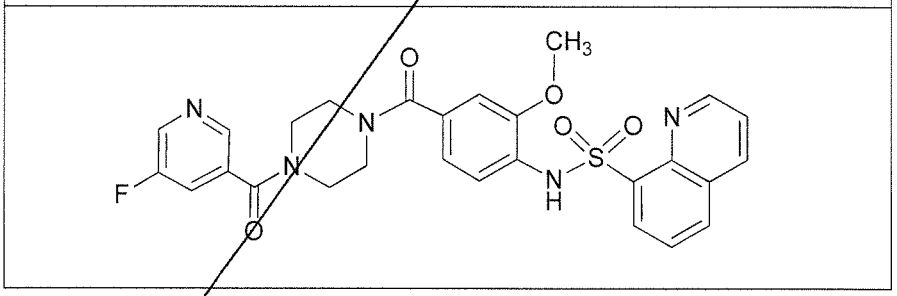


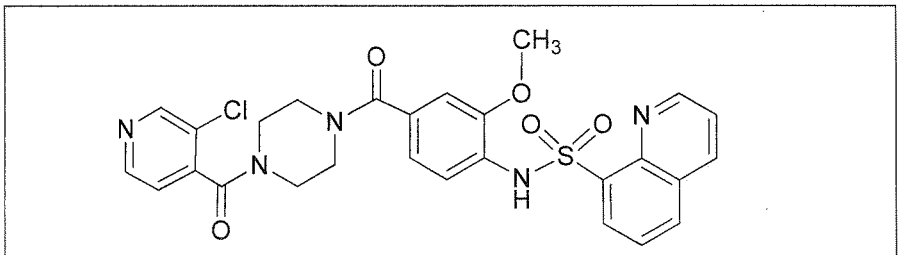


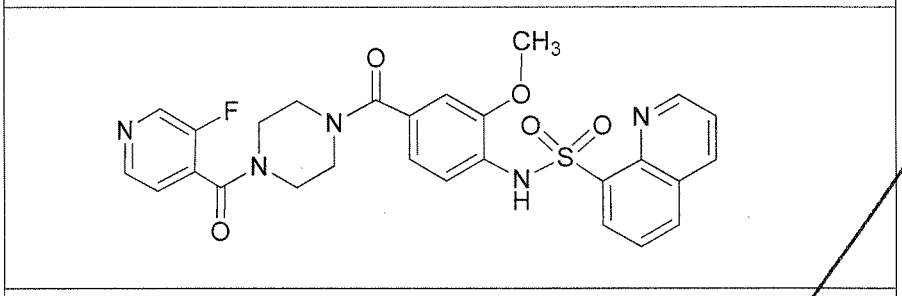


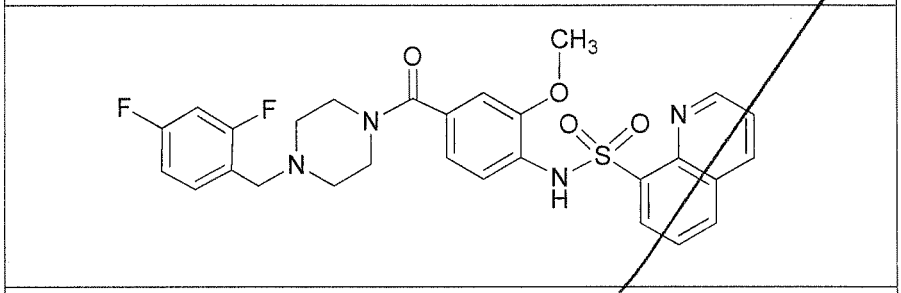


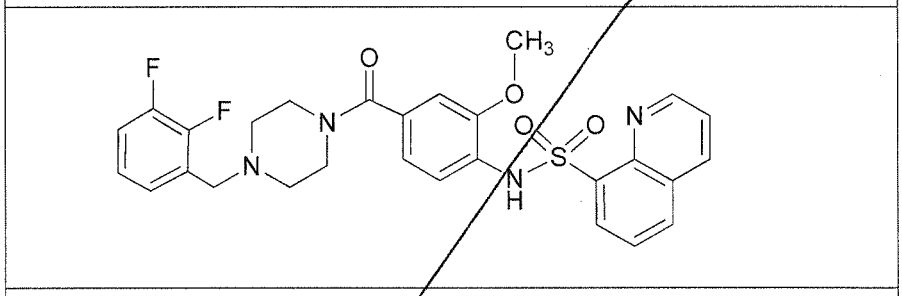


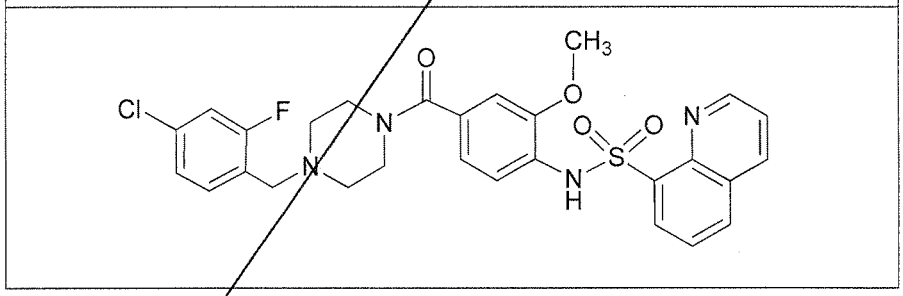


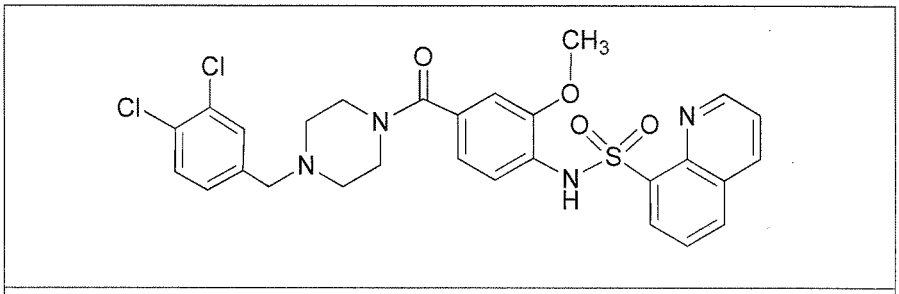


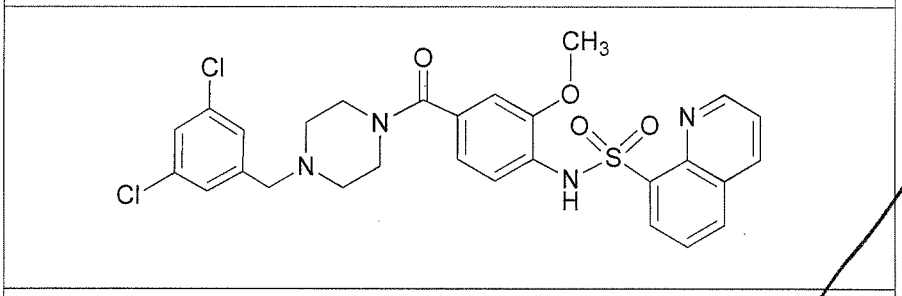


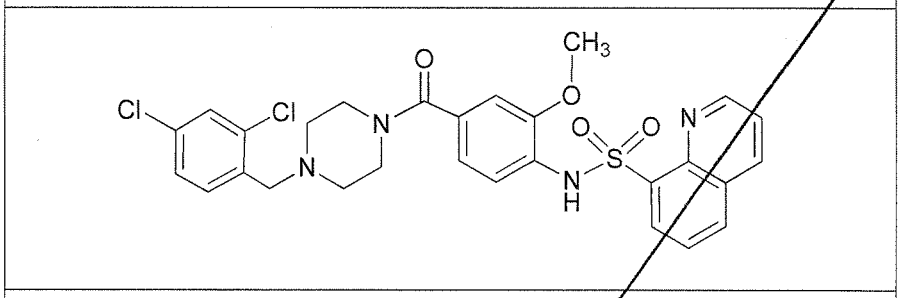


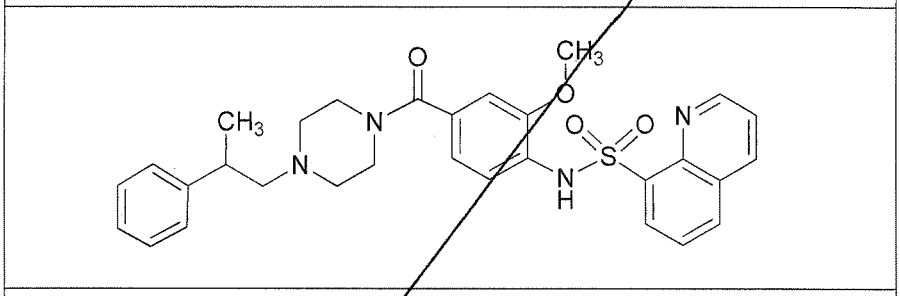


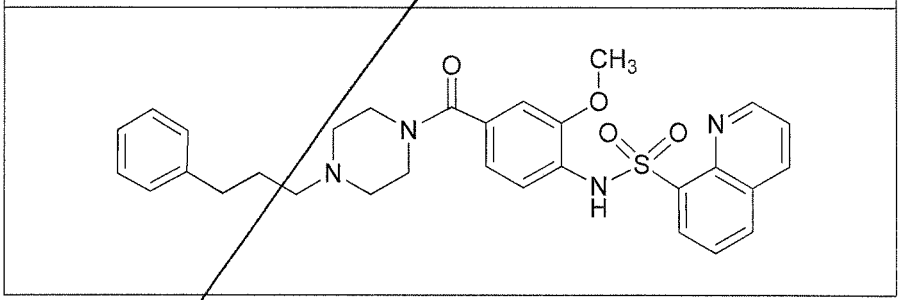


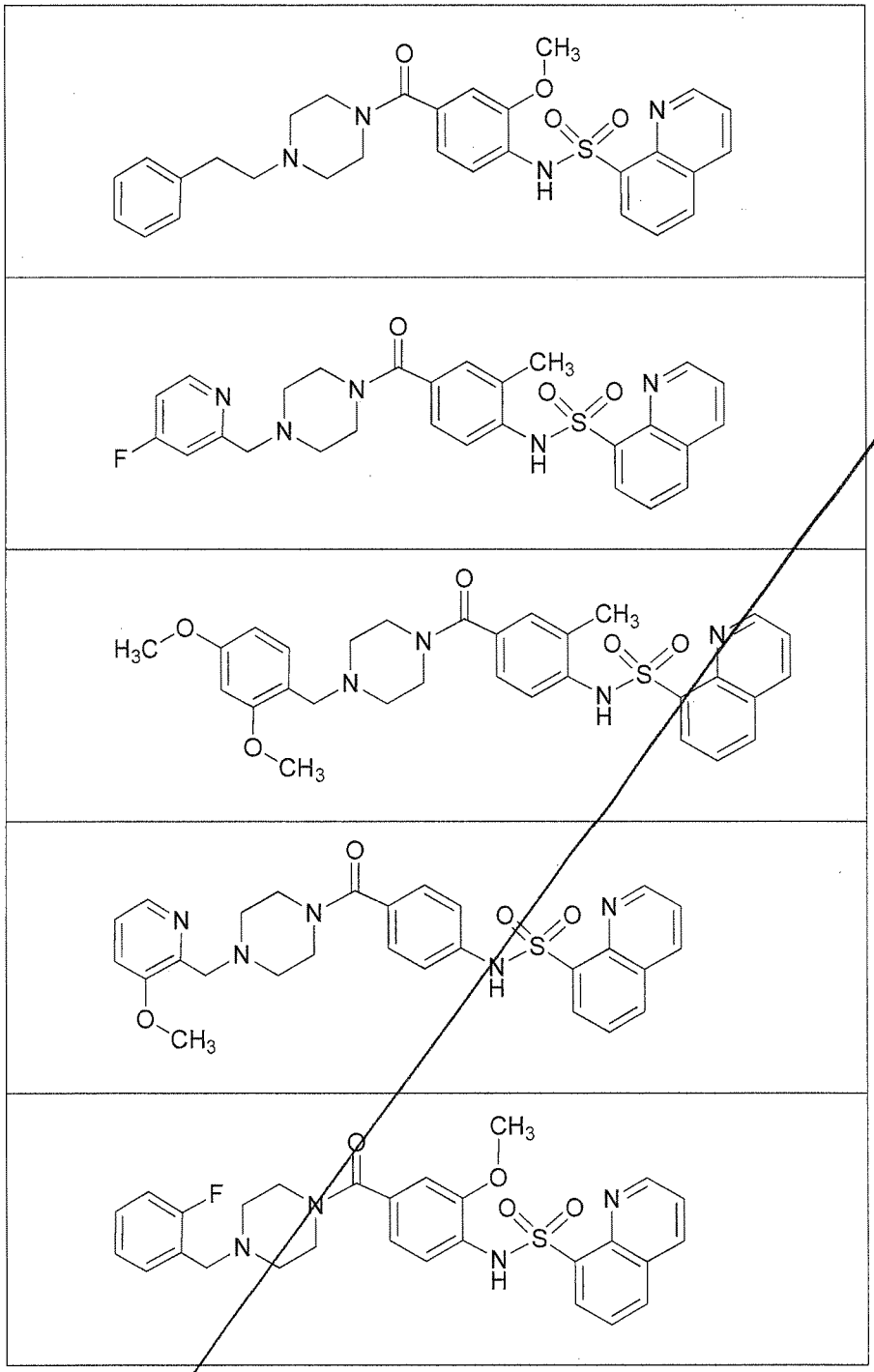


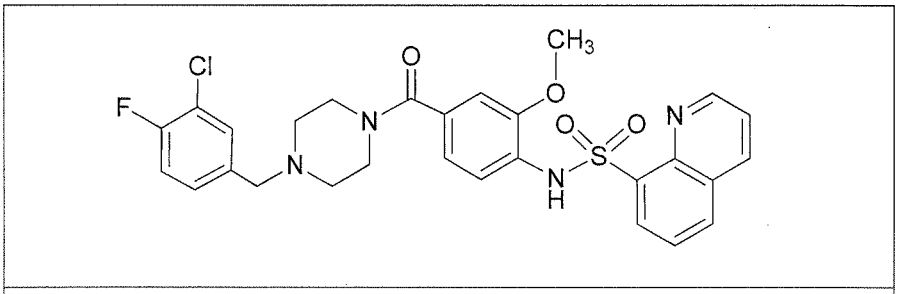


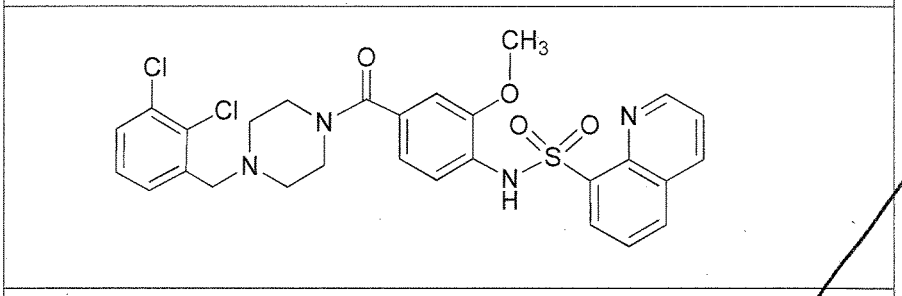


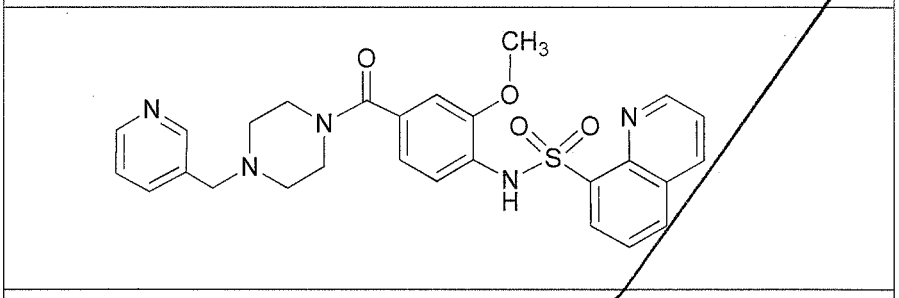


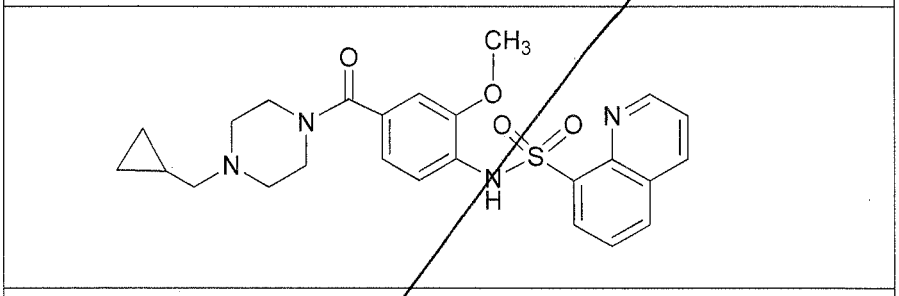


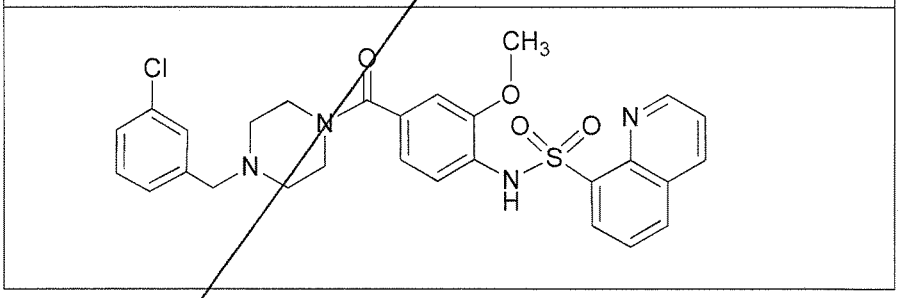


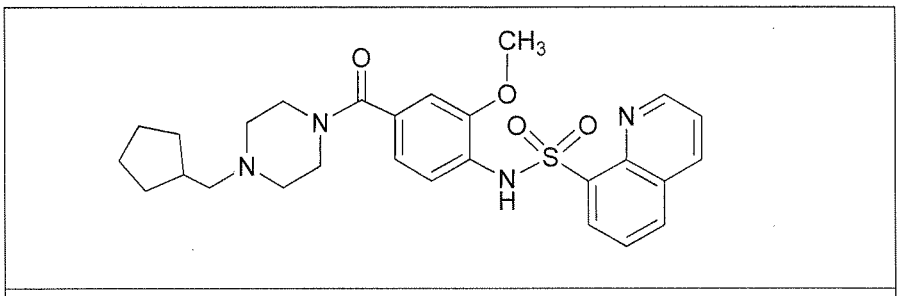


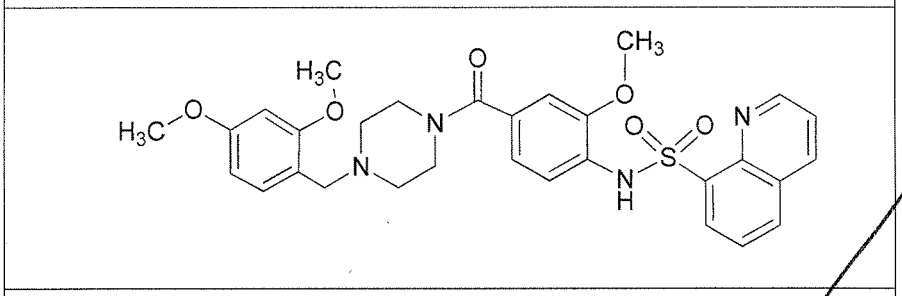


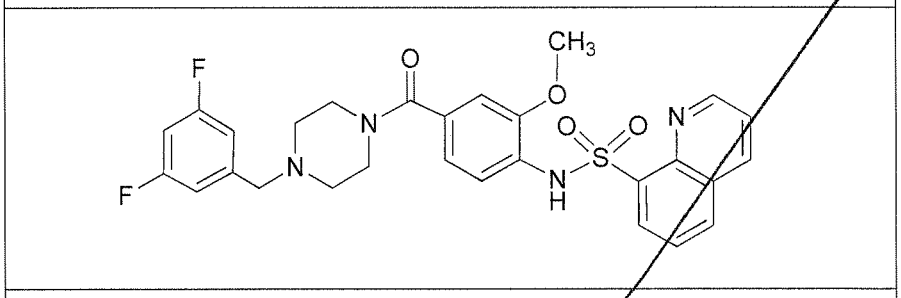


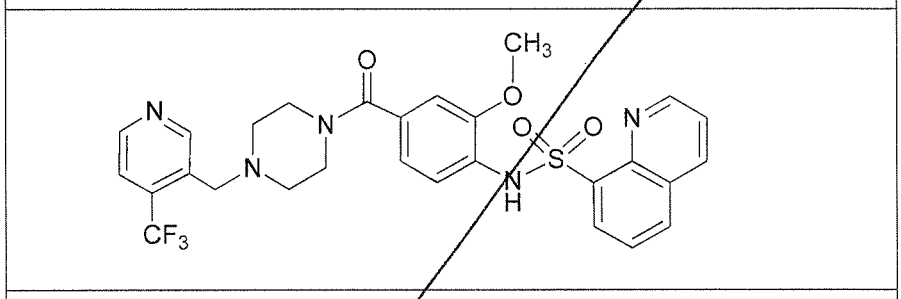


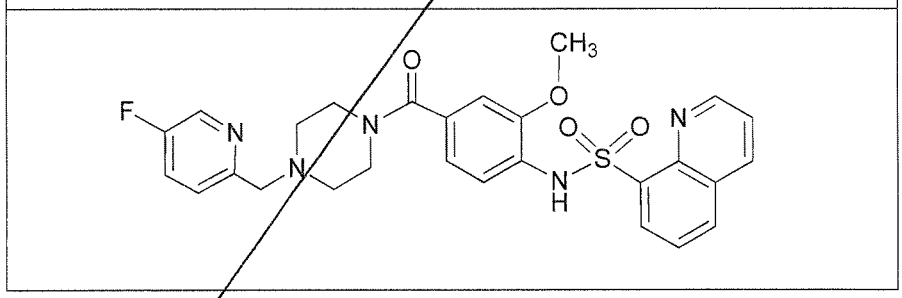


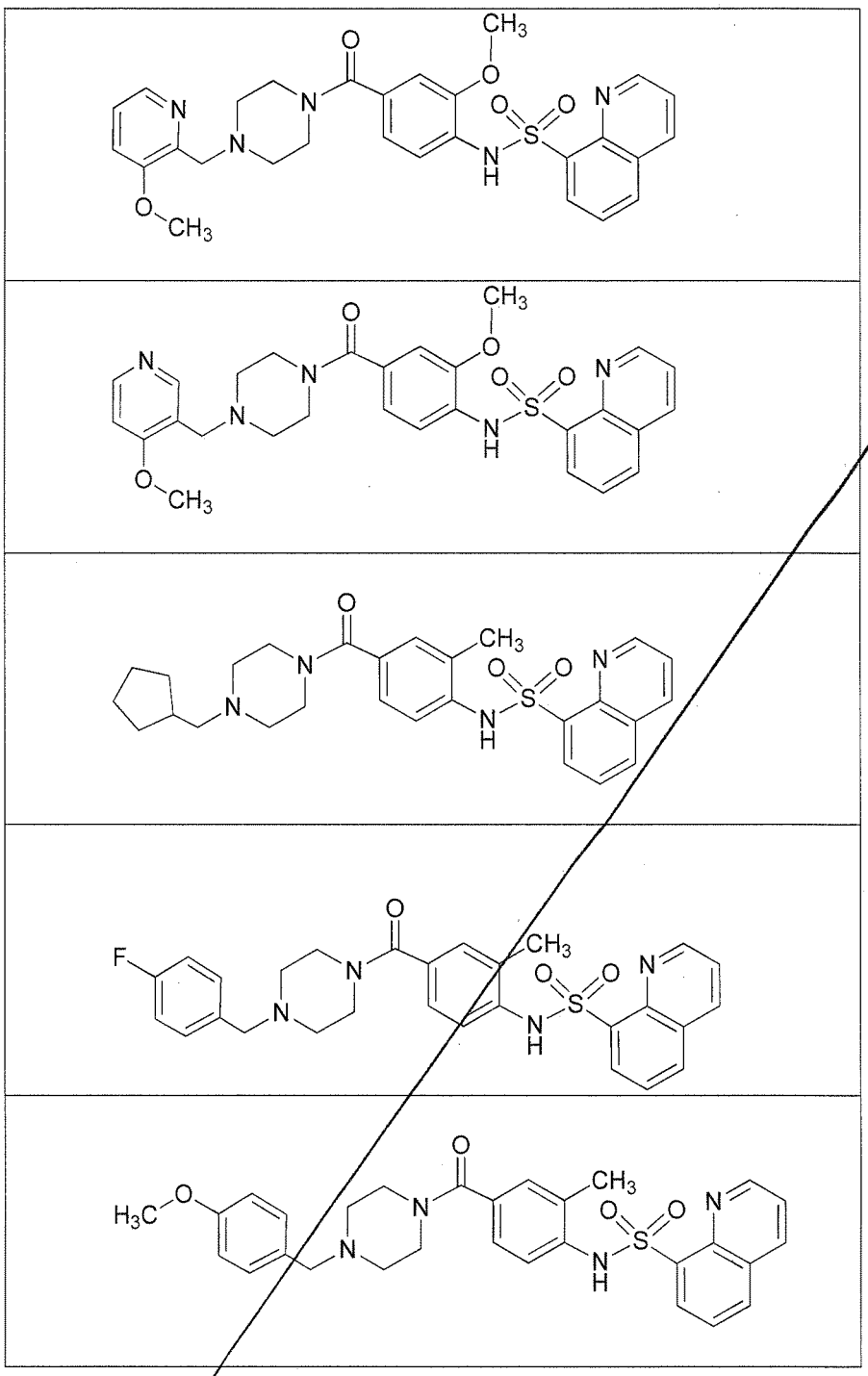


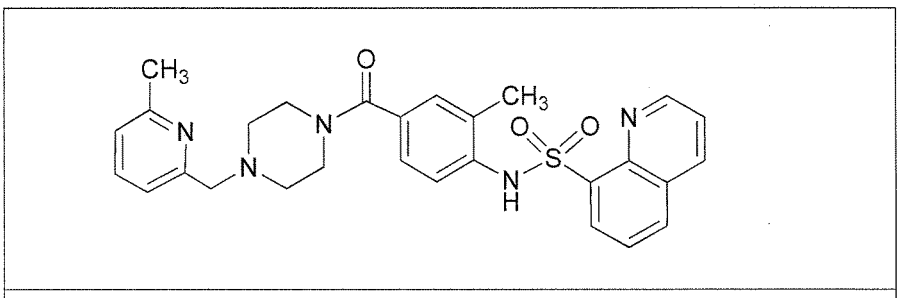


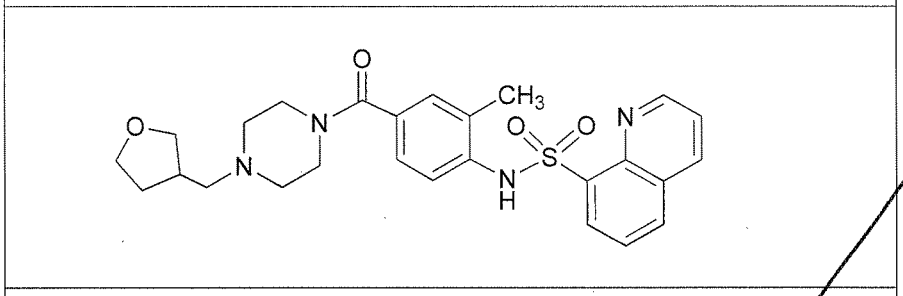


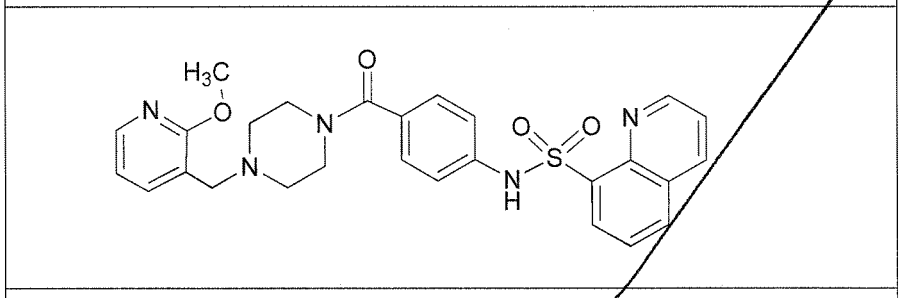


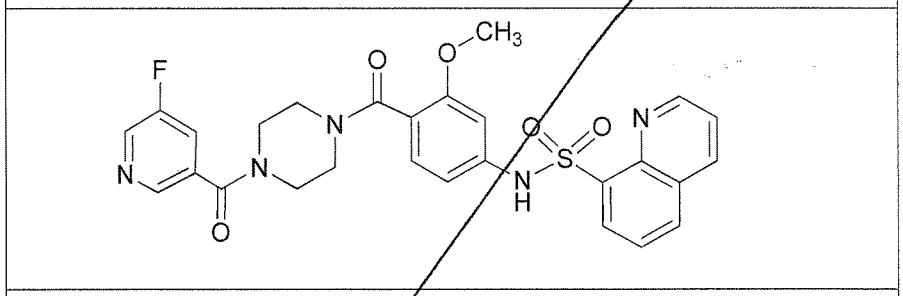


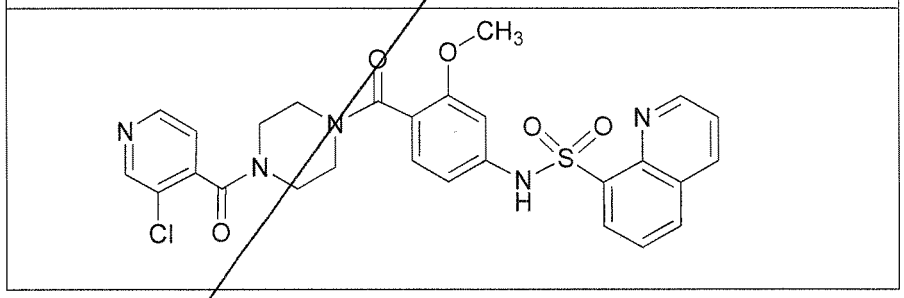


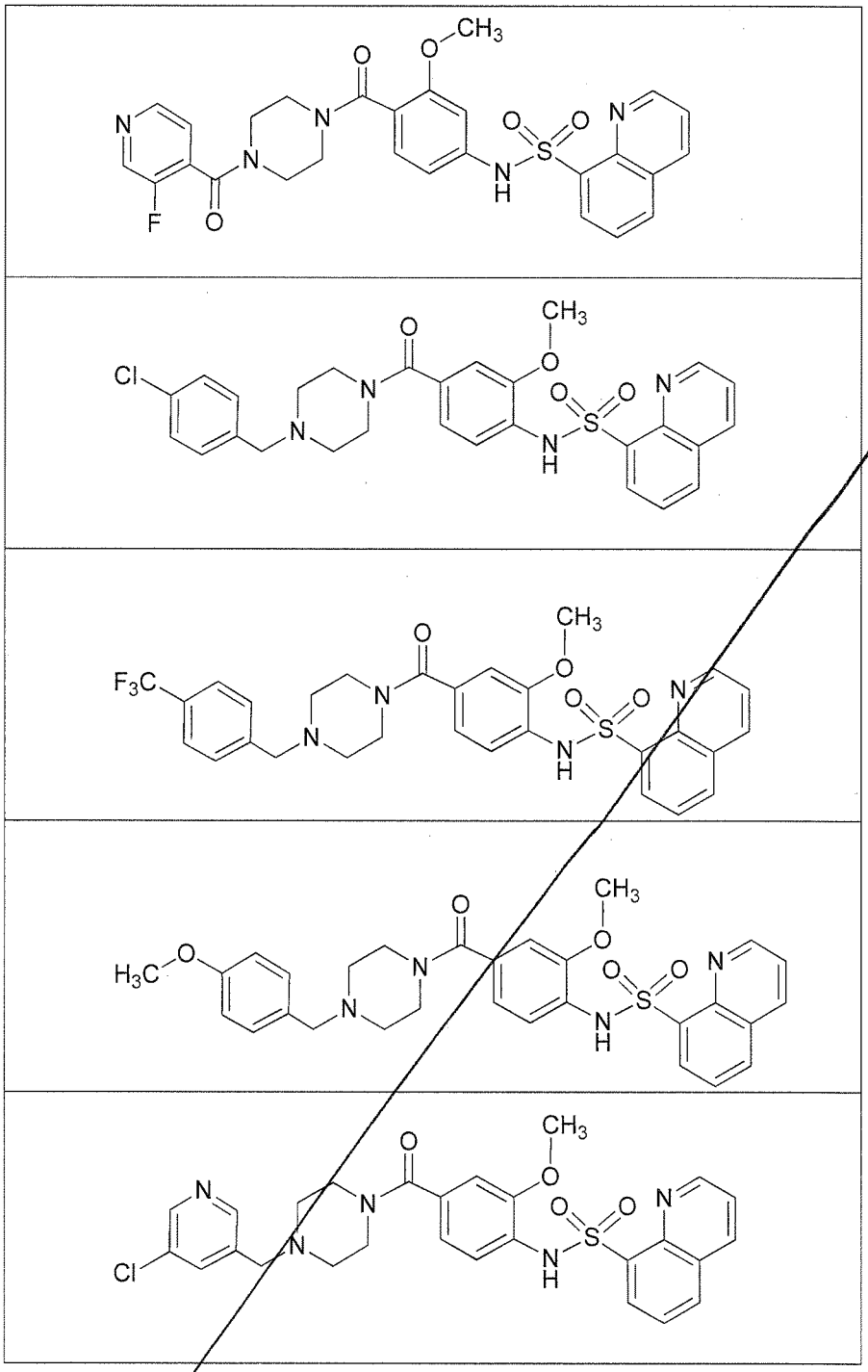


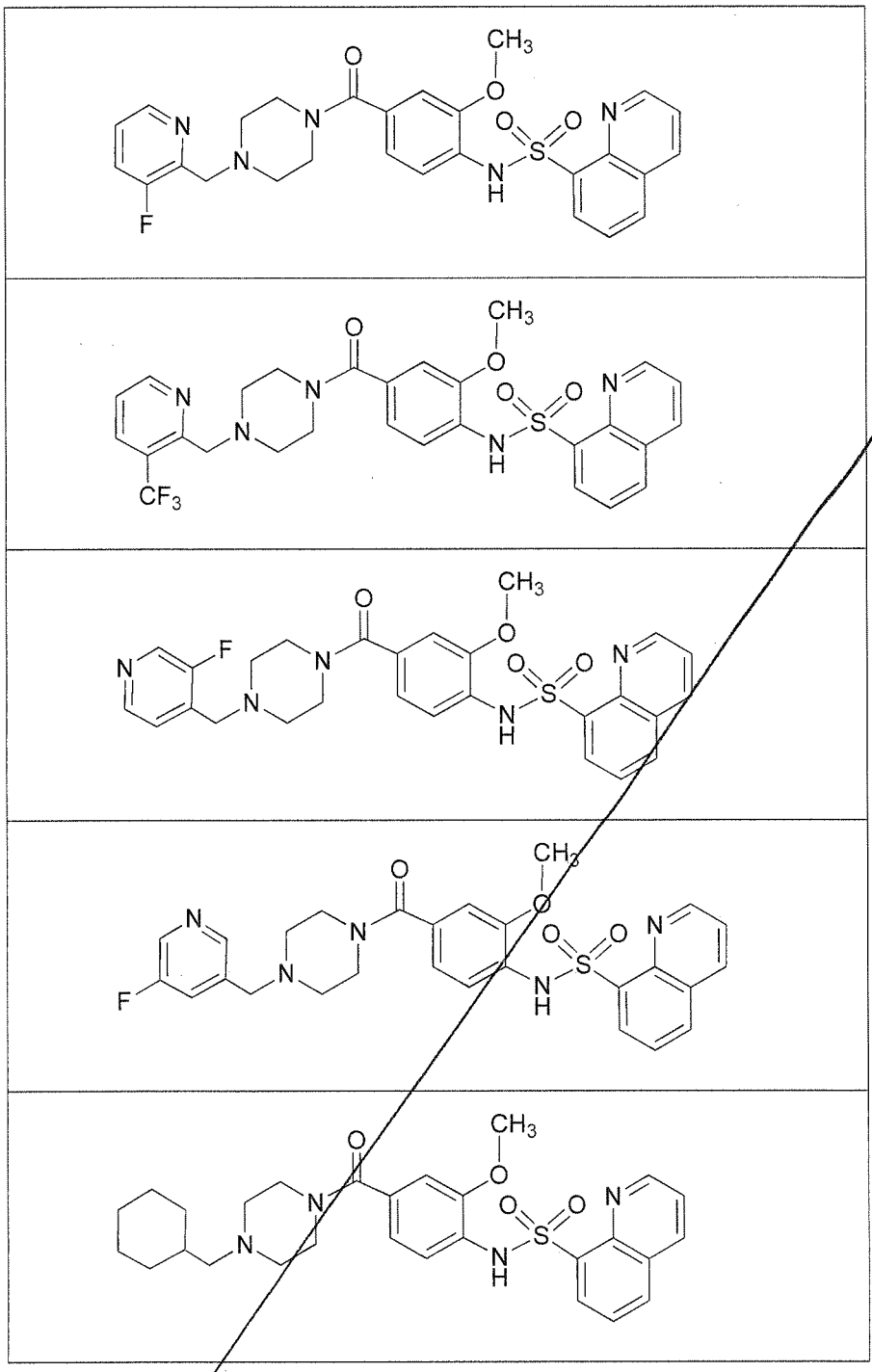


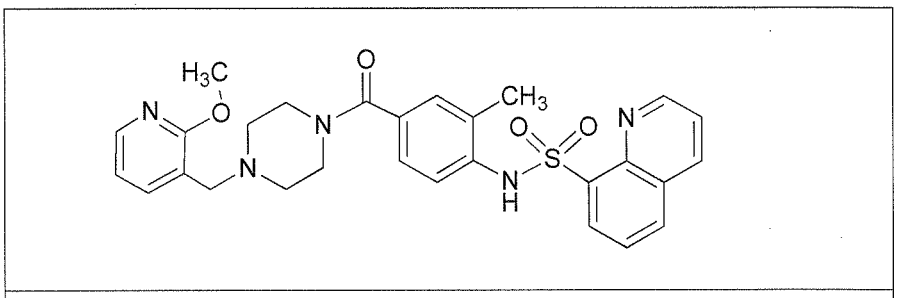


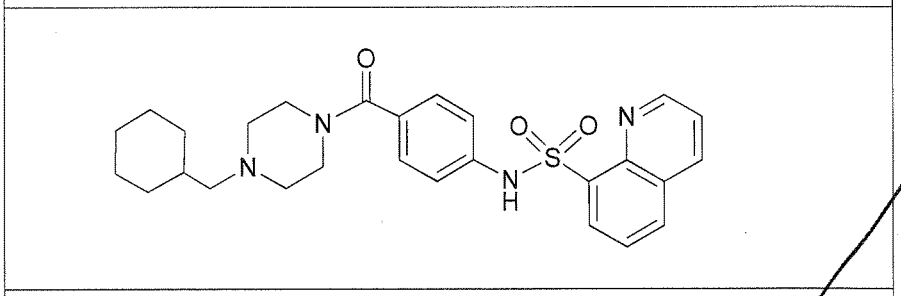


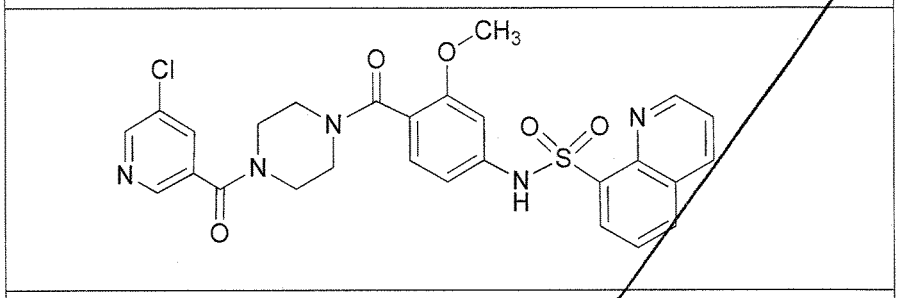


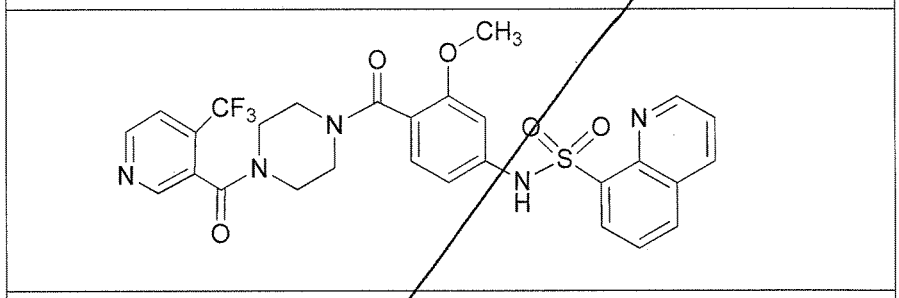


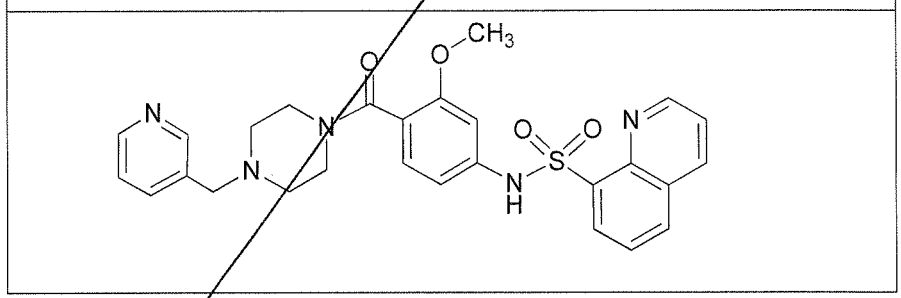


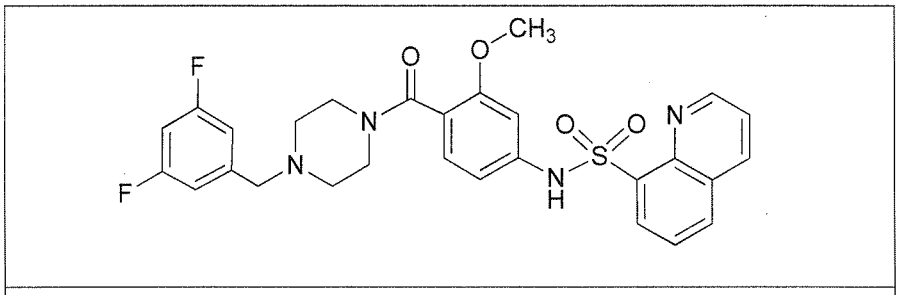


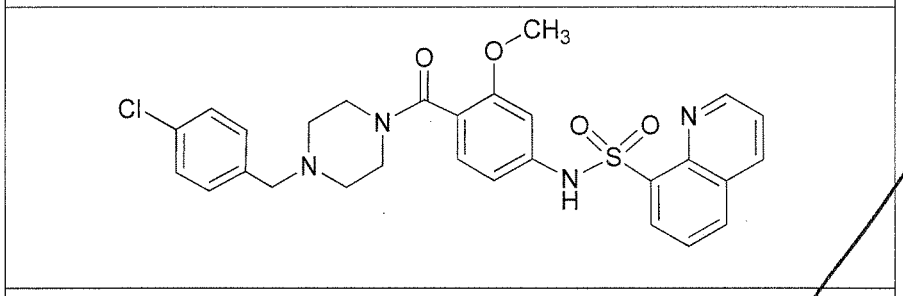


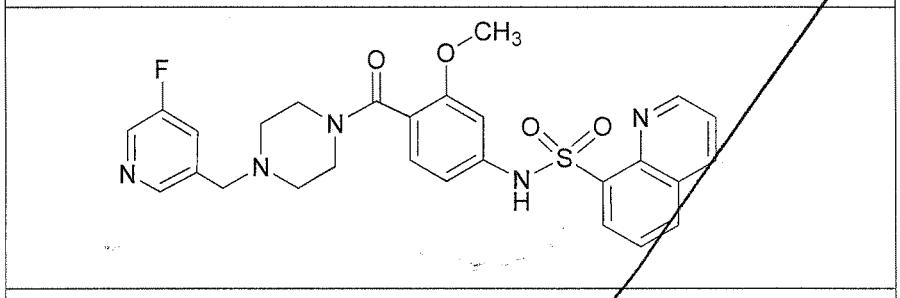


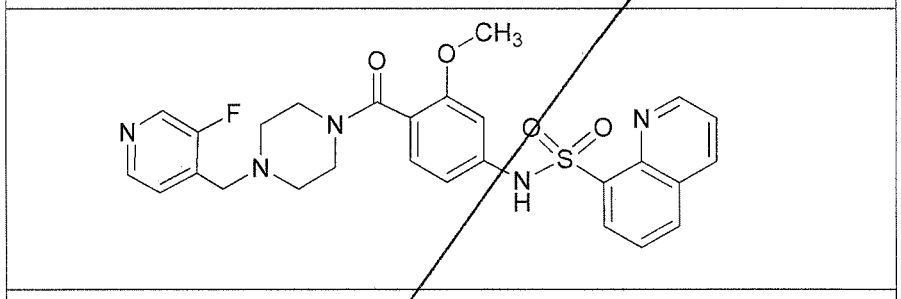


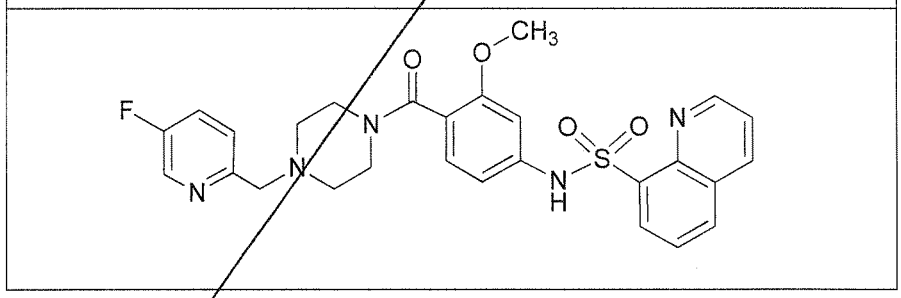


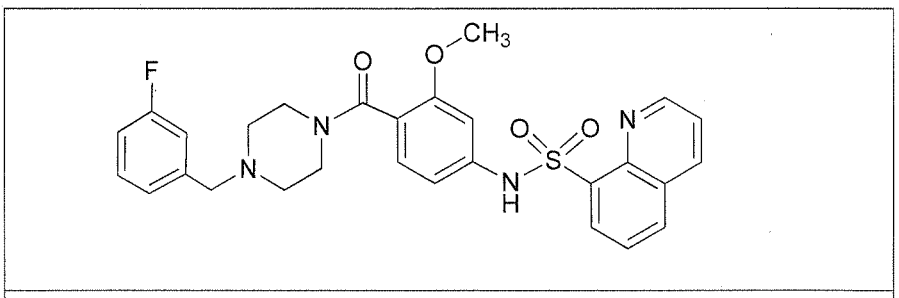


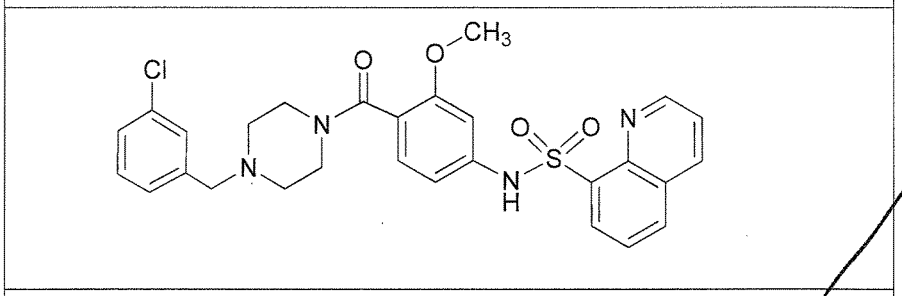


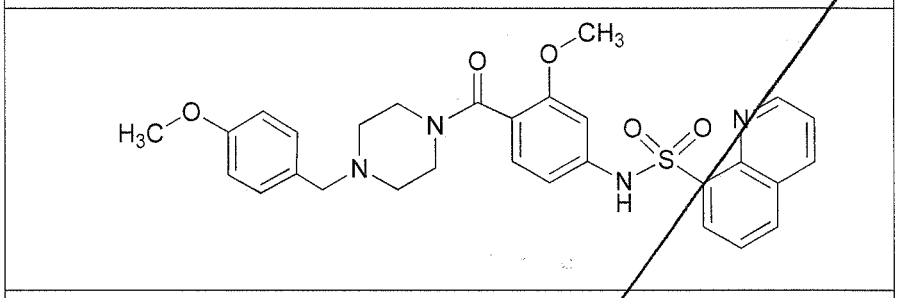


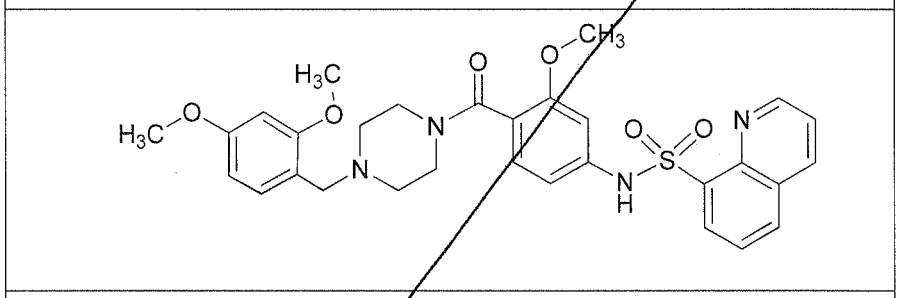


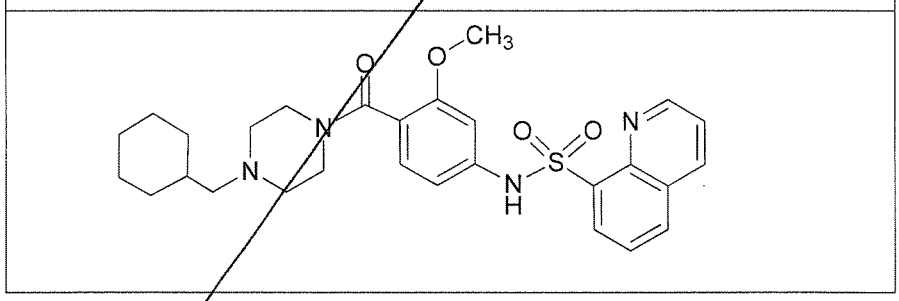


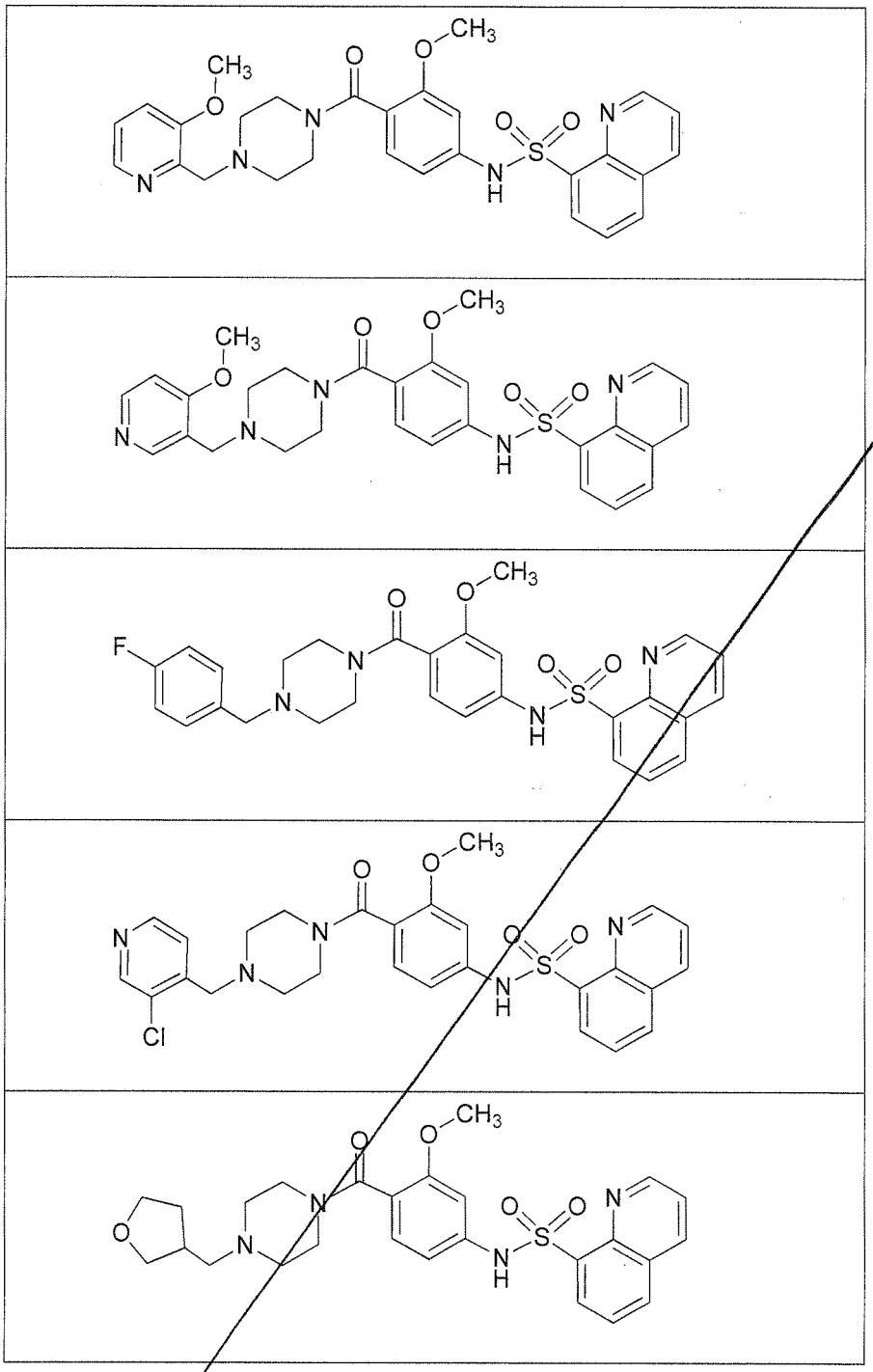


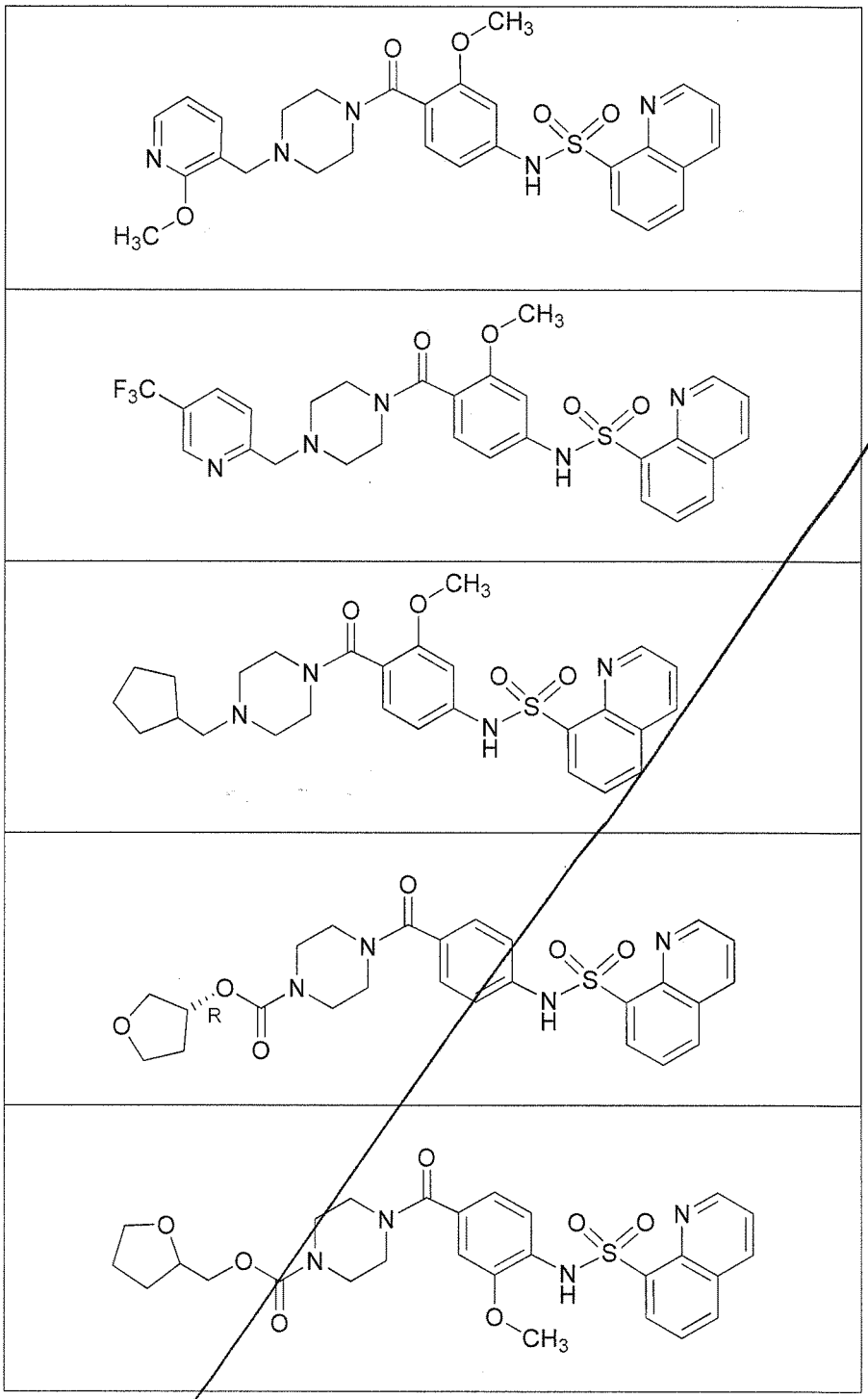


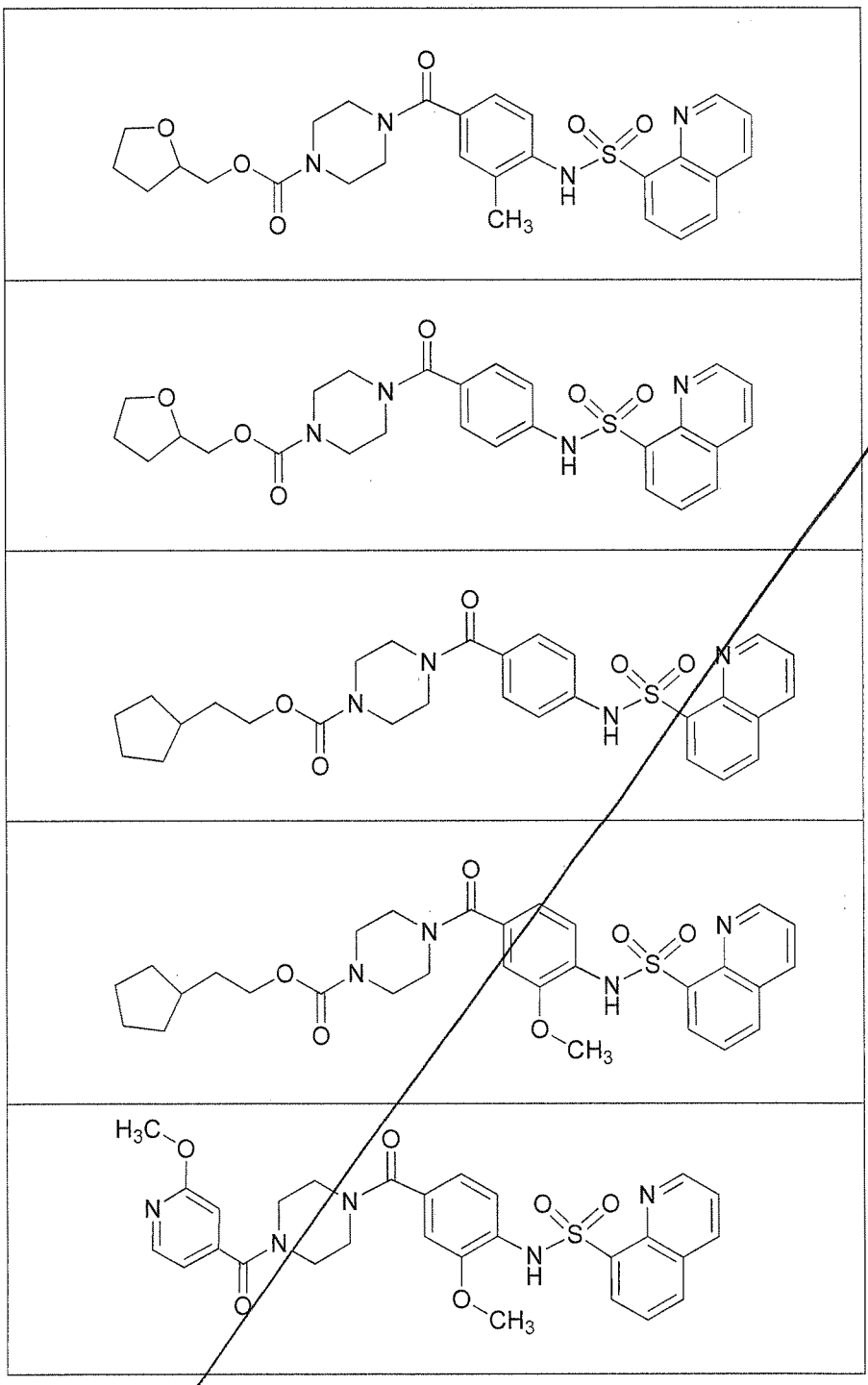


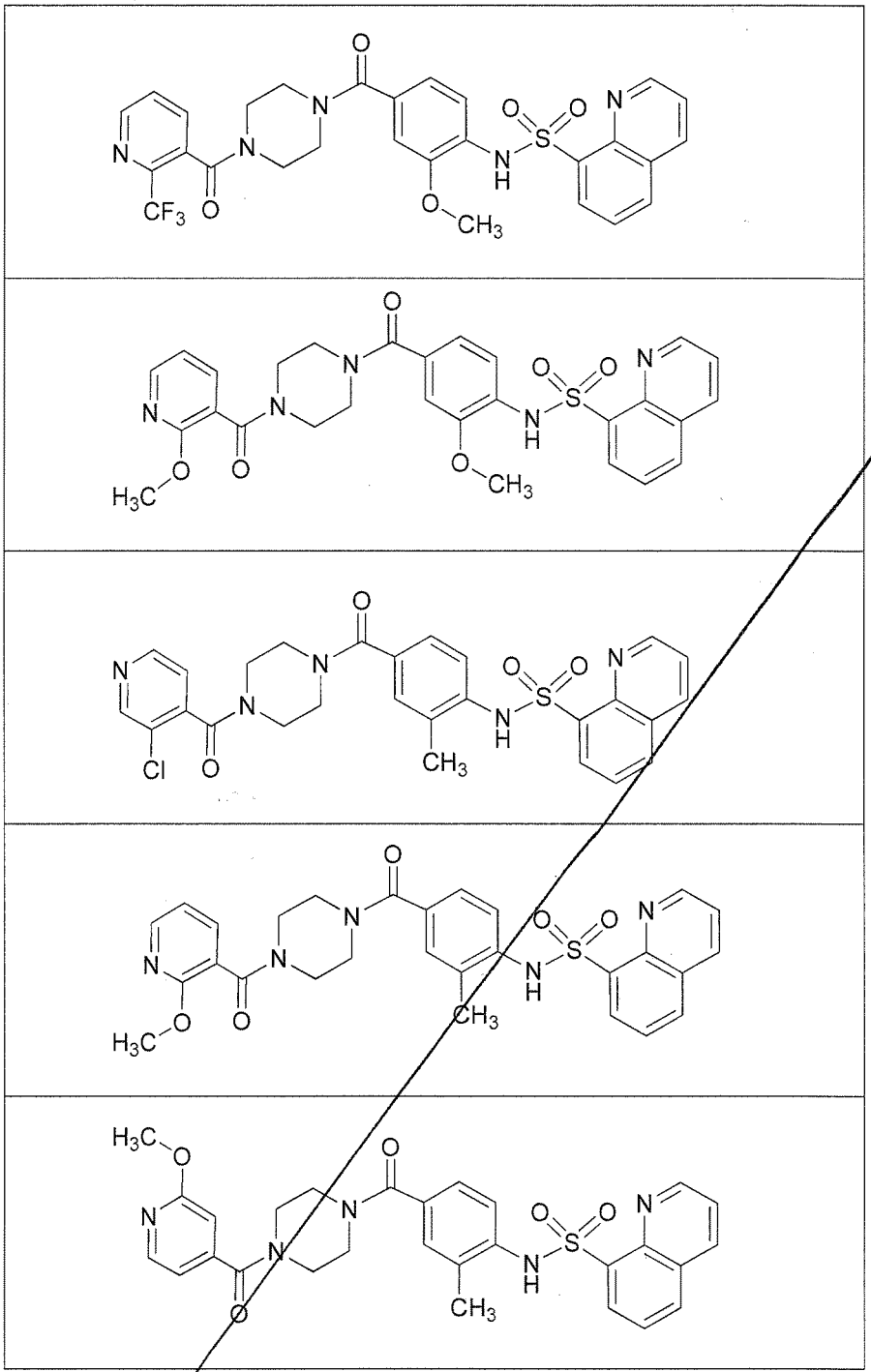


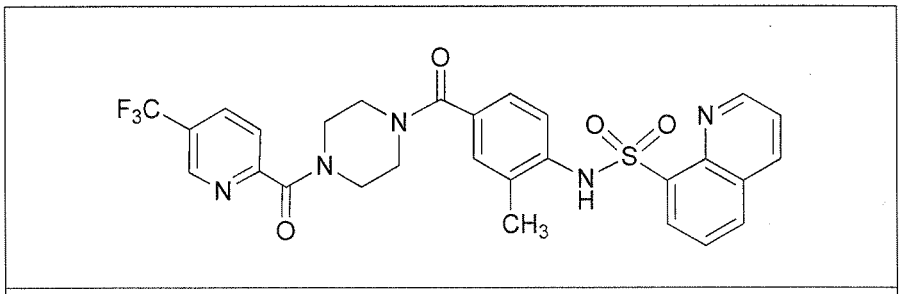


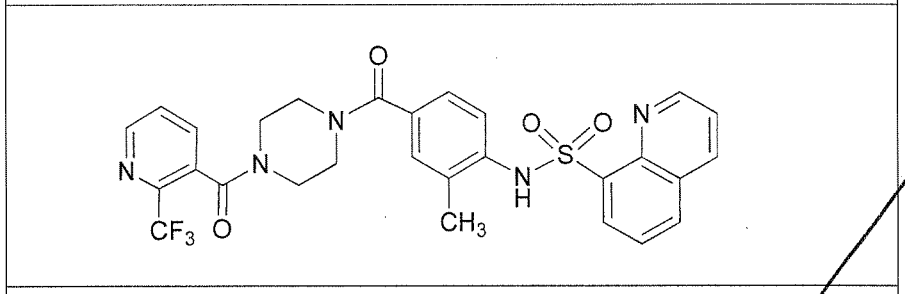


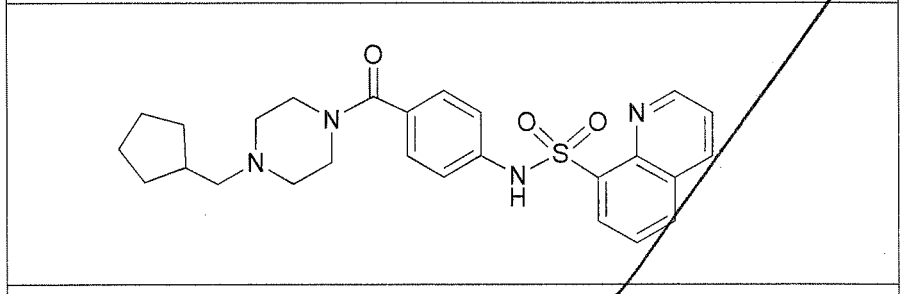


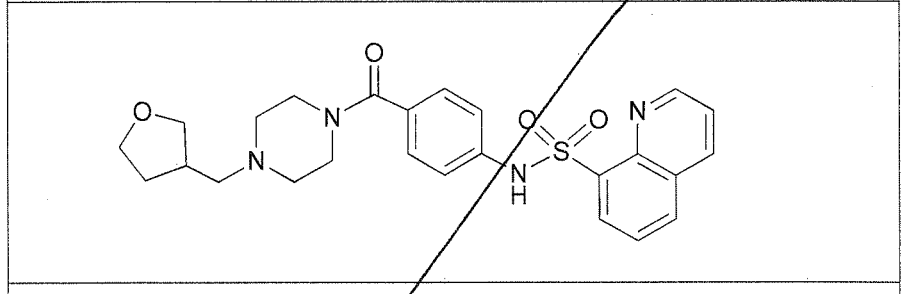


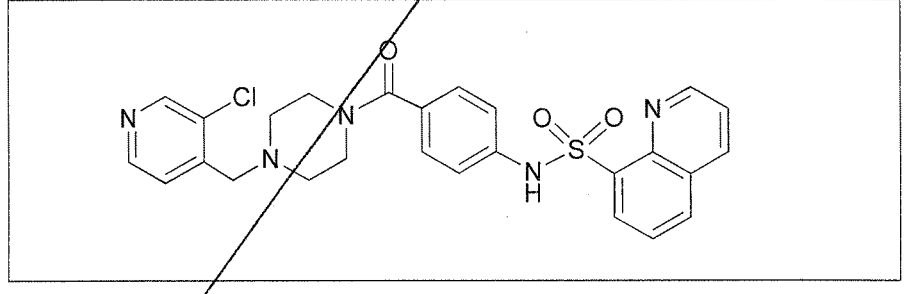


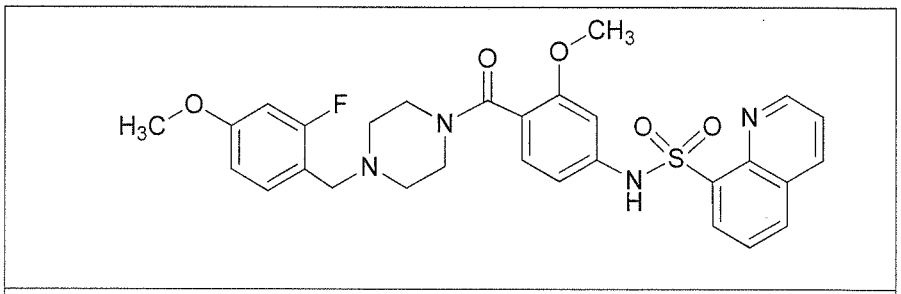


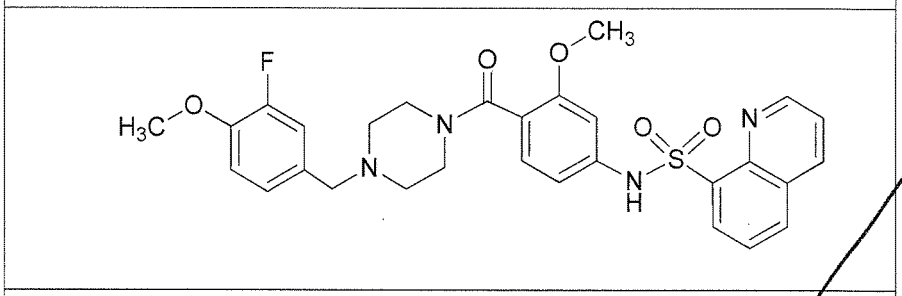


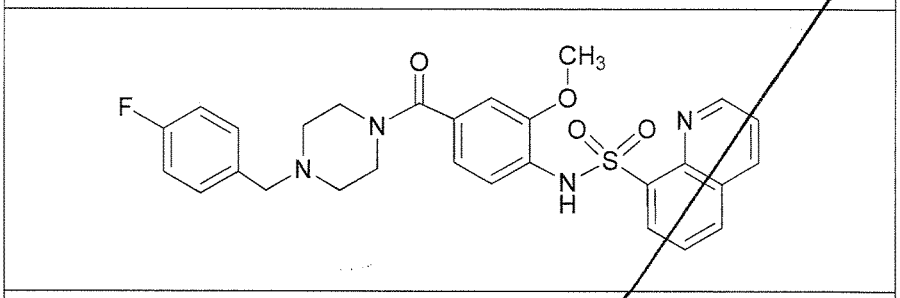


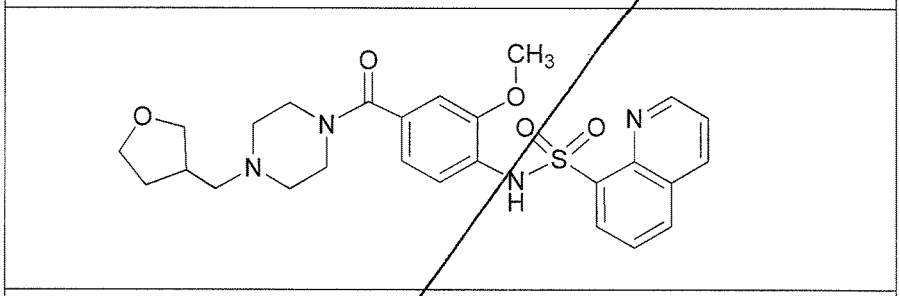


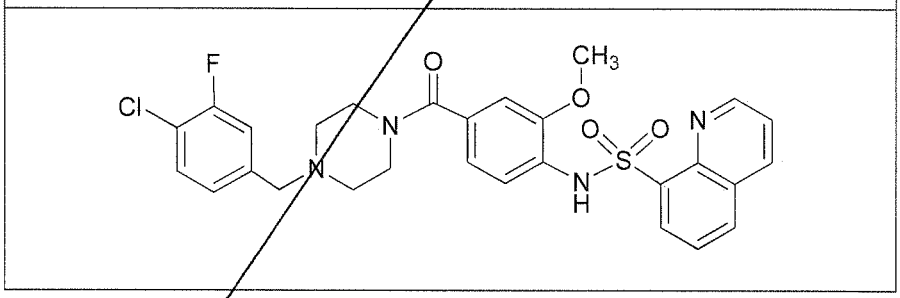


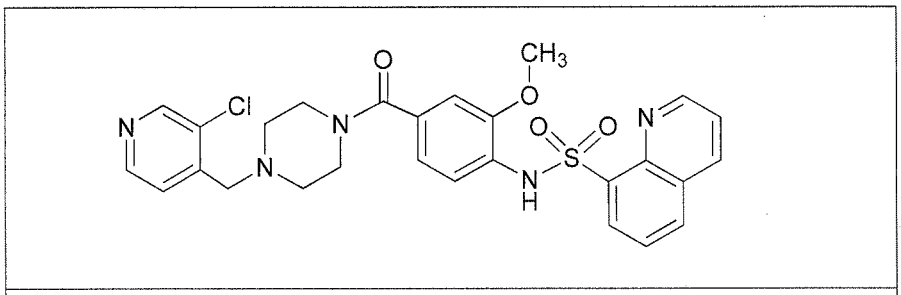


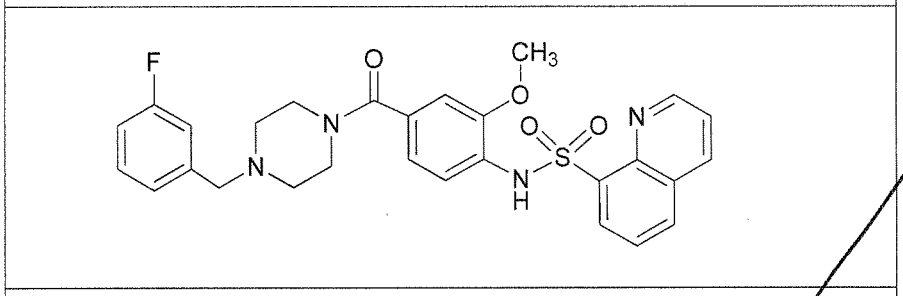


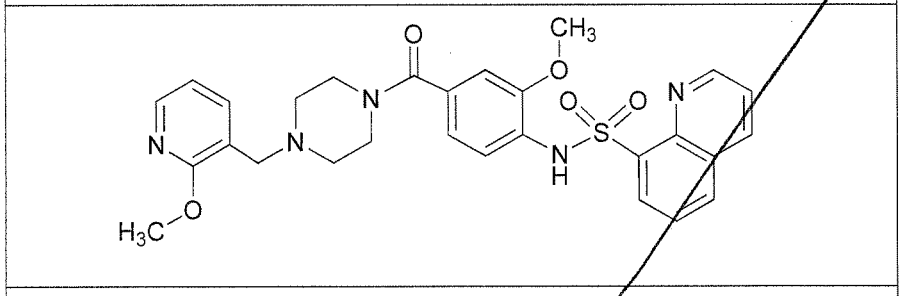


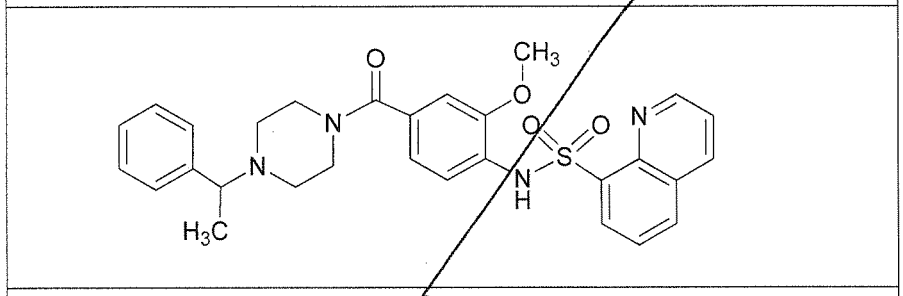


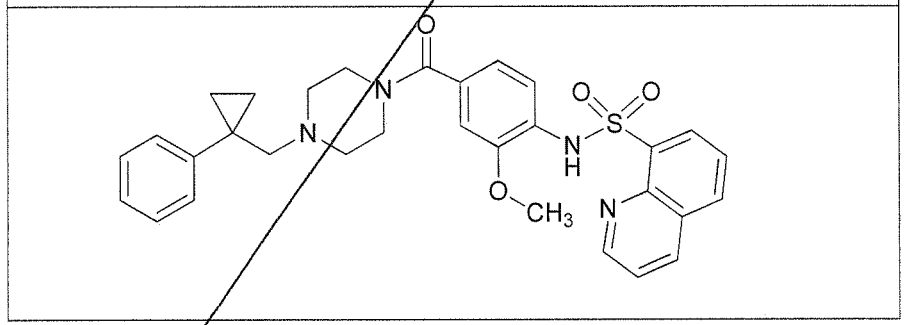


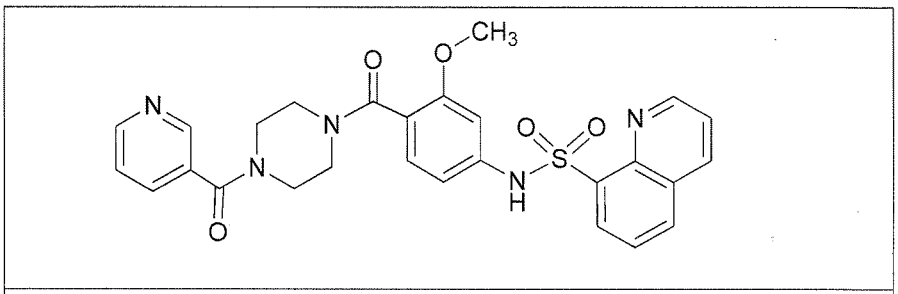


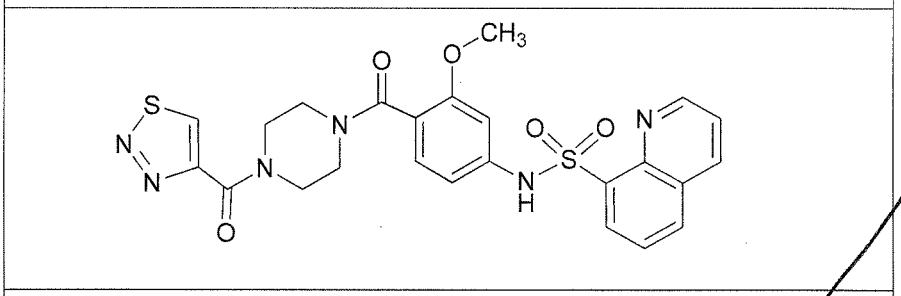


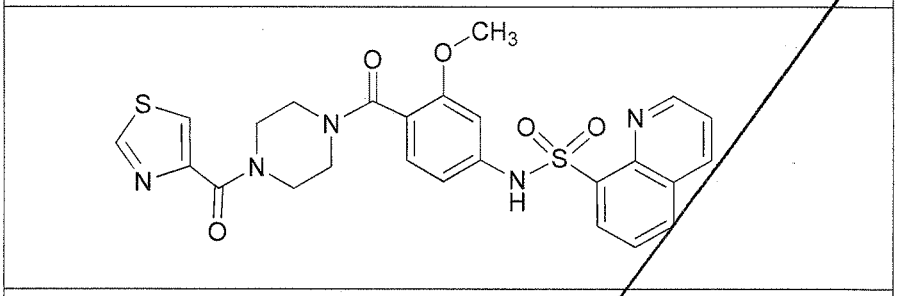


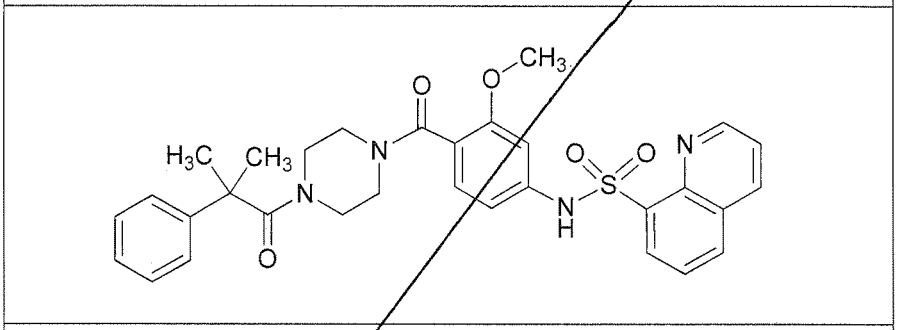


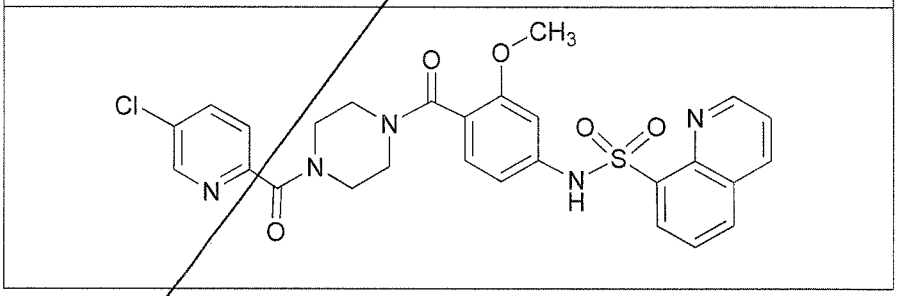


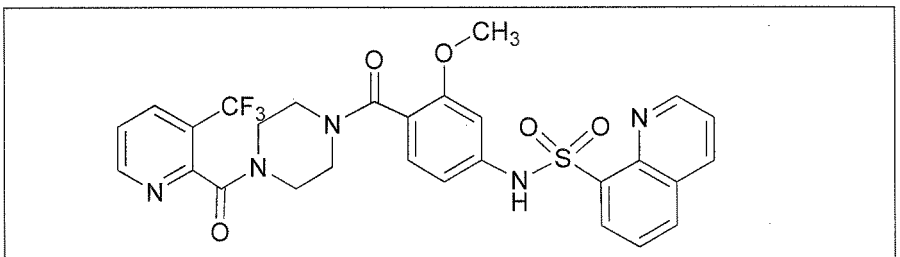


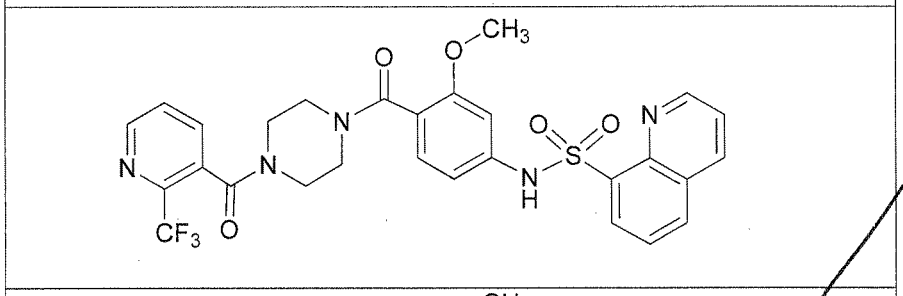


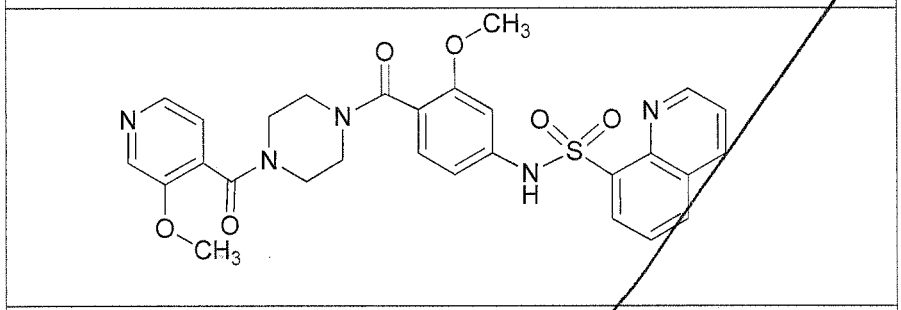


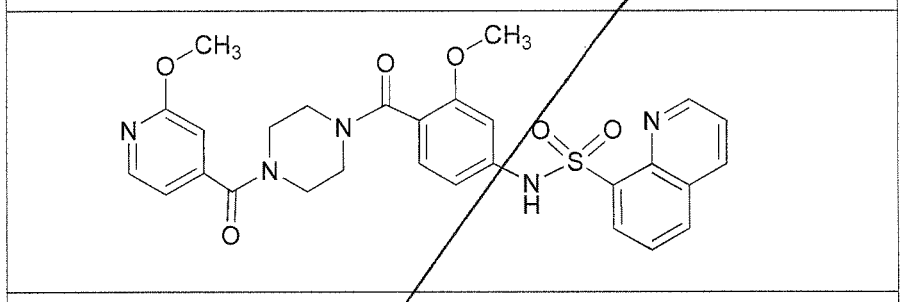


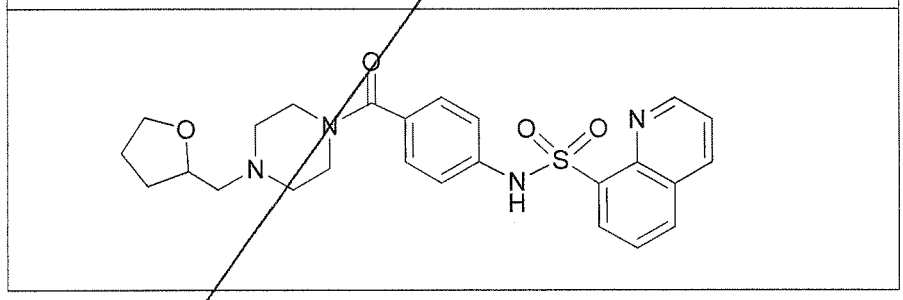


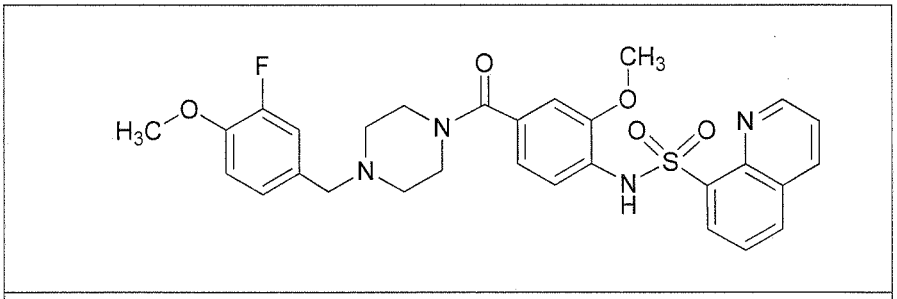


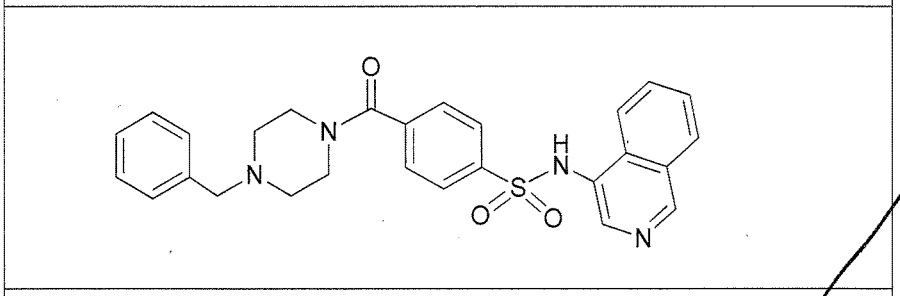


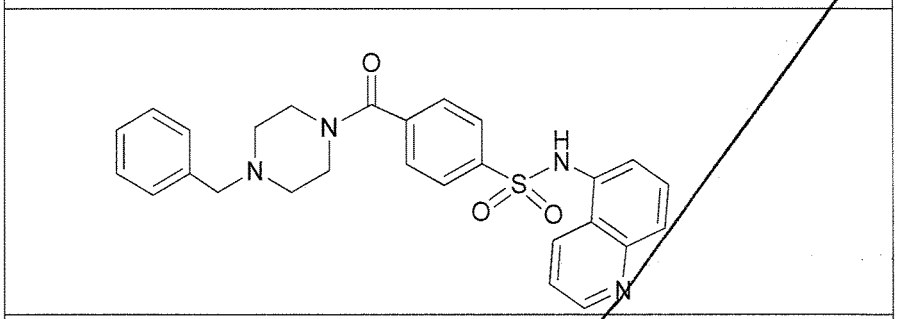


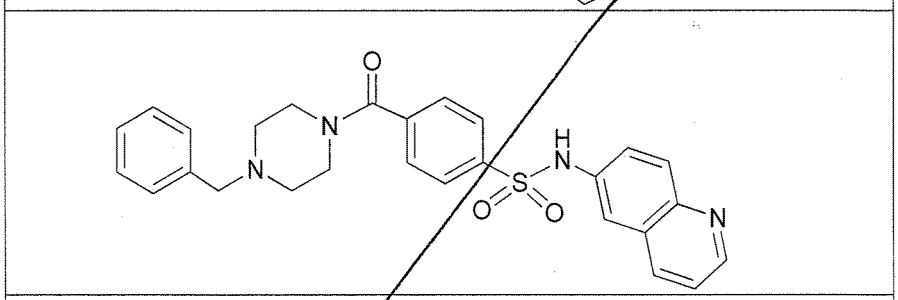


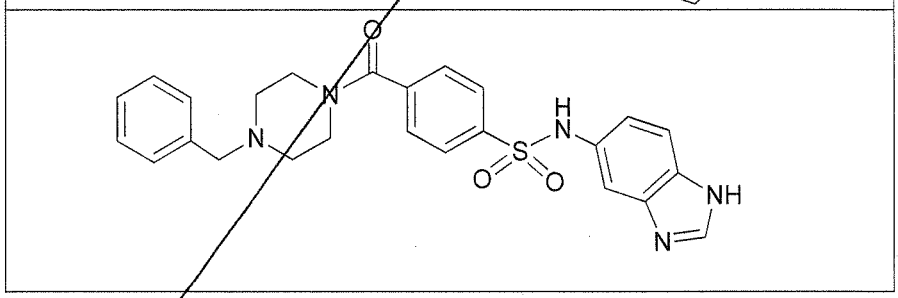


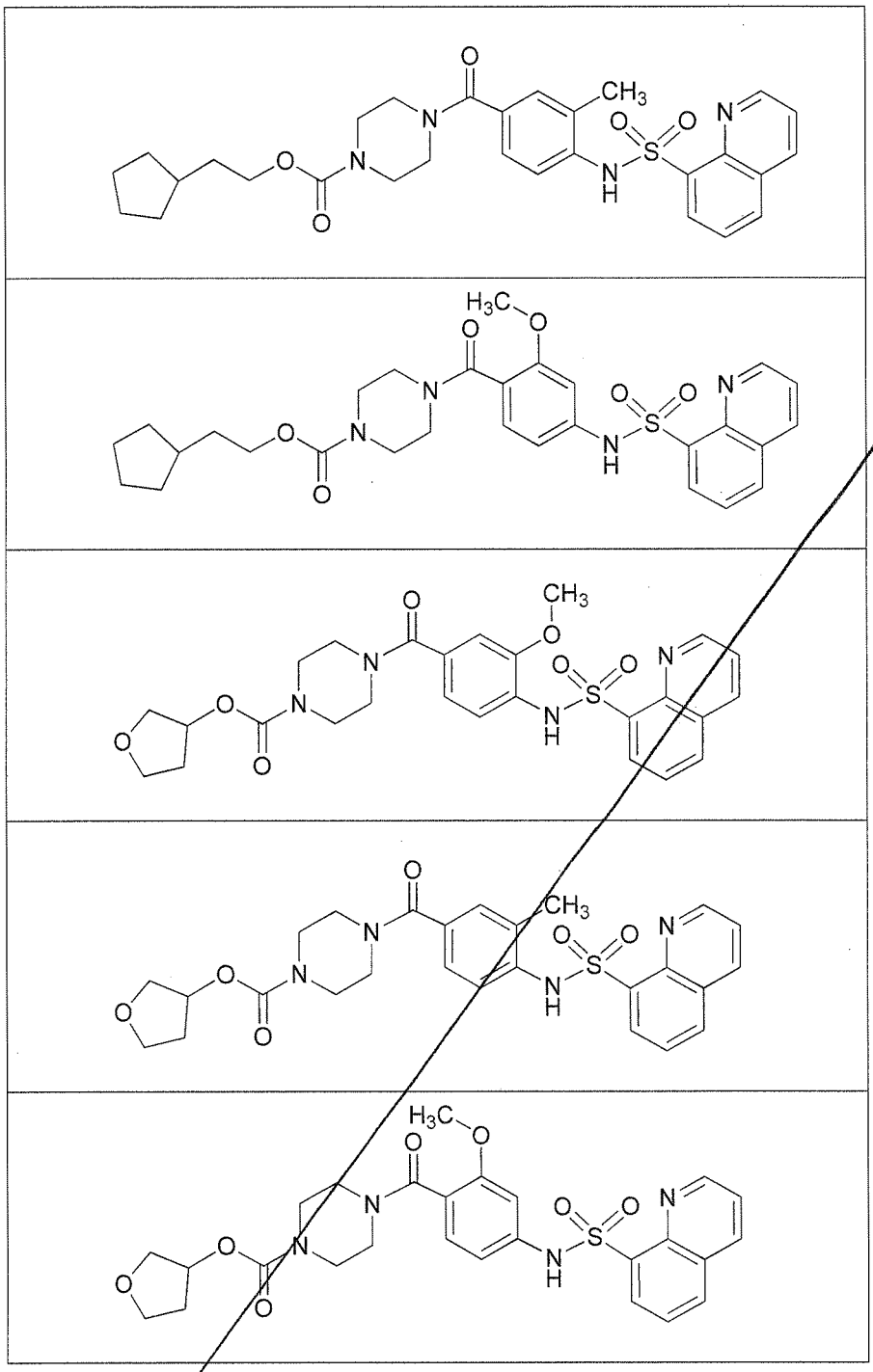


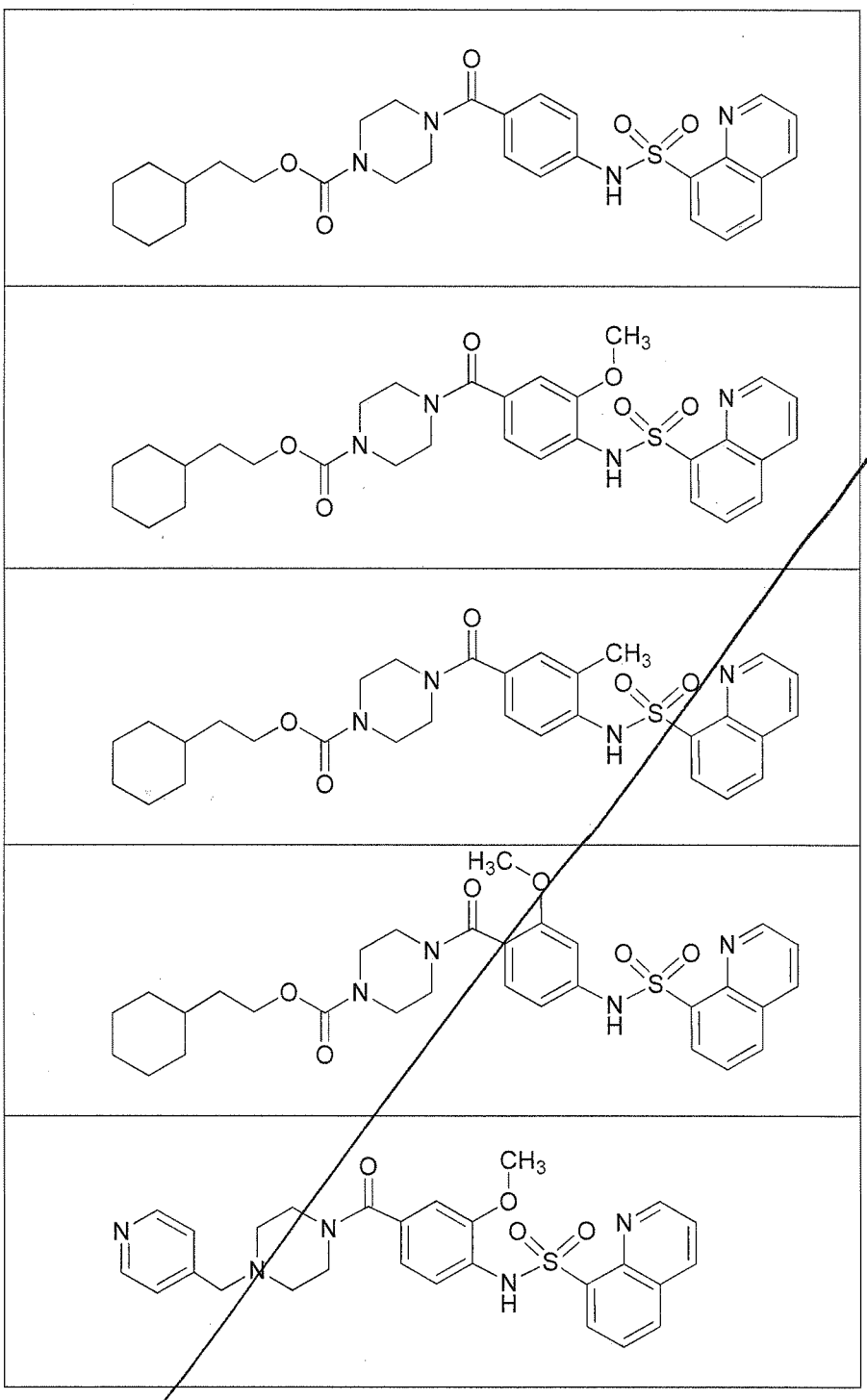


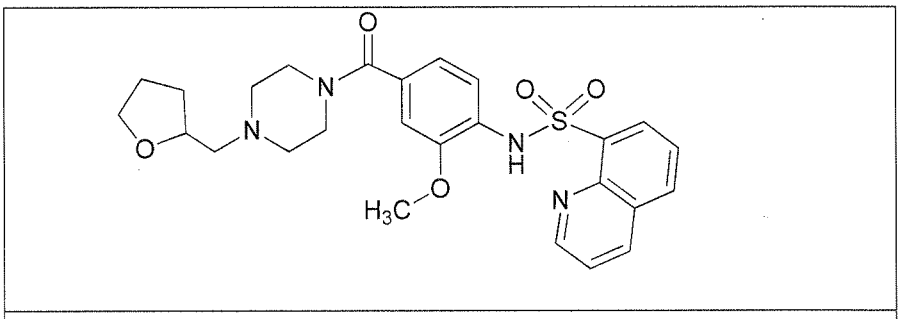


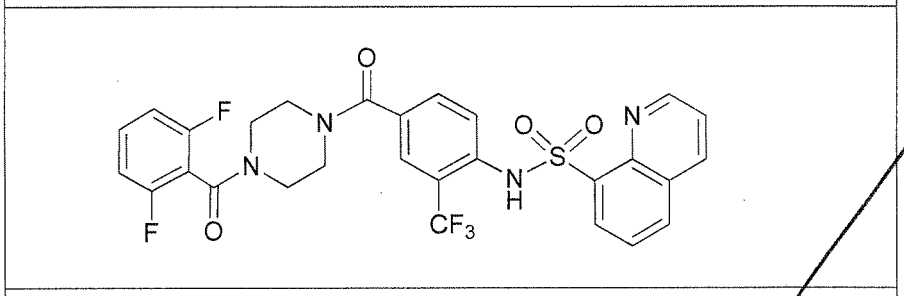


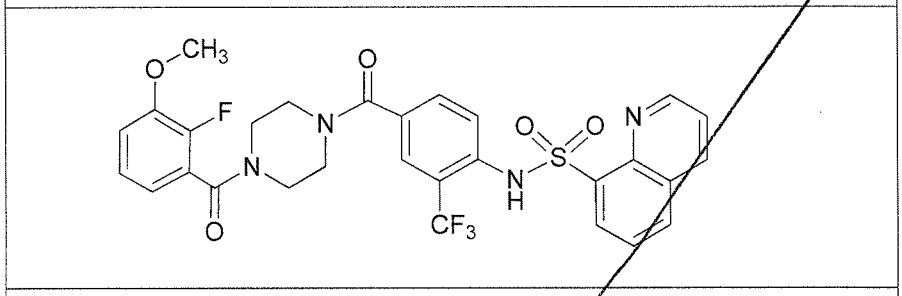


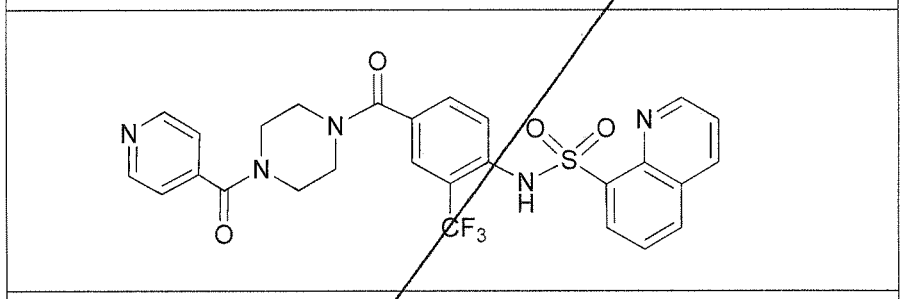


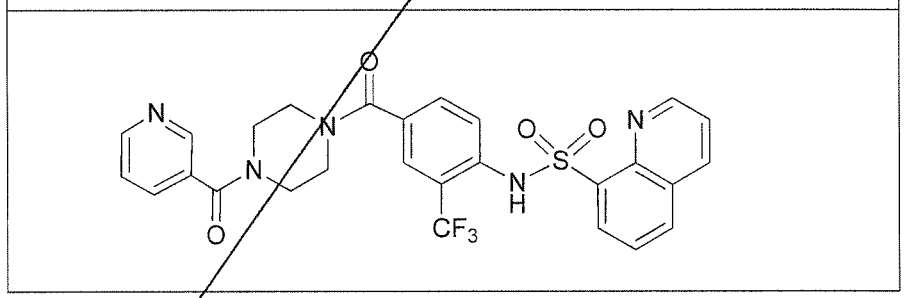


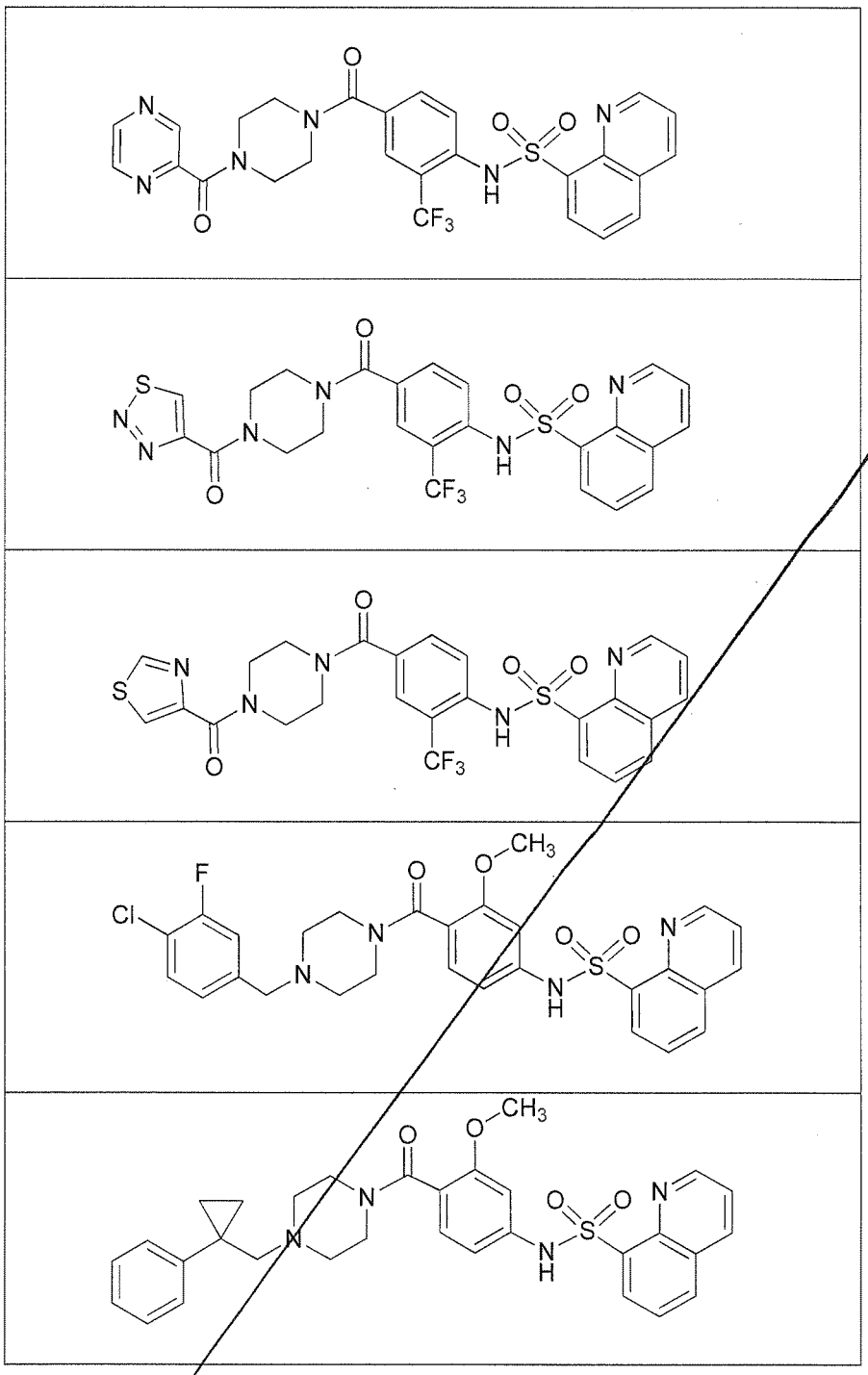


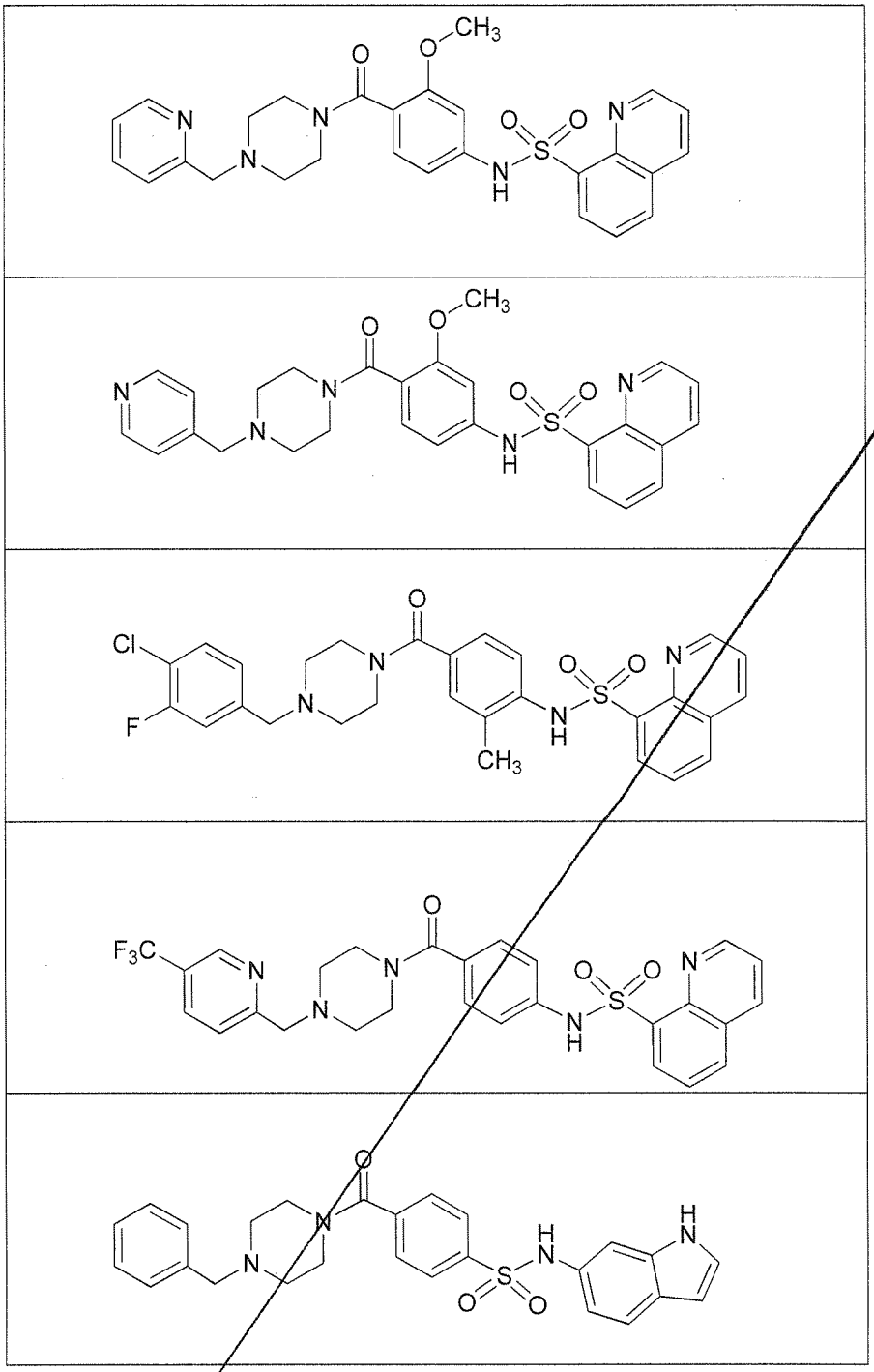


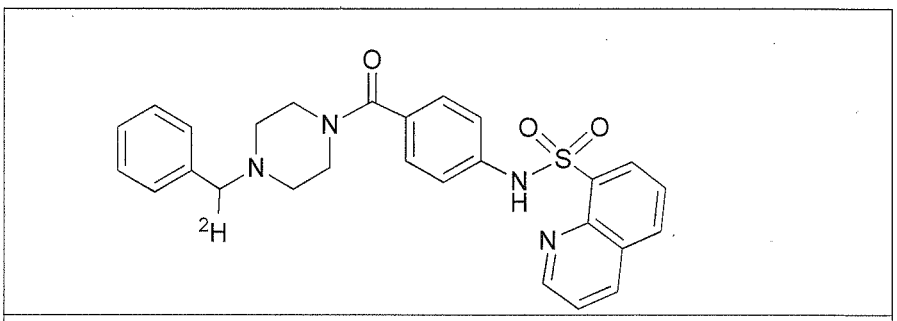


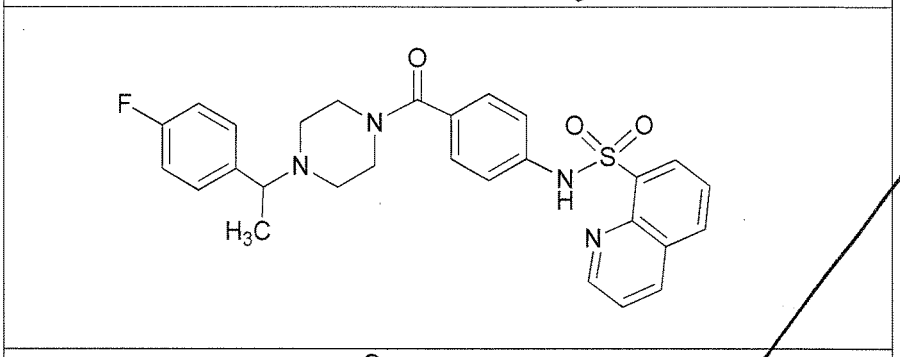


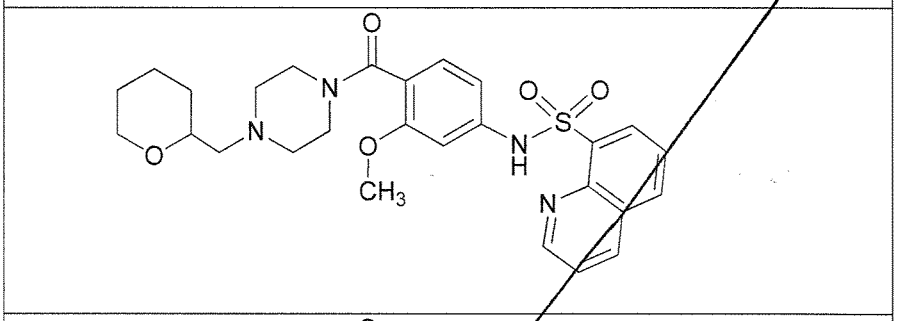


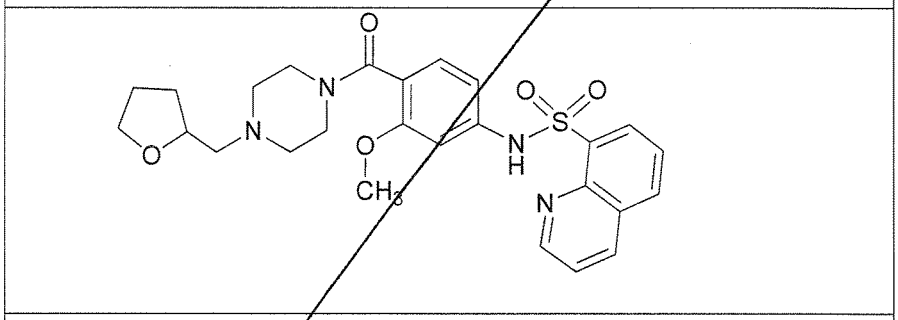


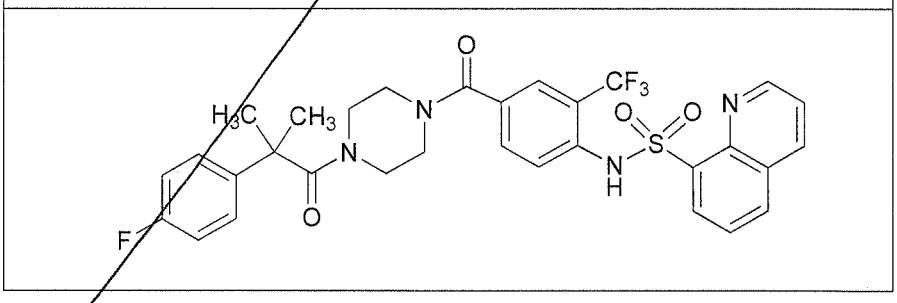


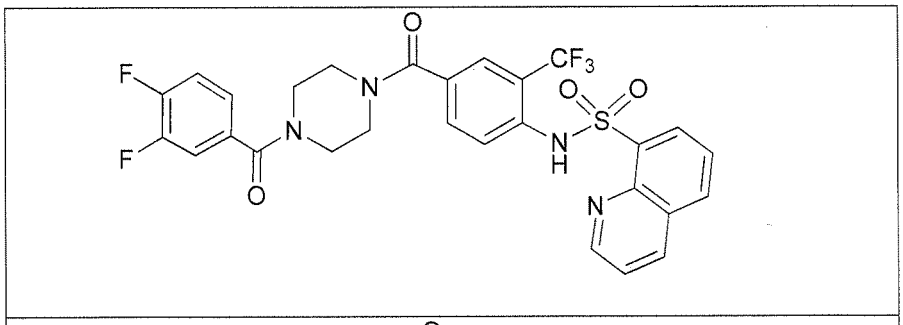


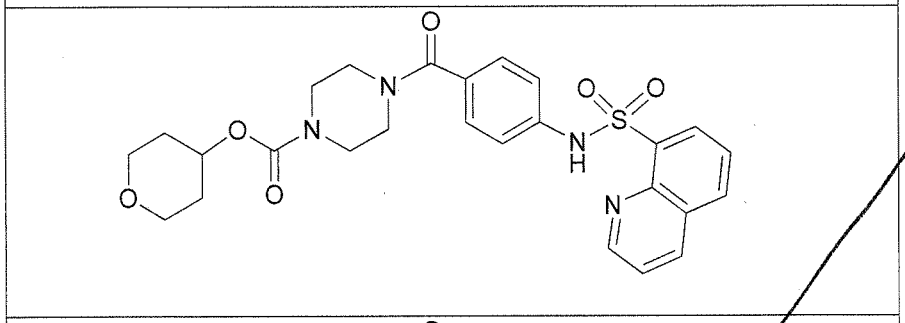


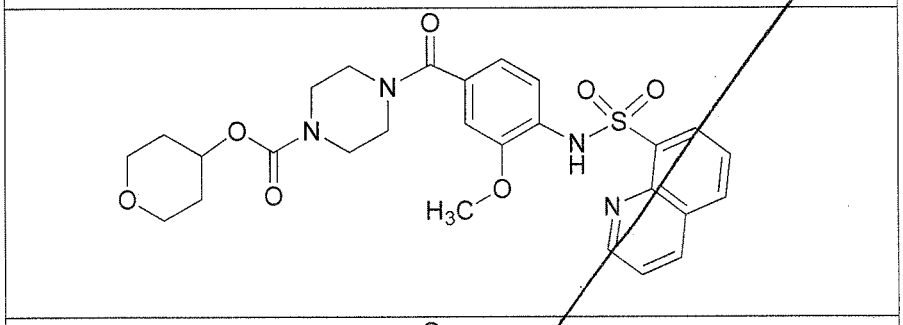


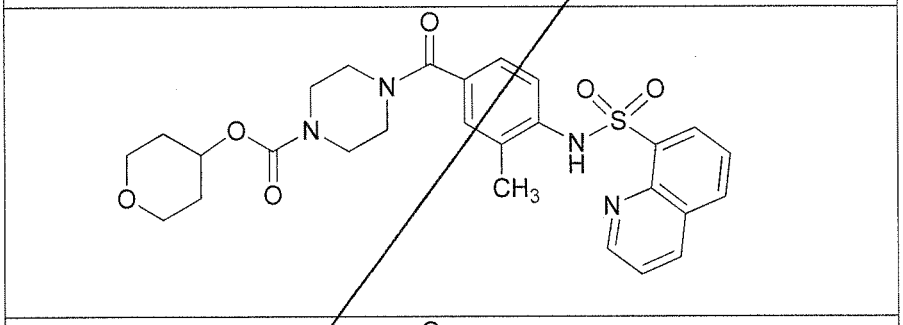


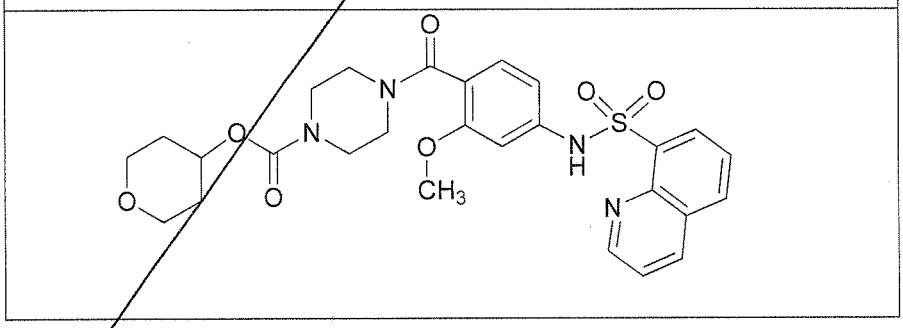


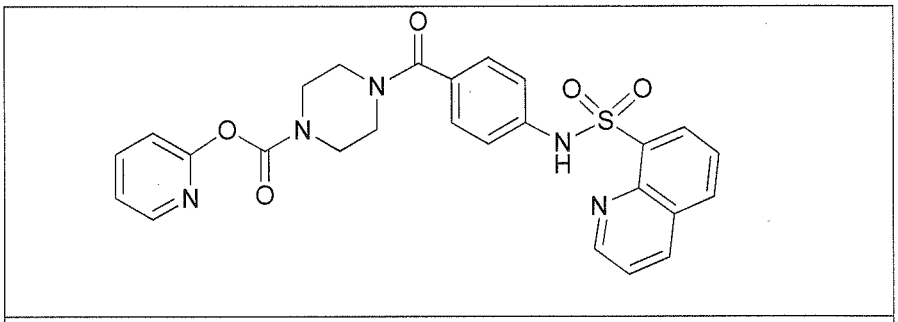


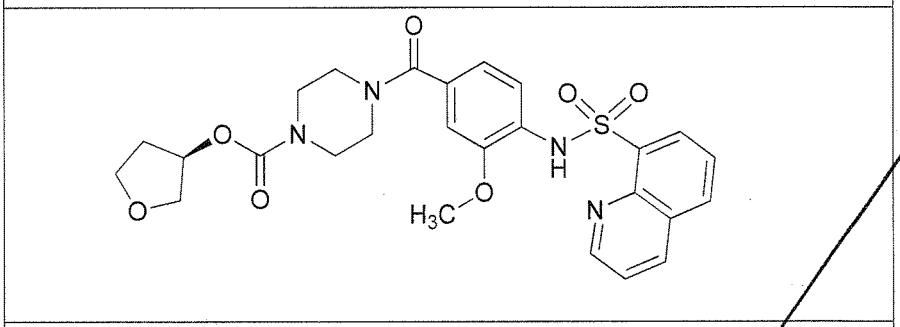


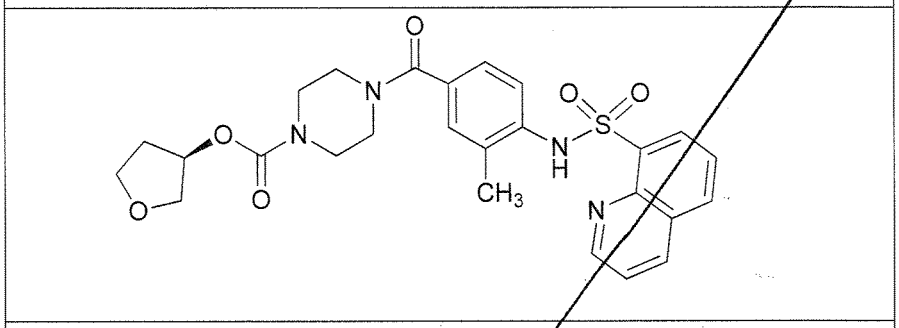


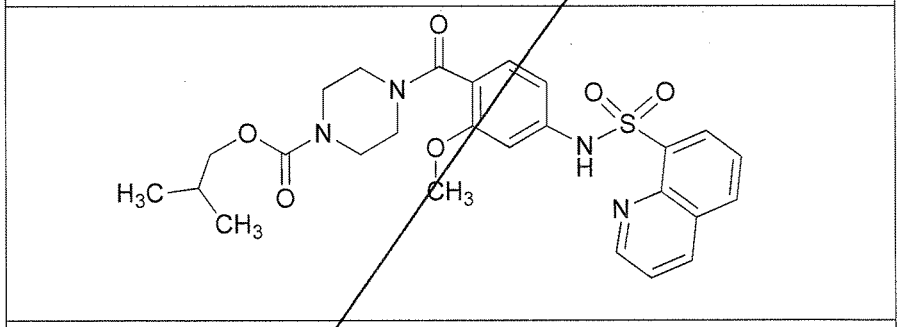


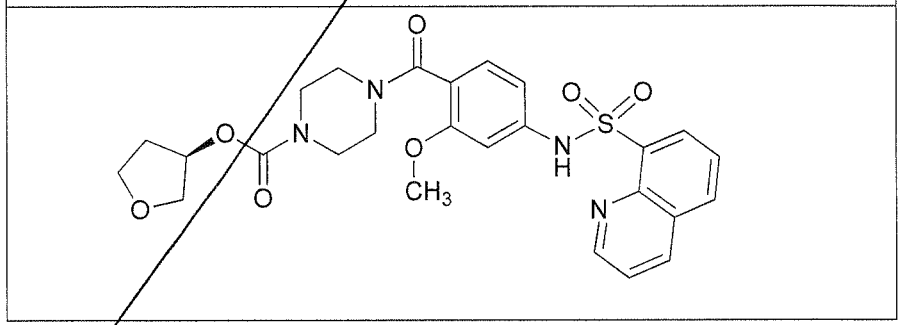


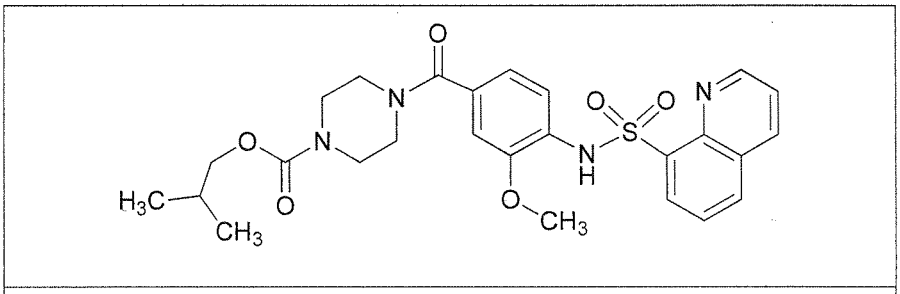


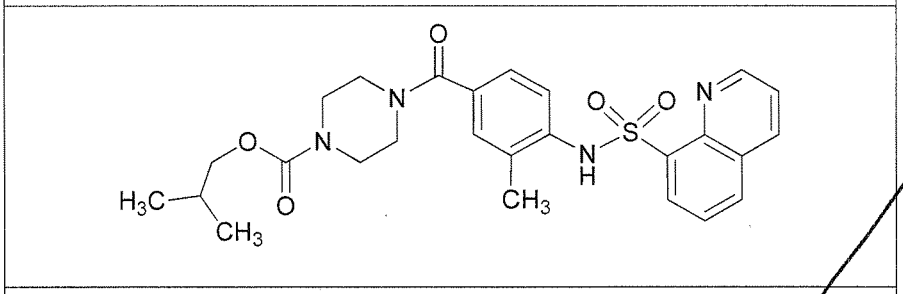


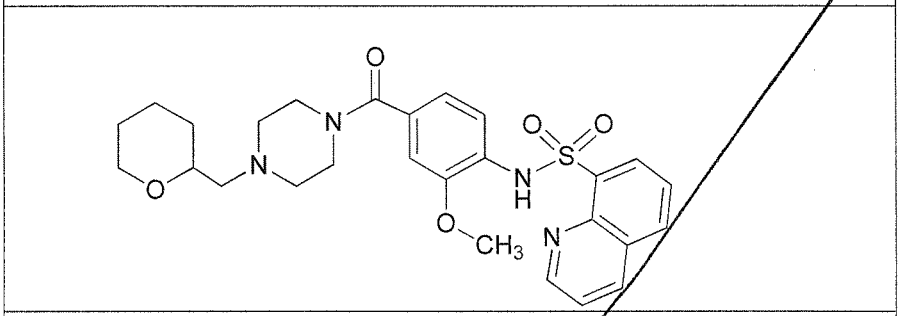


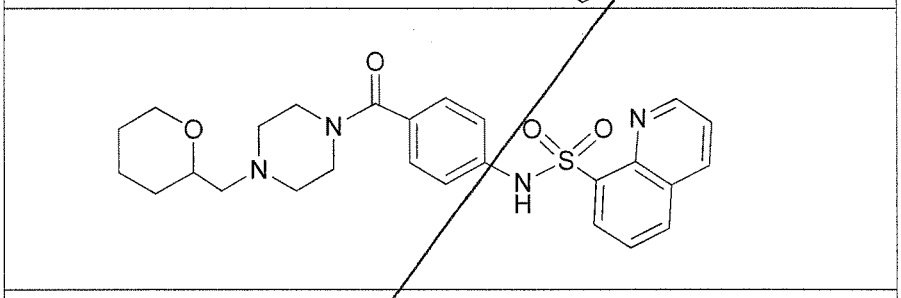


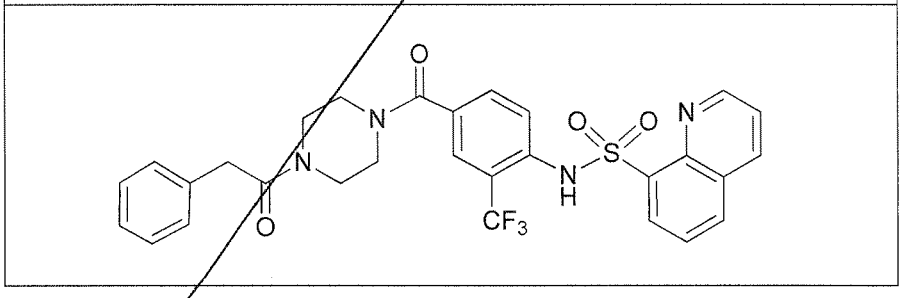


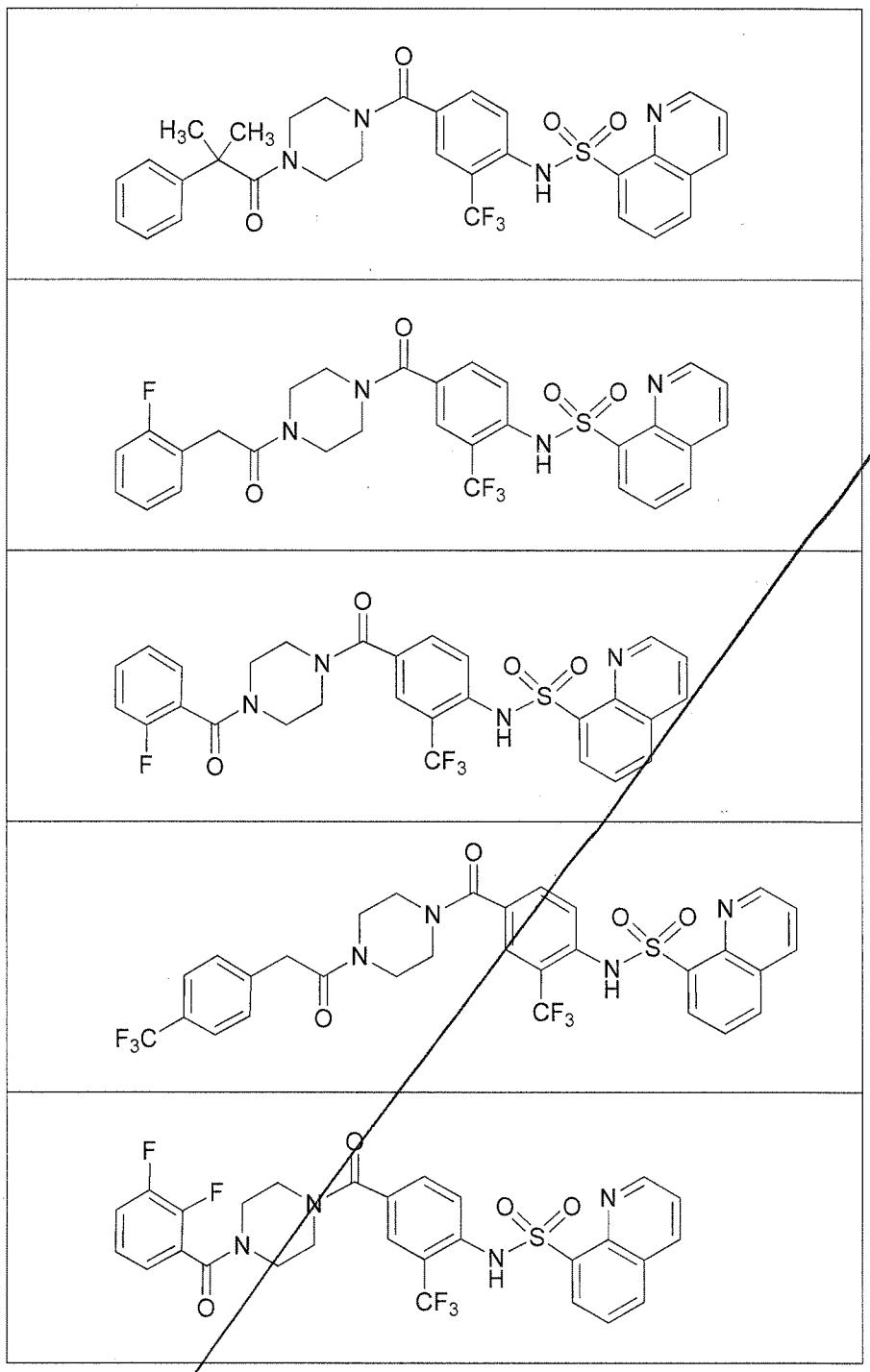


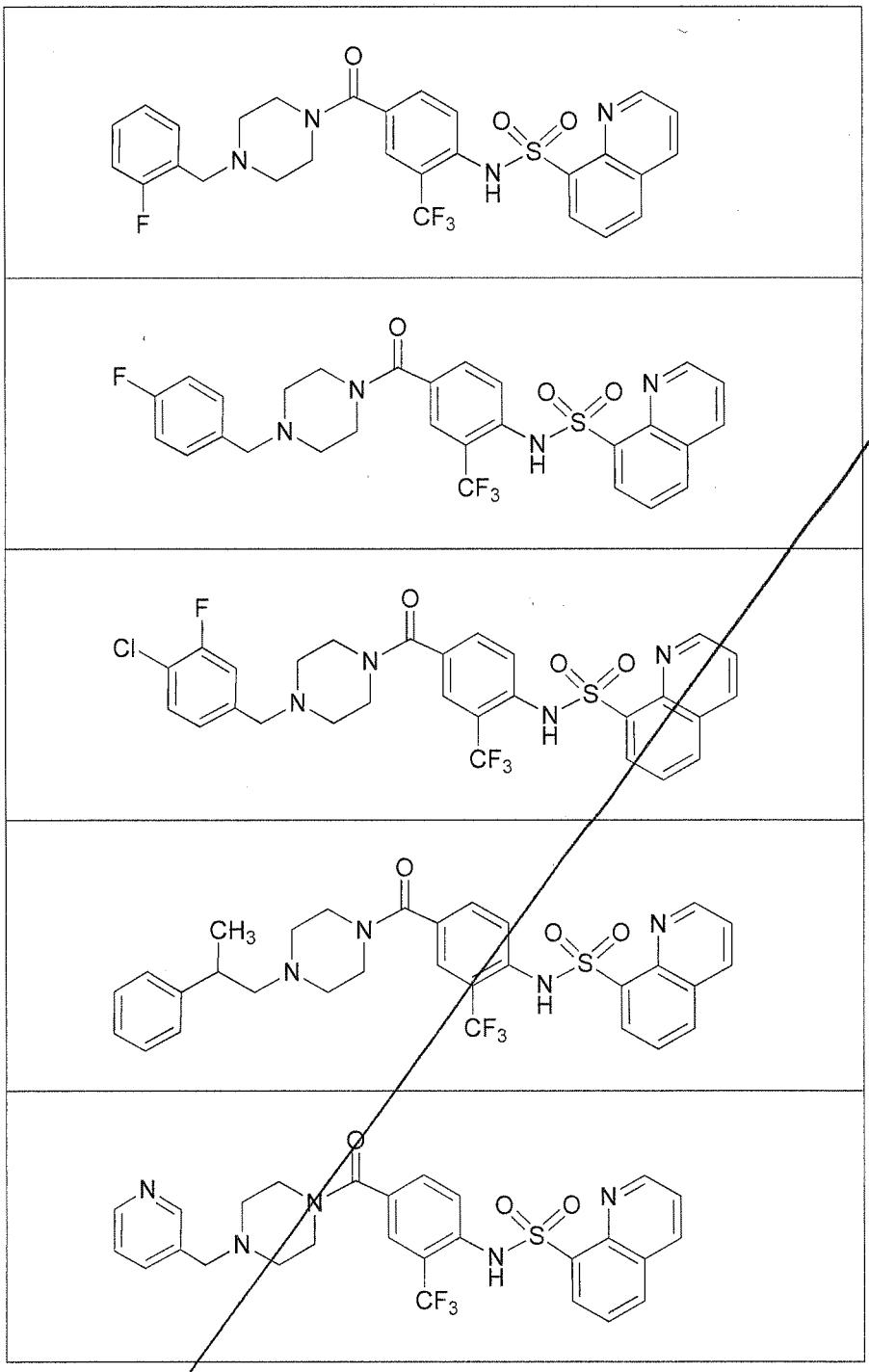


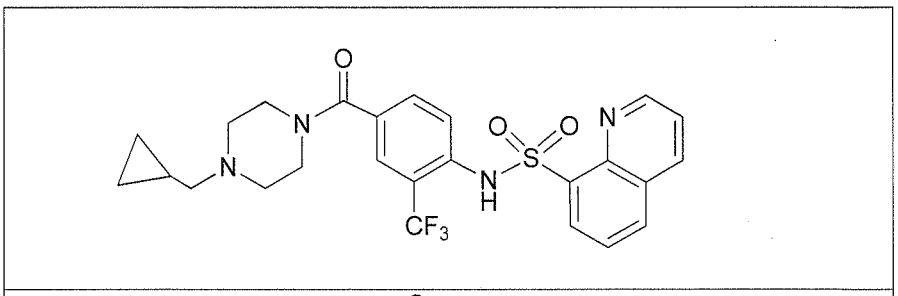


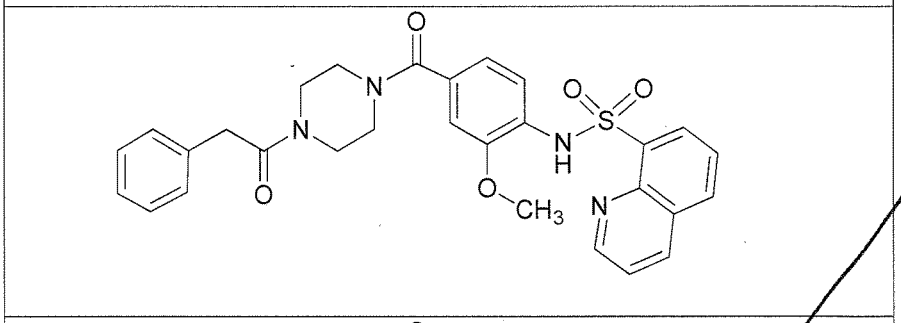


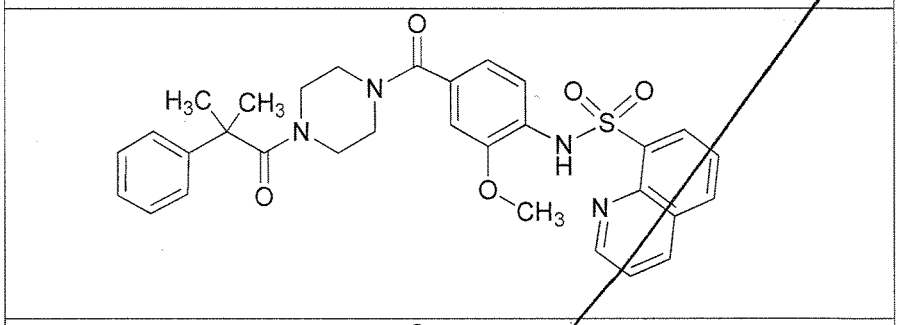


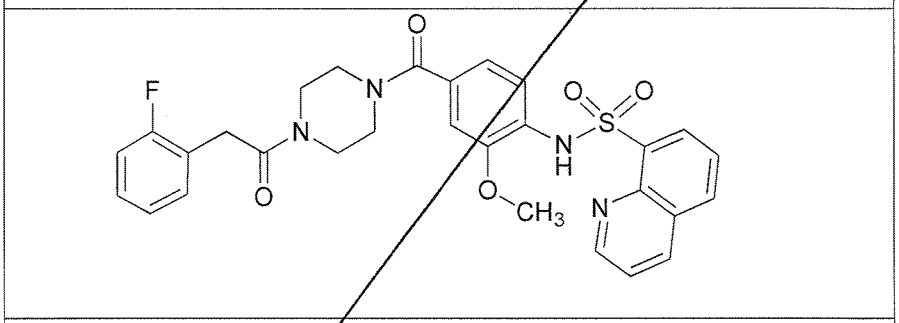


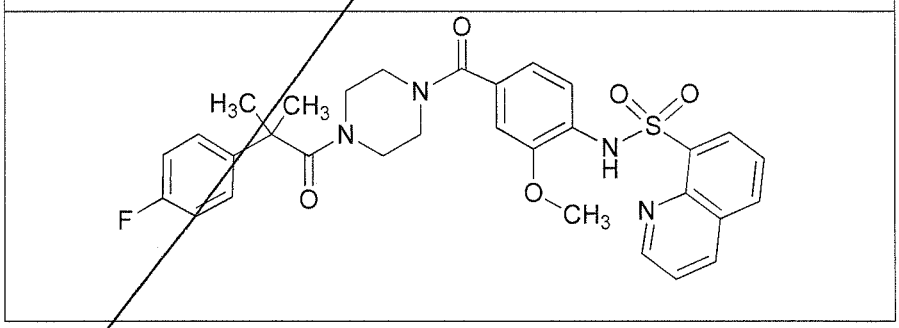


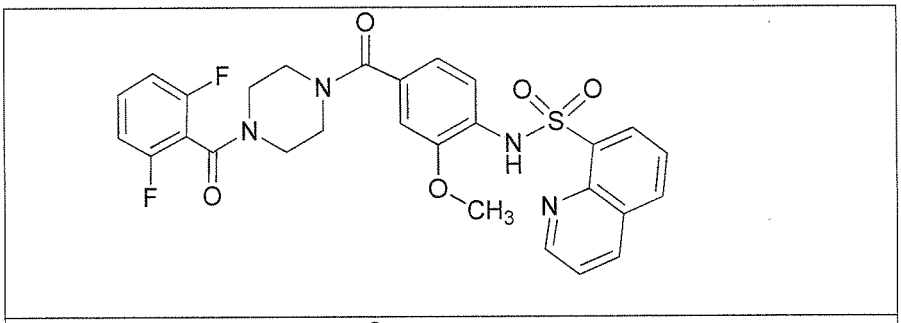


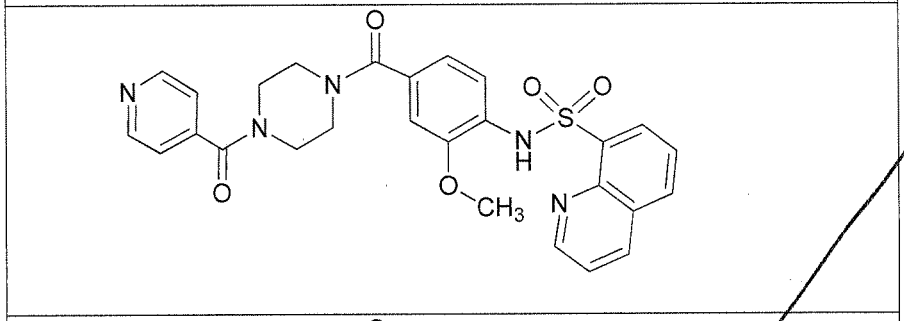


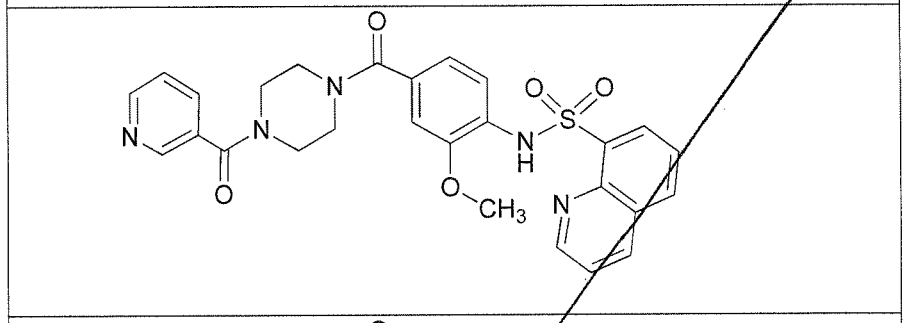


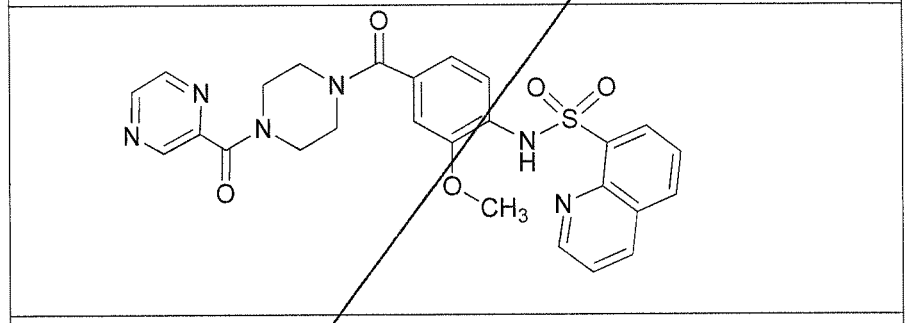


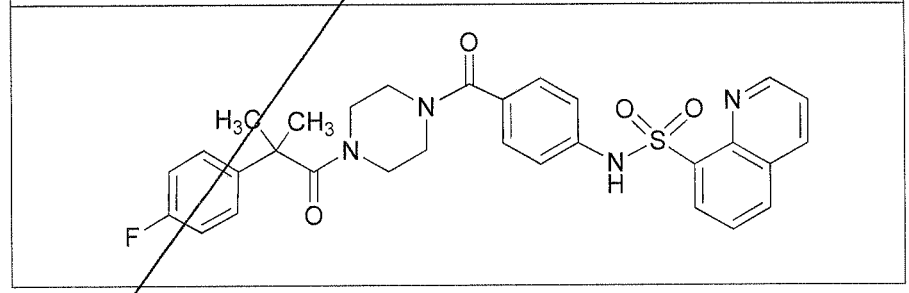


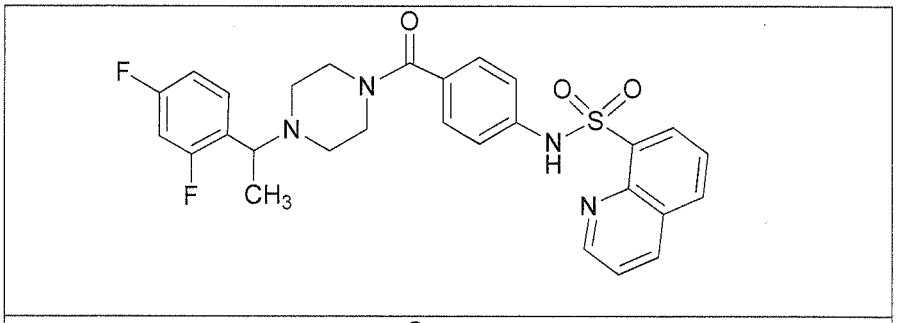


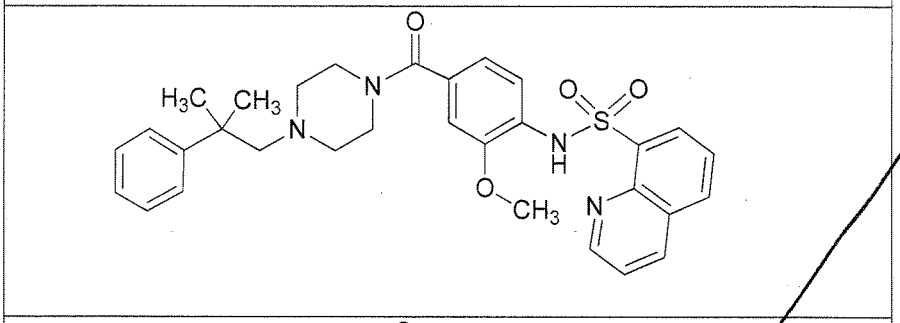


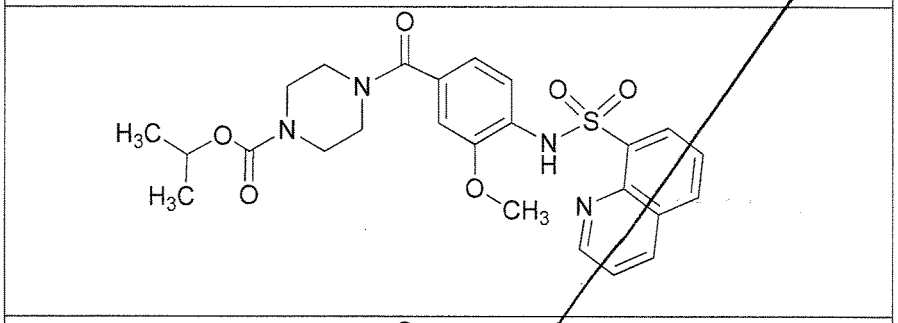


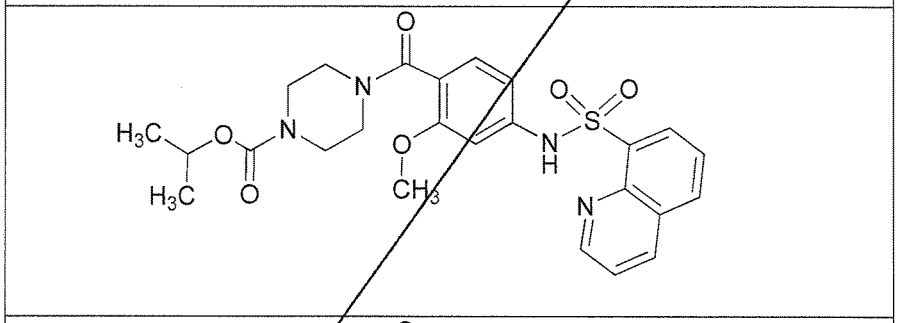


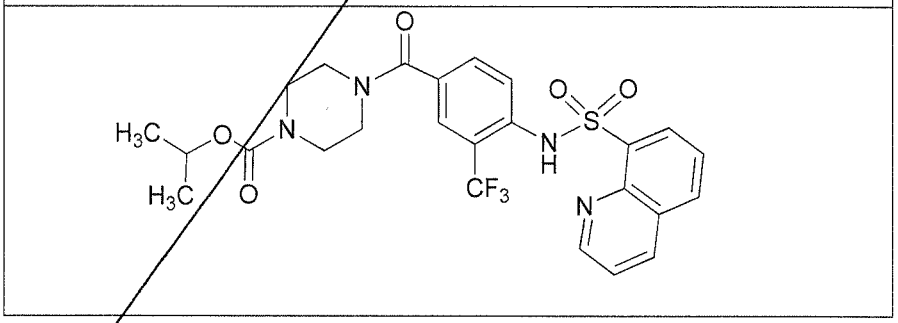


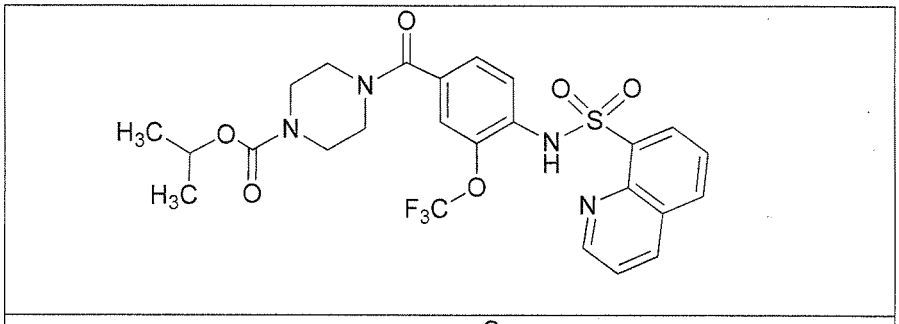


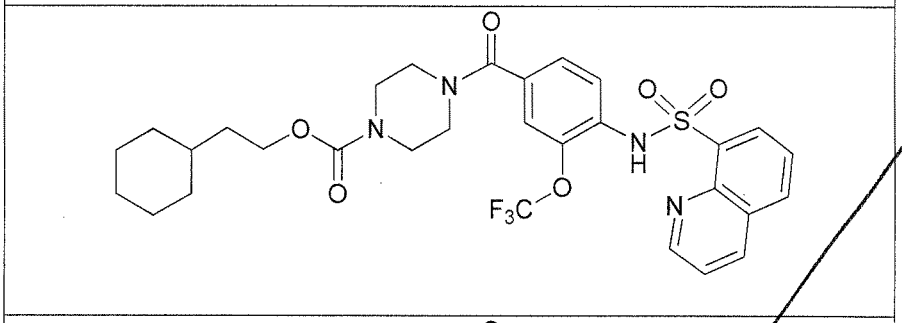


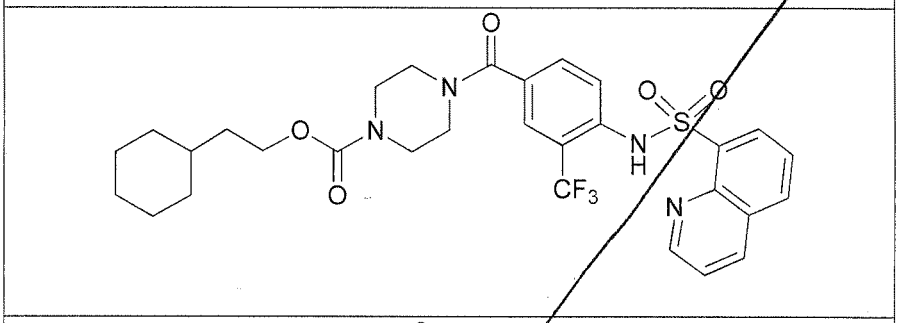


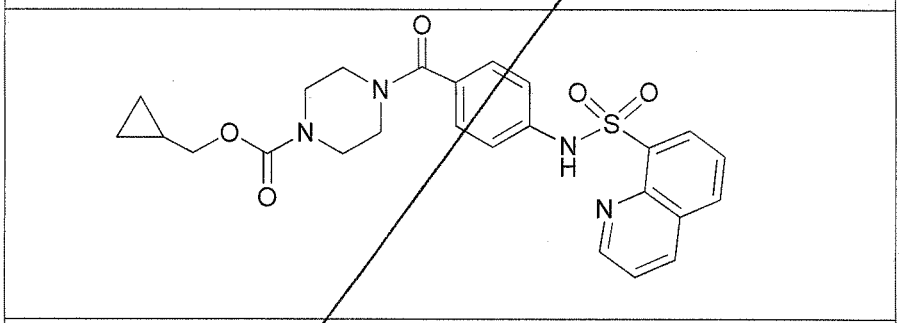


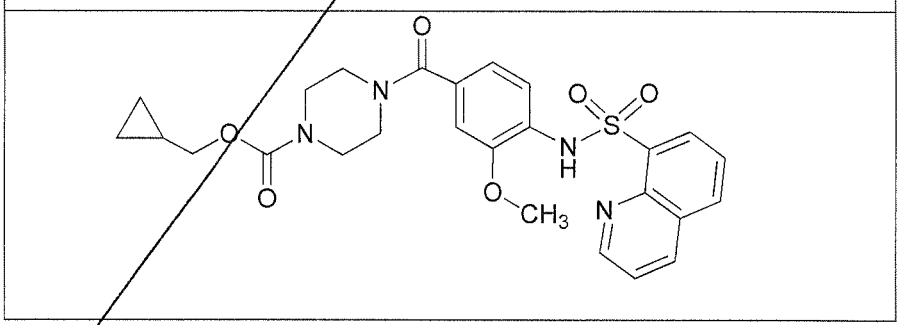


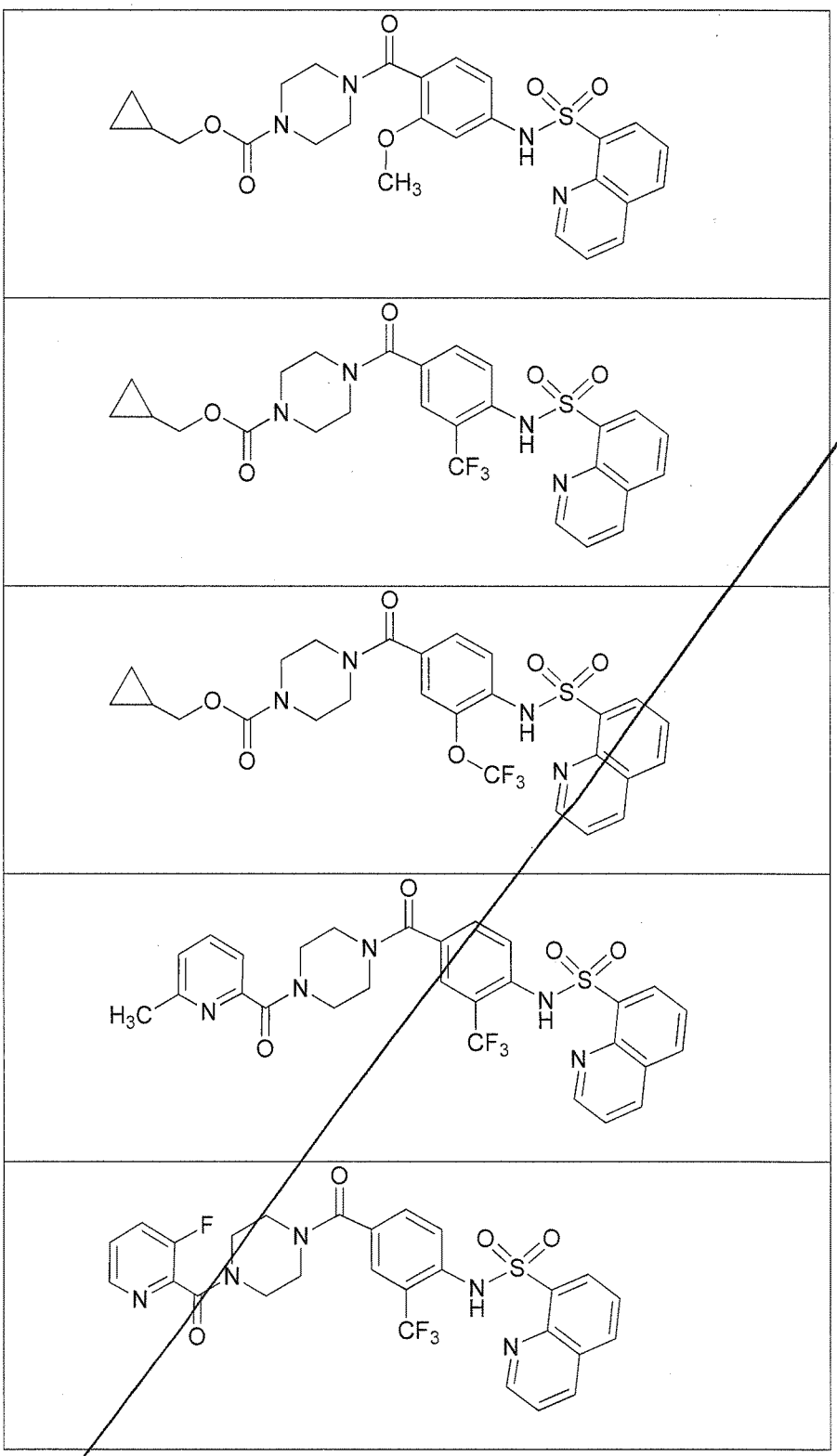


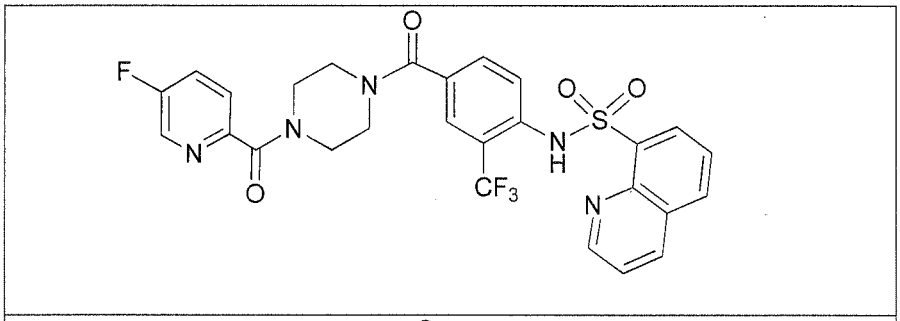


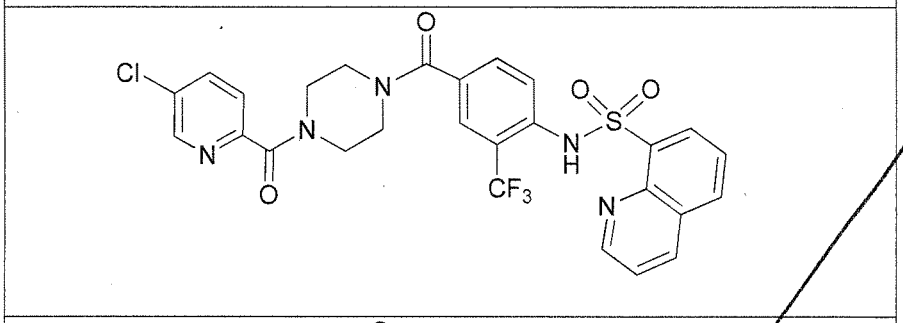


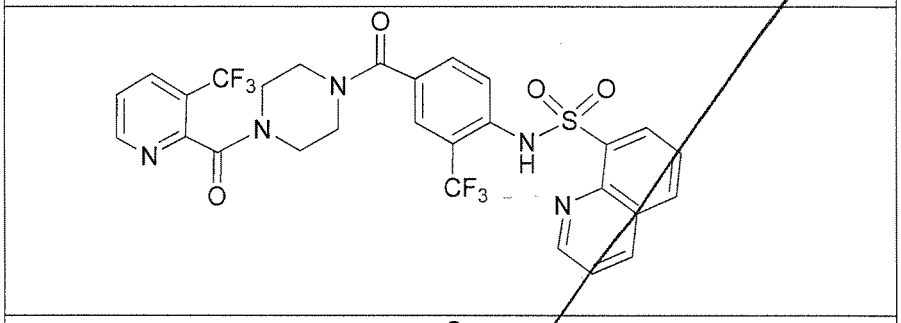


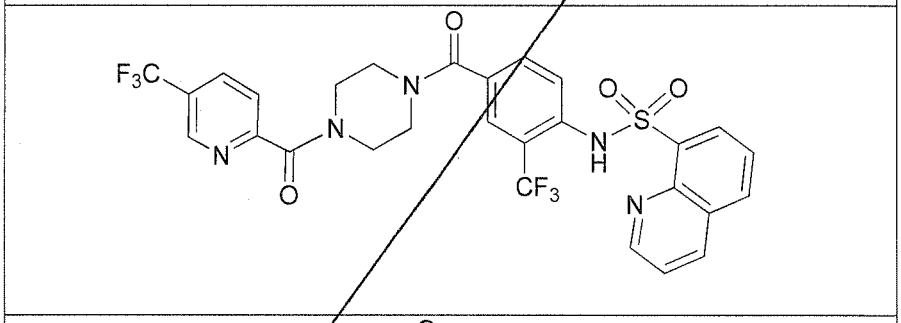


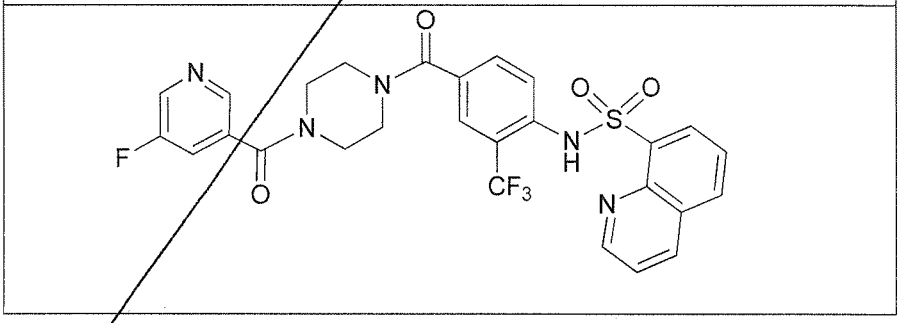


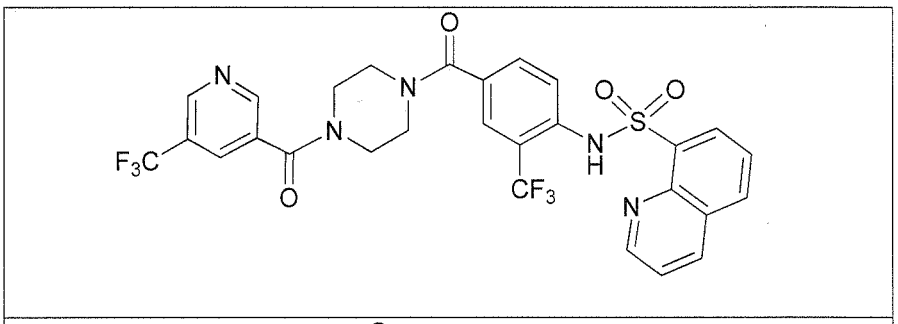


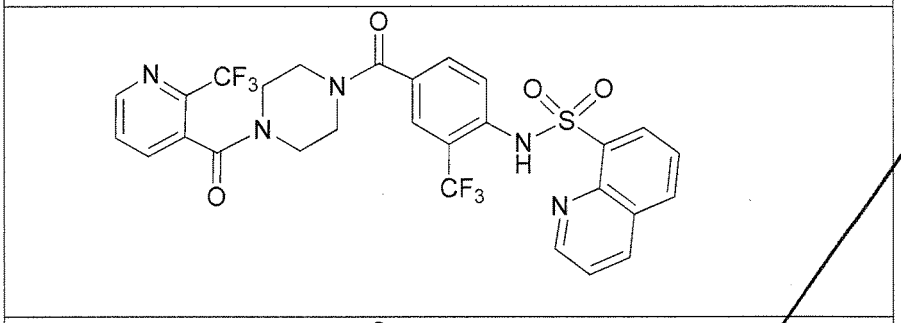


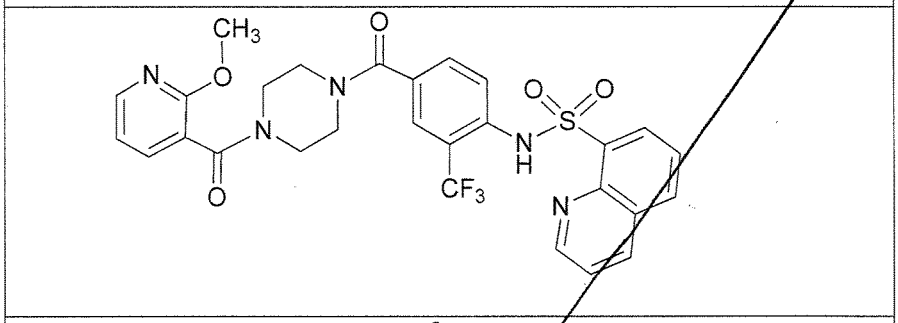


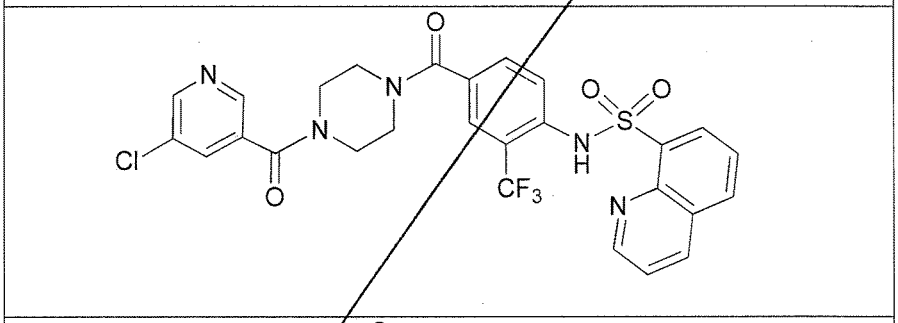


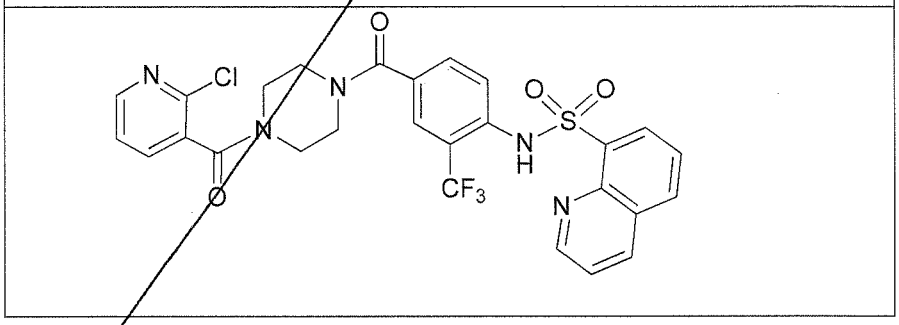


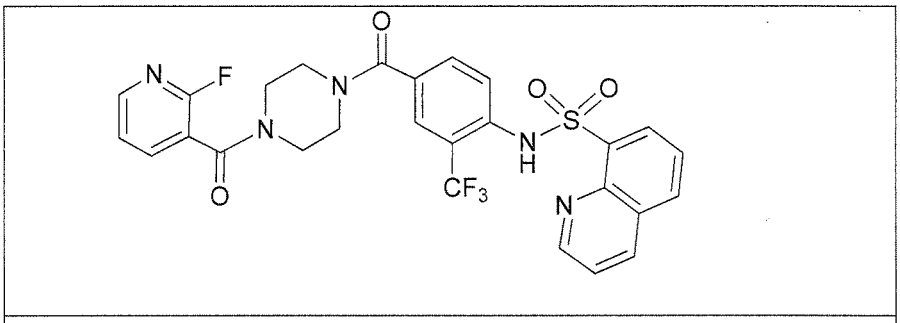


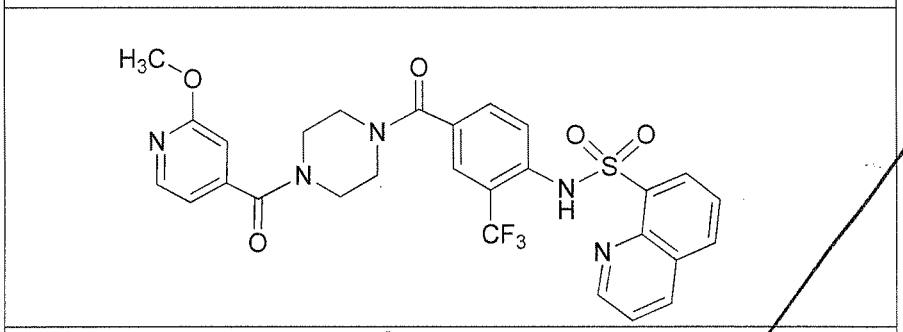


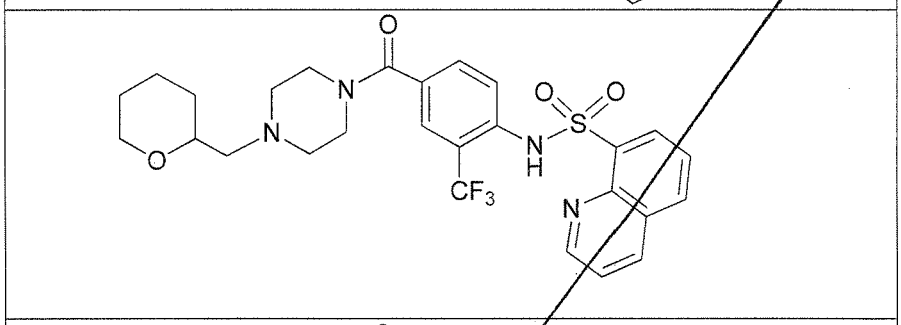


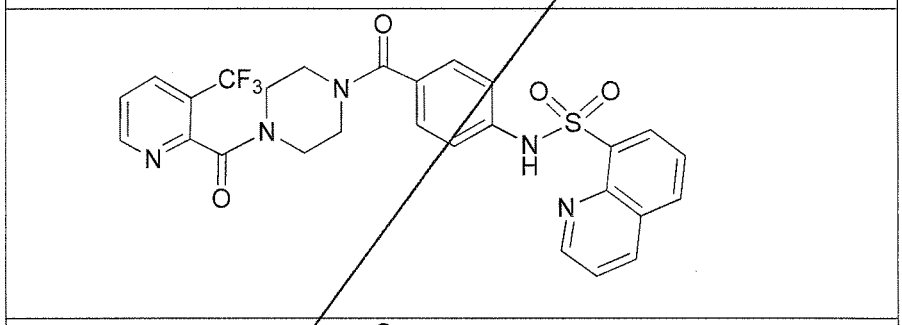


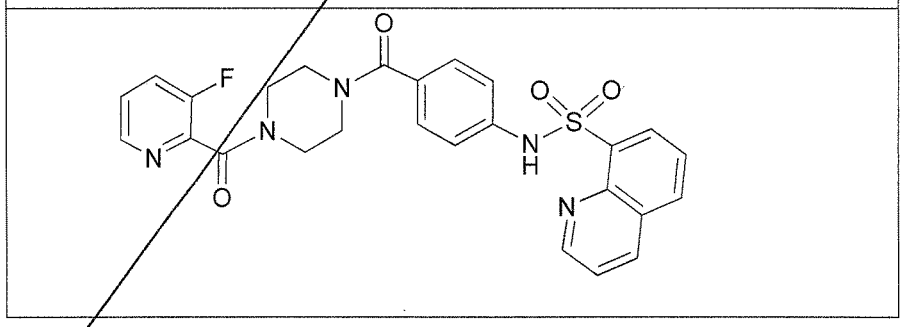


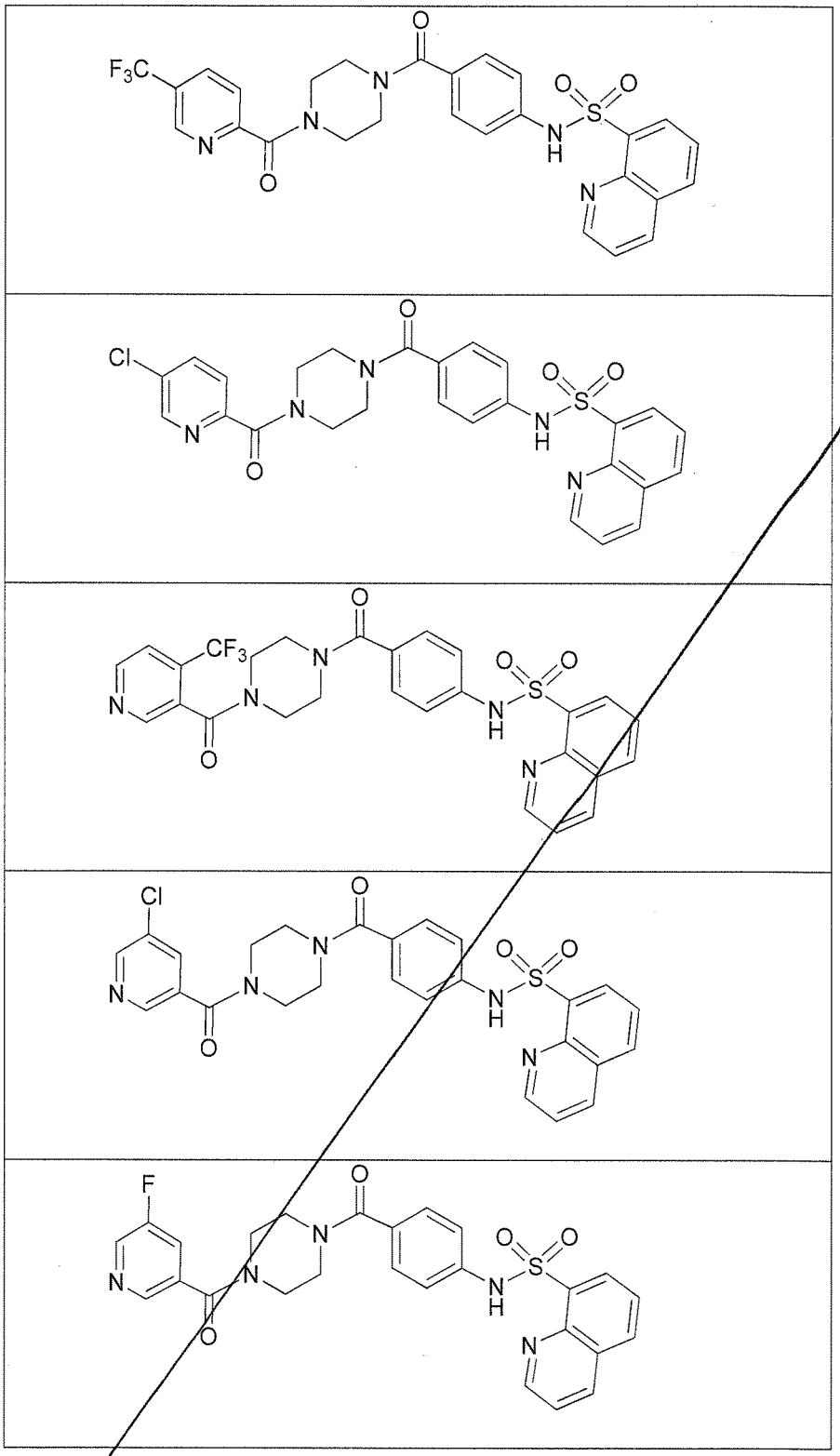


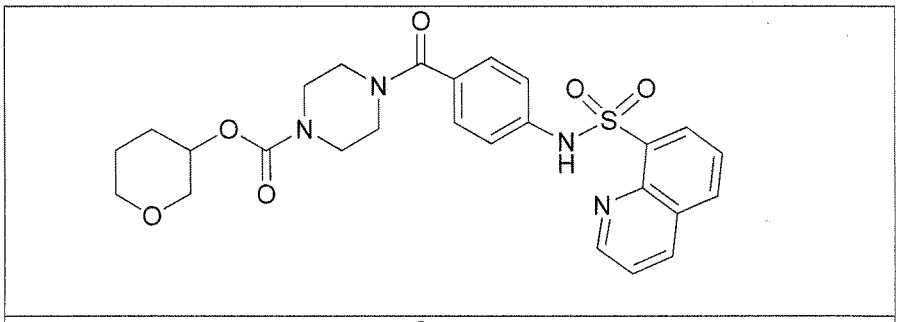


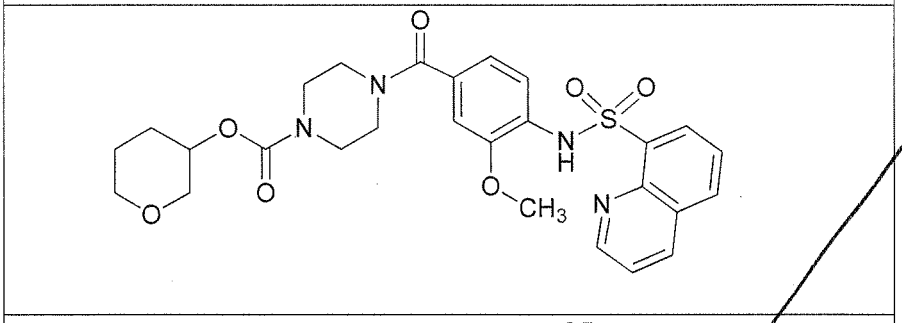


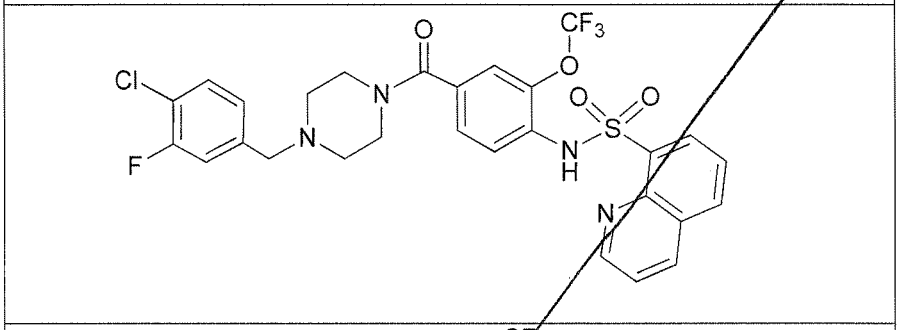


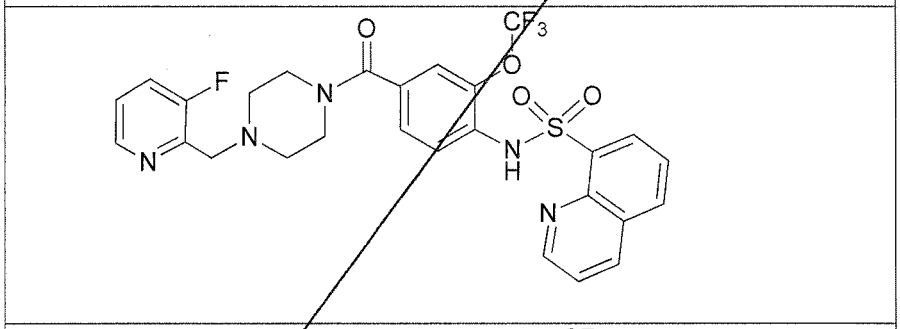


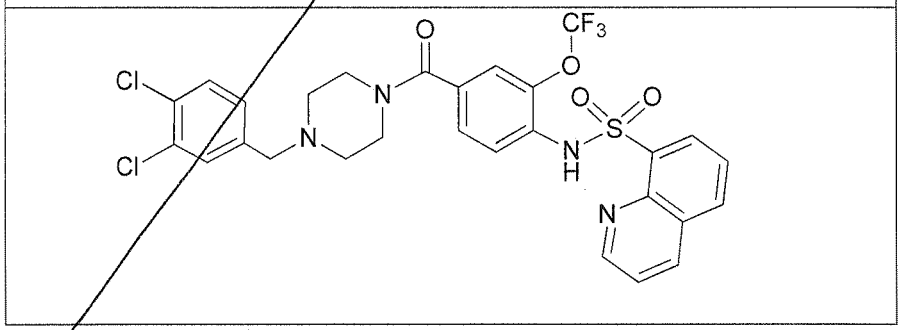


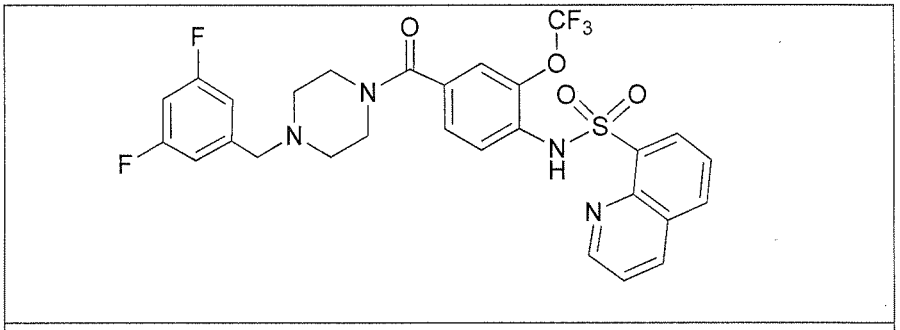


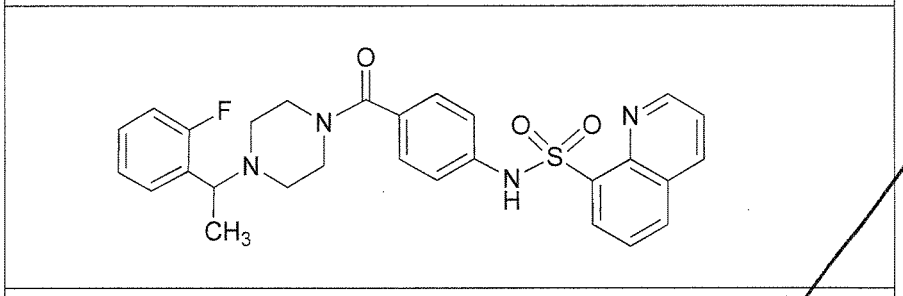


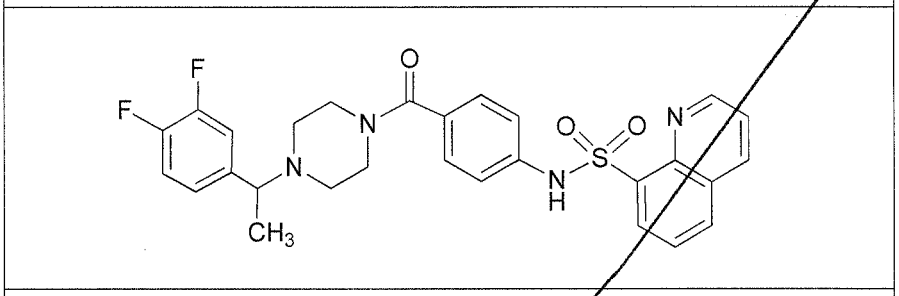


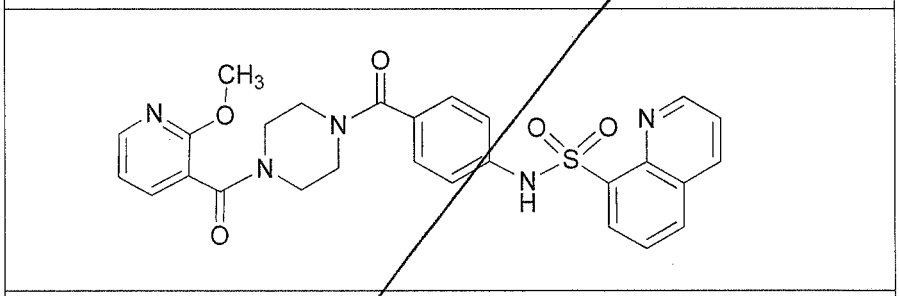


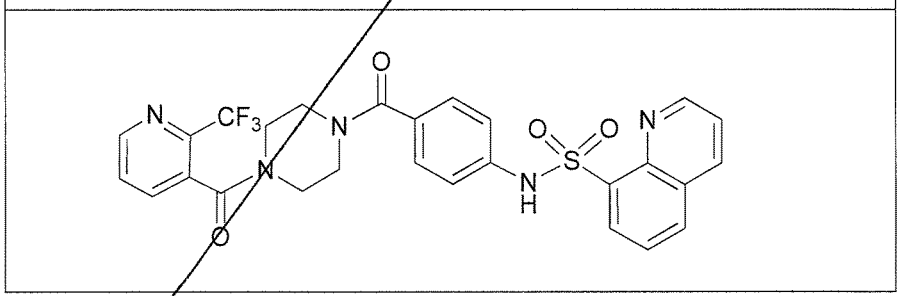


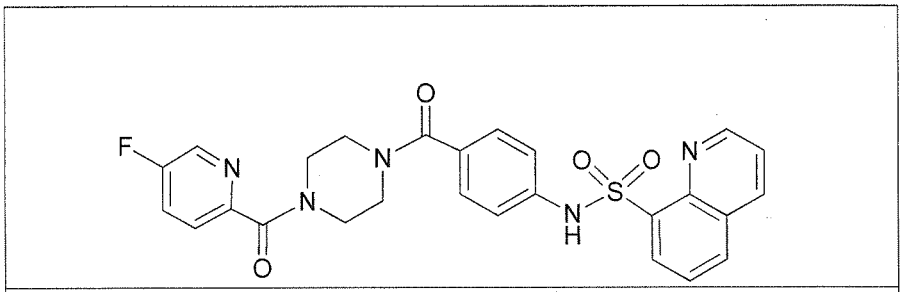


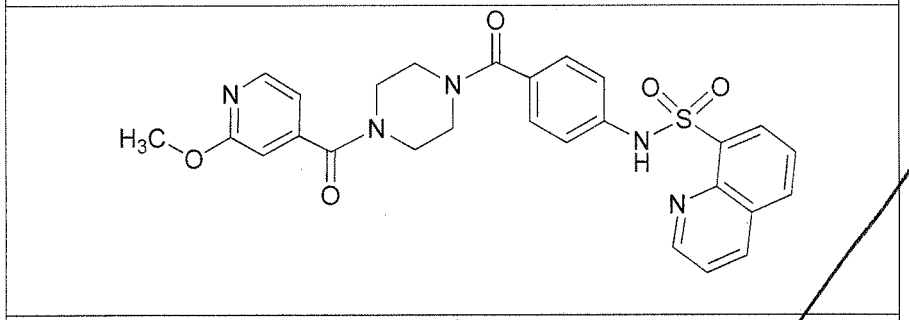


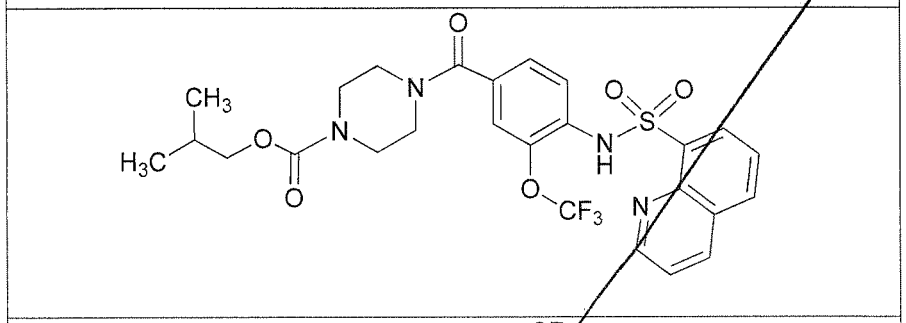


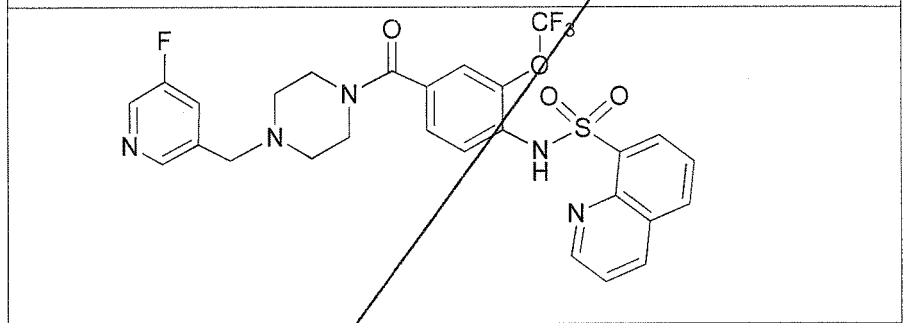


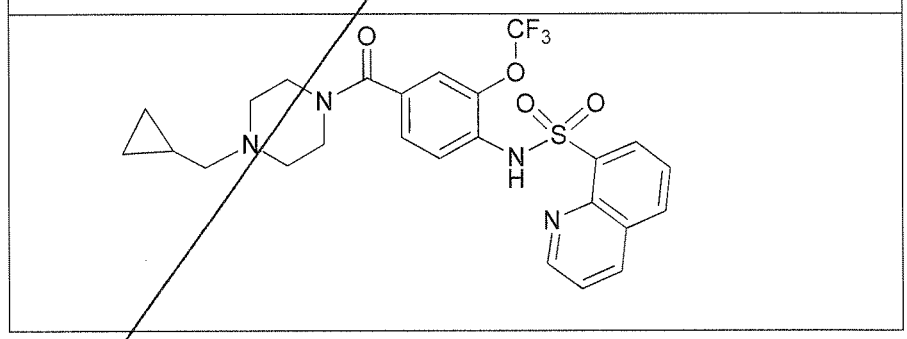


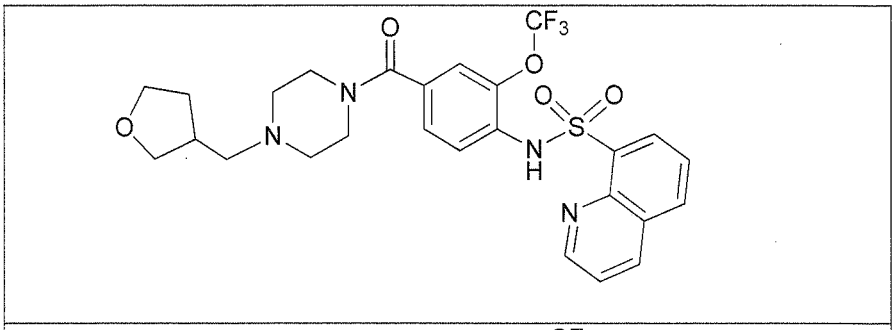


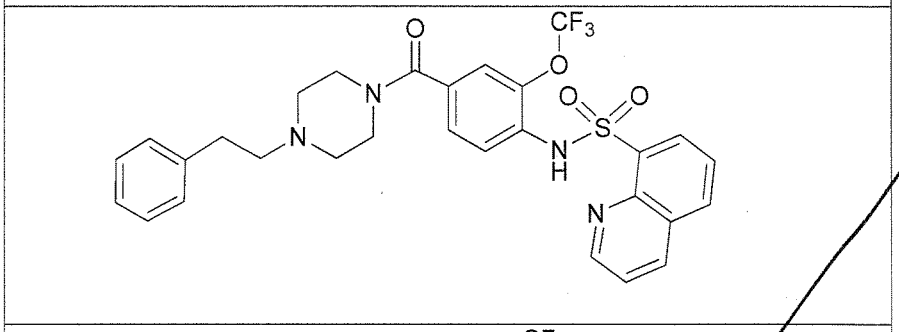


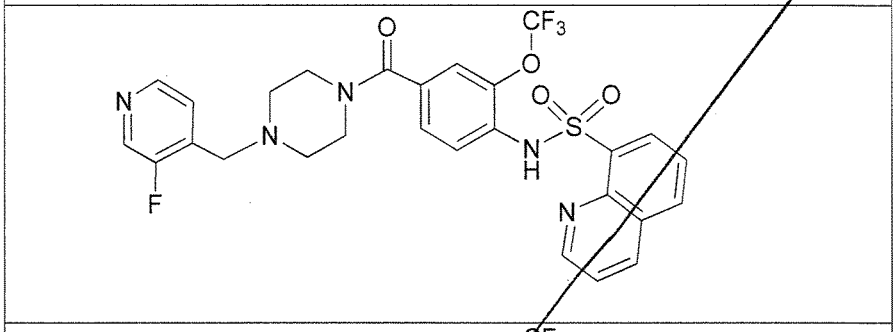


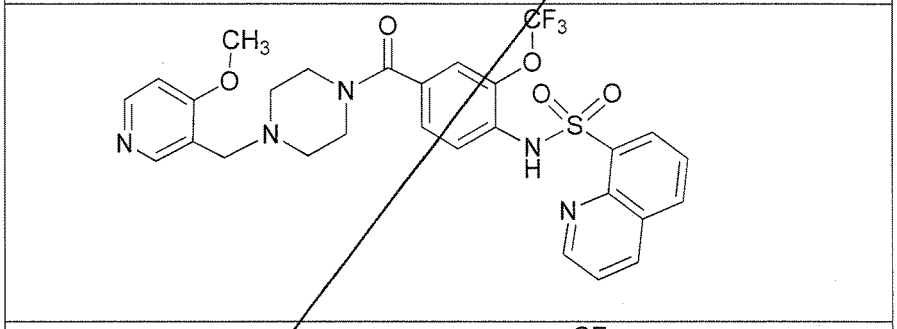


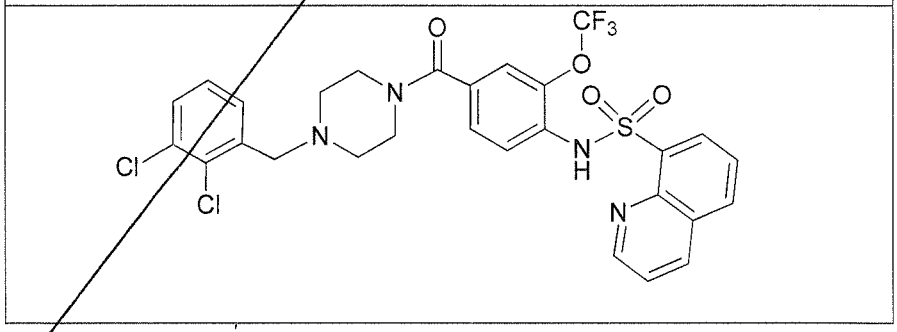


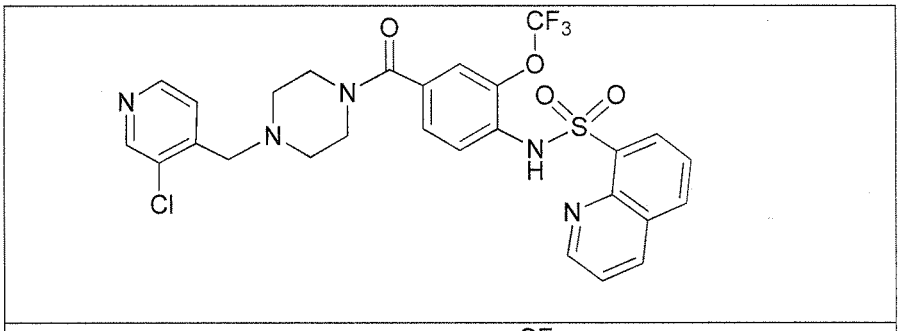


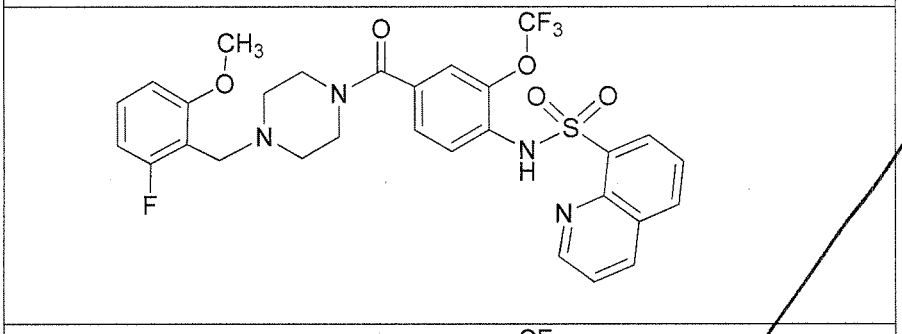


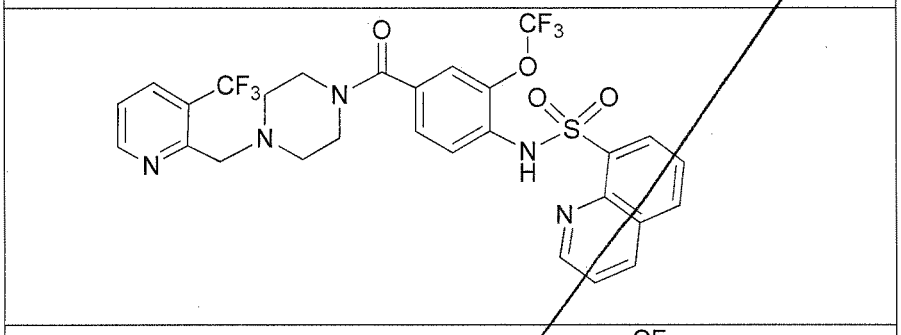


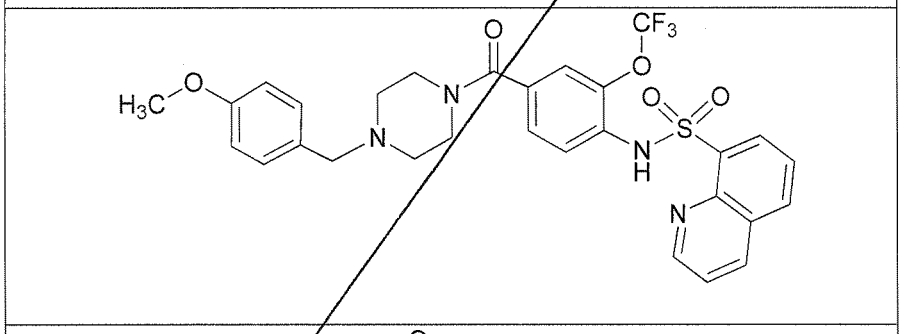


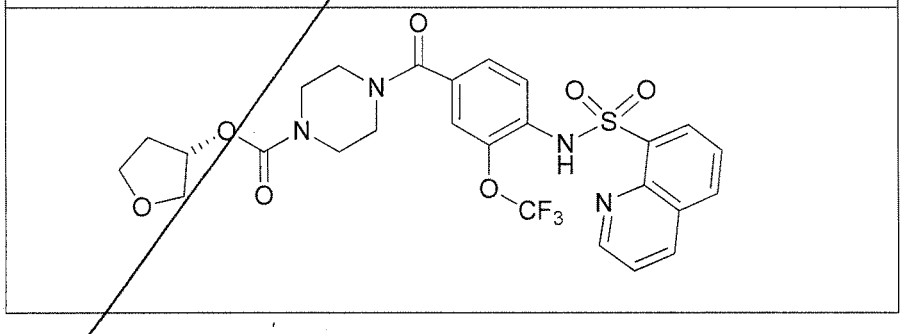


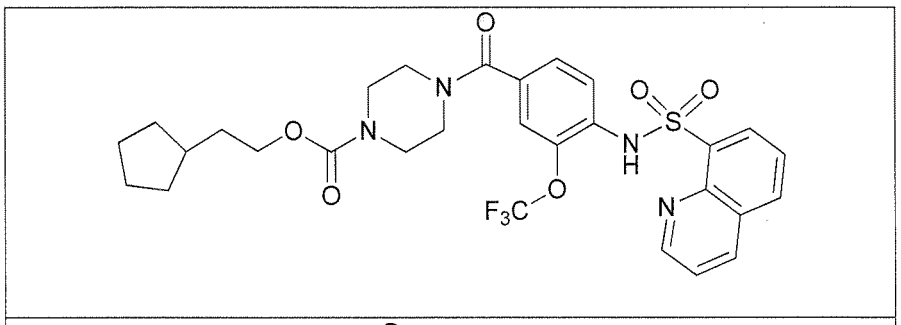


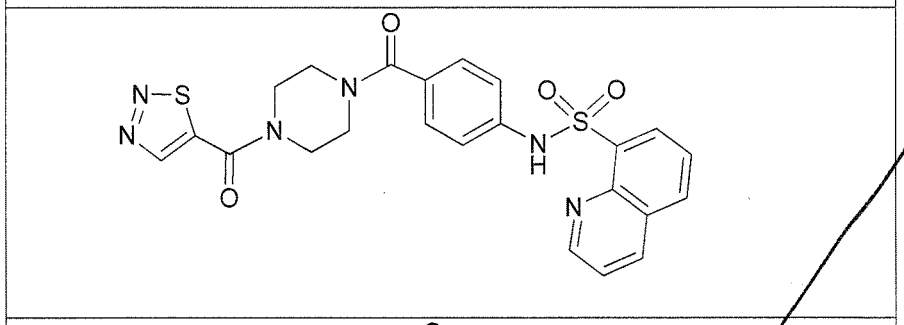


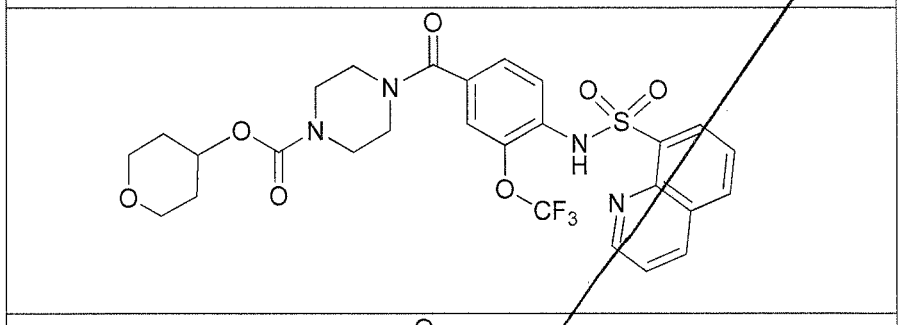


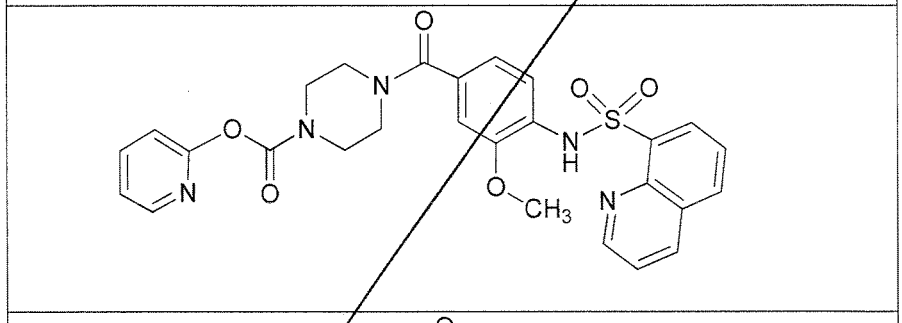


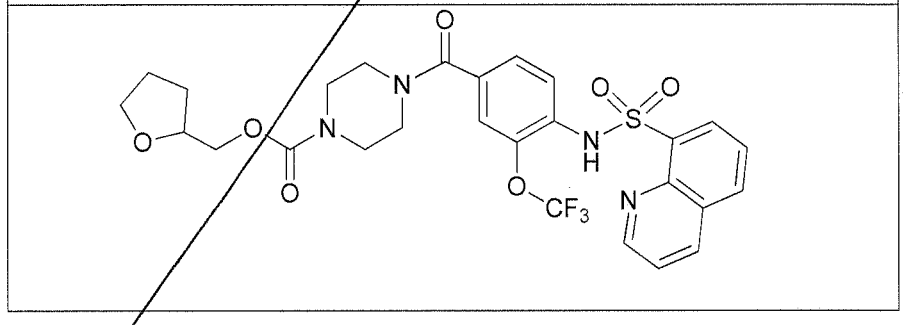


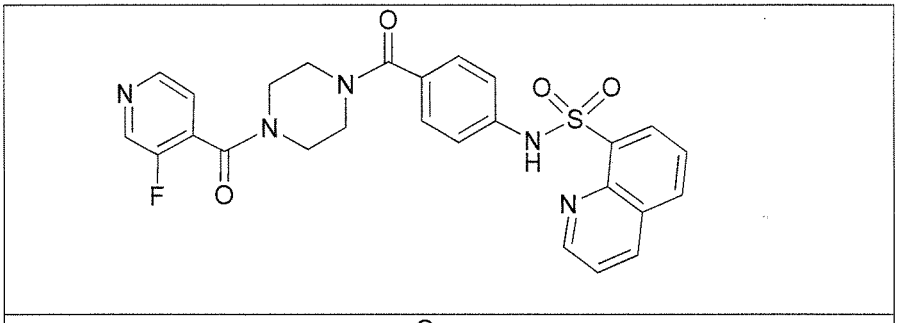


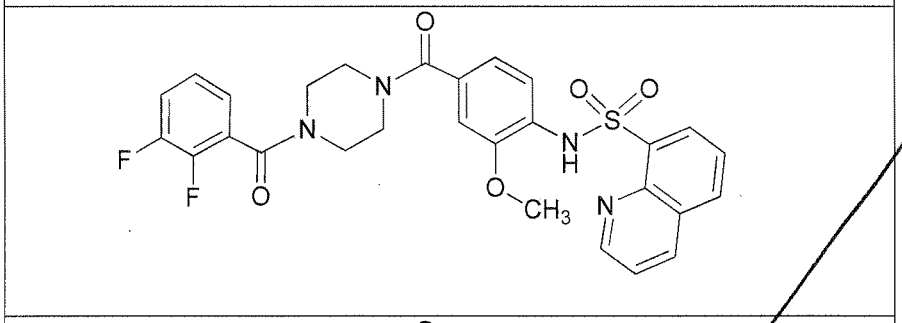


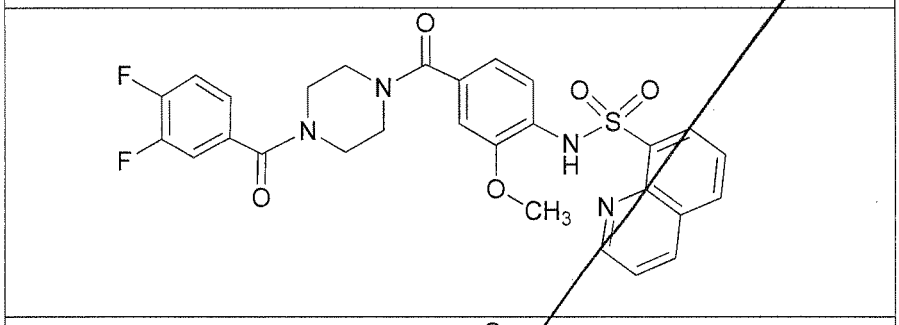


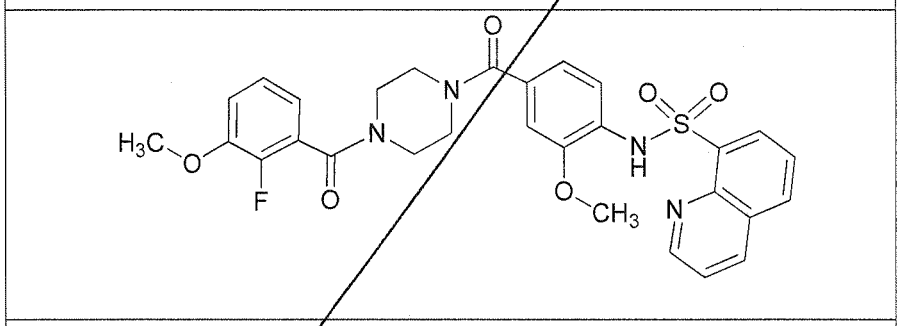


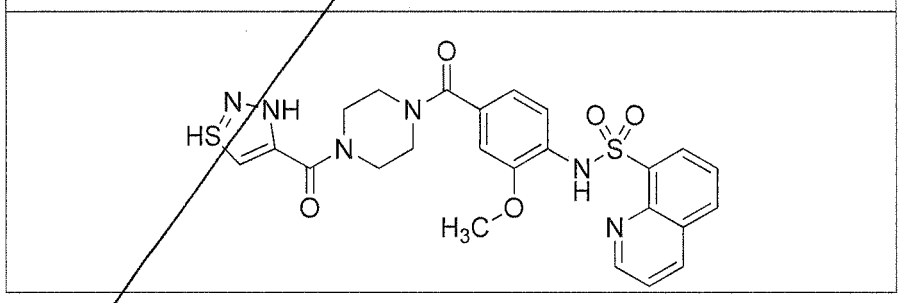


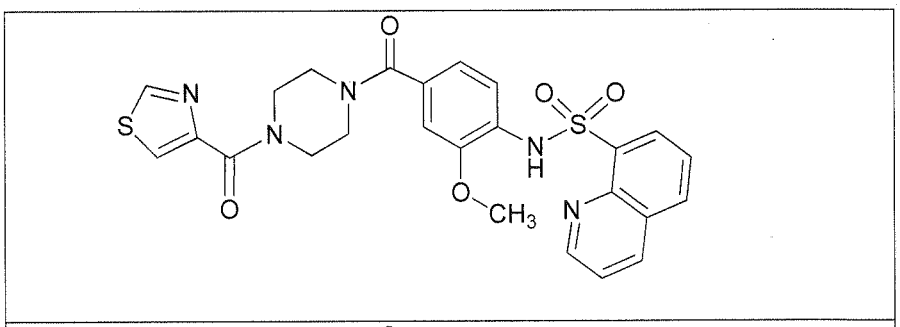


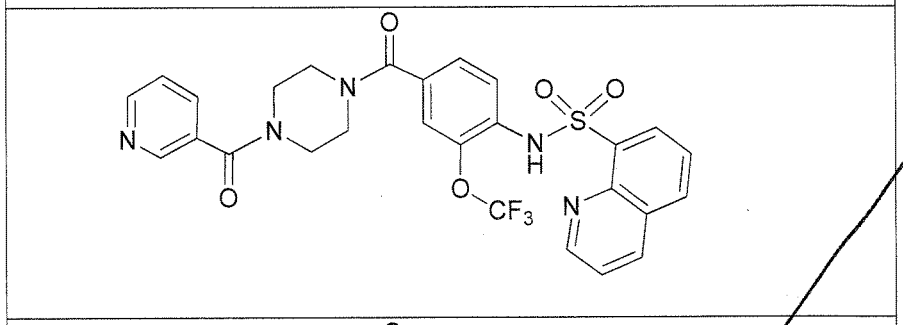


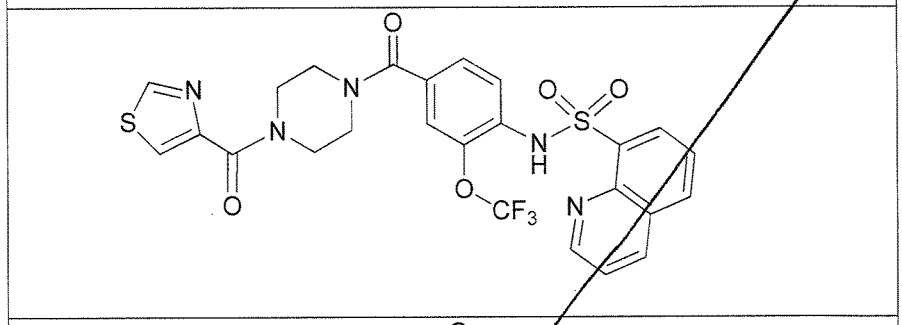


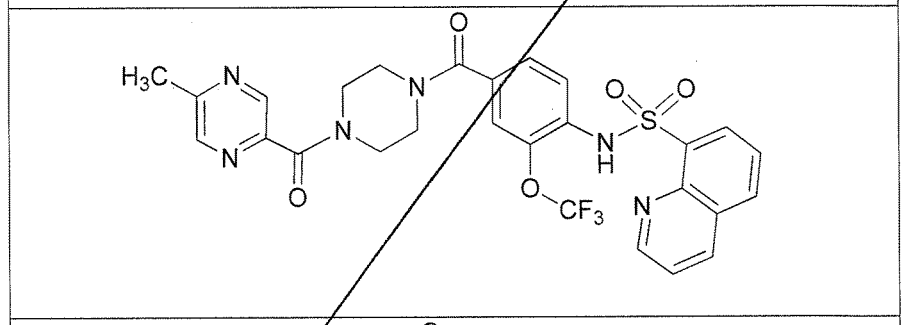


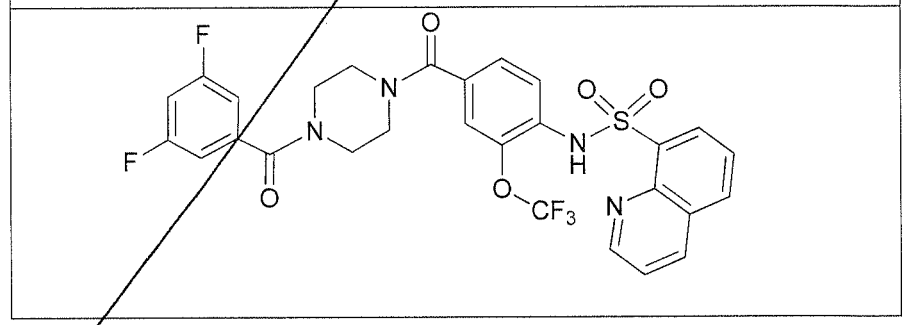


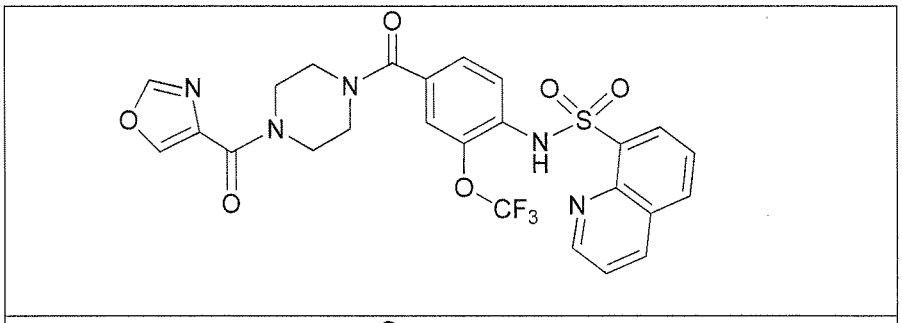


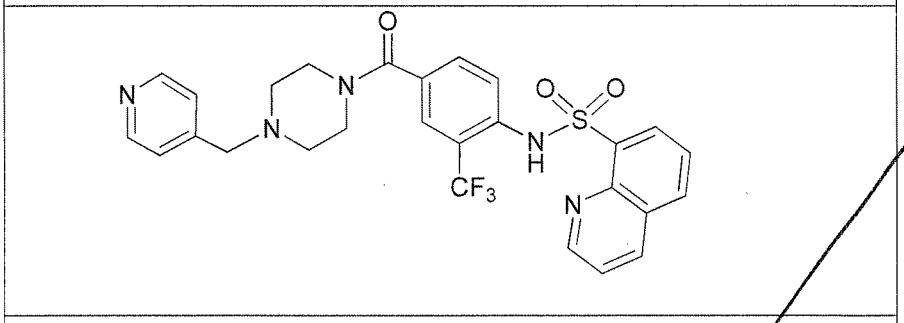


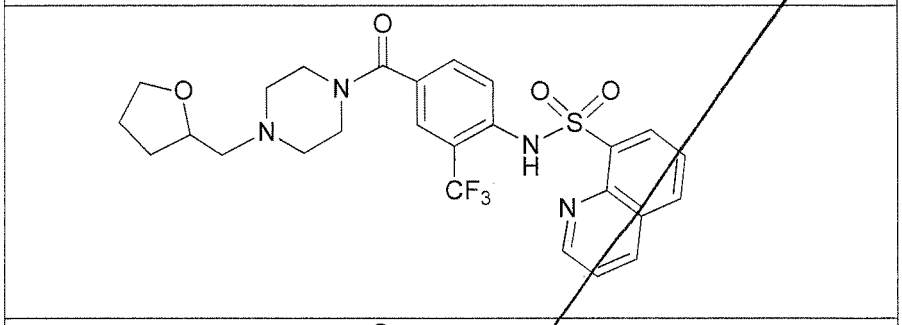


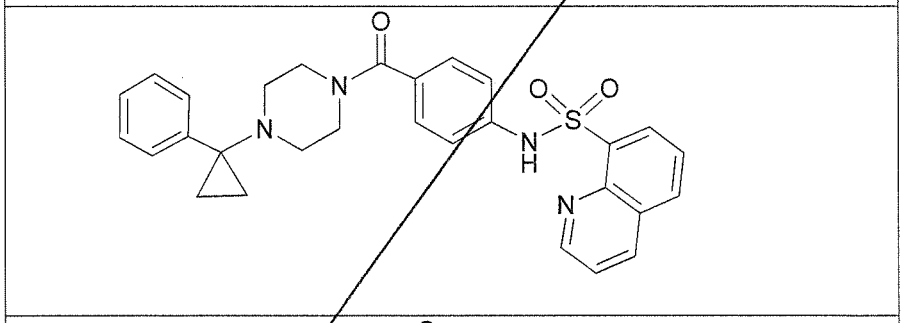


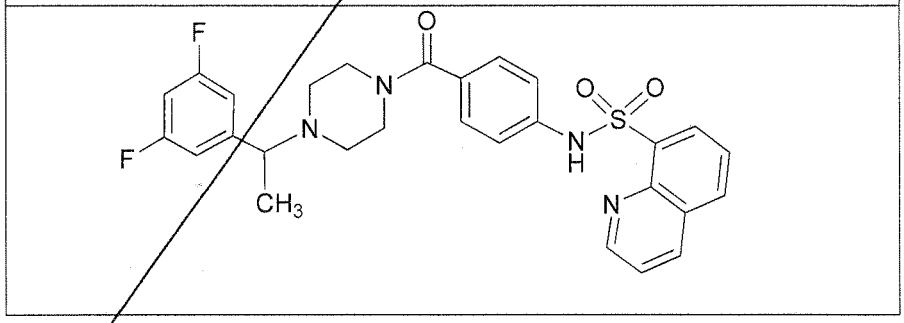


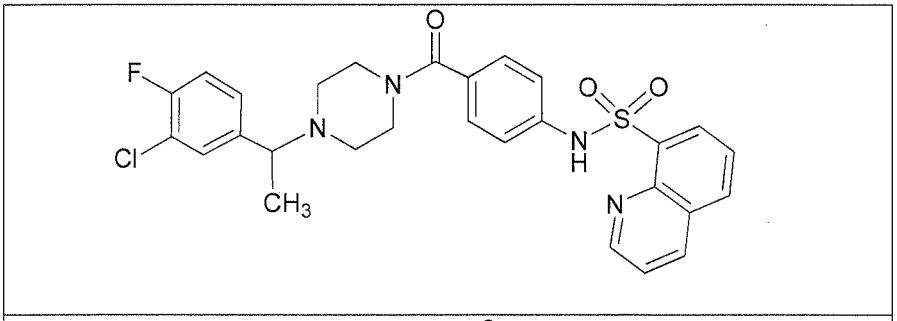


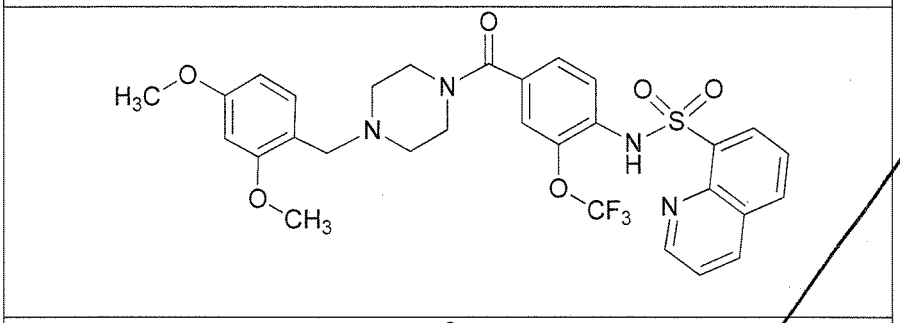


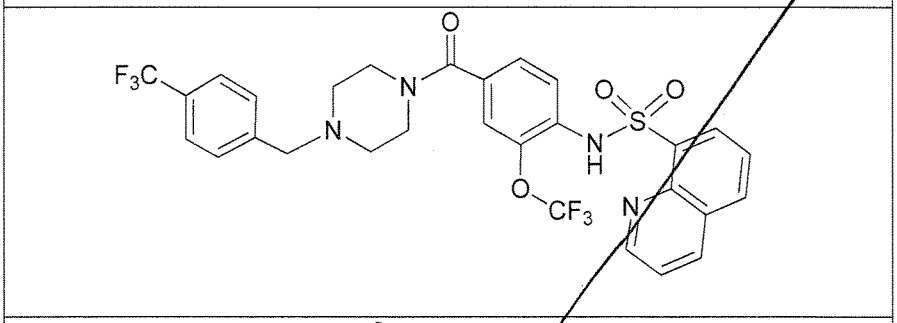


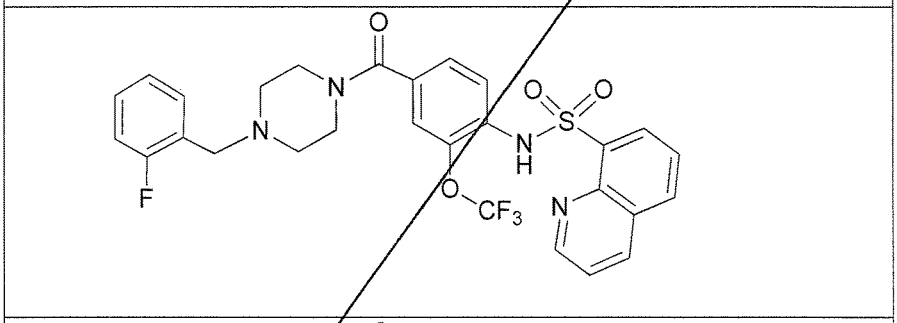


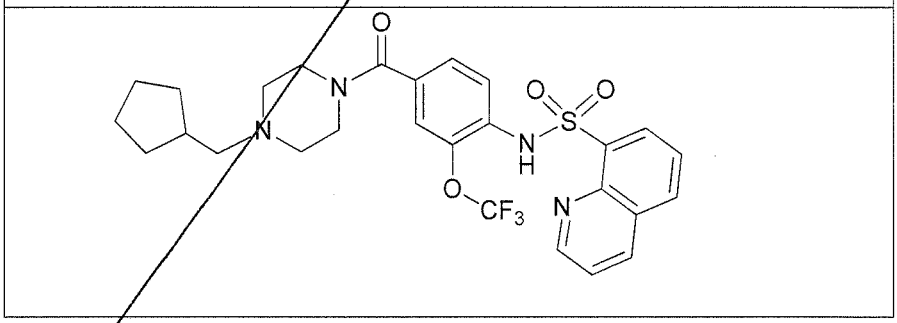


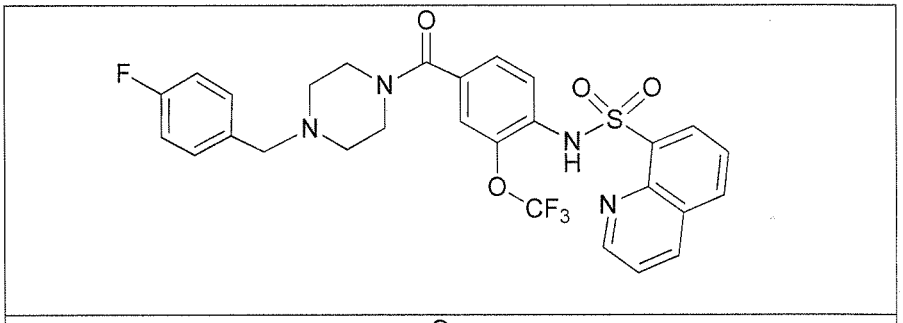


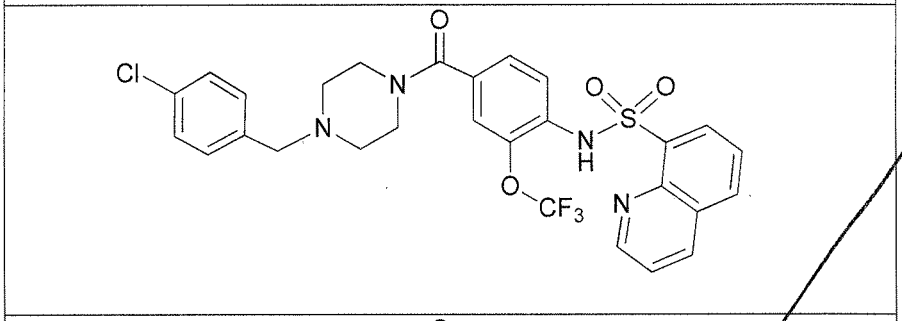


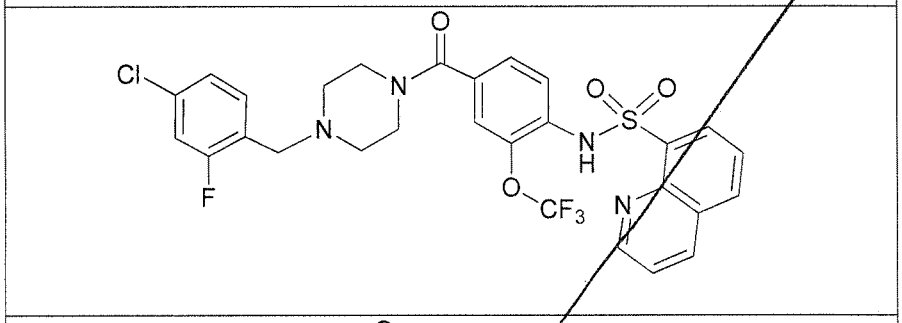


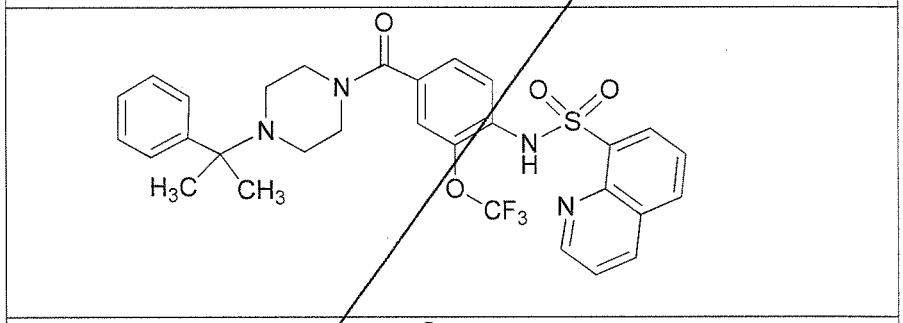


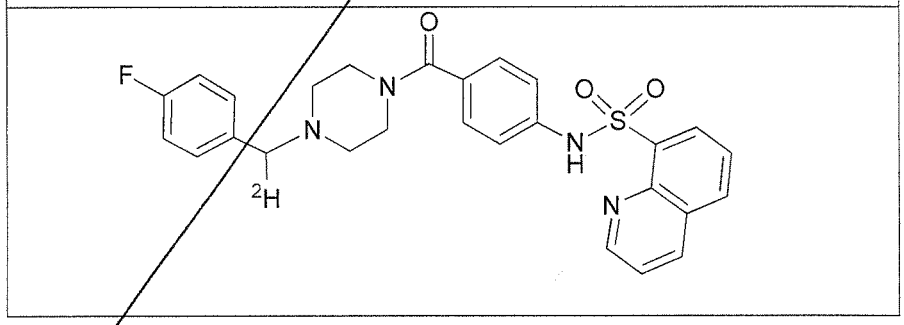


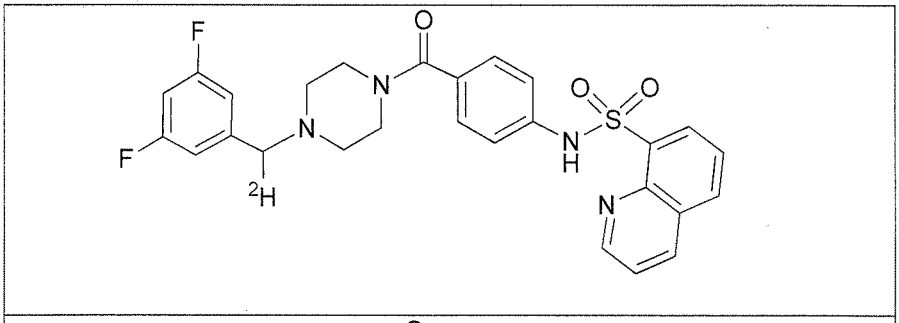


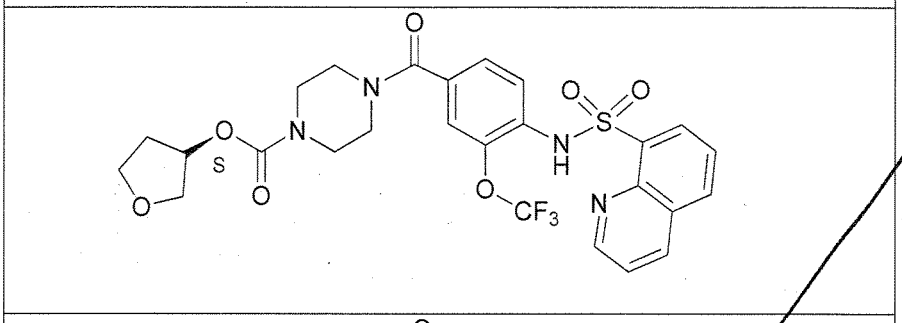


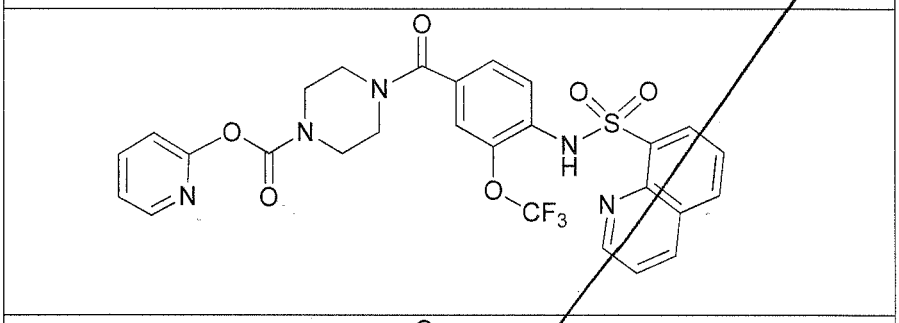


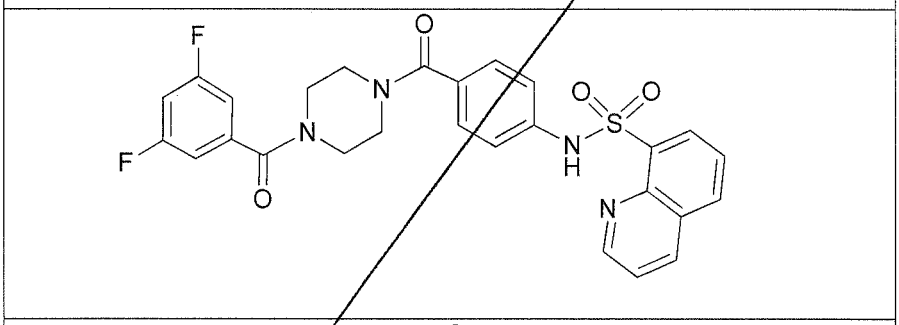


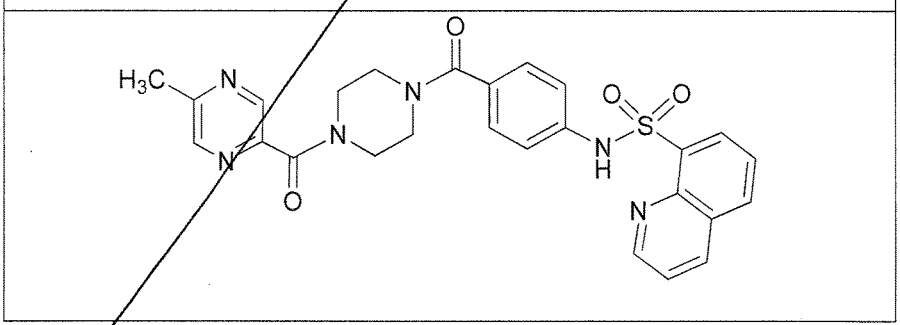


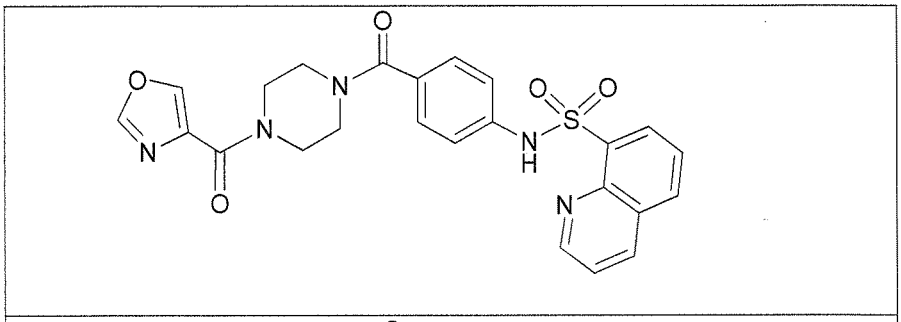


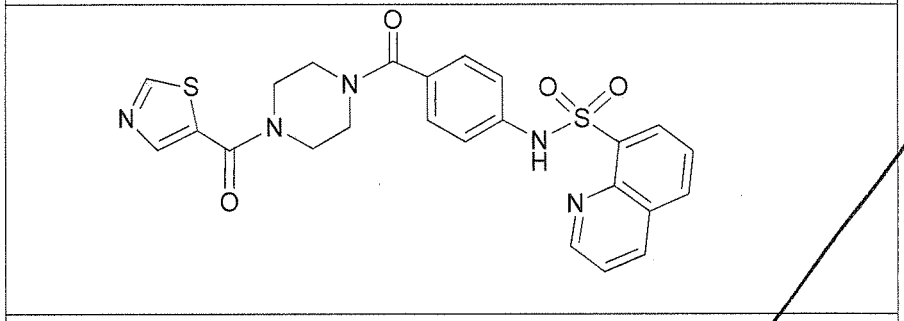


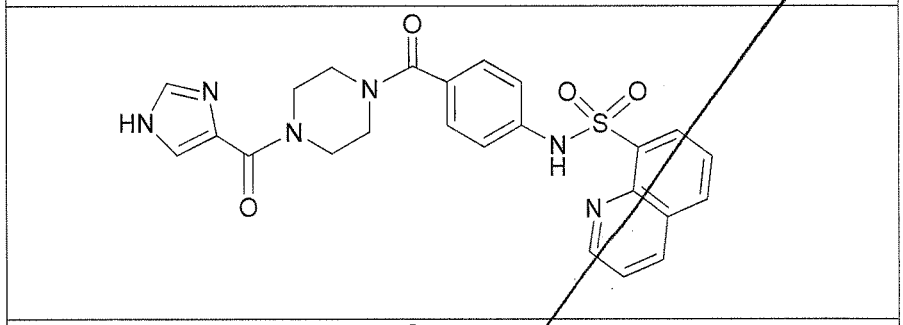


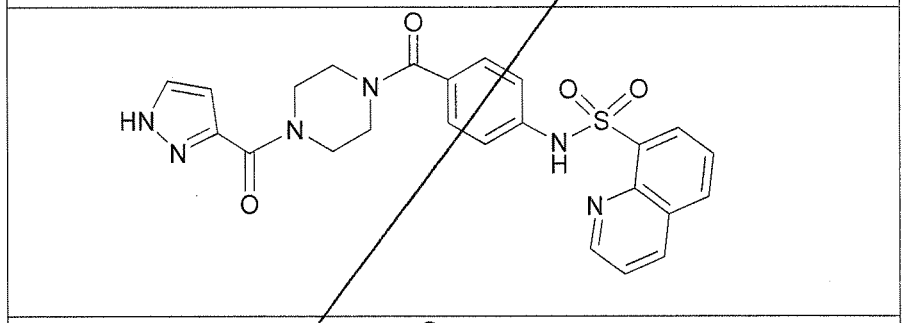


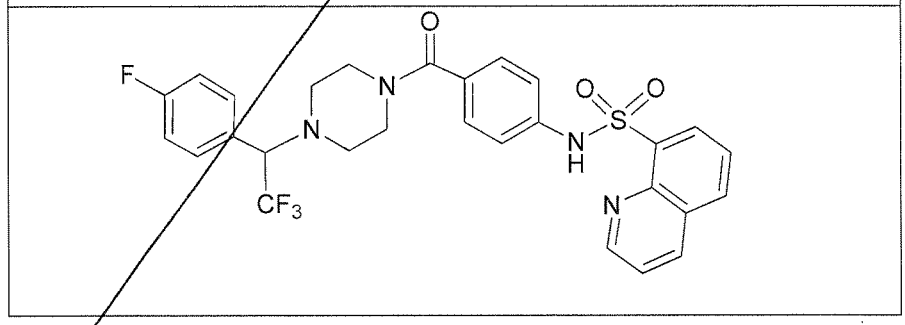


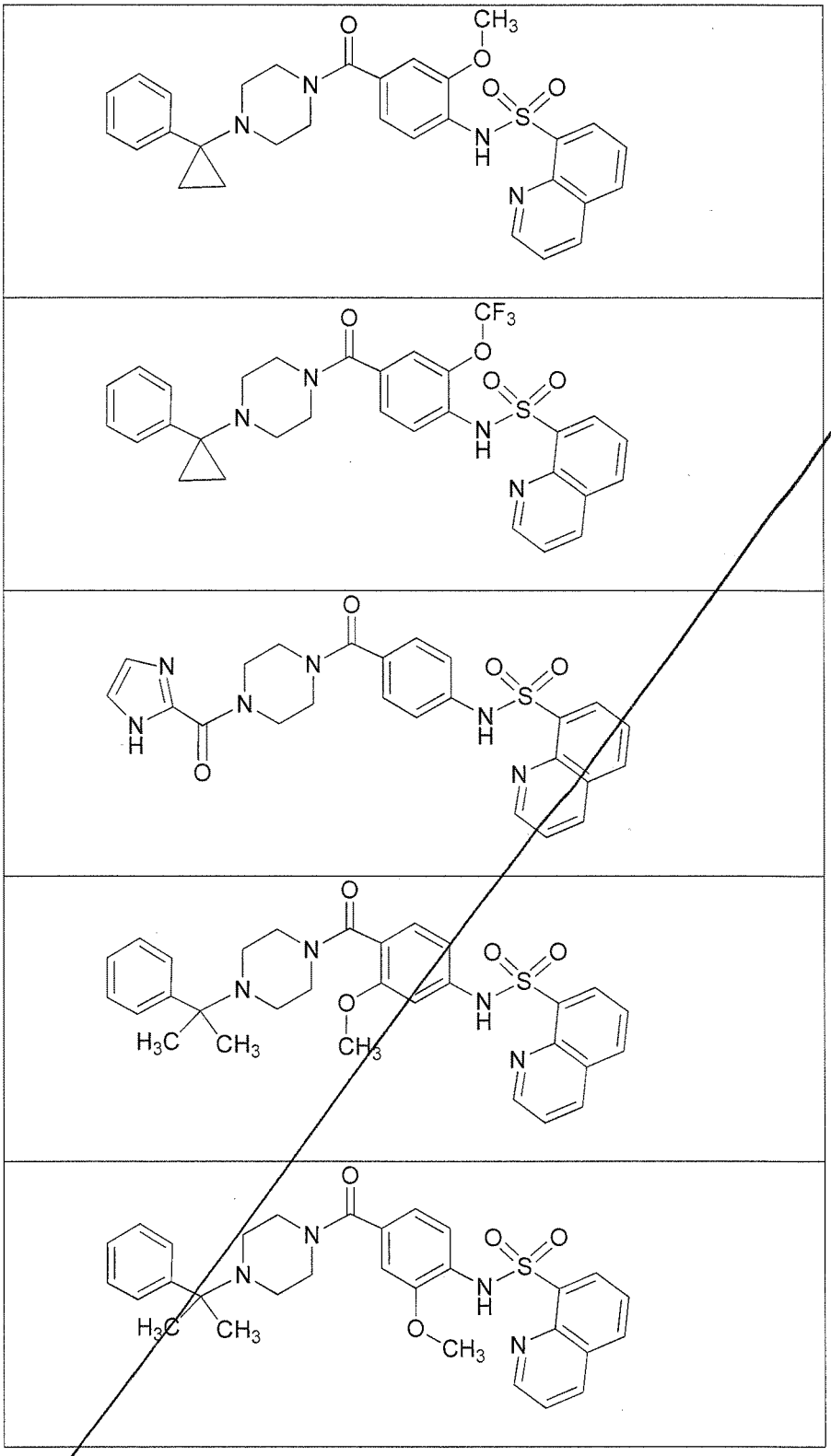


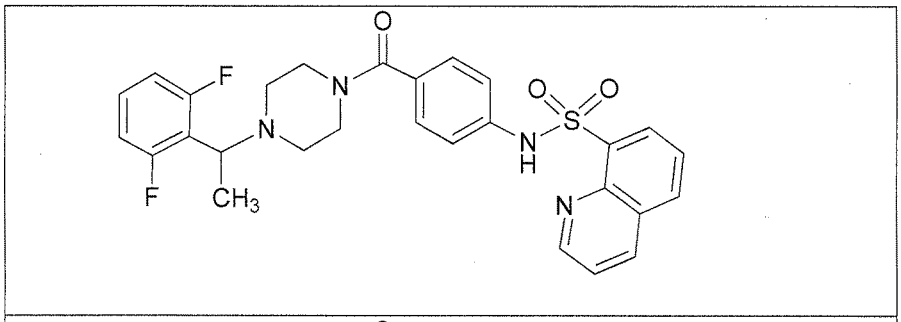


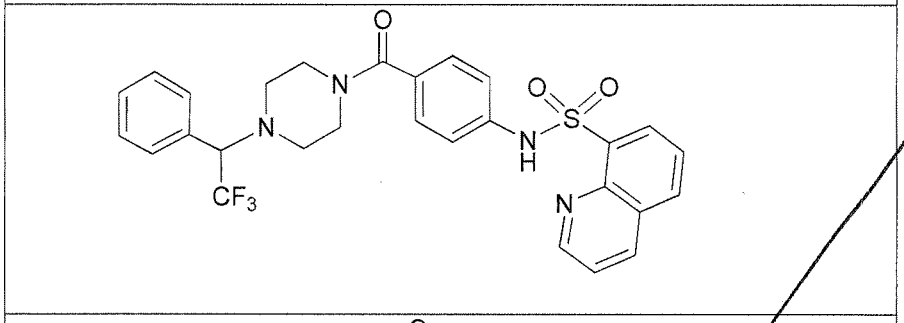


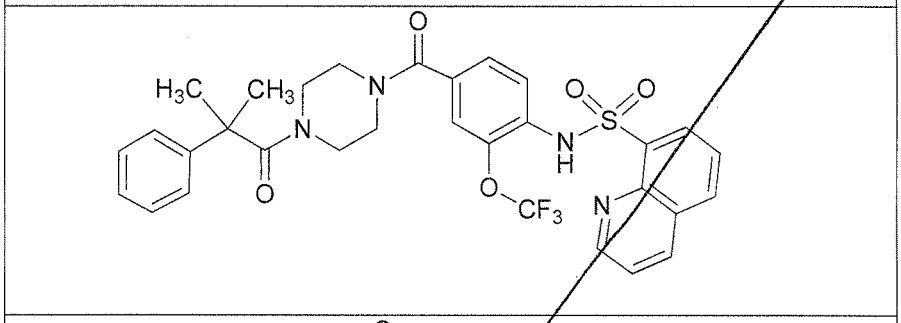


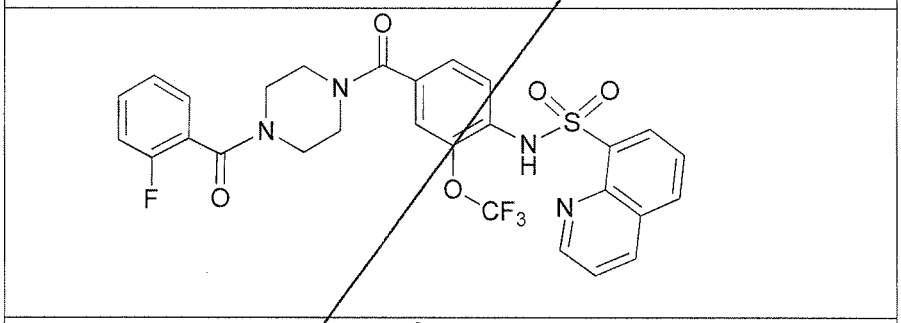


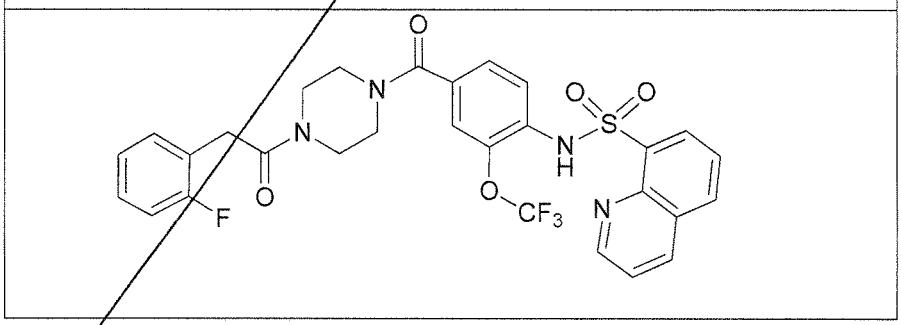


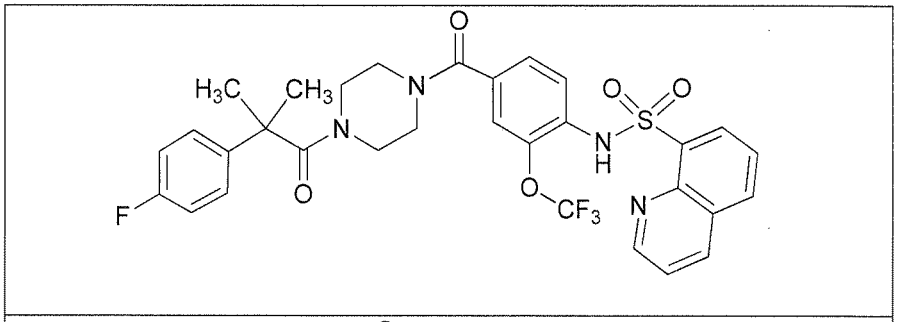


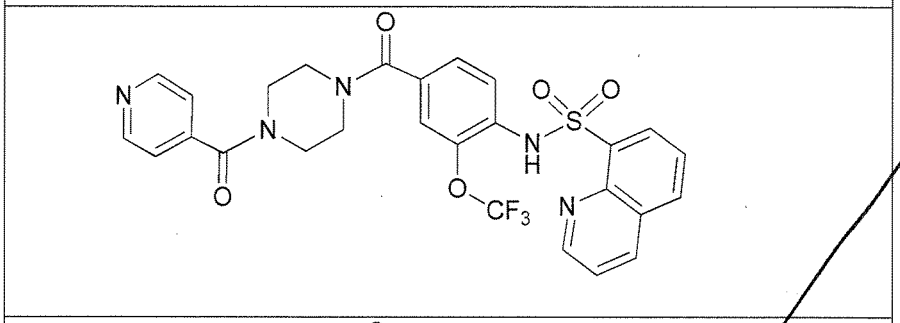


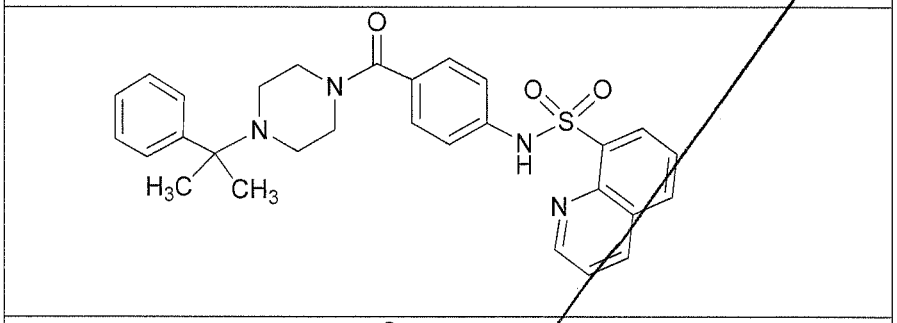


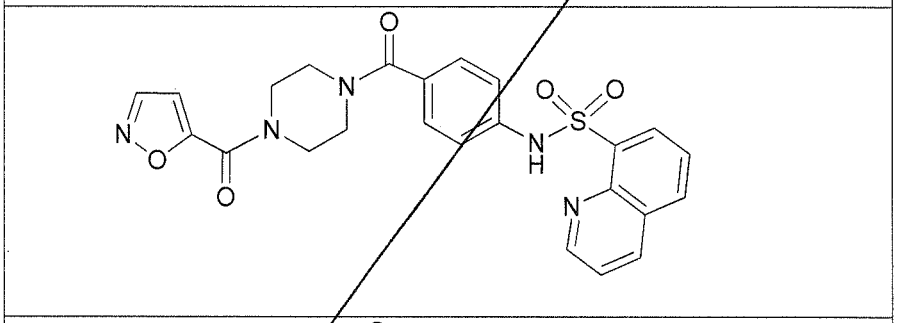


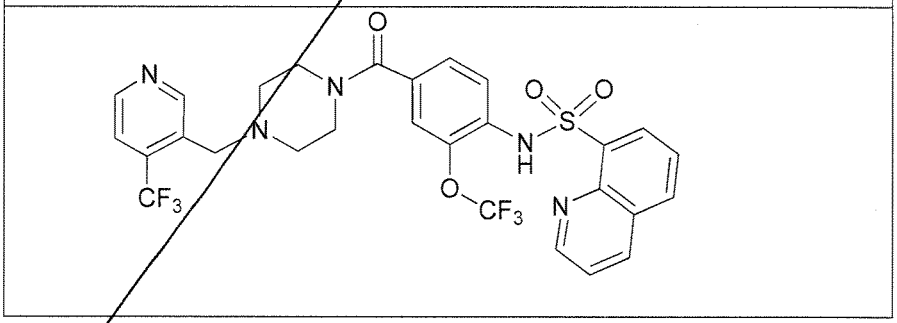


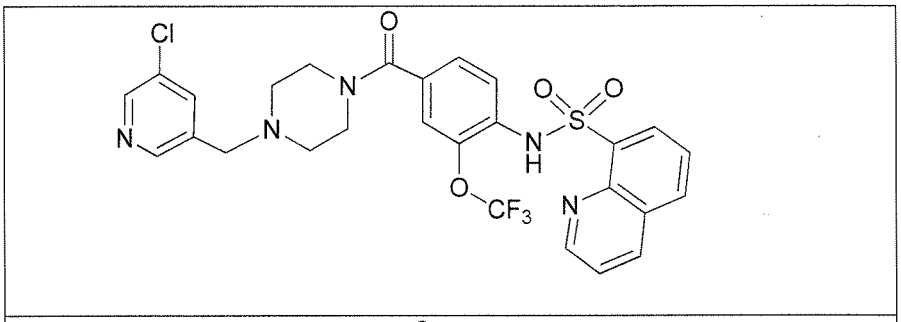


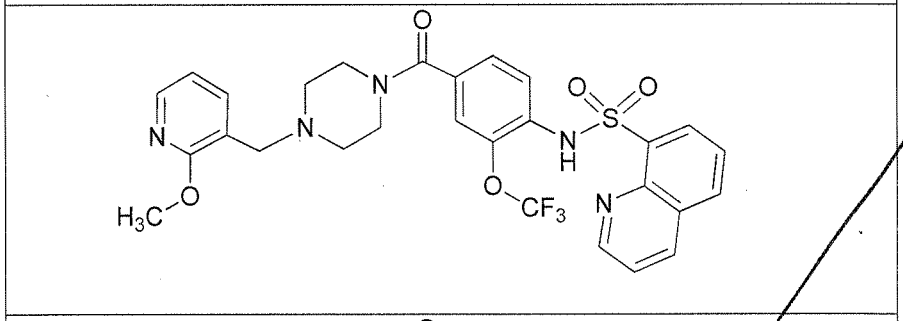


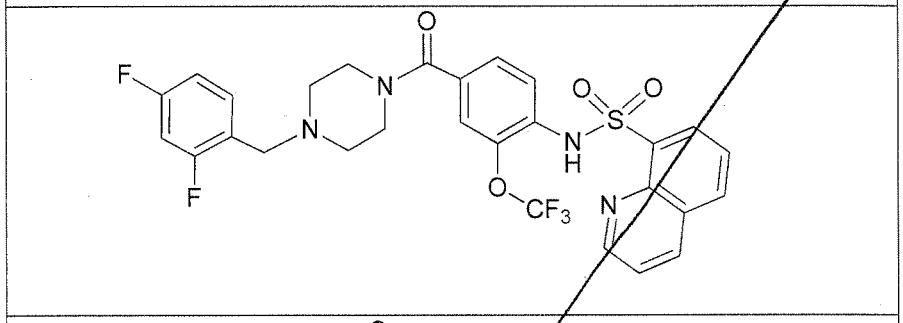


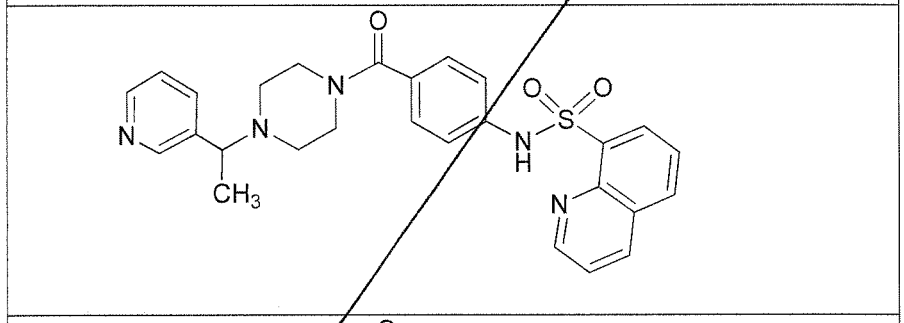


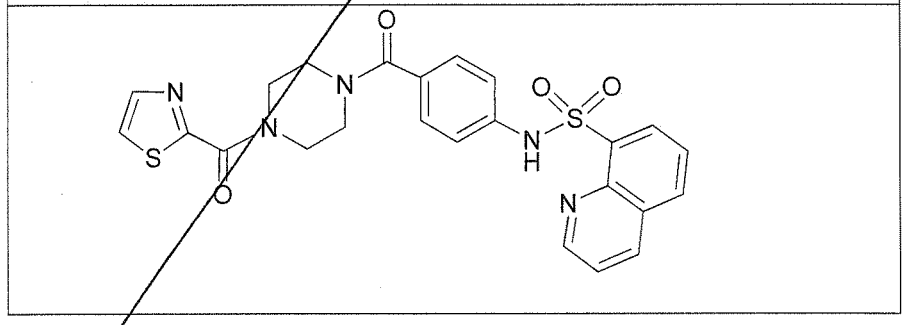


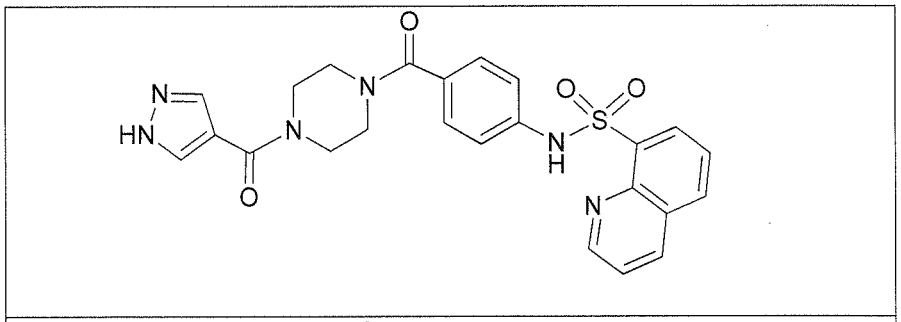


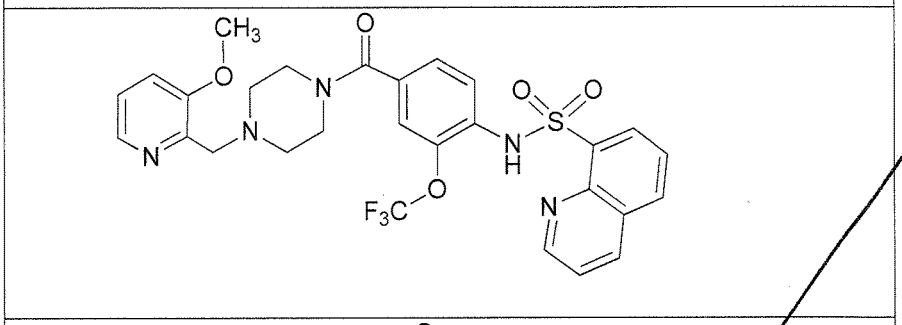


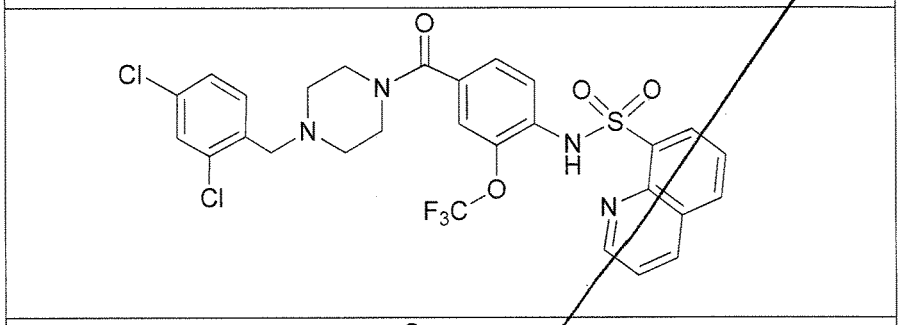


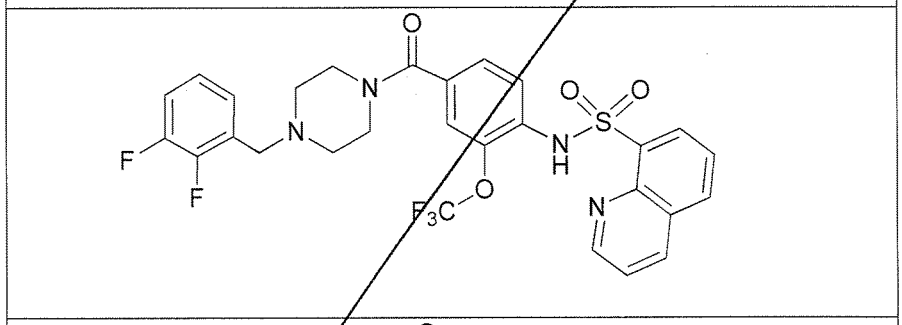


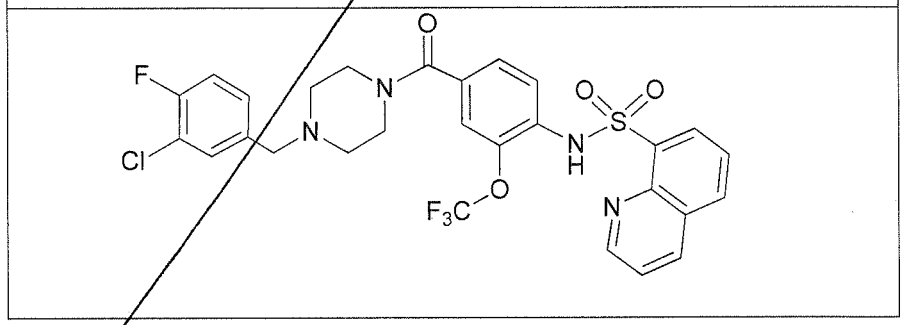


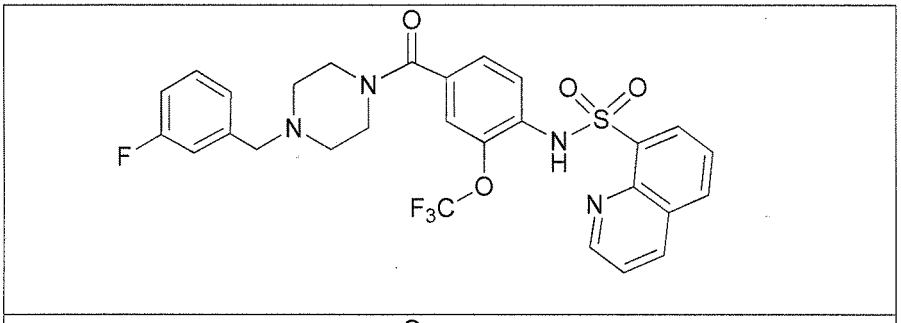


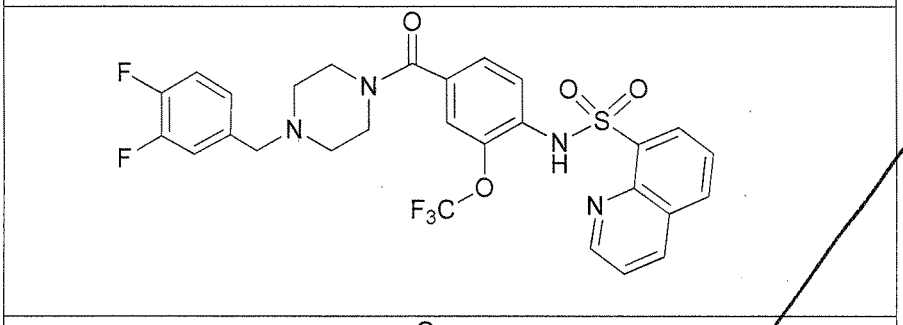


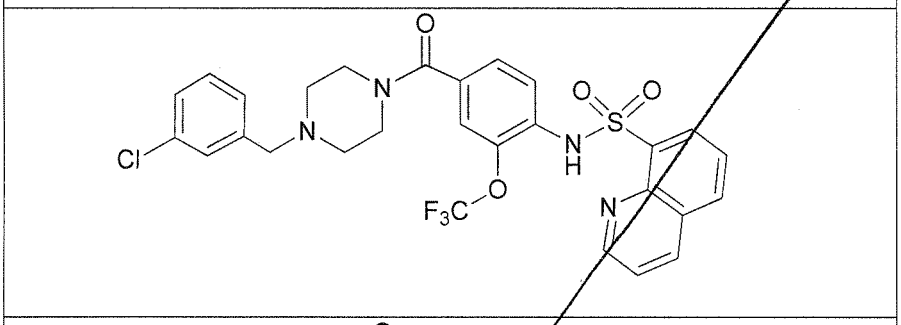


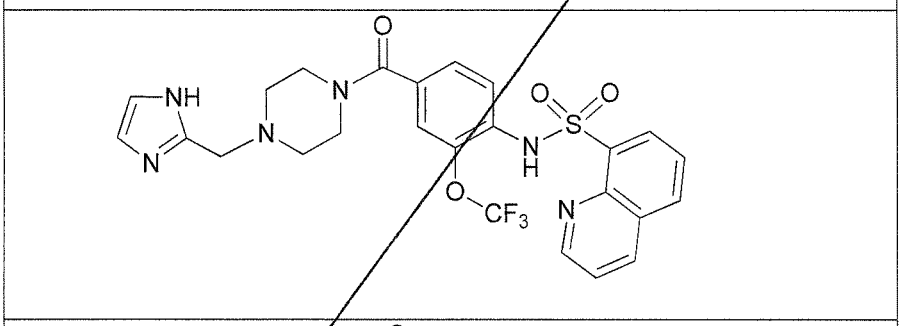


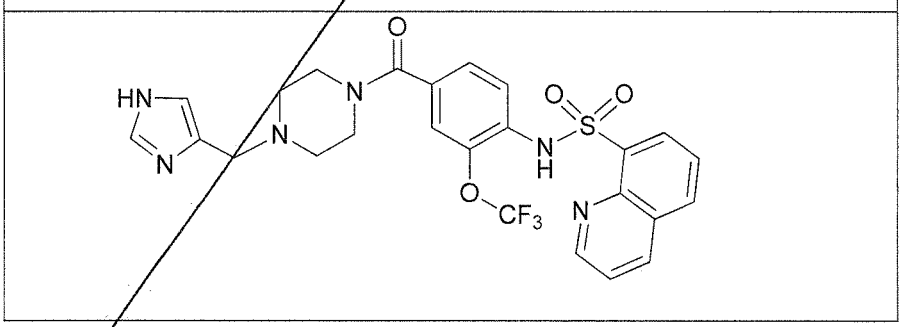


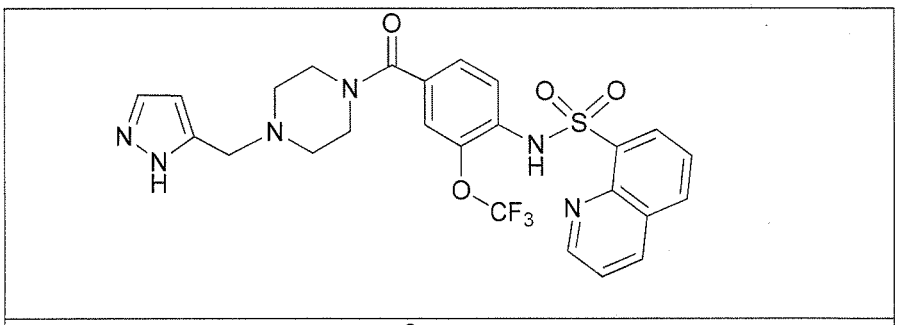


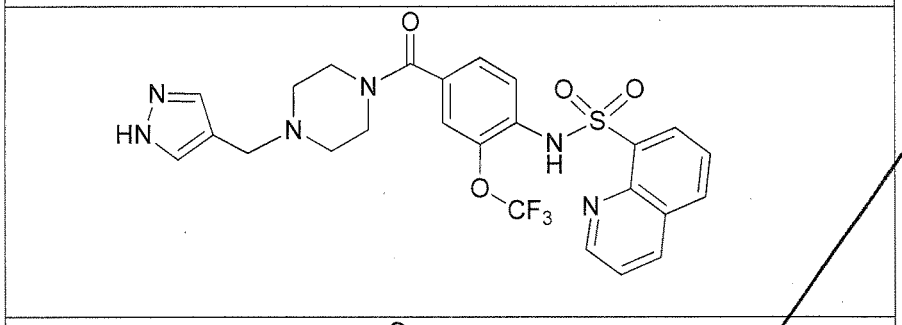


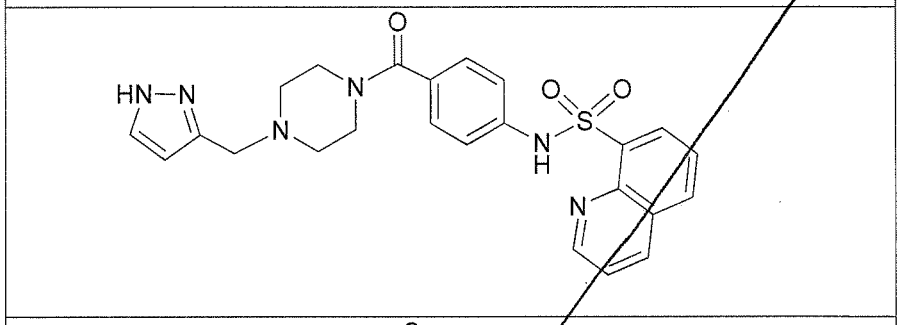


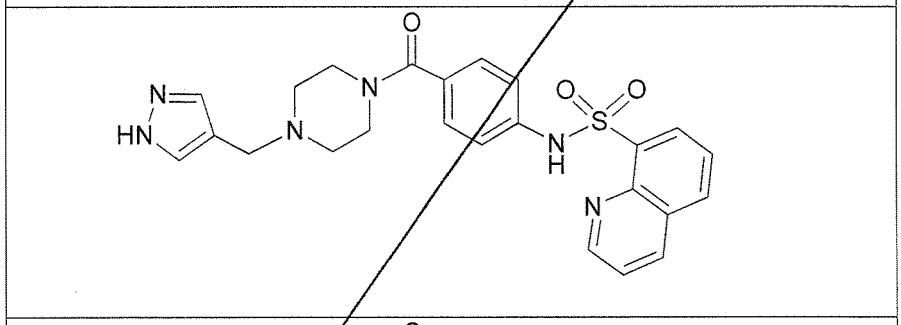


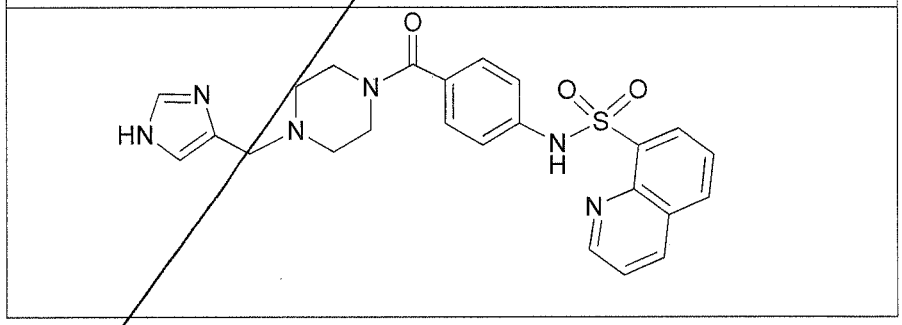


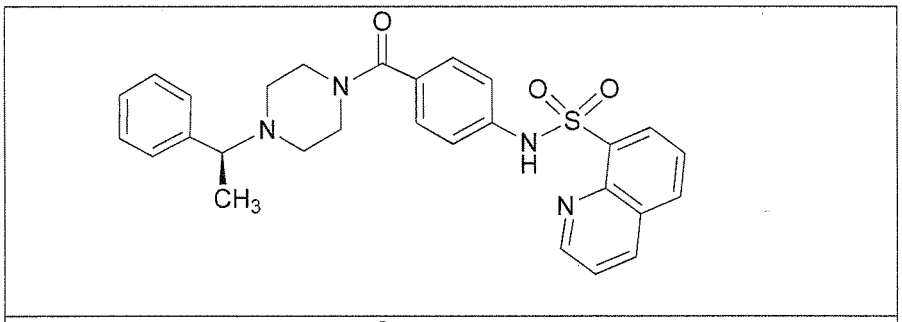


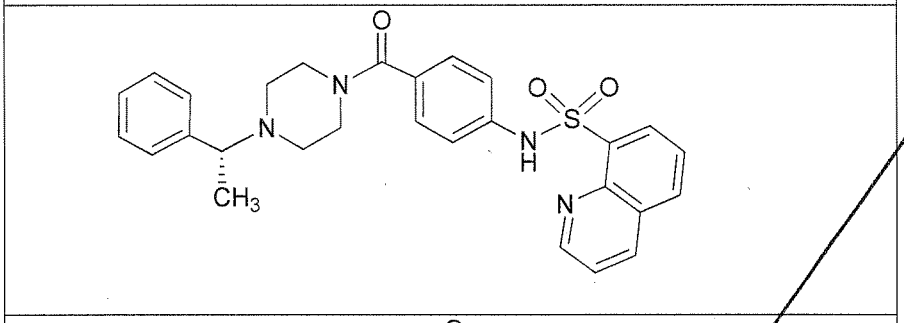


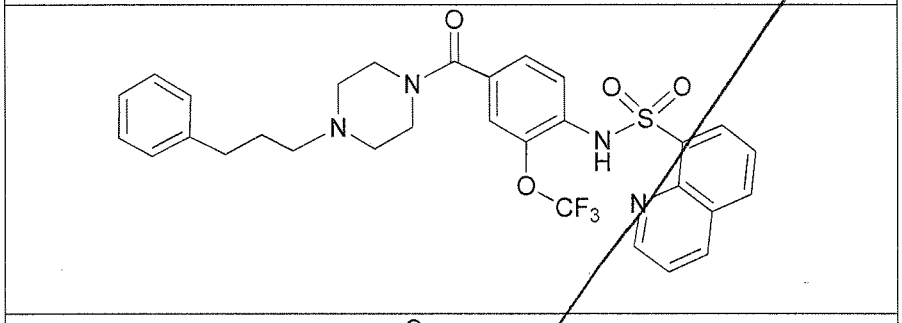


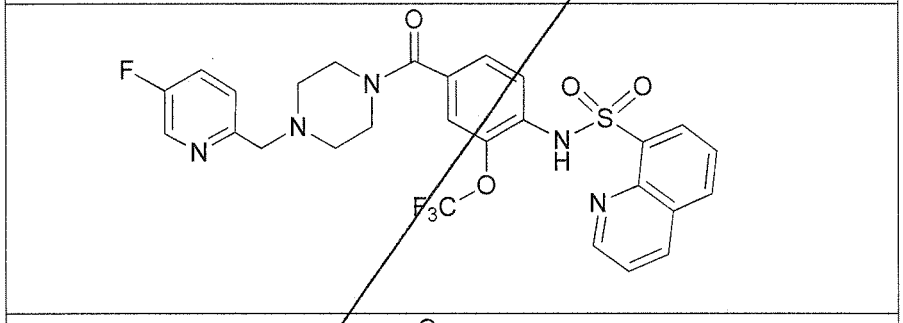


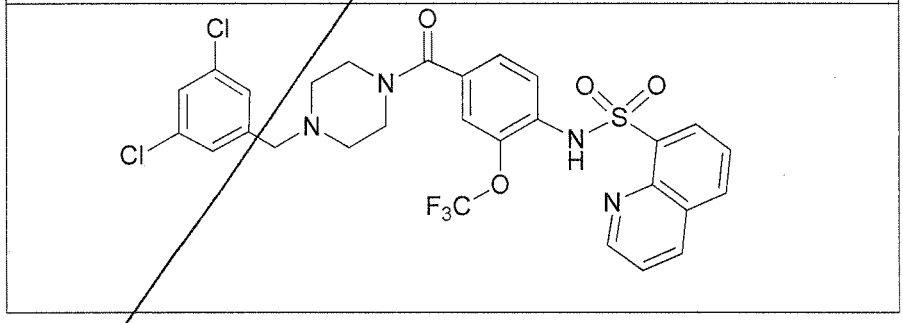


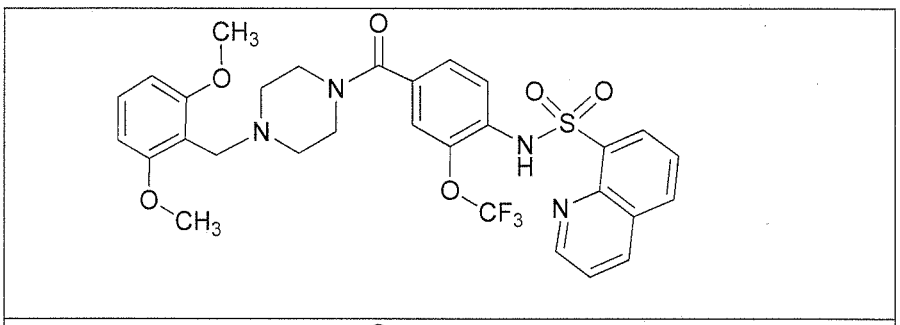


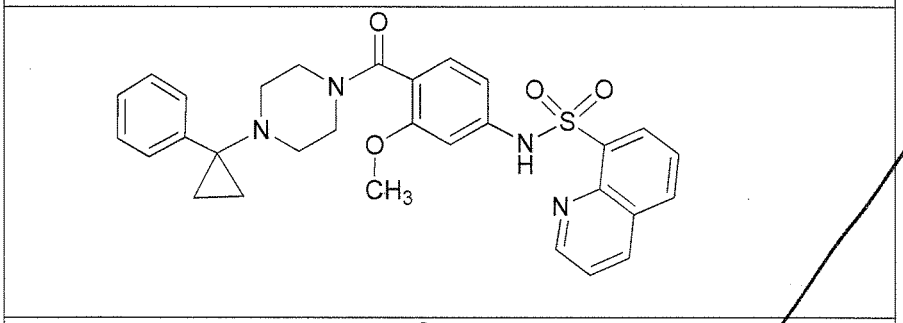


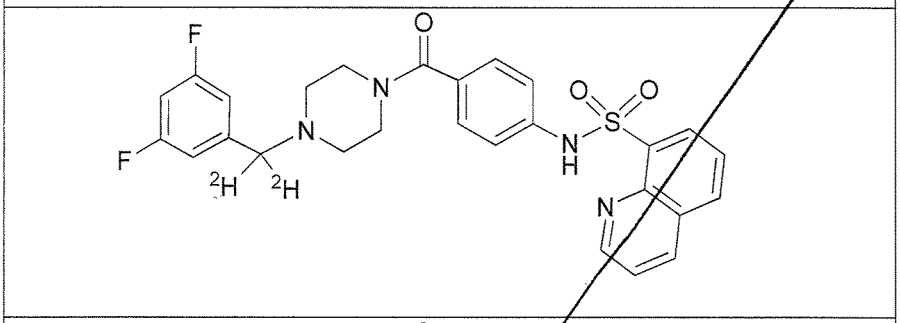


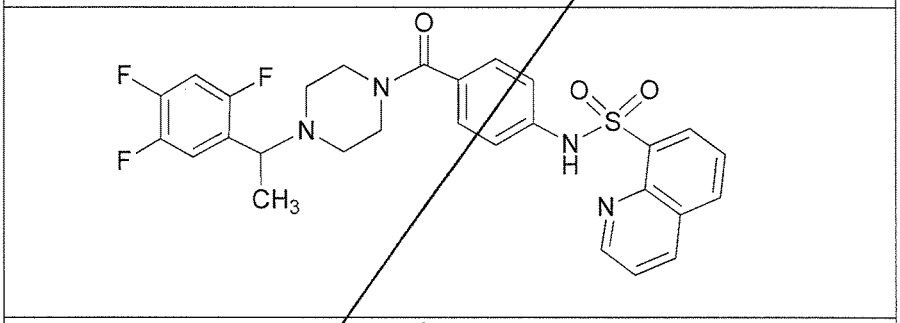


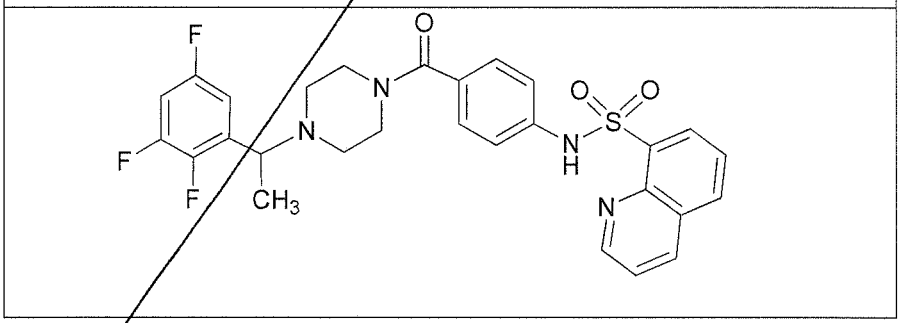


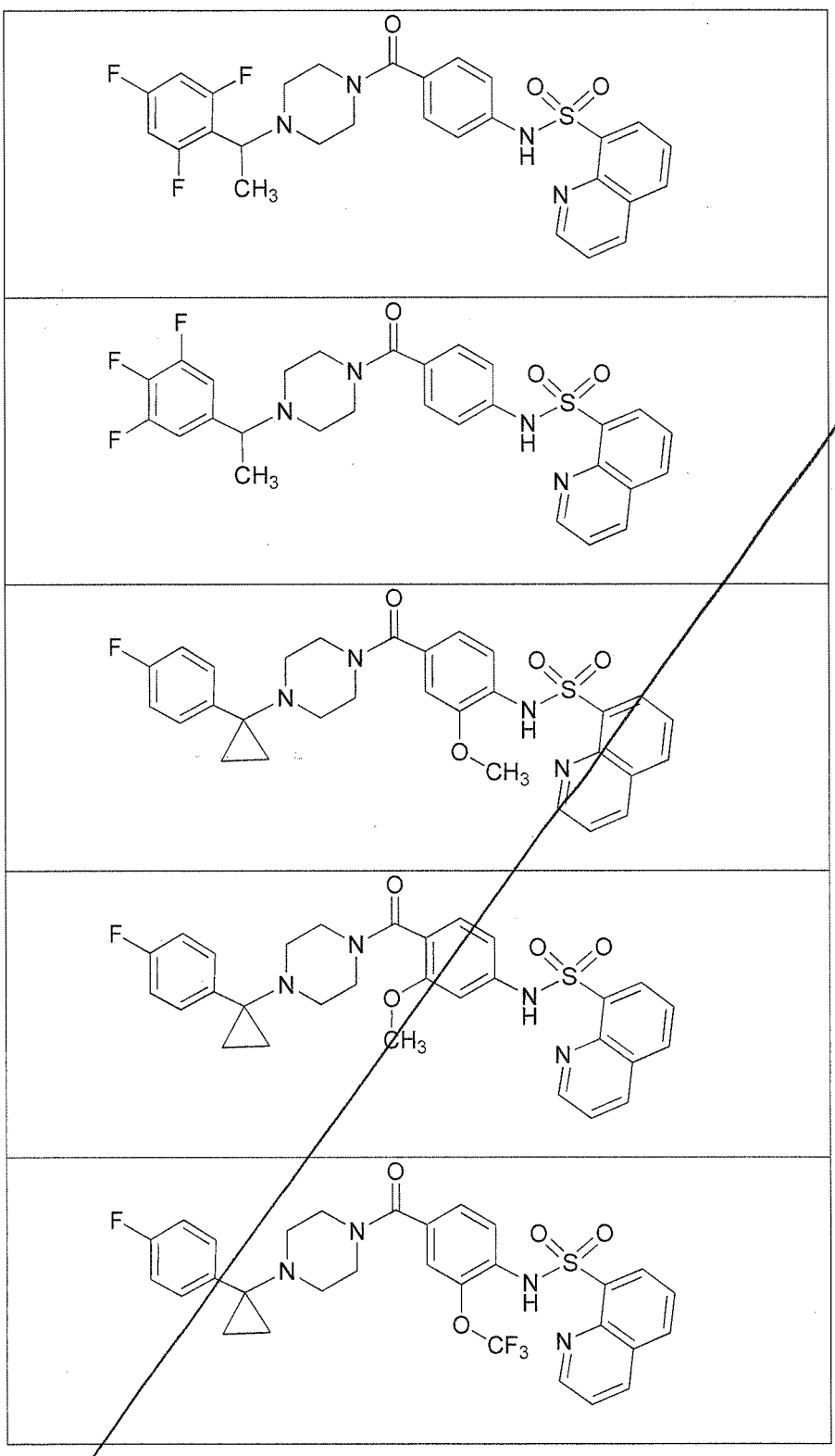


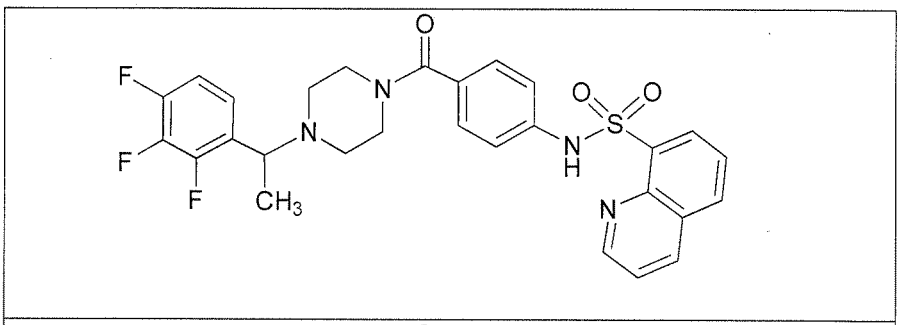


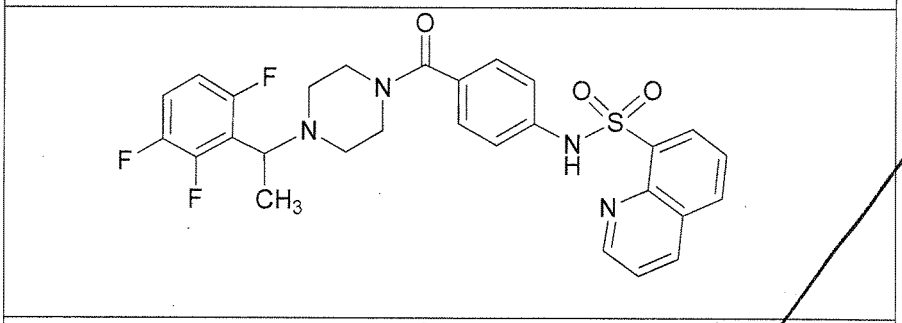


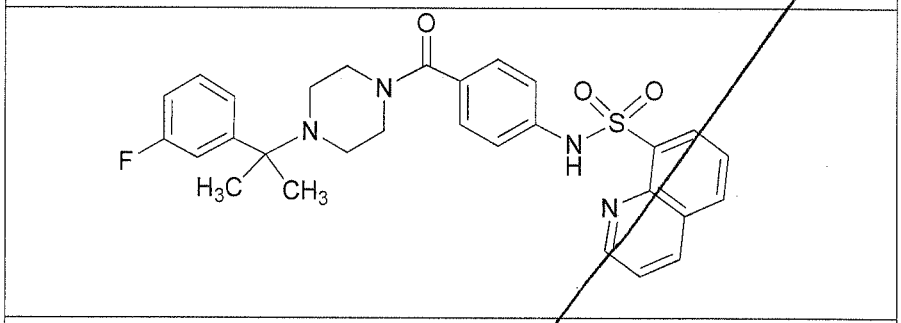


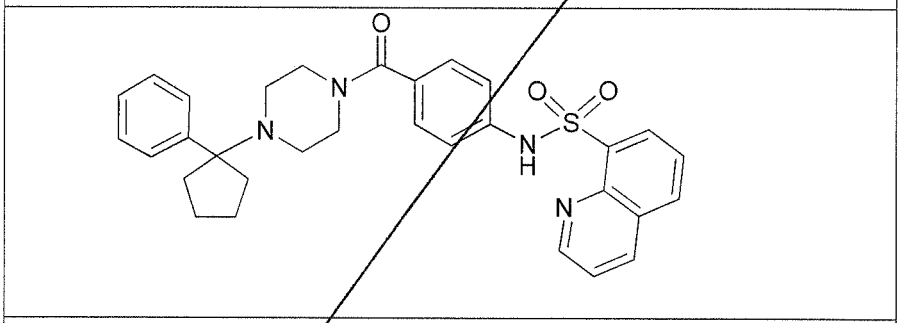


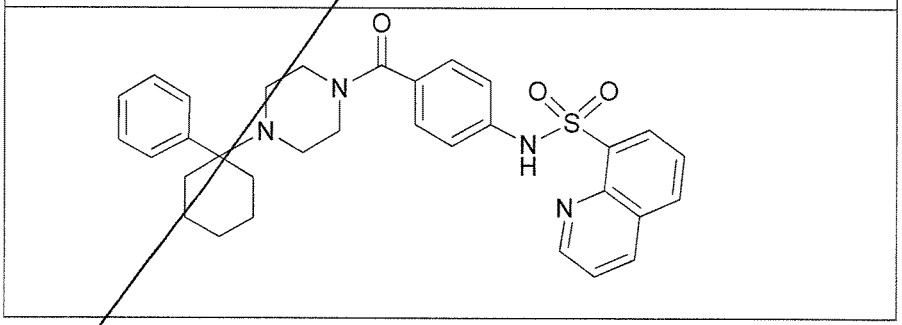


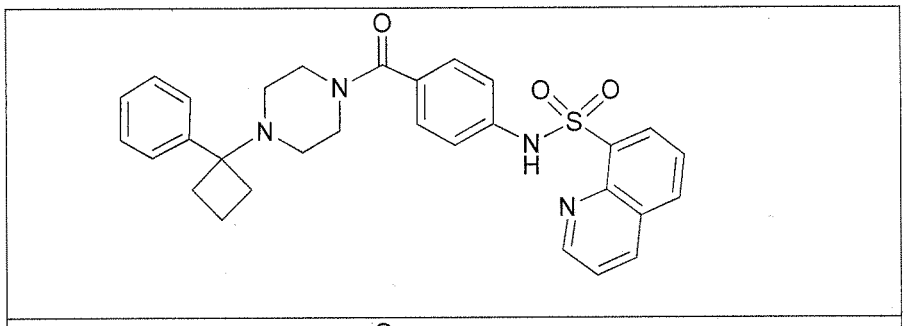


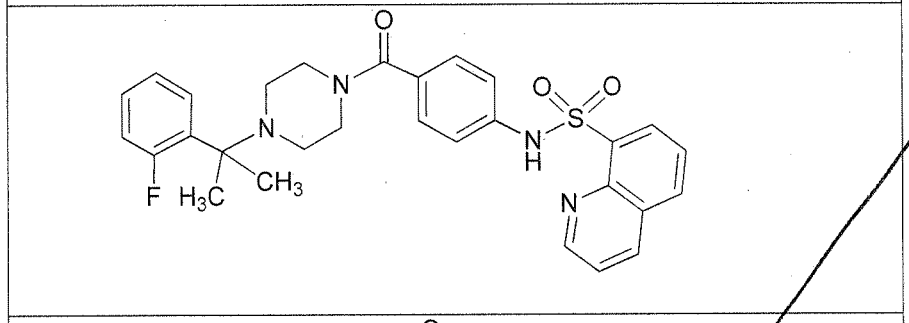


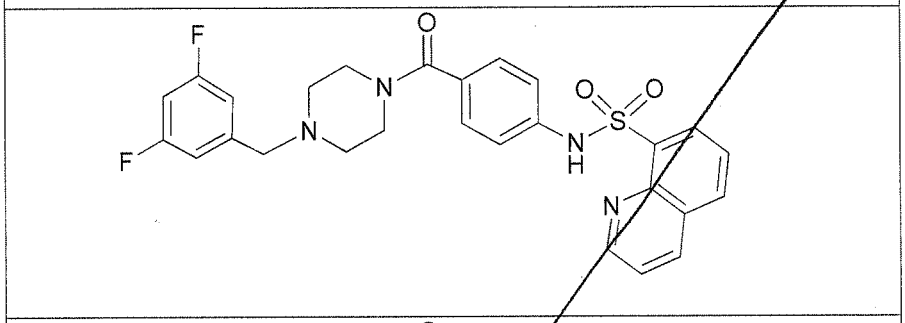


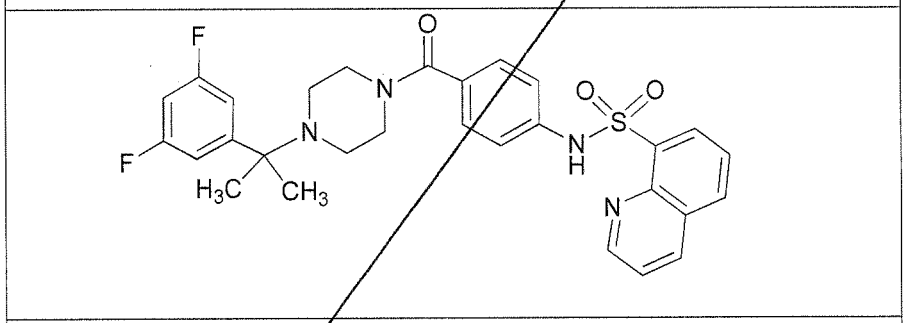


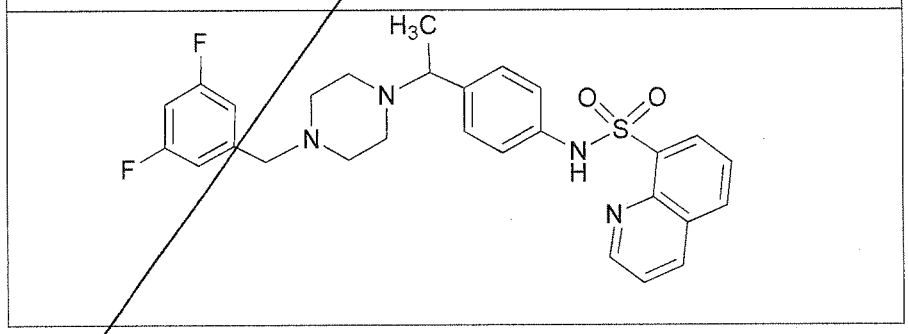


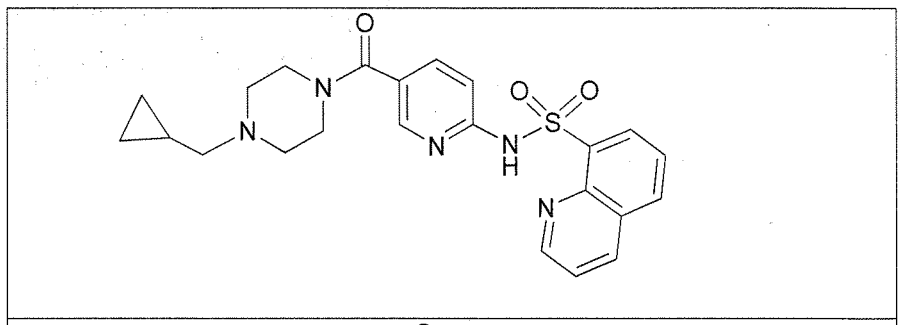


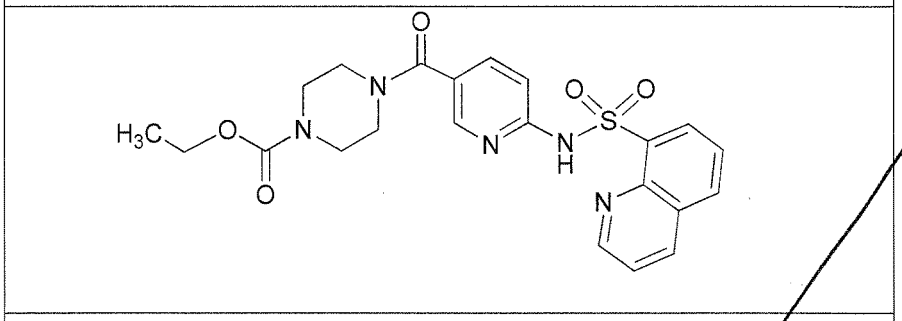


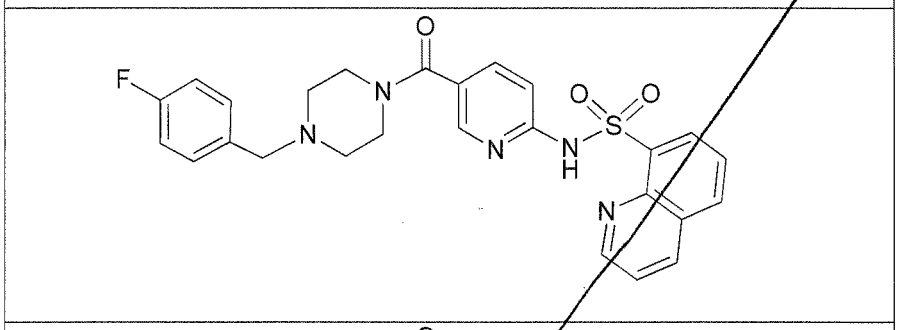


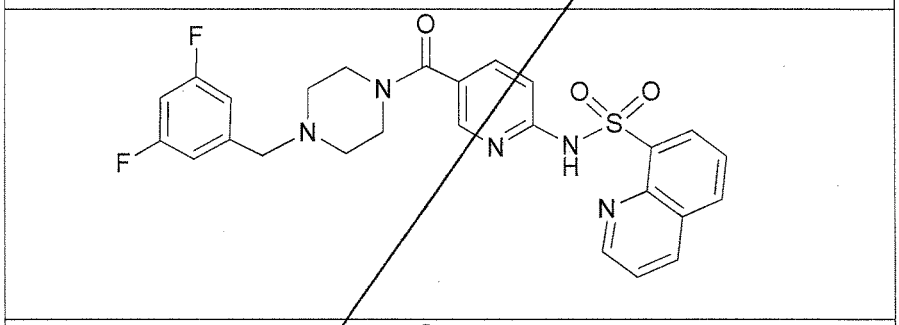


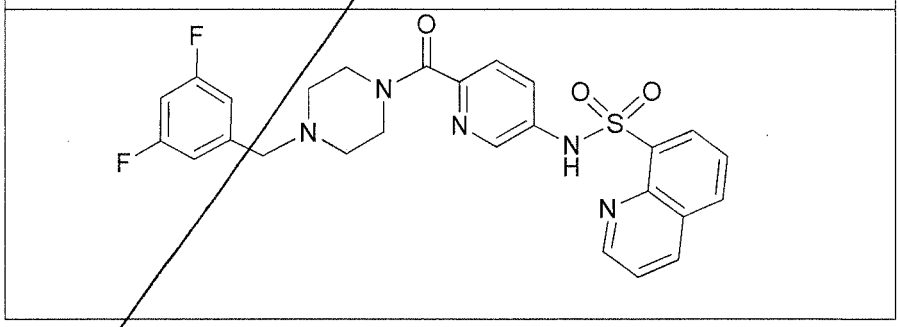


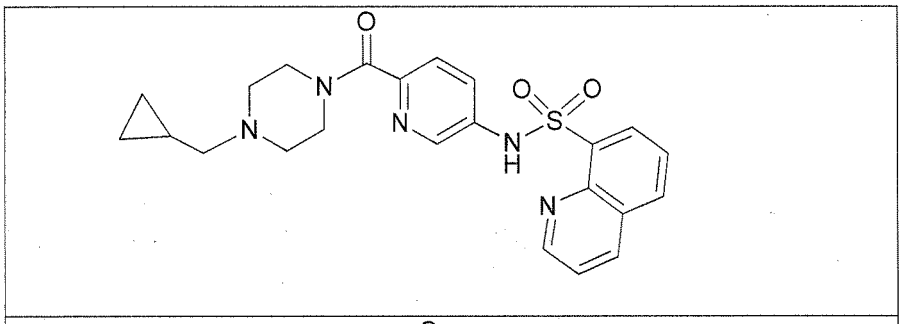


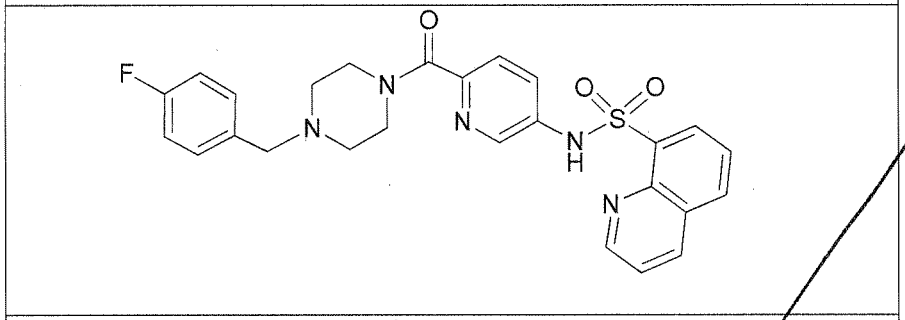


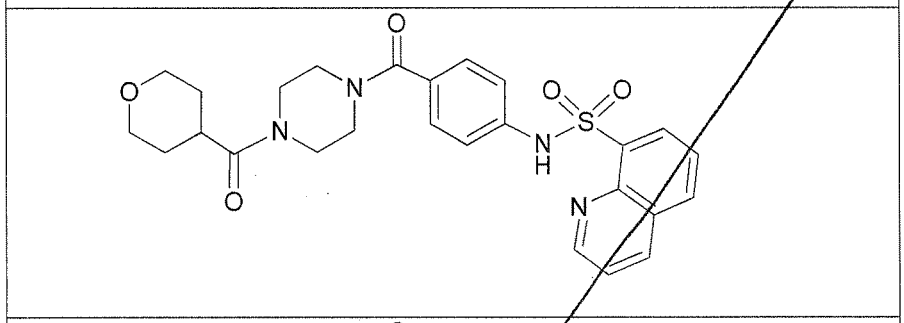


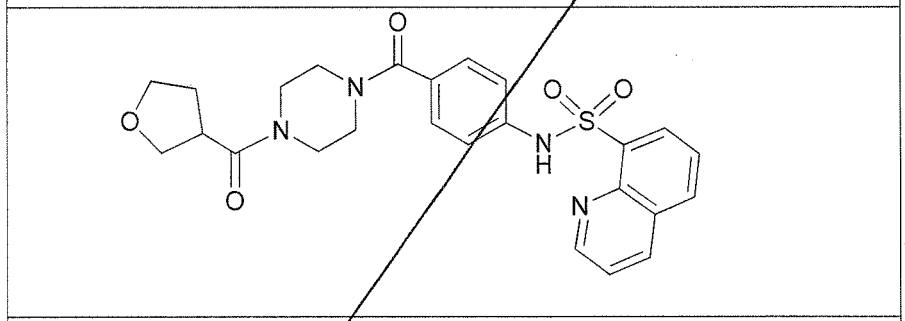


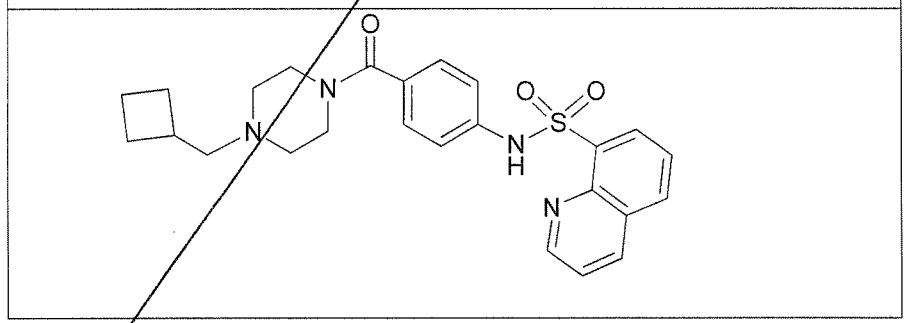


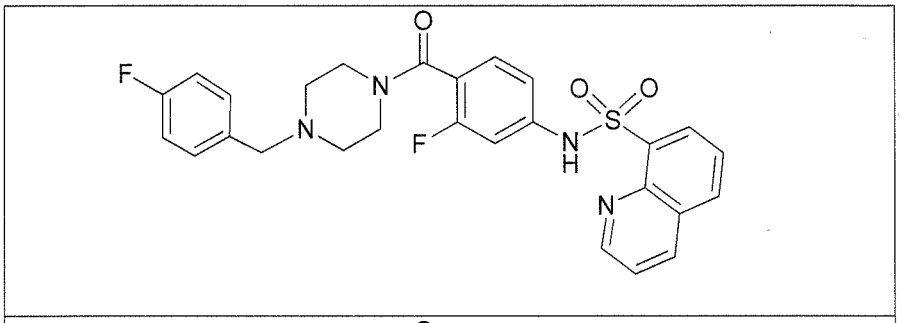


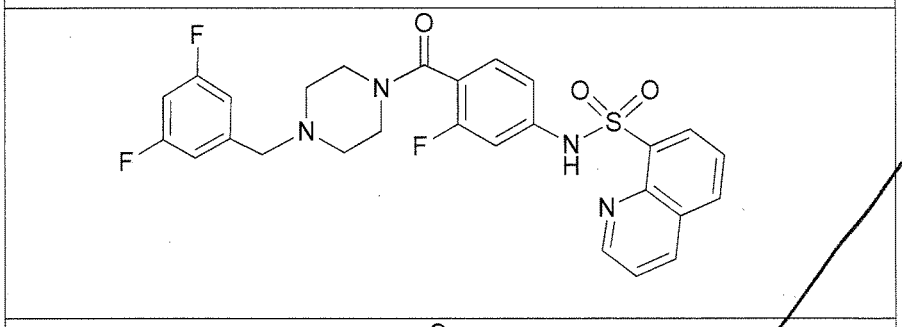


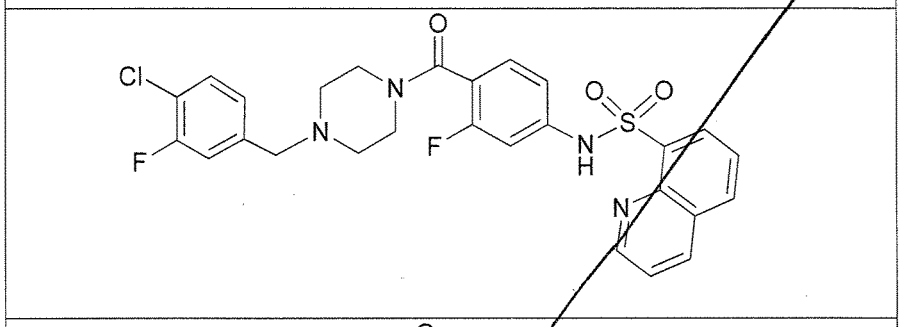


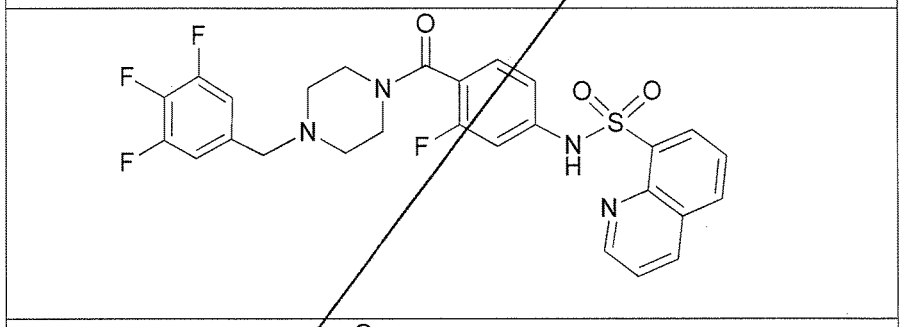


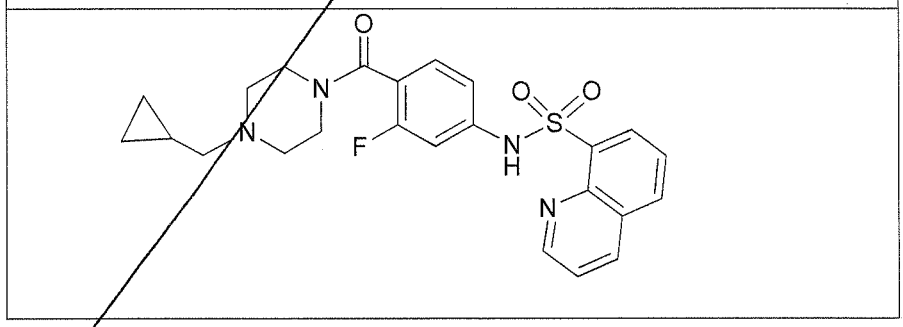


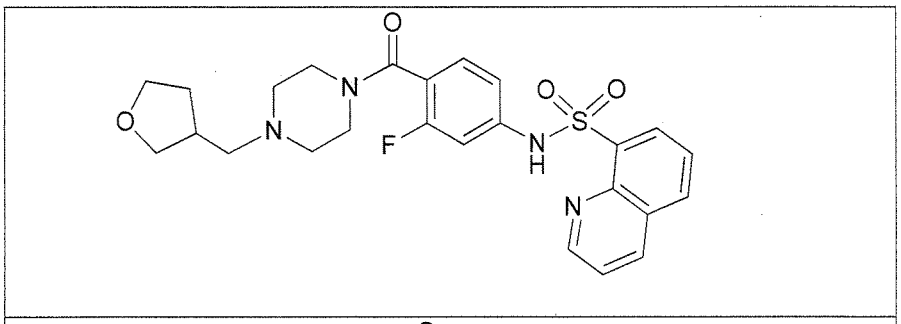


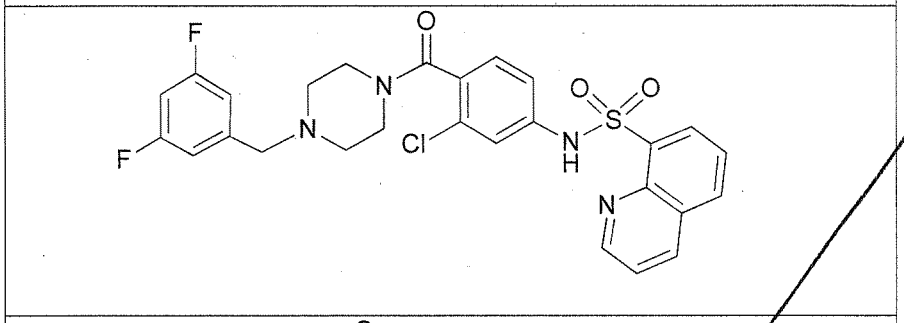


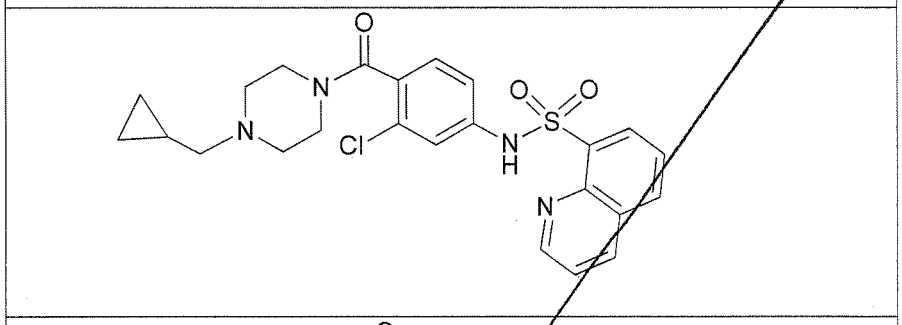


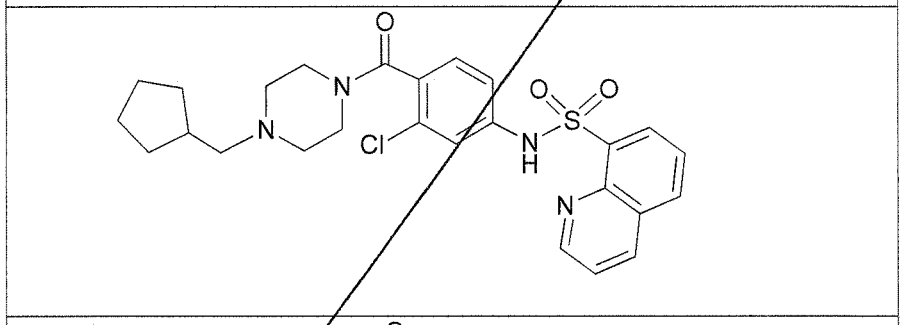


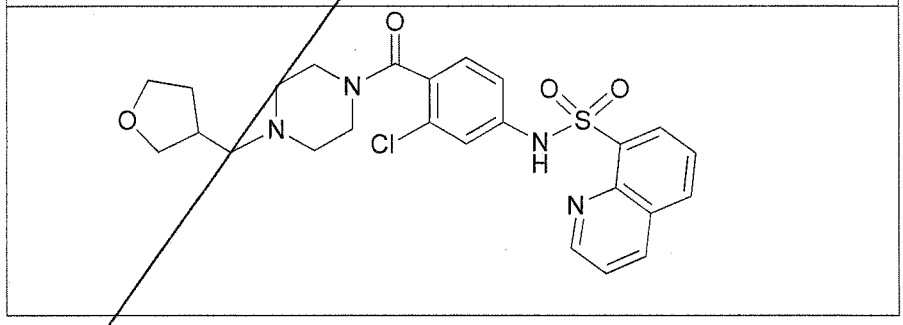


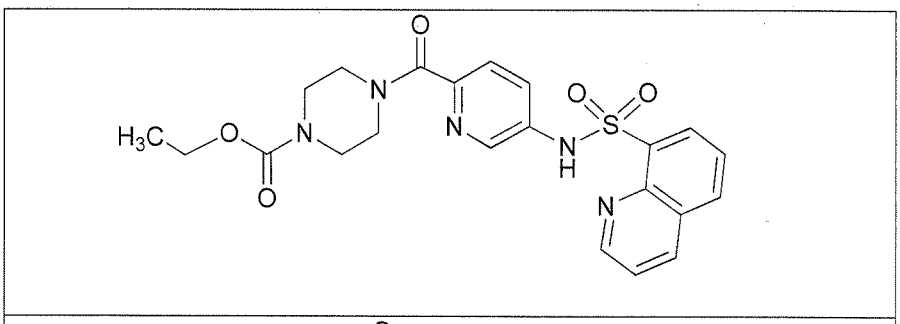


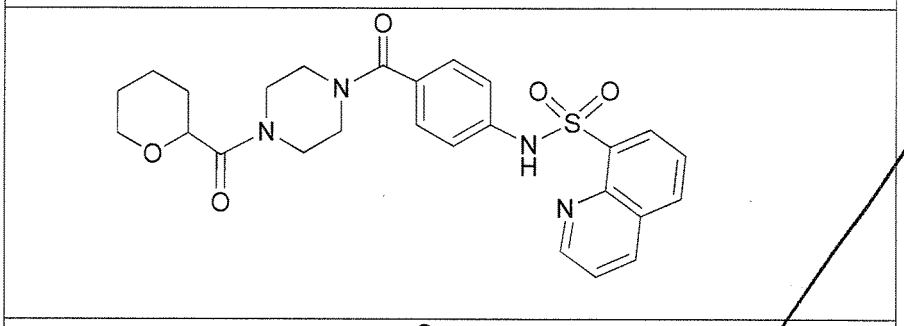


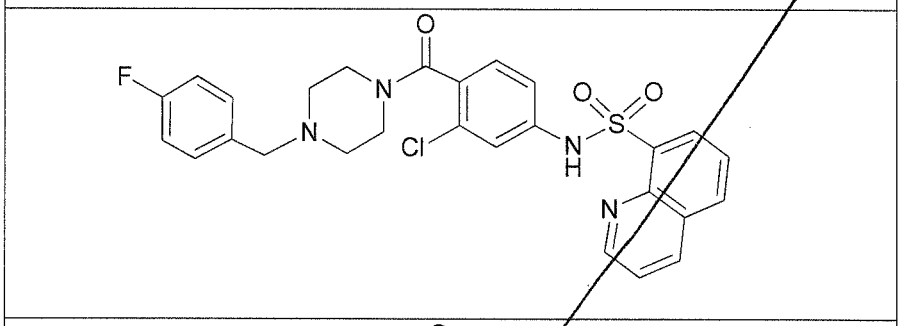


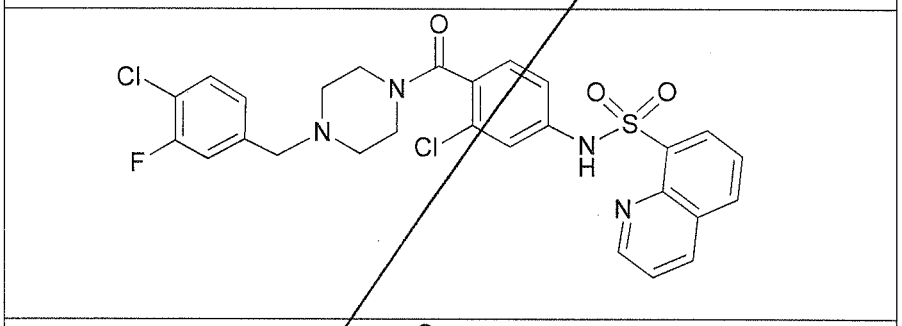


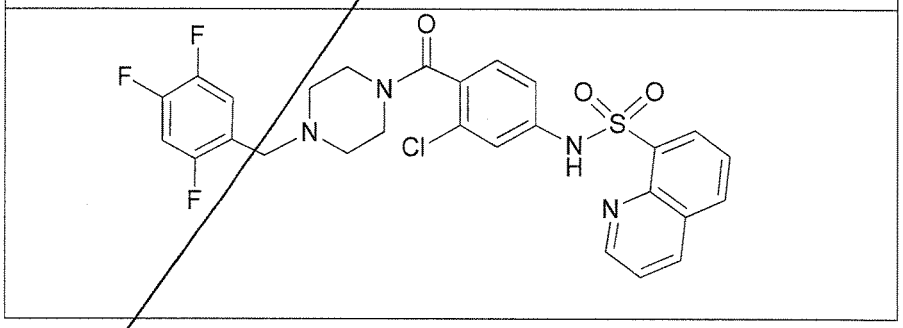


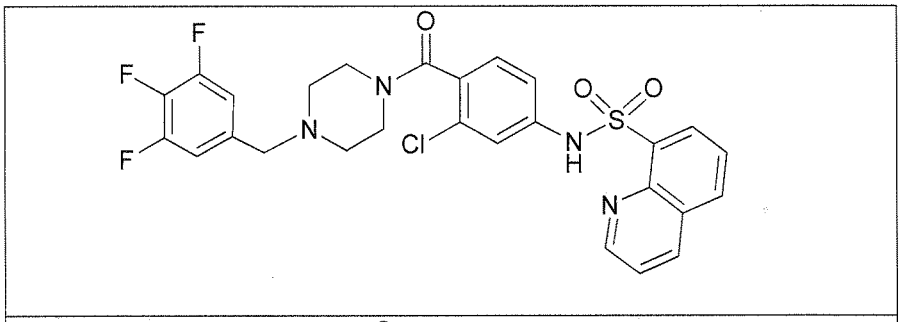


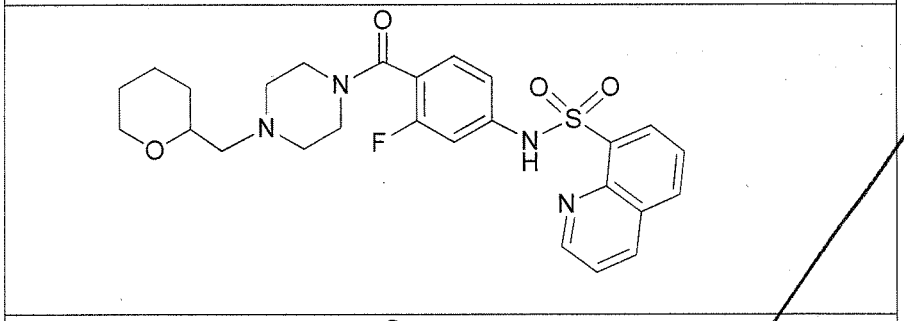


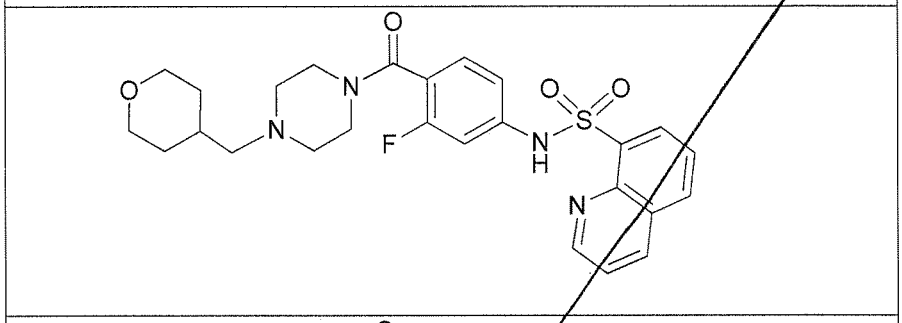


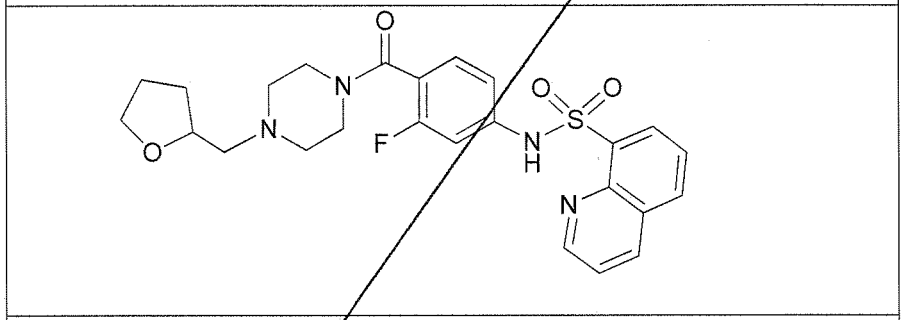


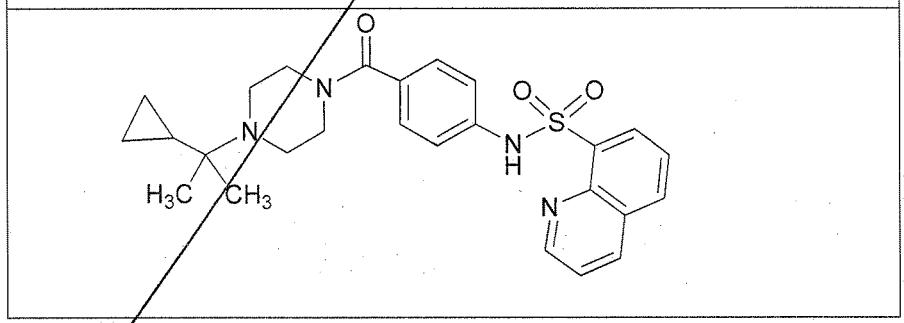


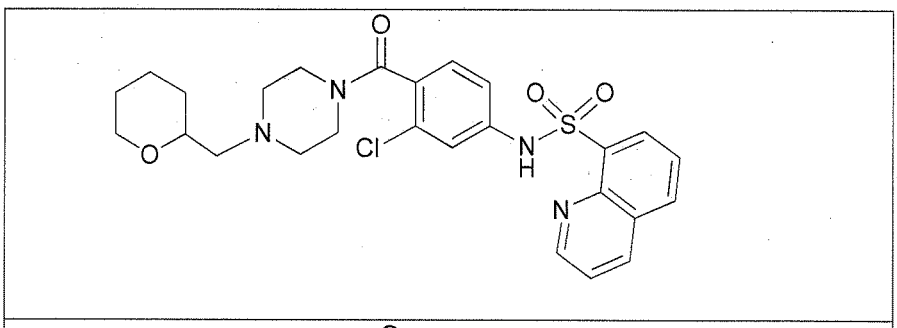


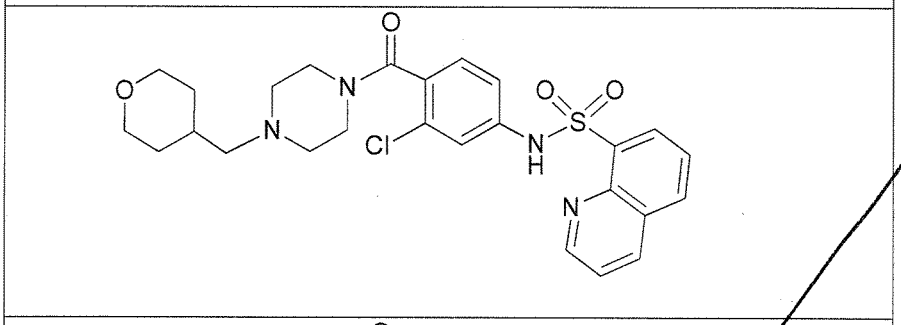


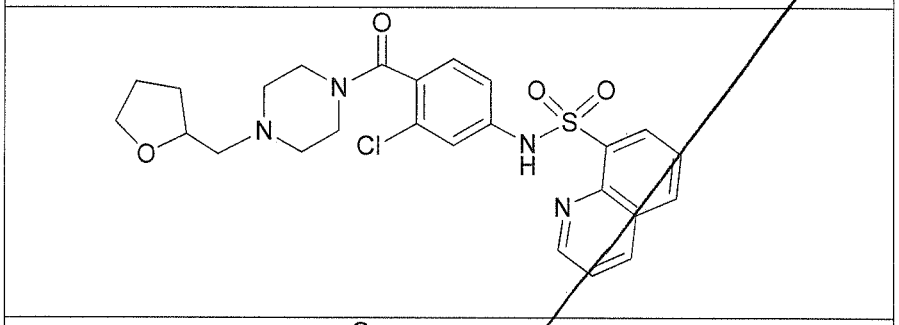


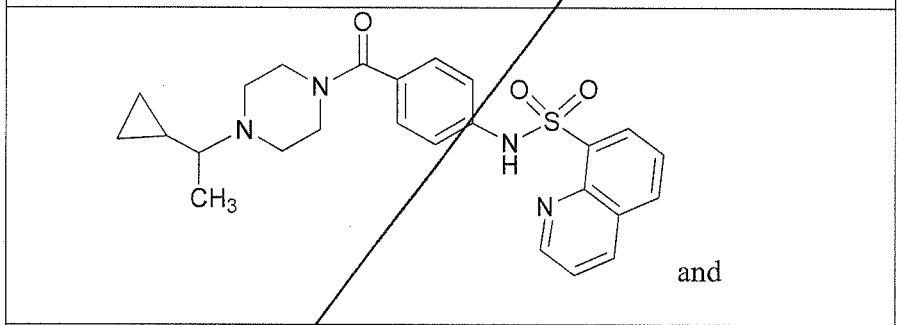




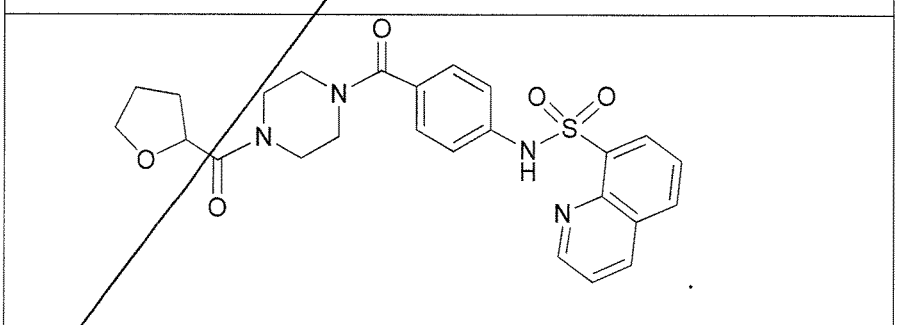




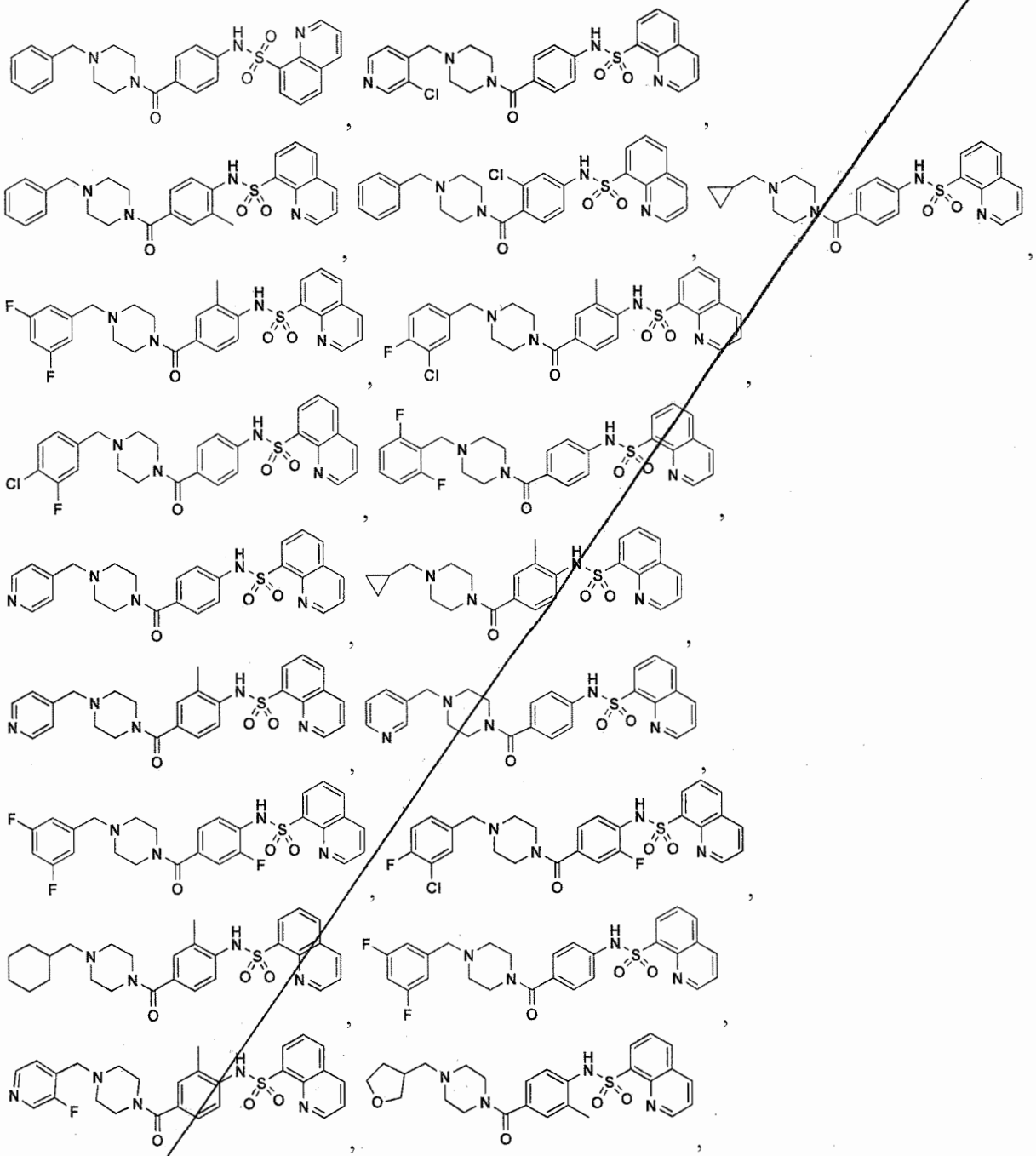


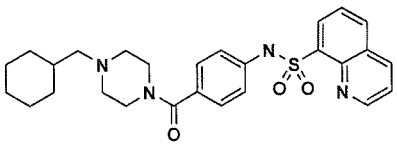
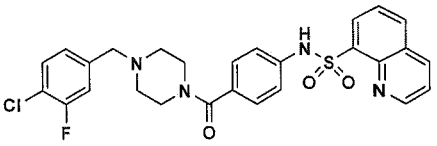
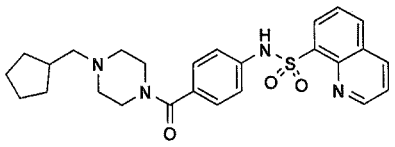
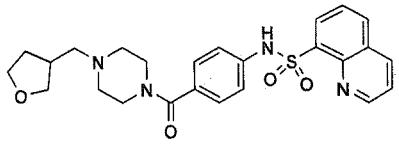


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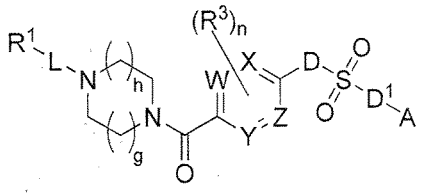
27. The use of any one of claims 1-7 or a pharmaceutically acceptable salt thereof, wherein the compound is selected from:




,

,

, and

.

What is claimed is:

1. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; (2) a composition comprising a compound of formula I or a salt thereof, and a carrier or (3) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier: formula (I):



(I)

or a pharmaceutically acceptable salt thereof, wherein:

W, X, Y and Z are each independently selected from CH or N;

D and D^1 are independently selected from a bond or NR^b;

A is optionally substituted aryl or optionally substituted heteroaryl;

L is a bond, -C(O)-, $-(CR^cR^c)_m$-, -OC(O)-, $-(CR^cR^c)_m$-OC(O)-, $-(CR^cR^c)_m$-C(O)-, $-NR^bC(S)$-, or $-NR^bC(O)$- (wherein the point of the attachment to R^1 is on the left-hand side);

R^1 is selected from alkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl; each of which is substituted with 0-5 occurrences of R^d;

each R^3 is independently selected from halo, haloalkyl, alkyl, hydroxyl and $-OR^a$, or two adjacent R^3 taken together with the carbon atoms to which they are attached form an optionally substituted cyclyl;

each R^a is independently selected from alkyl, acyl, hydroxyalkyl and haloalkyl;

each R^b is independently selected from hydrogen and alkyl;

each R^c is independently selected from hydrogen, halo, alkyl, alkoxy and halo alkoxy or two R^c taken together with the carbon atoms to which they are attached form an optionally substituted cycloalkyl;

each R^d is independently selected from halo, haloalkyl, haloalkoxy, alkyl, alkynyl, nitro, cyano, hydroxyl, $-C(O)R^a$, $-OC(O)R^a$, $-C(O)OR^a$, $-SR^a$, $-NR^aR^b$ and $-OR^a$, or two R^d taken together with the carbon atoms to which they are attached form an optionally substituted heterocyclyl;

n is 0, 1, or 2;

m is 1, 2 or 3;

h is 0, 1, 2; and

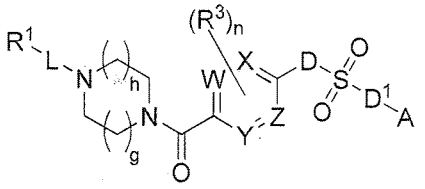
g is 0, 1 or 2,

in the manufacture of a medicament for activating PKR in red blood cells (RBCs).

2. The use of claim 1, wherein the pharmaceutical composition is to be administered to a subject suffering from pyruvate kinase deficiency.
3. The use of claim 1, wherein the lifetime of the red blood cells is increased.
4. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; (2) a composition comprising a compound of formula I or a salt thereof, and a carrier or (3) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for regulating 2,3-diphosphoglycerate levels in blood in need thereof, wherein the medicament is formulated for administration to a subject in need thereof.
5. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating hereditary non-spherocytic hemolytic anemia, wherein the medicament is formulated for administration to a subject in need thereof.
6. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutically acceptable composition comprising a compound of formula I or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating sickle cell anemia, wherein the medicament is formulated for administration to a subject in need thereof.
7. Use of (1) a compound of formula I or a pharmaceutically acceptable salt thereof; or (2) a pharmaceutical composition comprising a compound of formula I or a pharmaceutically

acceptable salt thereof, and a pharmaceutically acceptable carrier; wherein formula I is as defined in claim 1, in the manufacture of a medicament for treating thalassemia; hereditary spherocytosis; hereditary elliptocytosis; abetalipoproteinemia or Bassen-Kornzweig syndrome; paroxysmal nocturnal hemoglobinuria; acquired hemolytic anemia, e.g., congenital anemias; or anemia of chronic diseases, wherein the medicament is formulated for administration to a subject in need thereof.

8. The use of any one of claims 1 to 7, wherein the compound is represented by formula (I):



(I)

wherein:

W, X, Y and Z are each independently selected from CH or N;

D and D^1 are independently selected from a bond or NR^b;

A is optionally substituted bicyclic heteroaryl;

L is a bond, -C(O)-, $-(CR^cR^c)_m$-, -OC(O)-, $-(CR^cR^c)_m$-OC(O)-, $-(CR^cR^c)_m$-C(O)-, $-NR^bC(S)$-, or $-NR^bC(O)$- (wherein the point of the attachment to R^1 is on the left-hand side);

R^1 is selected from alkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl; each of which is substituted with 0-5 occurrences of R^d;

each R^3 is independently selected from halo, haloalkyl, alkyl, hydroxyl and $-OR^a$ or two adjacent R^3 taken together with the carbon atoms to which they are attached form an optionally substituted cyclyl;

each R^a is independently selected from alkyl, acyl, hydroxyalkyl and haloalkyl;

each R^b is independently selected from hydrogen and alkyl;

each R^c is independently selected from hydrogen, halo, alkyl, alkoxy and halo alkoxy or two R^c taken together with the carbon atoms to which they are attached form an optionally substituted cycloalkyl;

each R^d is independently selected from halo, haloalkyl, haloalkoxy, alkyl, alkynyl, nitro, cyano, hydroxyl, $-C(O)R^a$, $-OC(O)R^a$, $-C(O)OR^a$, $-SR^a$, $-NR^aR^b$ and $-OR^a$, or two R^d taken together with the carbon atoms to which they are attached form an optionally substituted heterocyclyl;

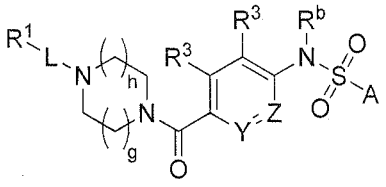
n is 0, 1, or 2;

m is 1, 2 or 3;

h is 0, 1, 2; and

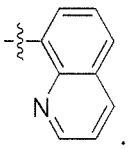
g is 0, 1 or 2.

9. The use of claim 8, wherein h is 1 and g is 1.
10. The use of claim 8, wherein W, X, Y and Z are CH.
11. The use of claim 8, wherein D is NR^b and D^1 is a bond.
12. The use of claim 11, wherein R^b is H, methyl or ethyl.
13. The use of claim 8, wherein L is a bond, $-(CR^cR^c)_m-$, $-NR^bC(O)-$, $-(CR^cR^c)_m-C(O)-$, $-C(O)-$, or $-O(CO)-$.
14. The use of claim 13, wherein L is a bond and R^1 is alkyl, aryl or heteroaryl substituted with 0-5 occurrences of R^d.
15. The use of claim 13, wherein L is $-(CR^cR^c)_m-$ and R^1 is cycloalkyl, aryl, heteroaryl or heterocyclyl substituted with 0-5 occurrences of R^d.
16. The use of claim 13, wherein L is $-NR^bC(O)-$, R^b is hydrogen and R^1 is aryl substituted with 0-5 occurrences of R^d.
17. The use of claim 13, wherein L is $-(CR^cR^c)_m-C(O)-$ and R^1 is cycloalkyl, aryl or heteroaryl substituted with 0-5 occurrences of R^d.
18. The use of claim 13, wherein L is $-C(O)-$ and R^1 is aryl, alkyl, or heteroaryl substituted with 0-5 occurrences of R^d.
19. The use of claim 13, wherein L is $-OC(O)-$ and R^1 is alkyl, aryl or heterocyclyl substituted with 0-5 occurrences of R^d.
20. The use of claim 13, wherein L is $-(CR^cR^c)_m-OC(O)-$ and R^1 is heterocyclyl or cycloalkyl substituted with 0-5 occurrences of R^d.
21. The use of claim 8, wherein n is 0.
22. The use of claim 8, wherein n is 1 and R^3 is CH_3, CH_2CH_3, OCH_3, OCH_2CH_3, OH, F, Cl, or CF_3.
23. The use of any one of claims 1 to 7, wherein the compound is represented by formula (Id):

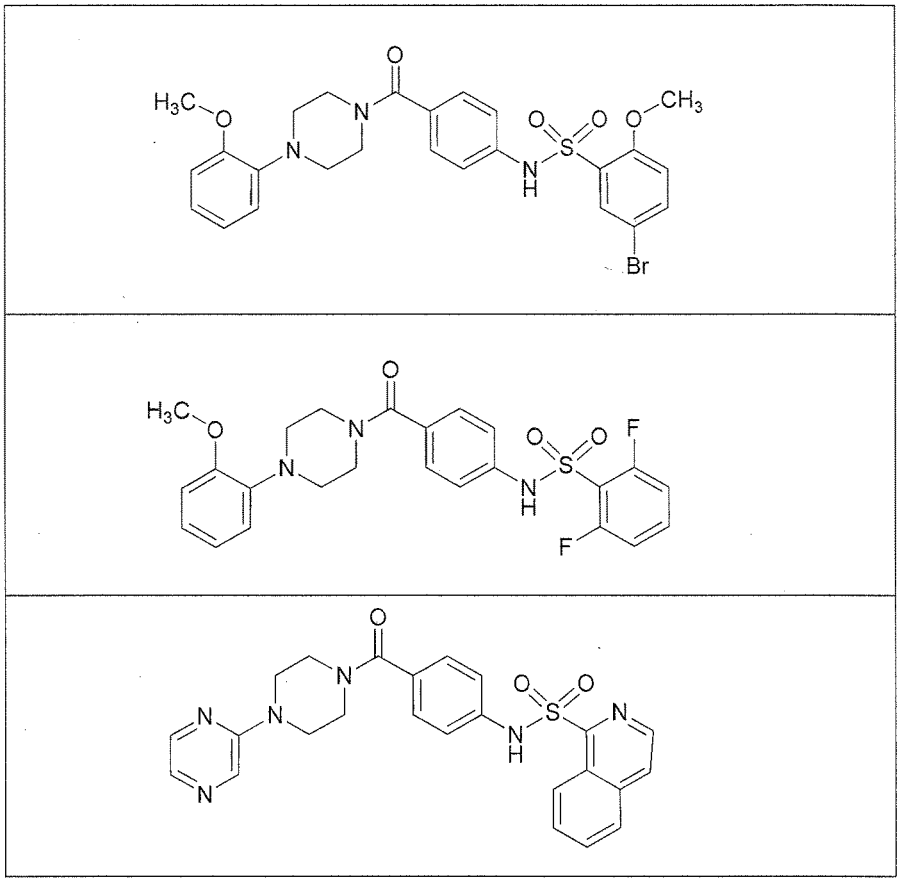


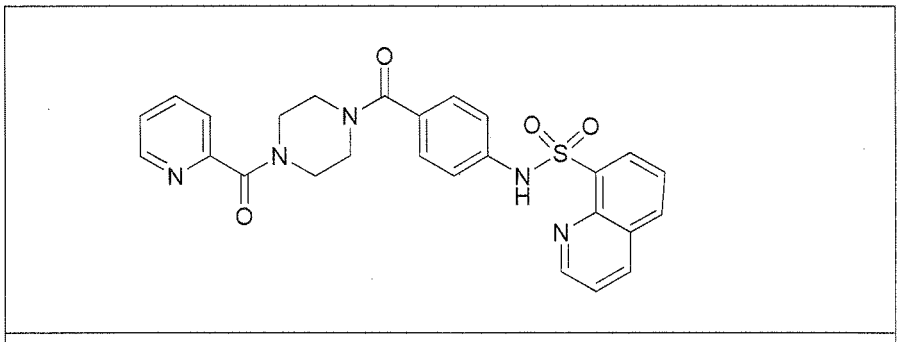
(Id).

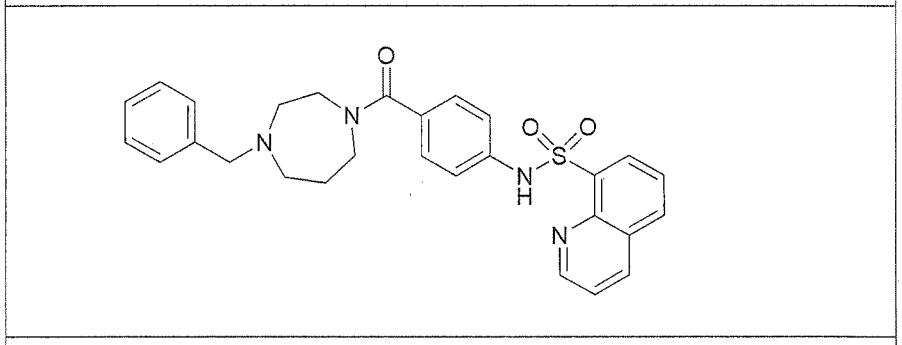
24. The use of claim 23, wherein A is optionally substituted quinolinyl.

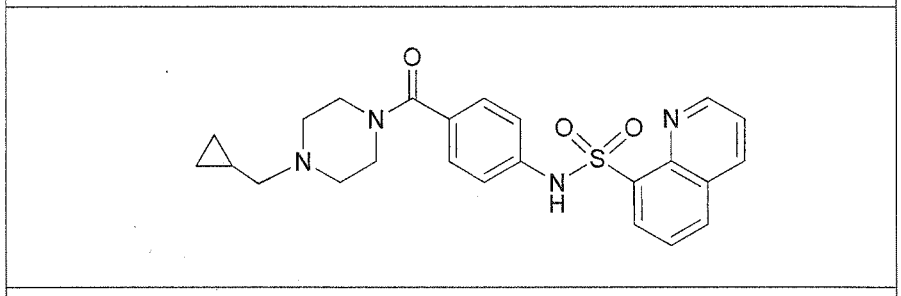
25. The use of claim 23, wherein A is .

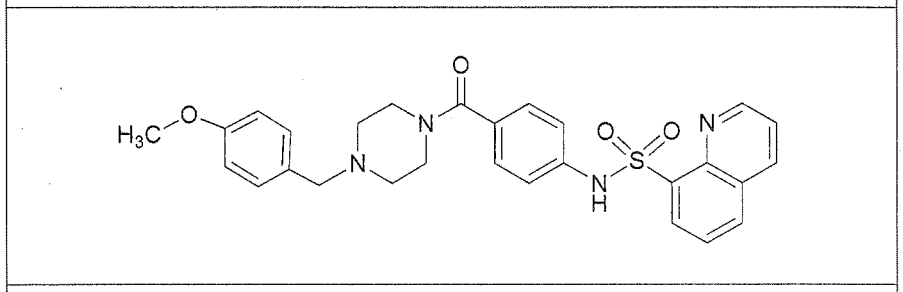
26. The use of any one of claims 1-7, wherein the compound is selected from:

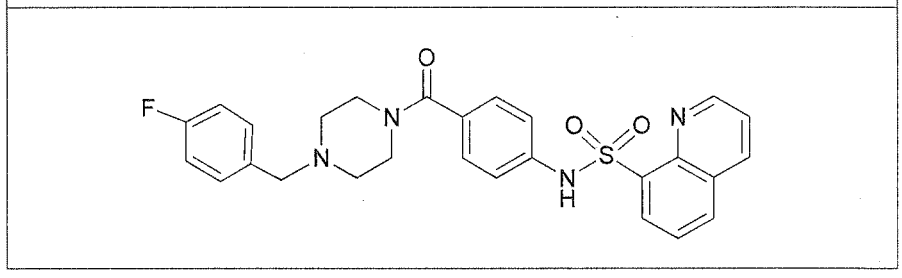


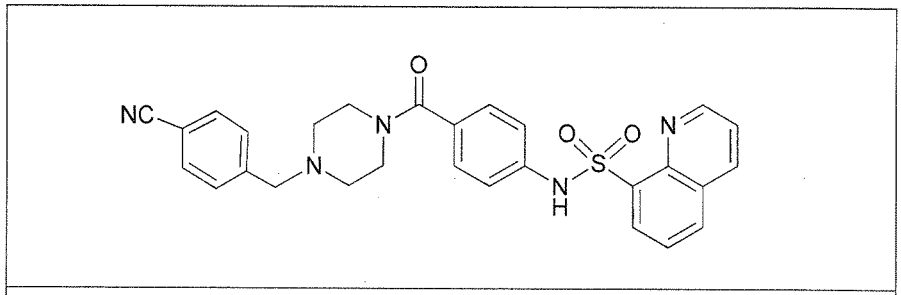


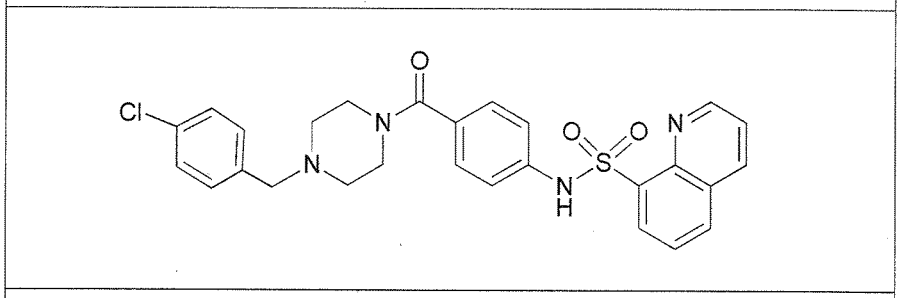


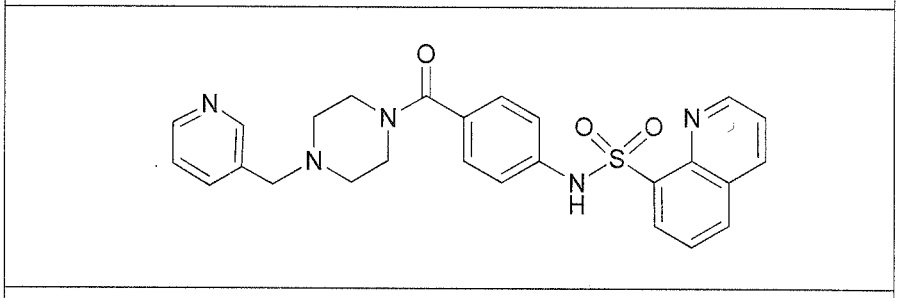


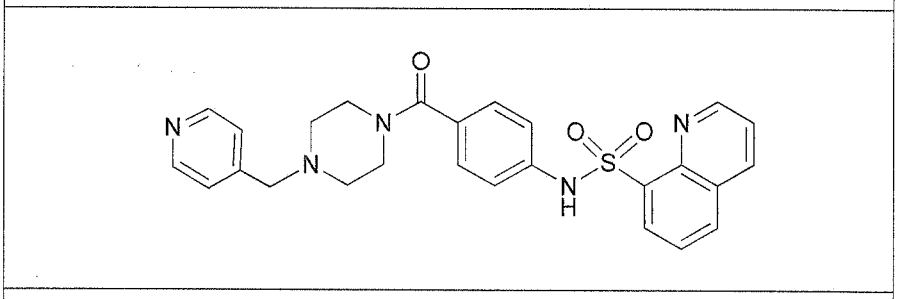


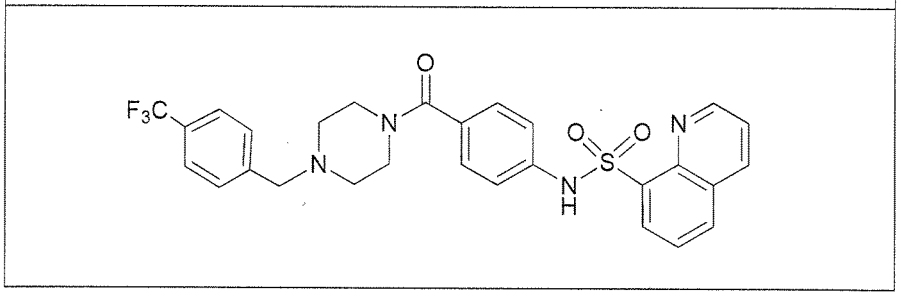


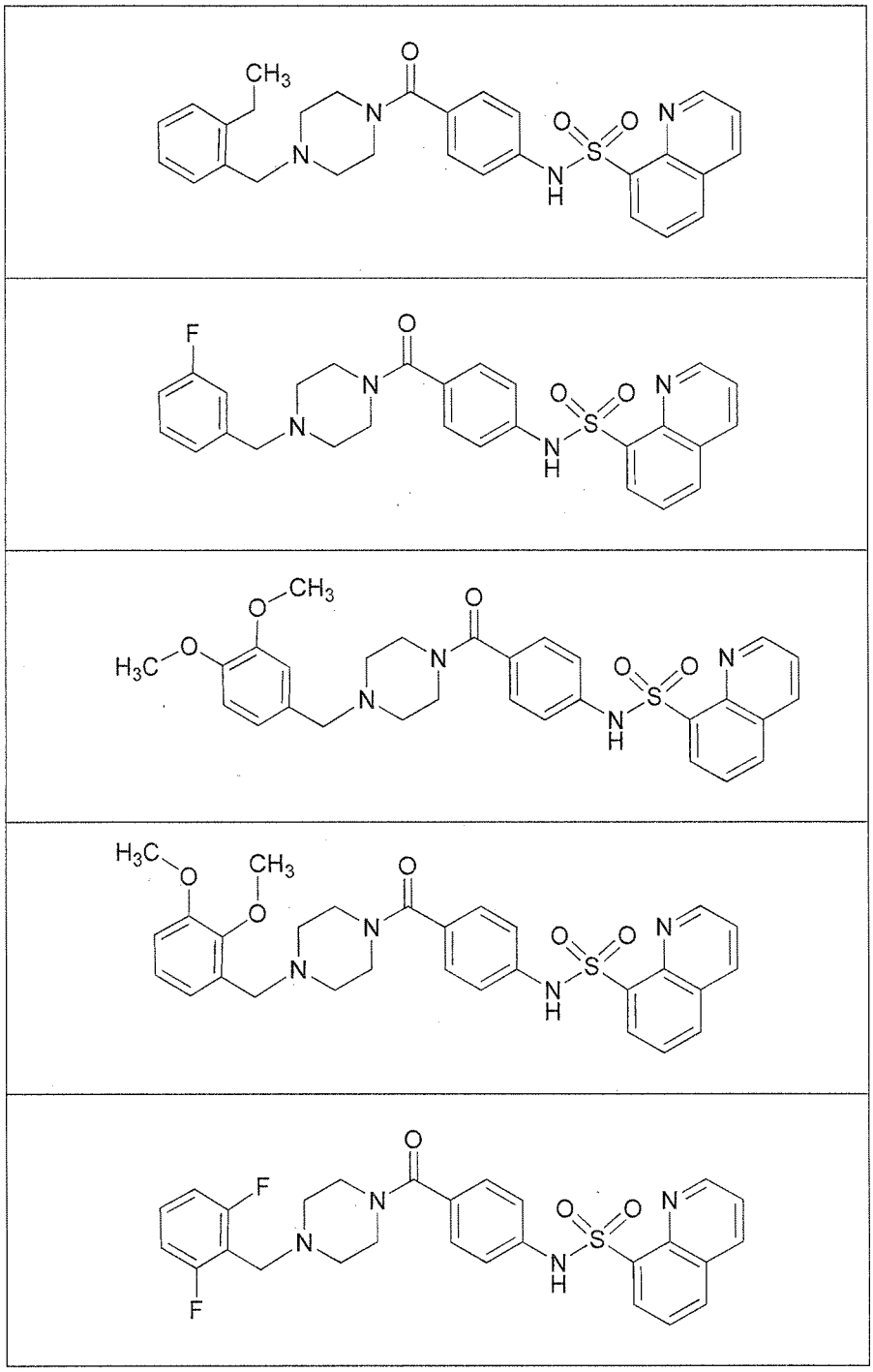


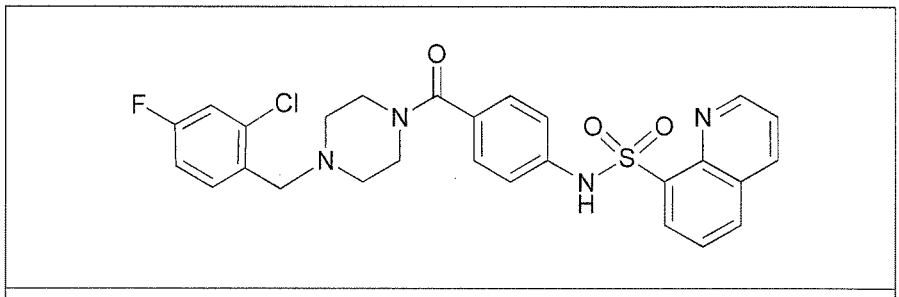


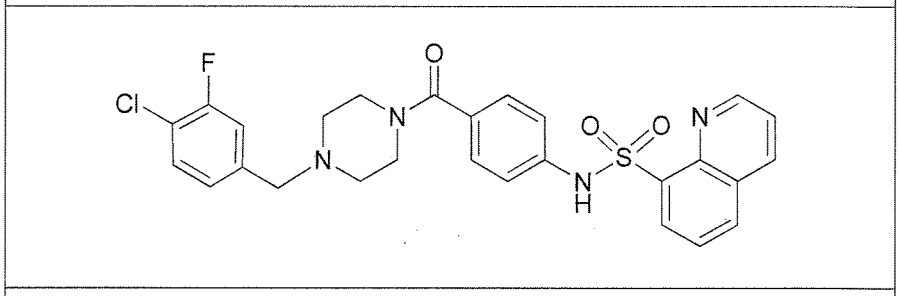


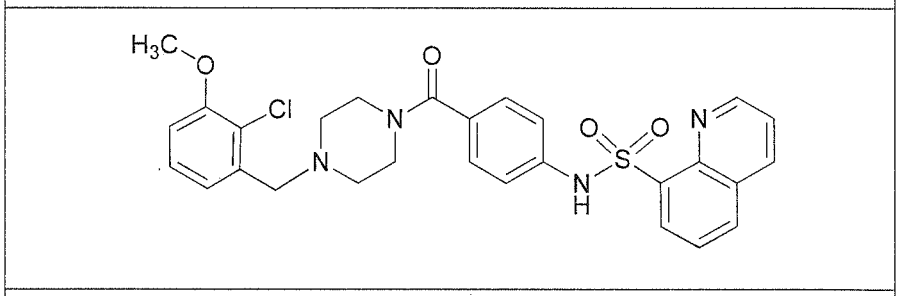


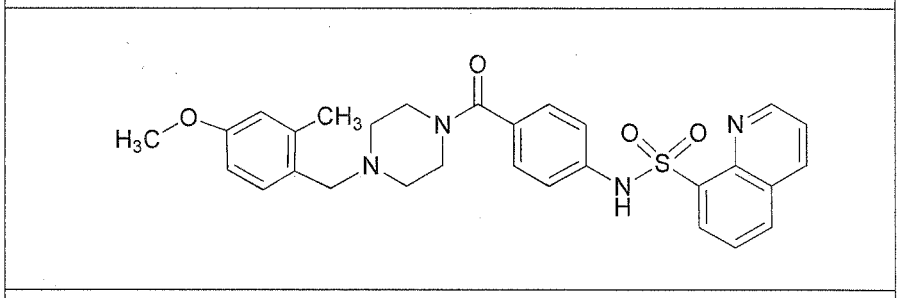


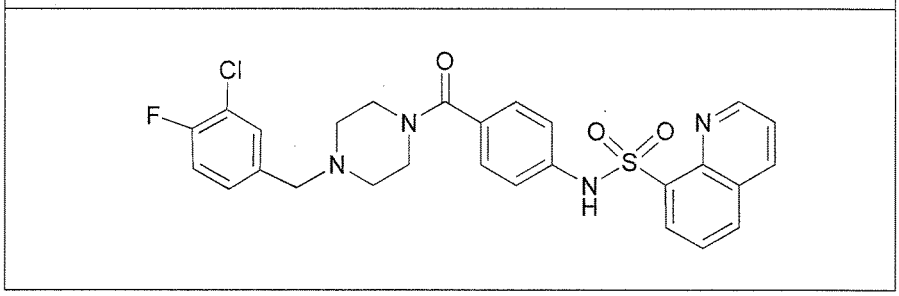


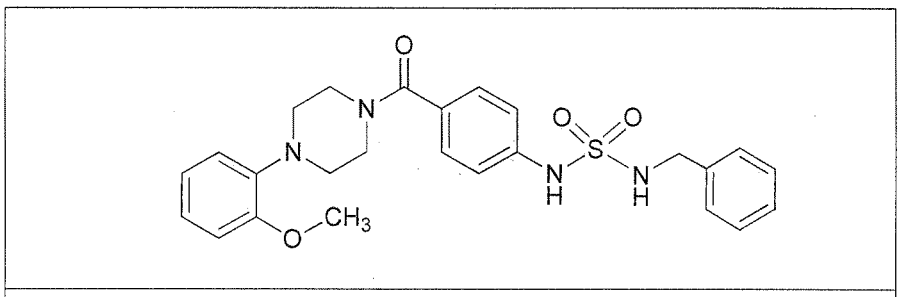


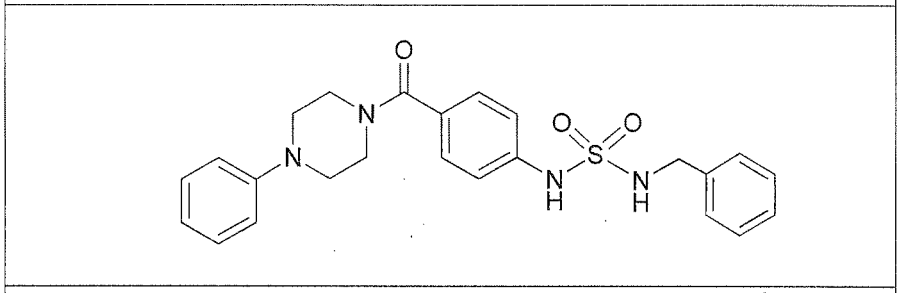


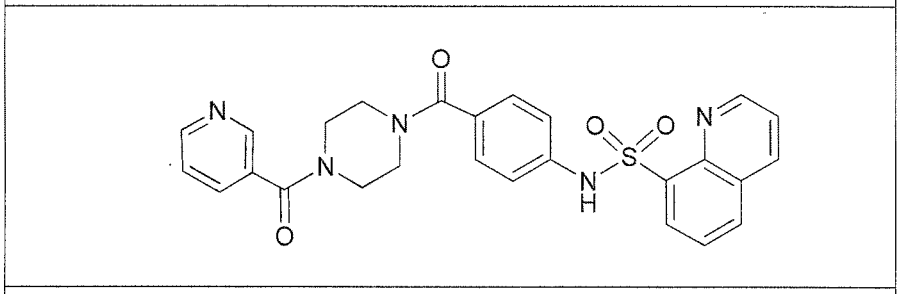


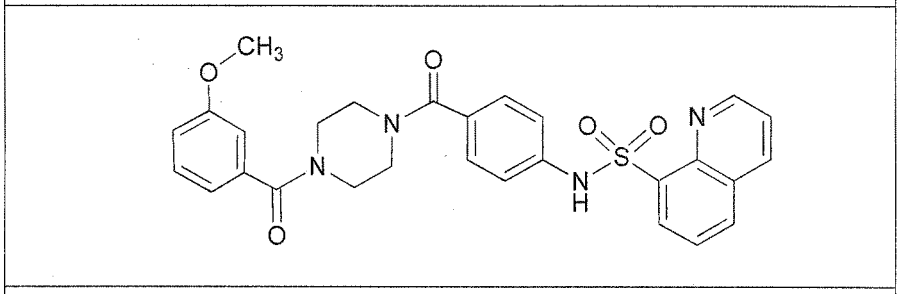


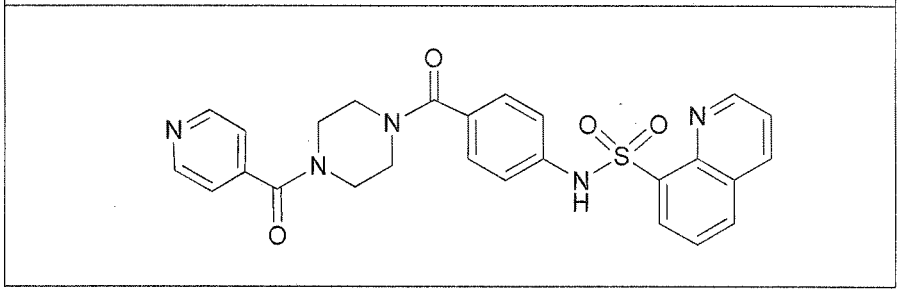


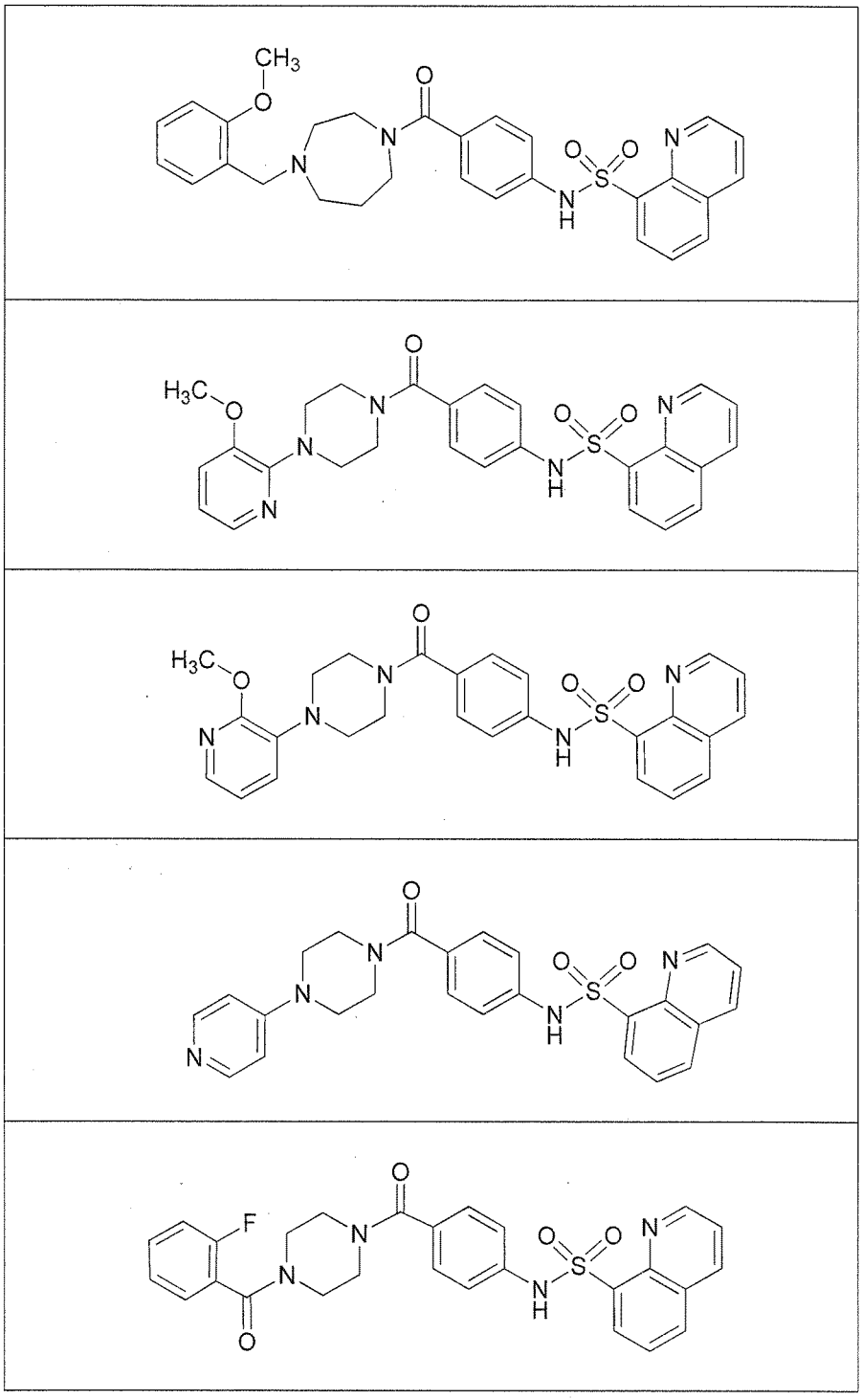


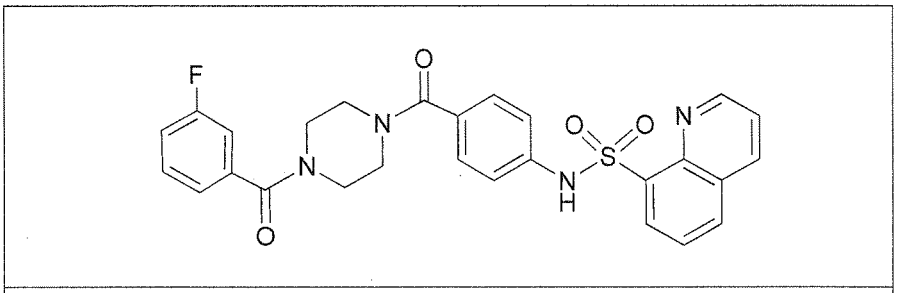


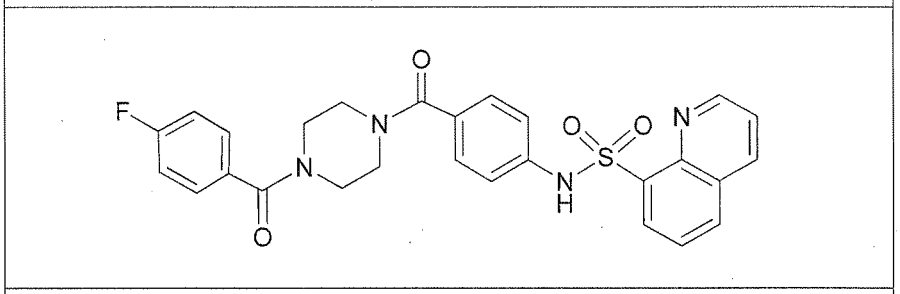


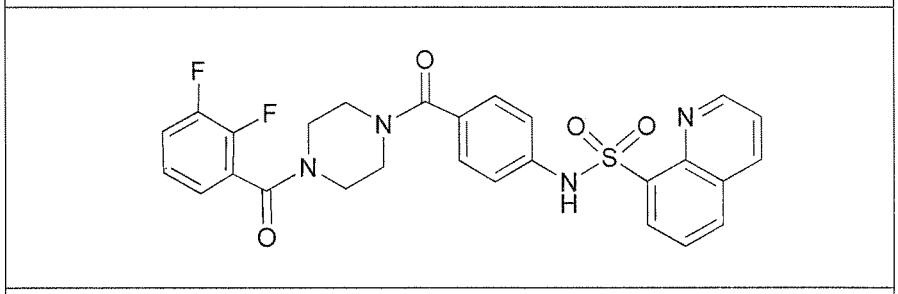


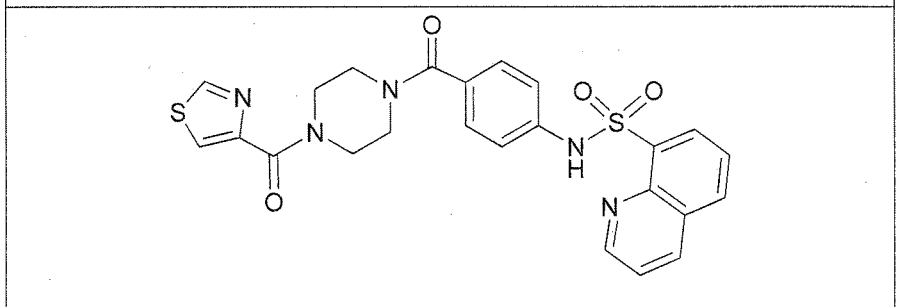


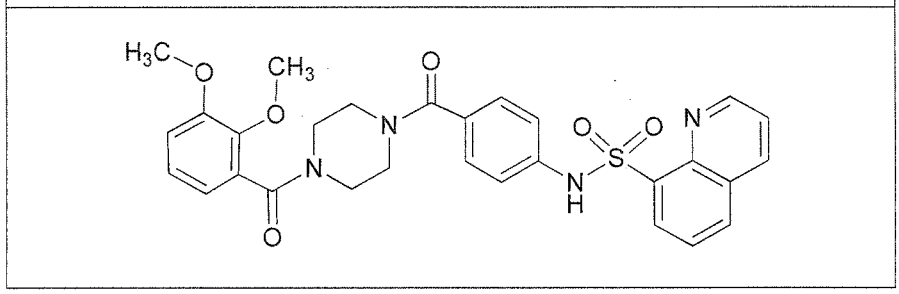


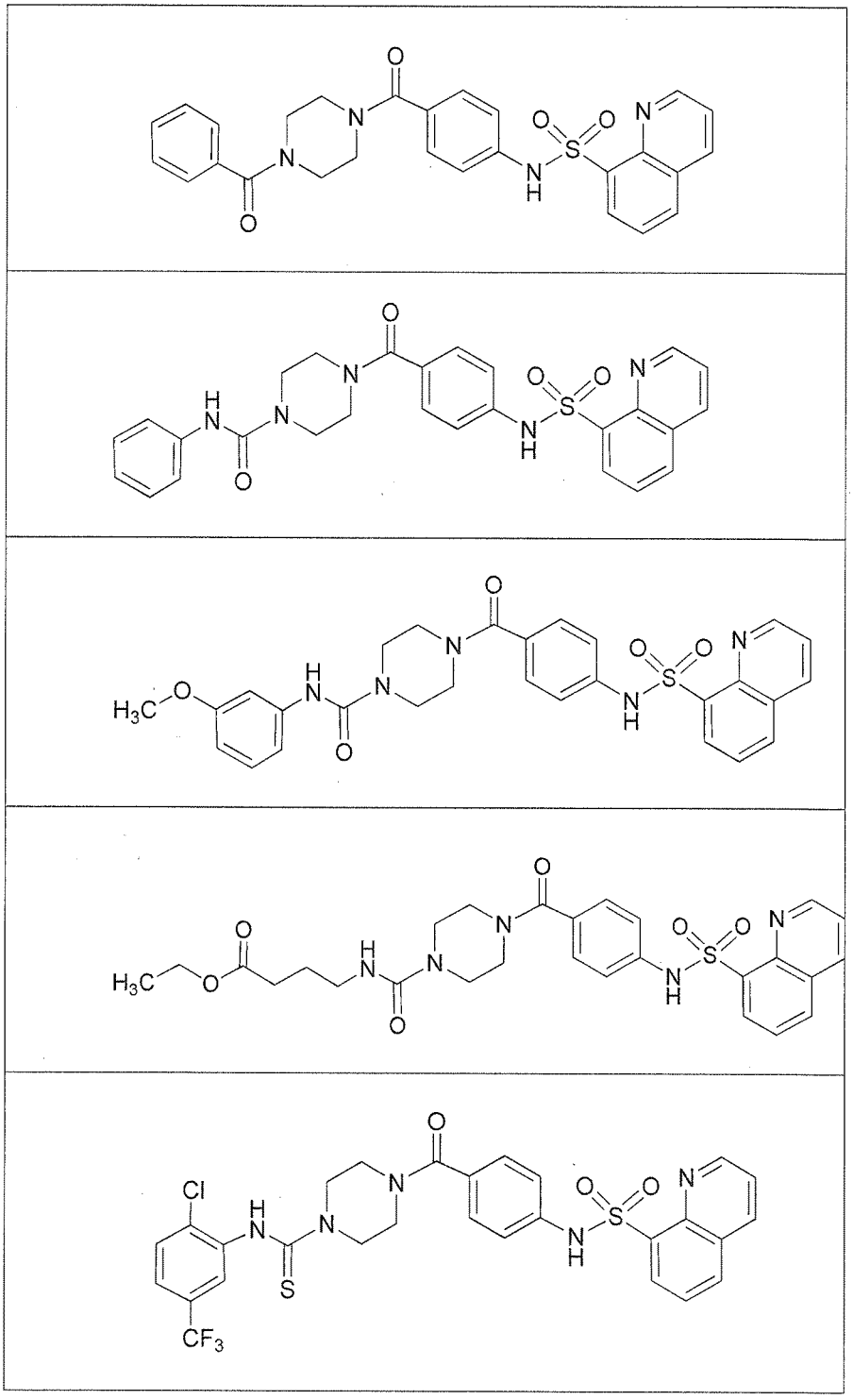


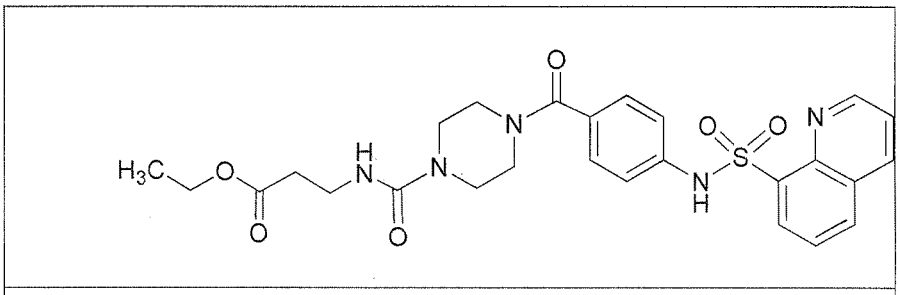


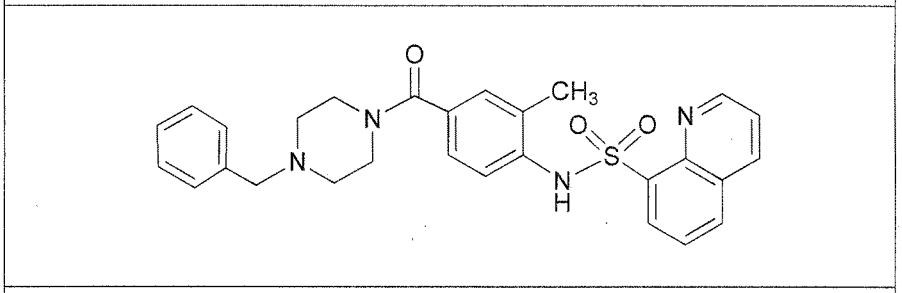


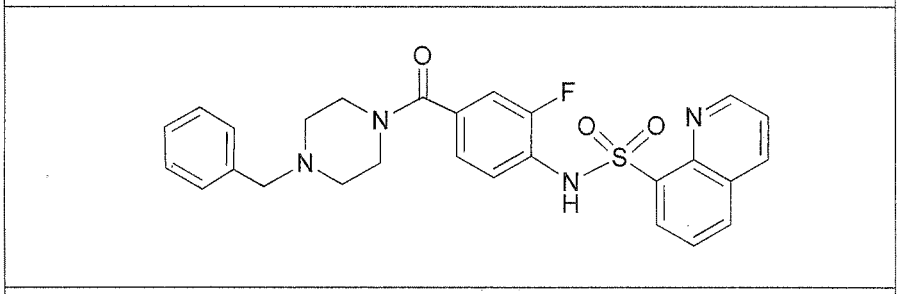


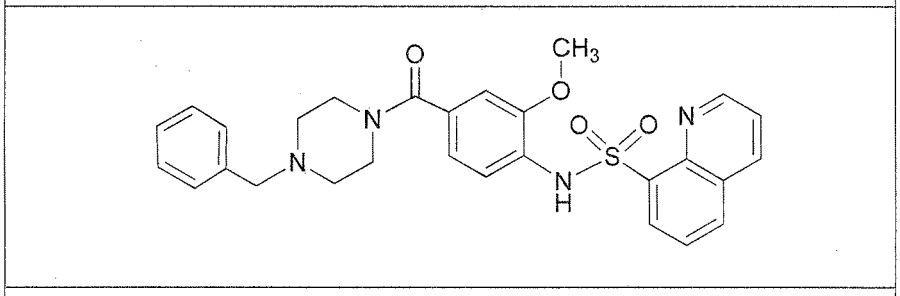


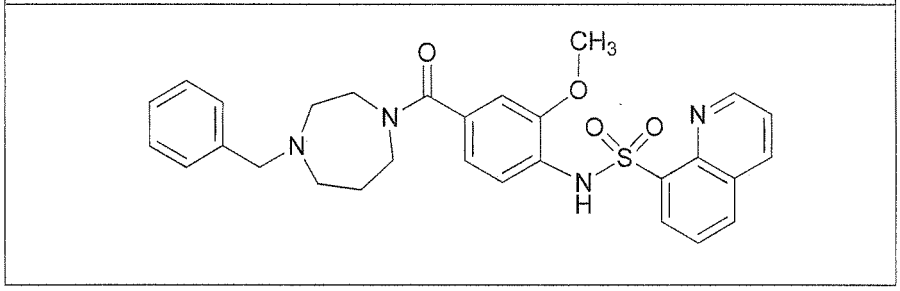


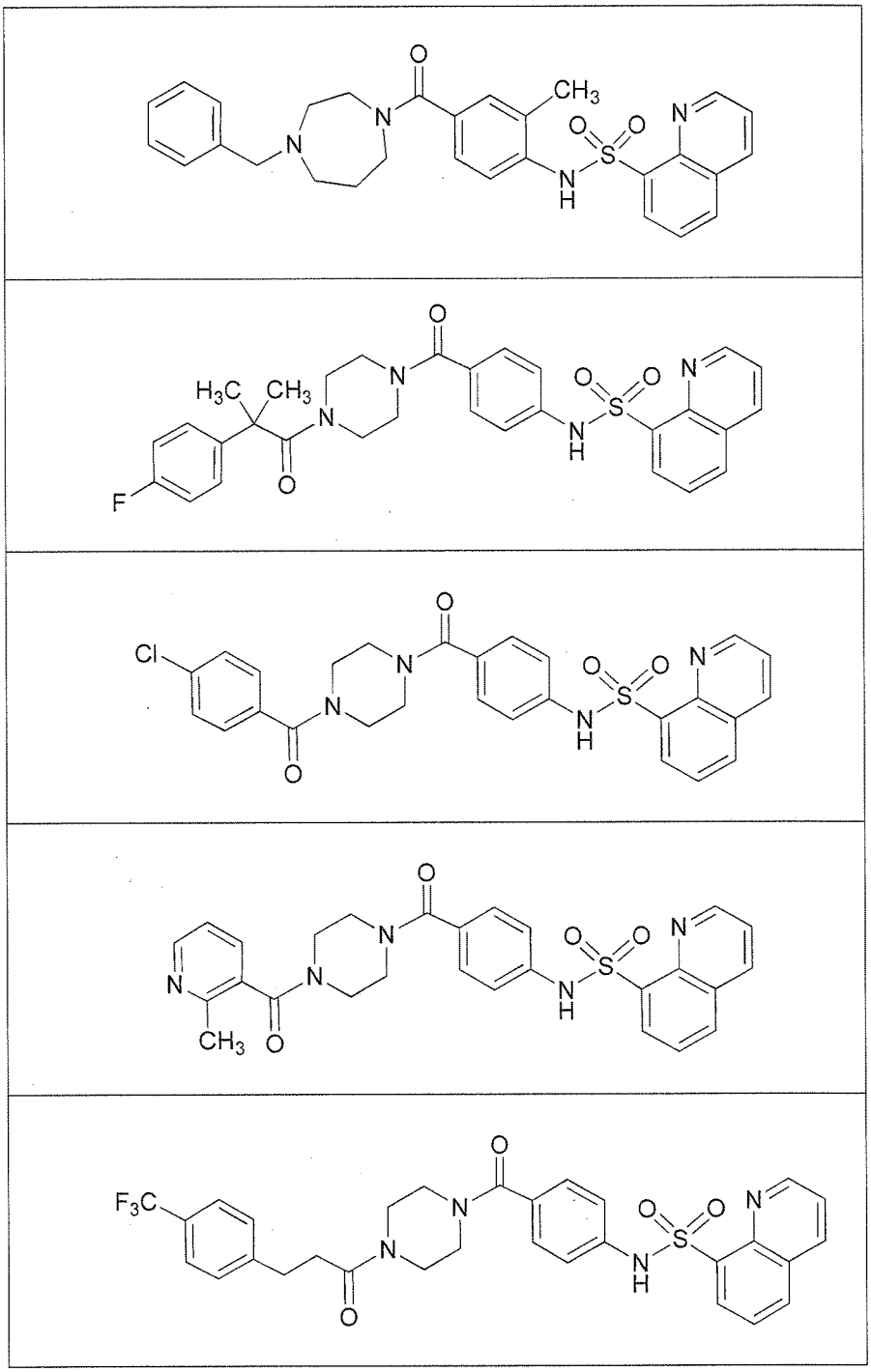


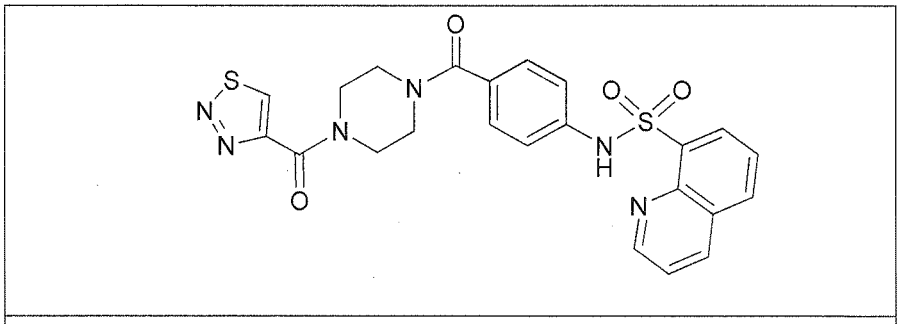


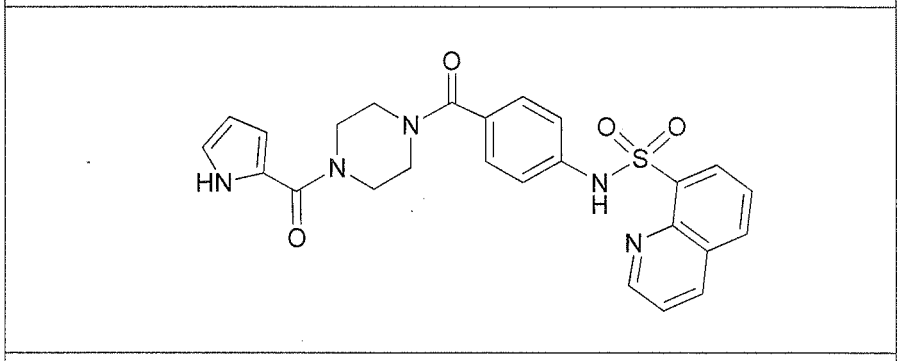


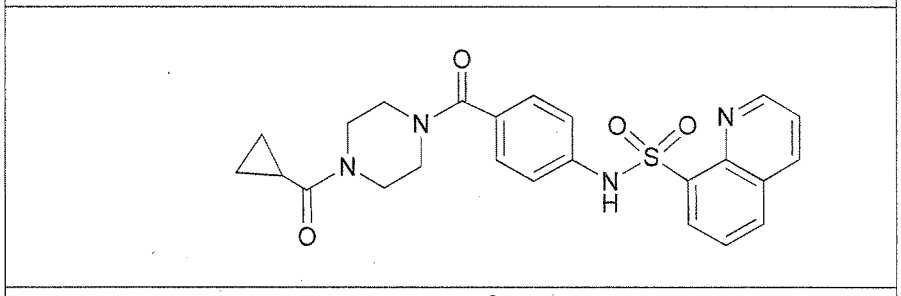


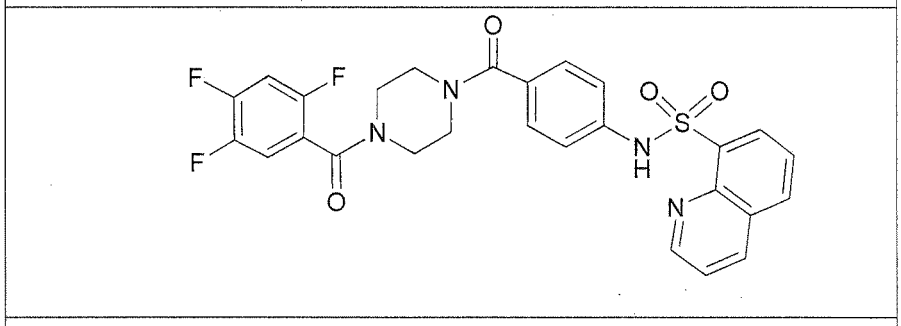


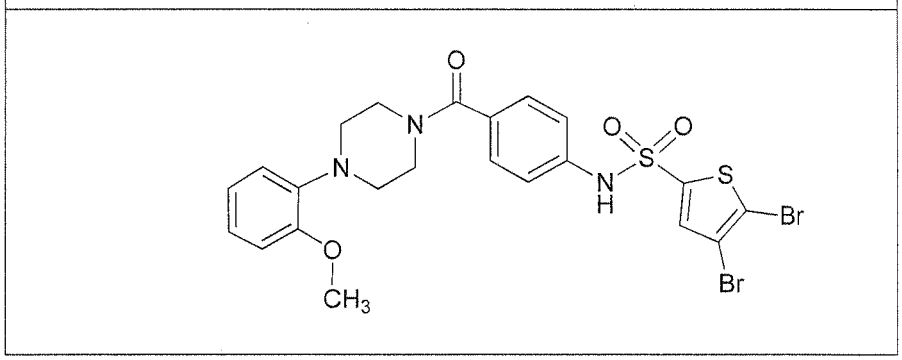


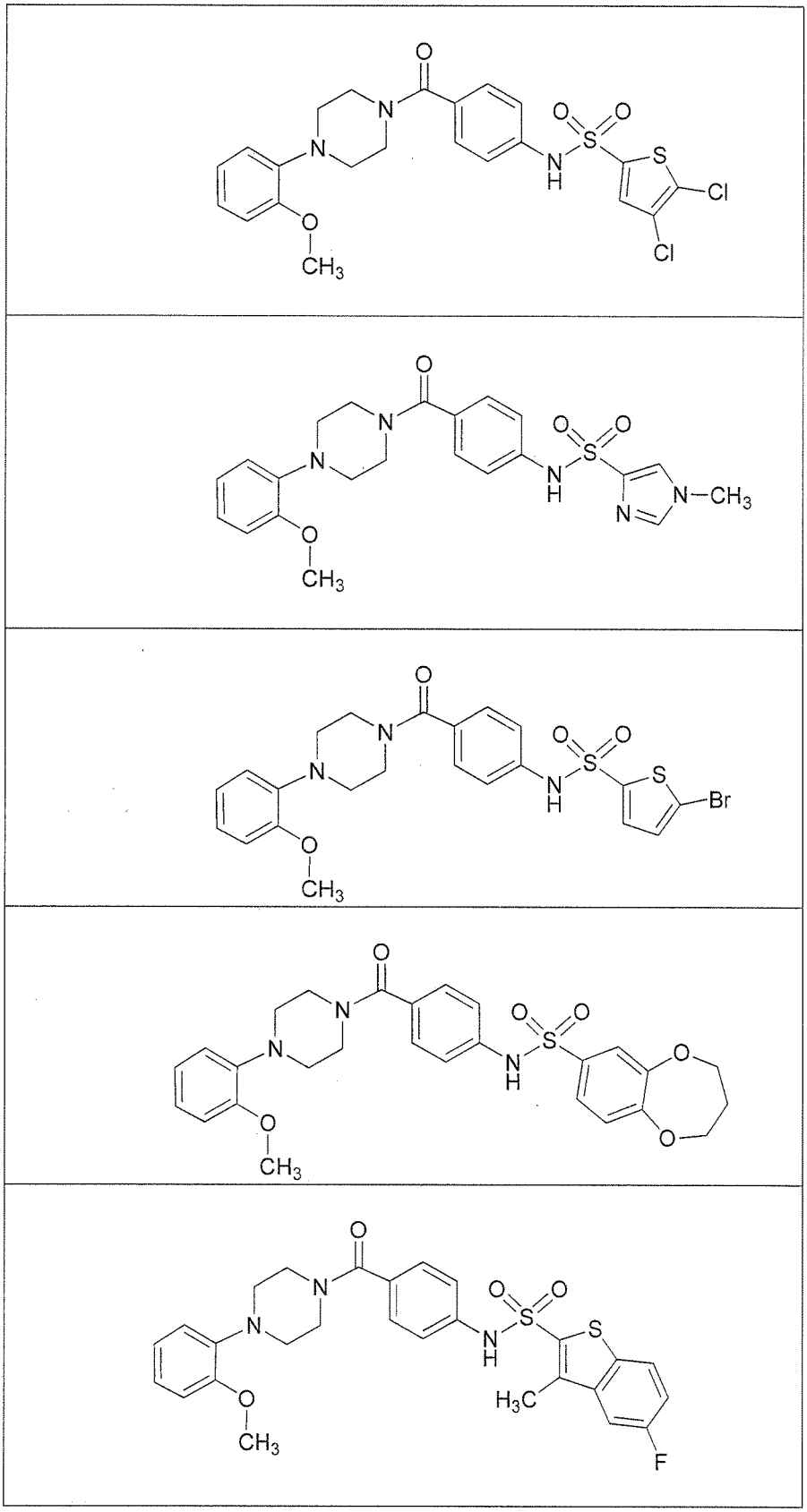


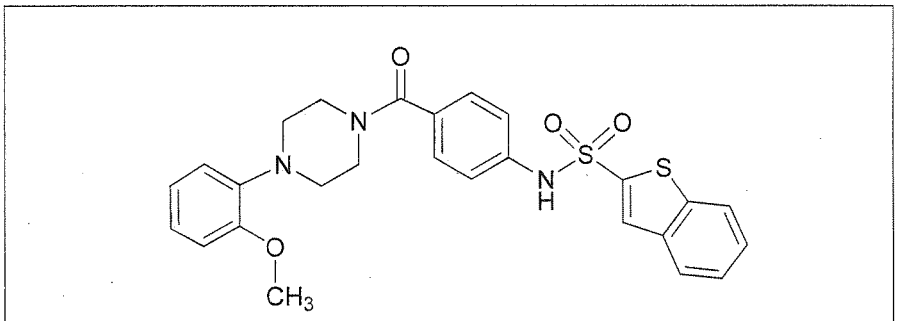


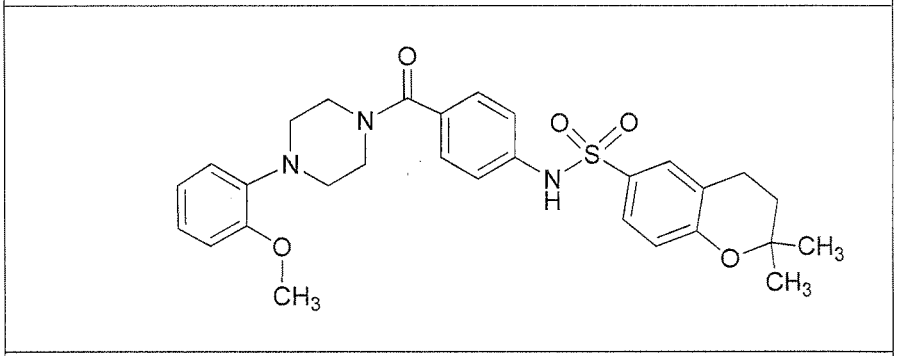


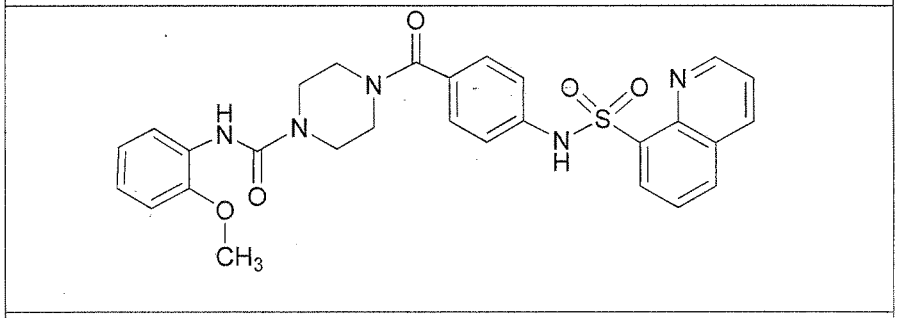


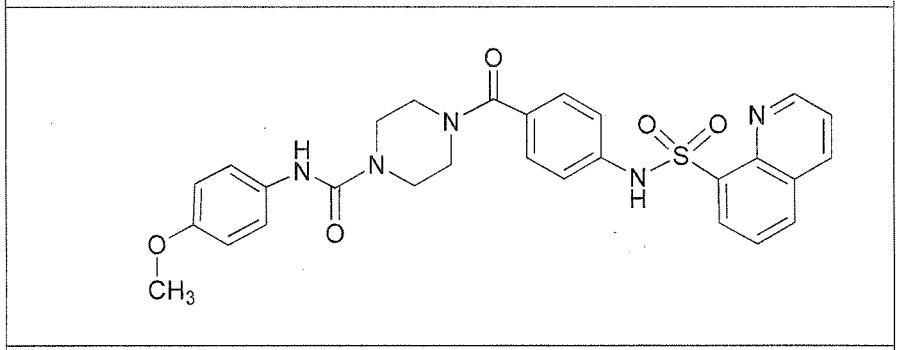


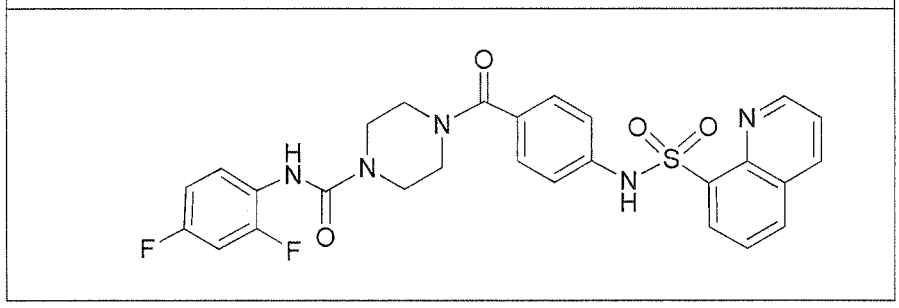


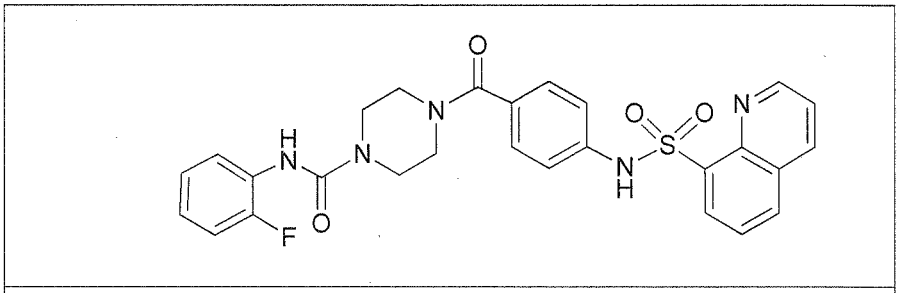


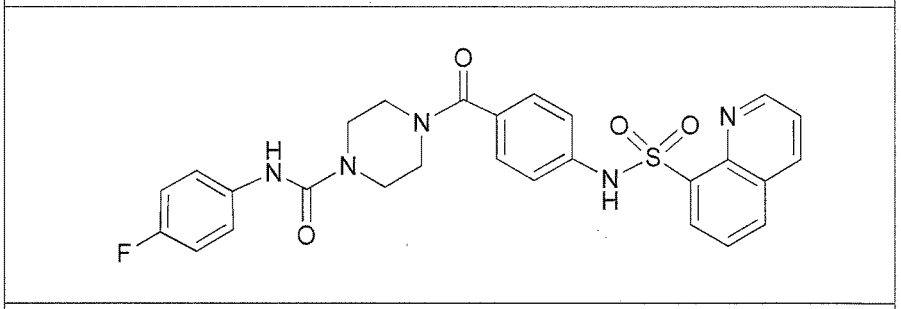


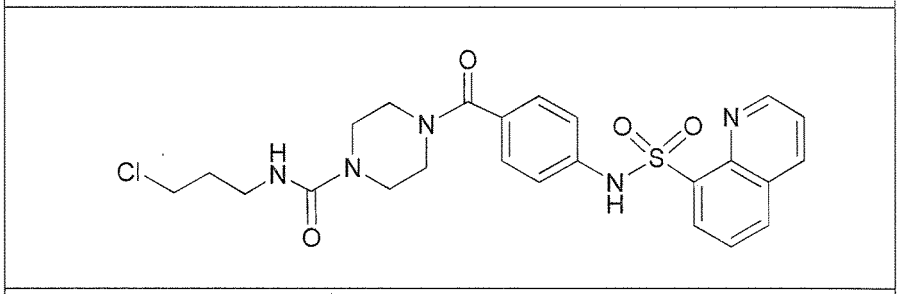


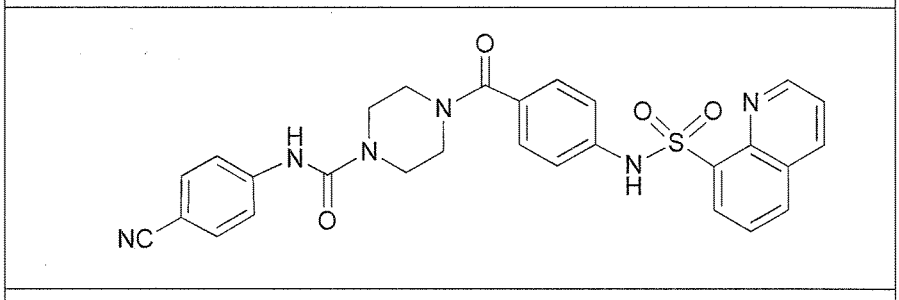


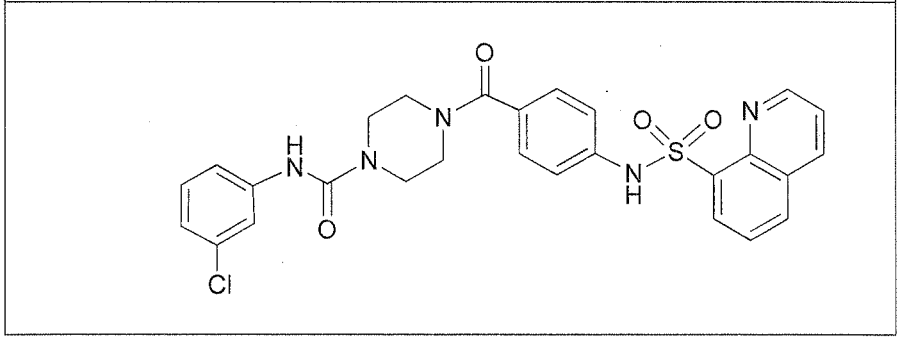


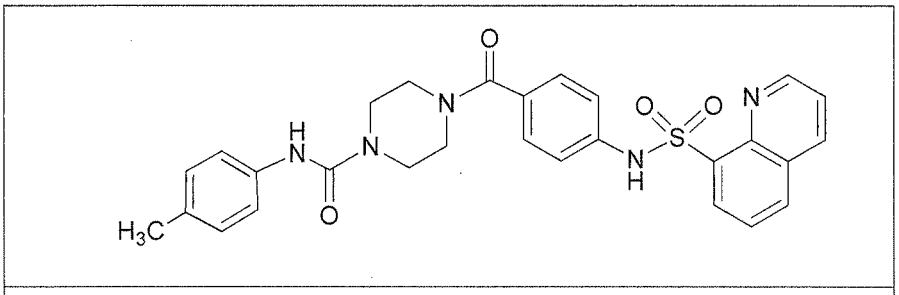


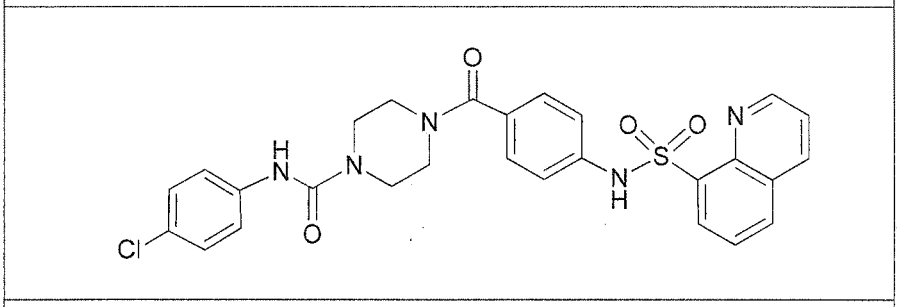


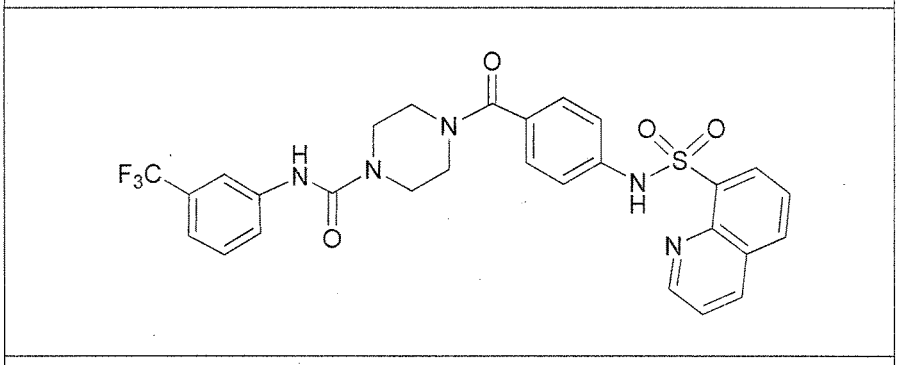


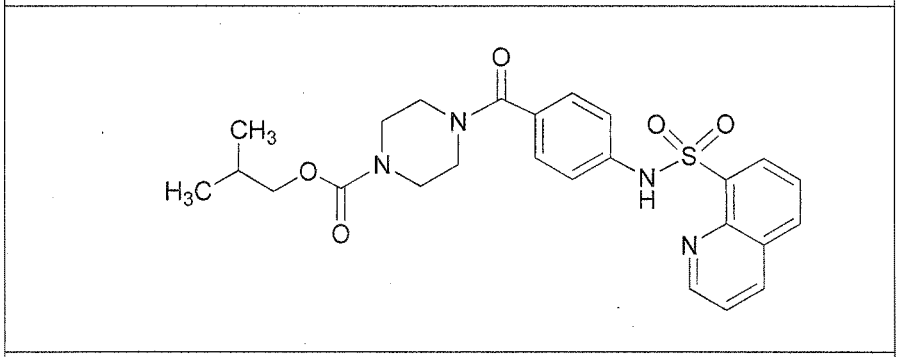


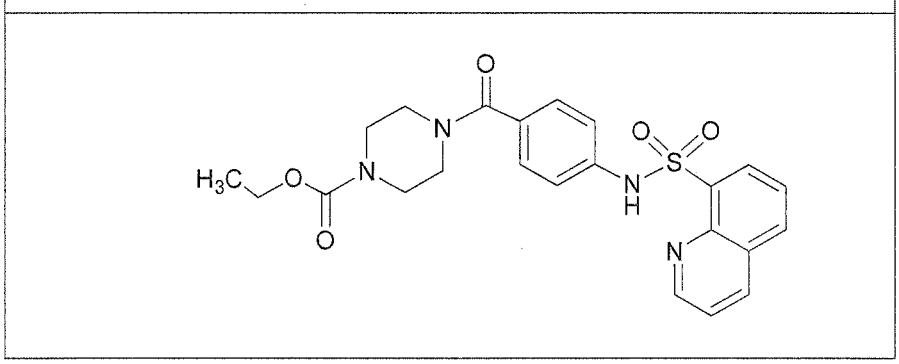


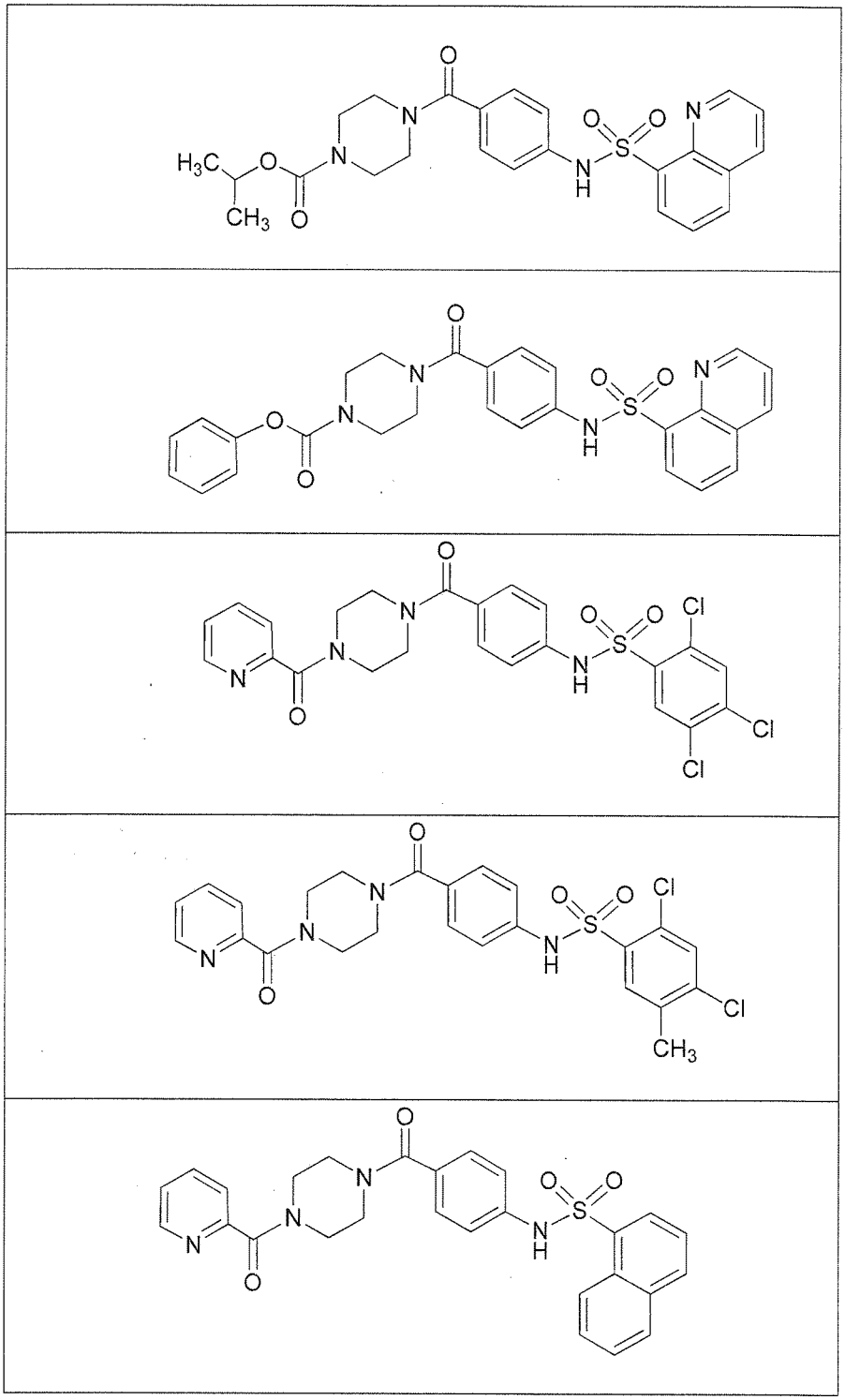


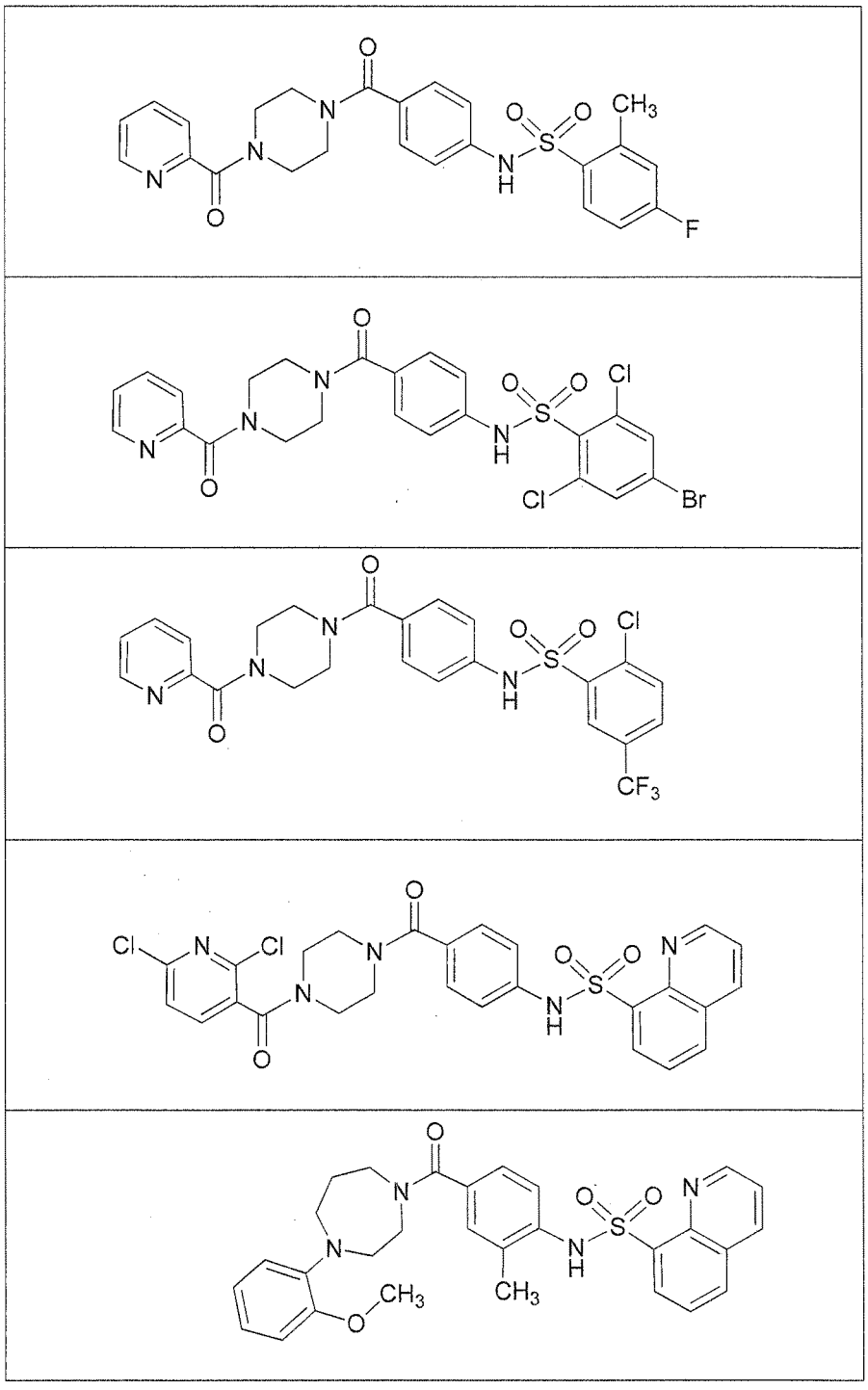


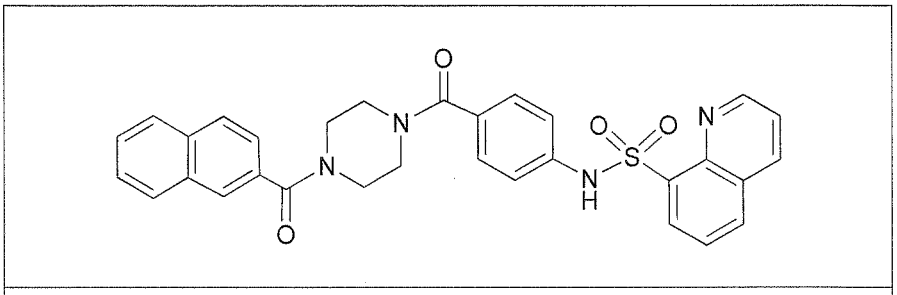


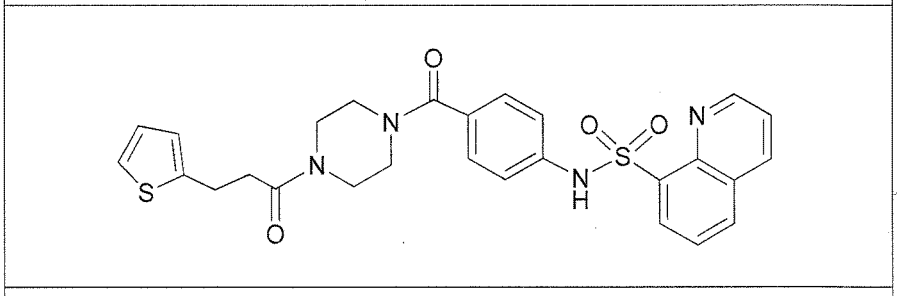


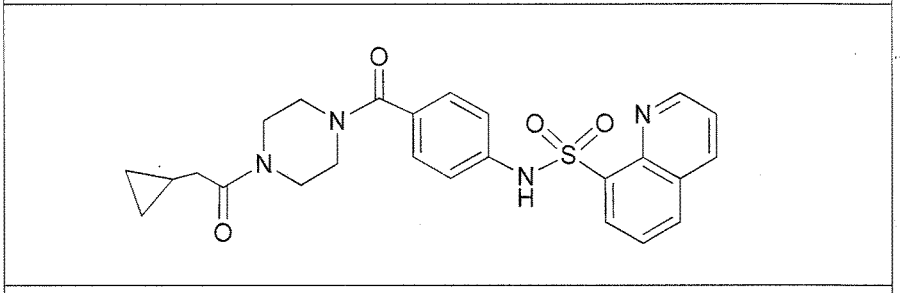


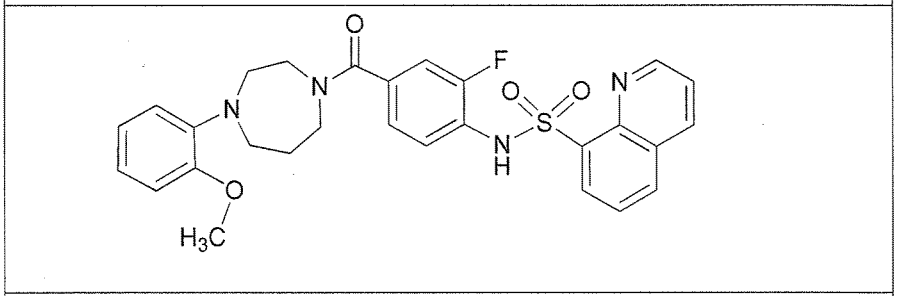


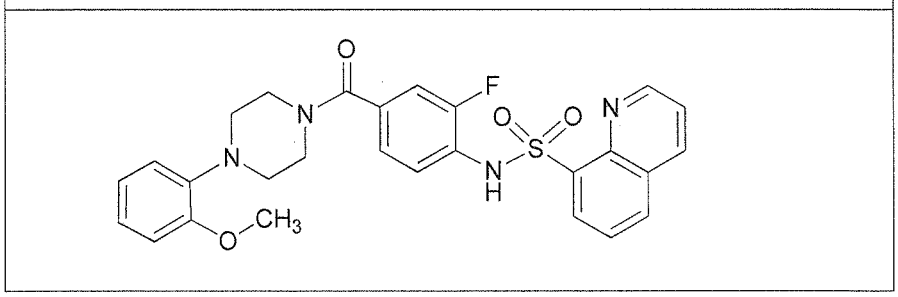


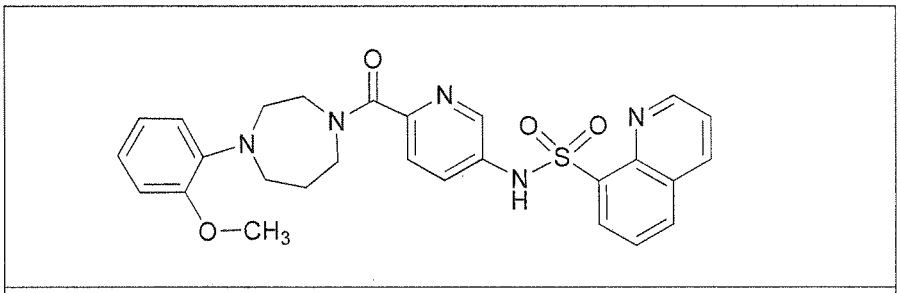


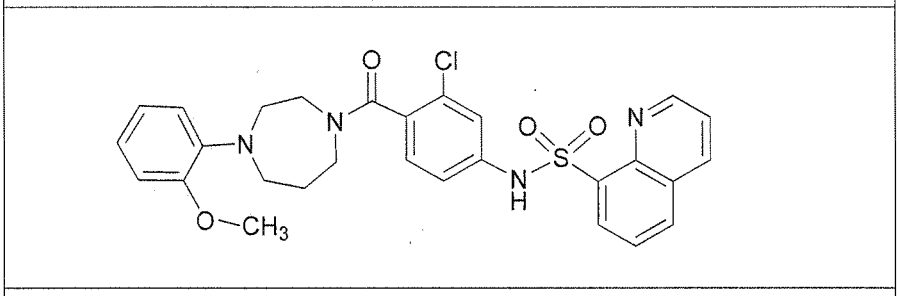


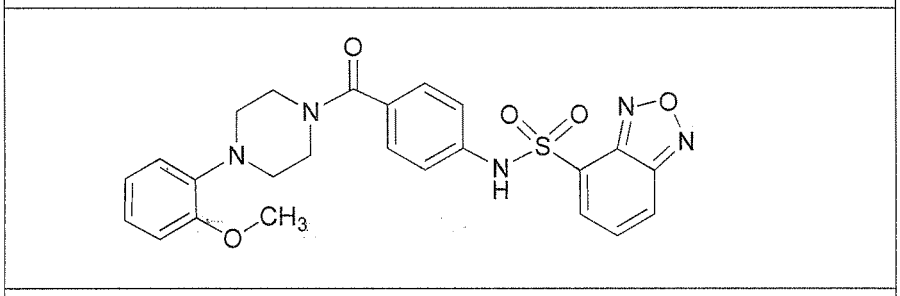


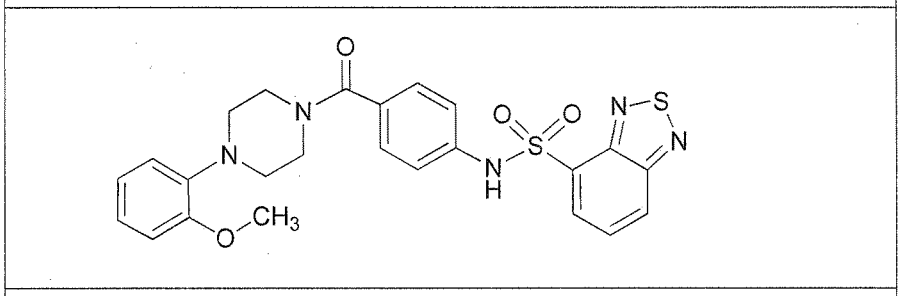


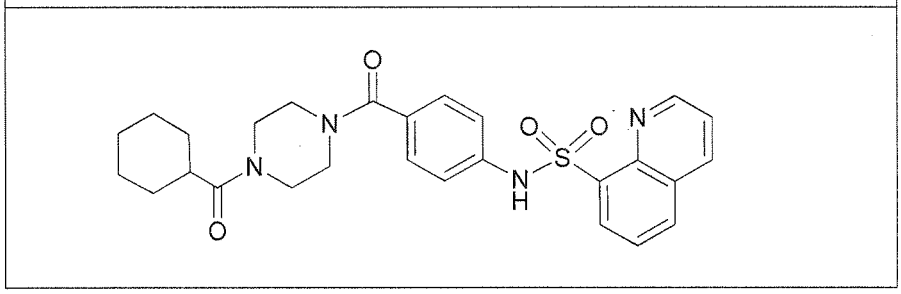


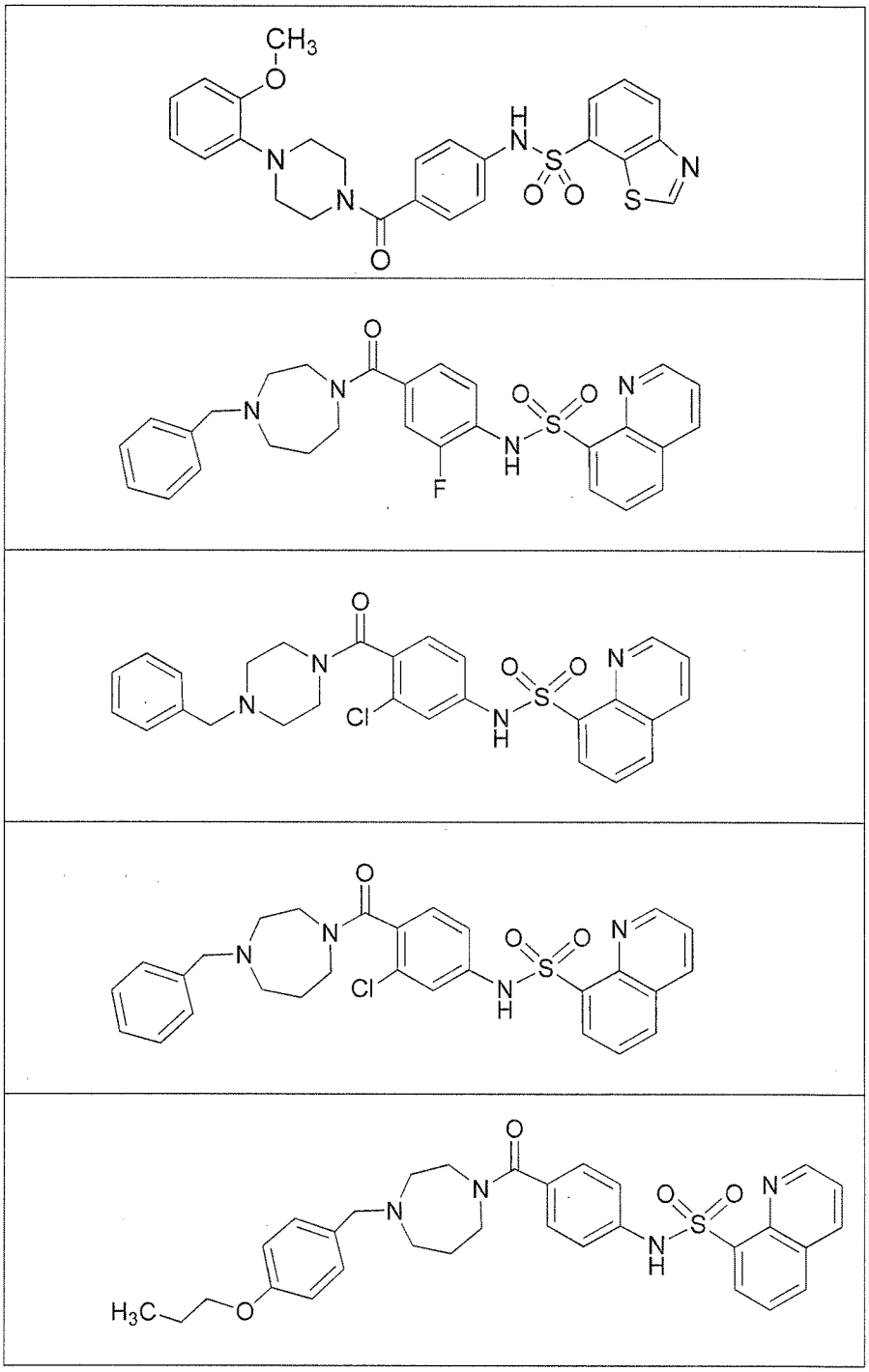


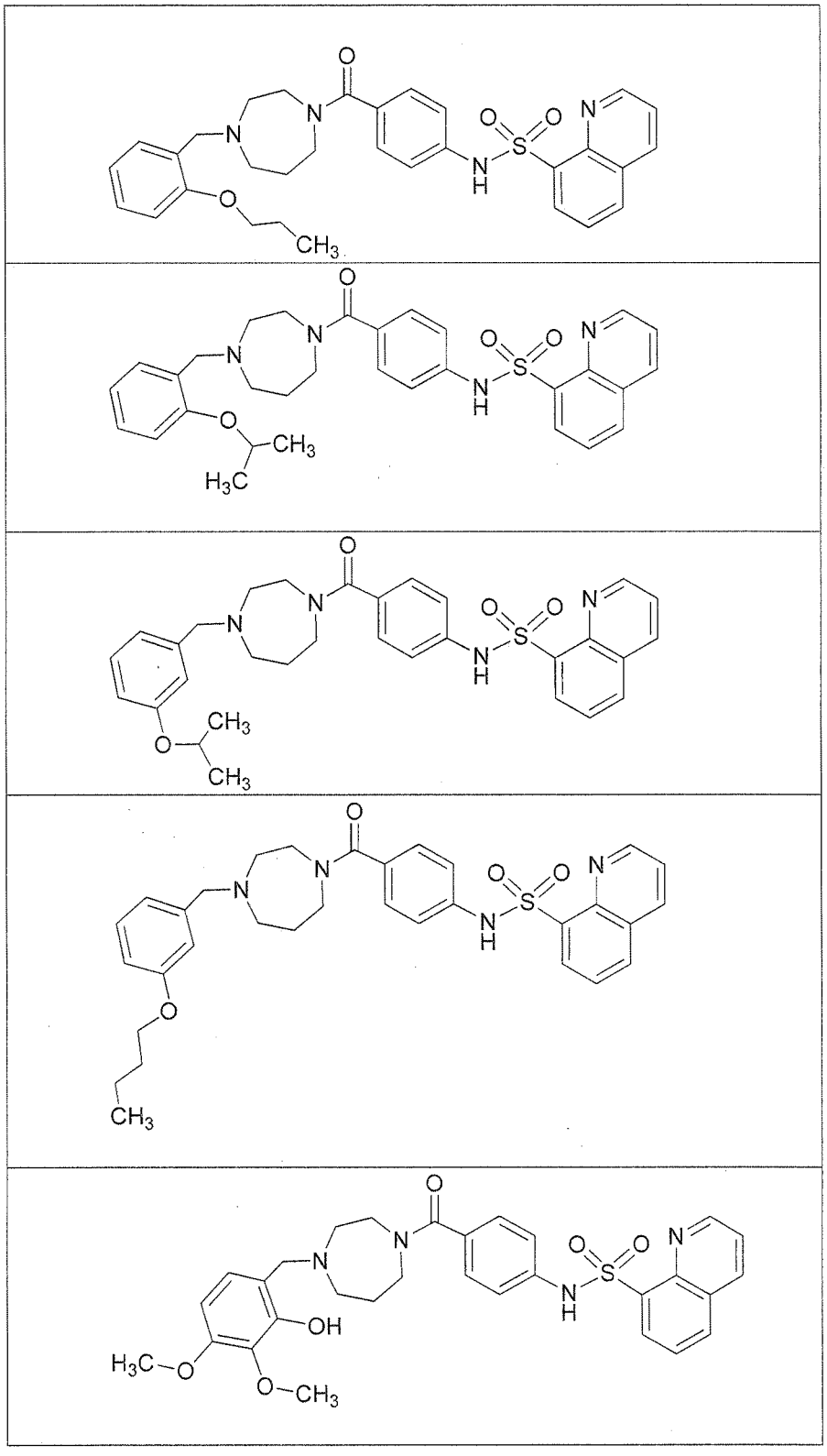


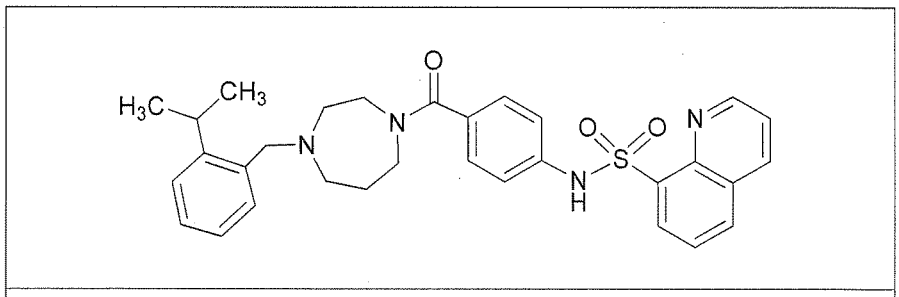


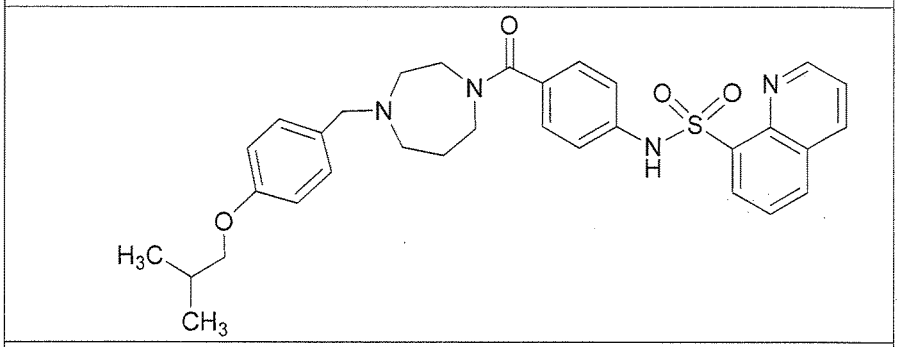


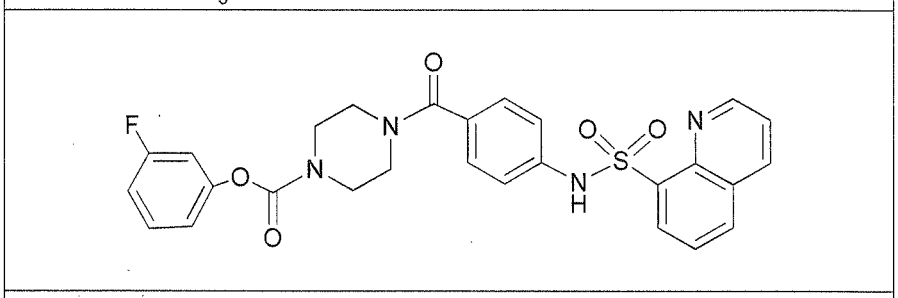


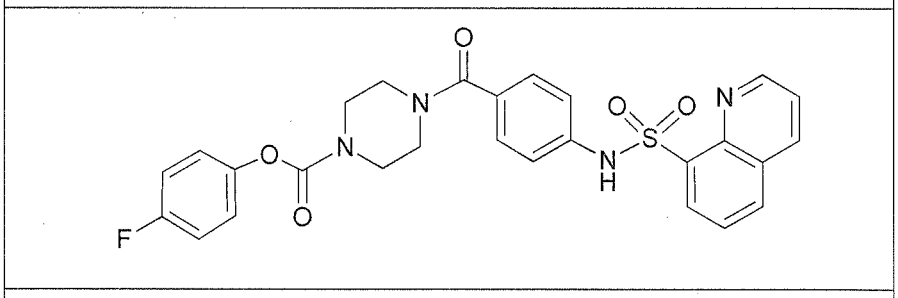


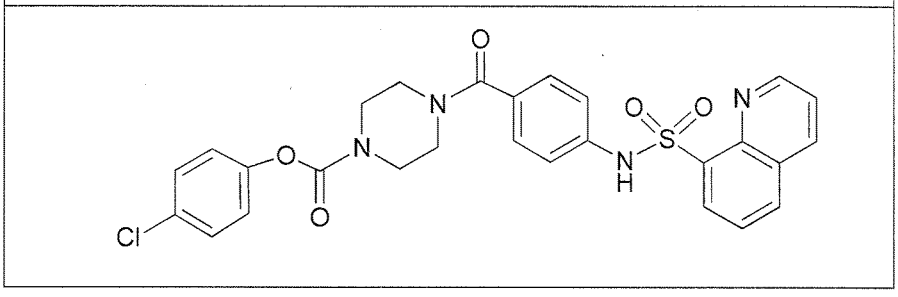


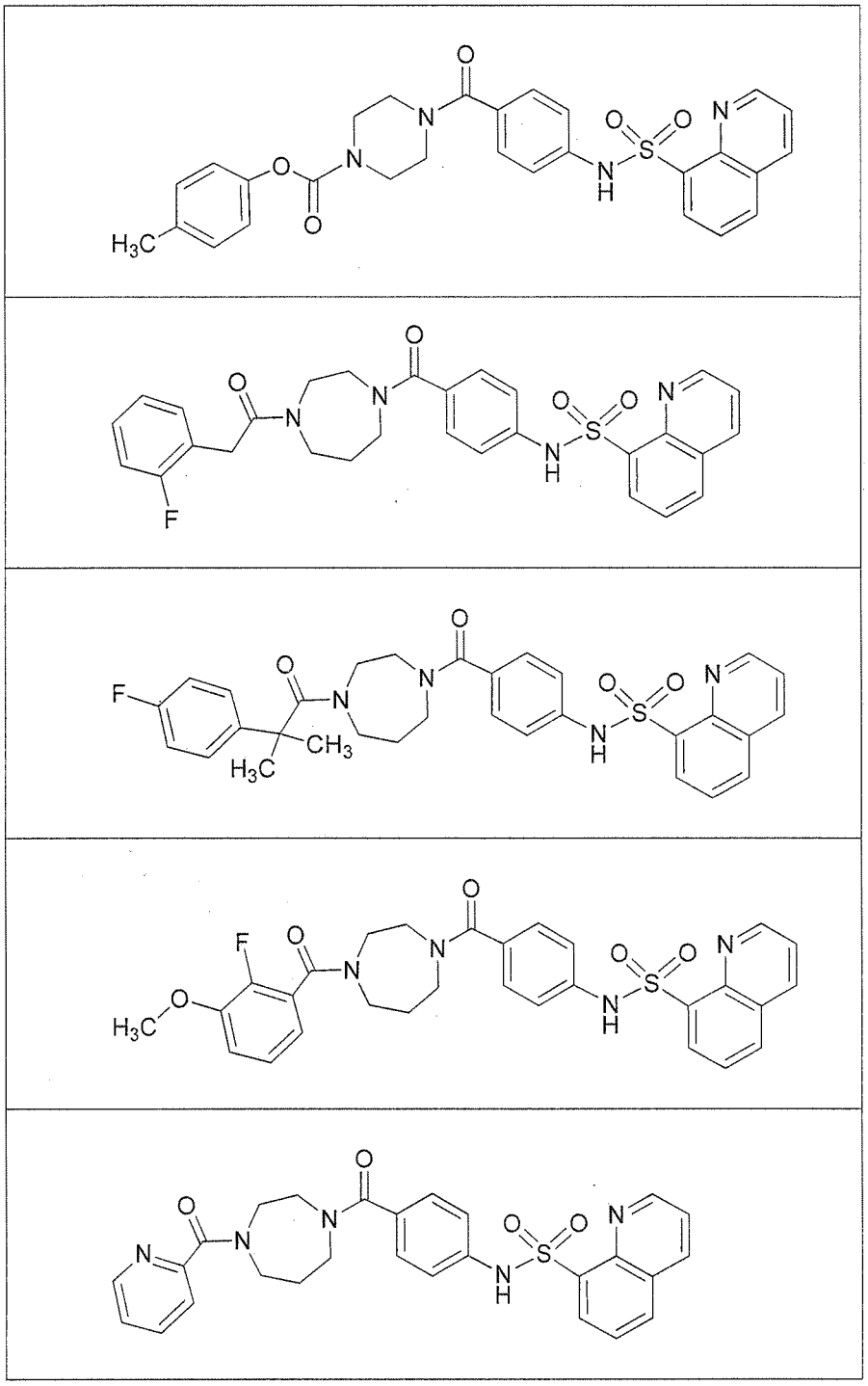


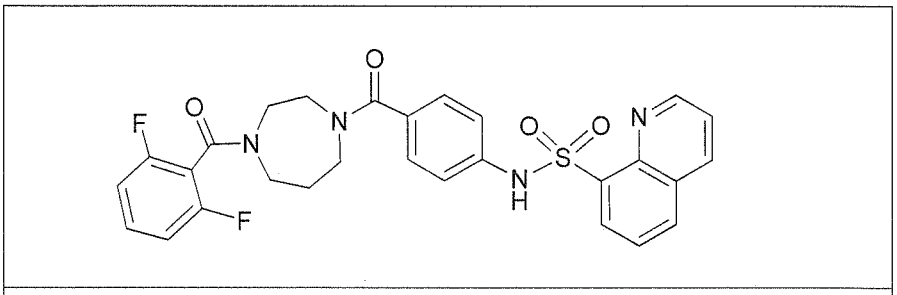


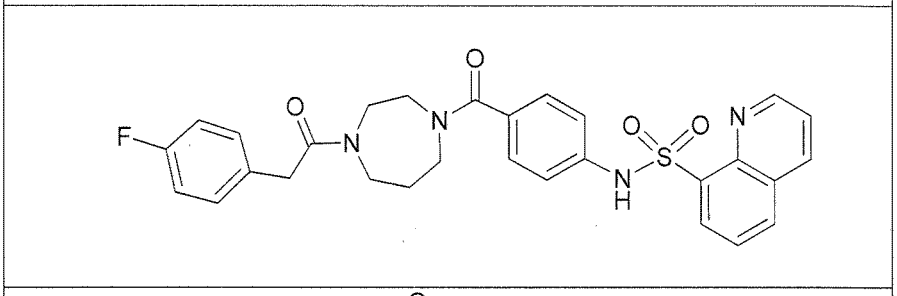


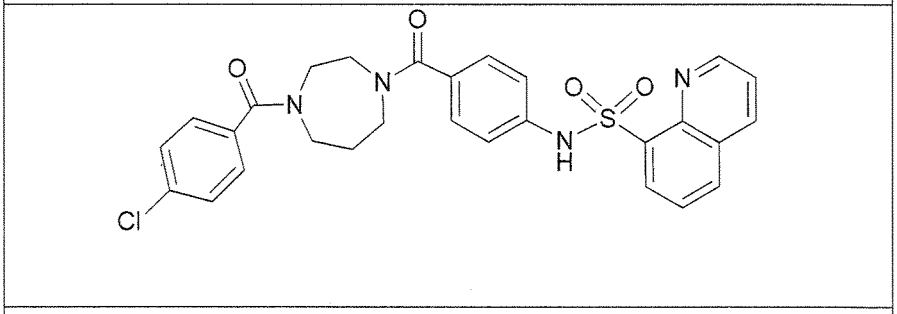


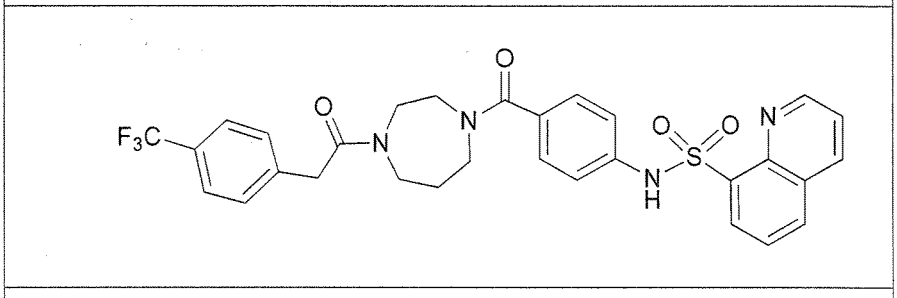


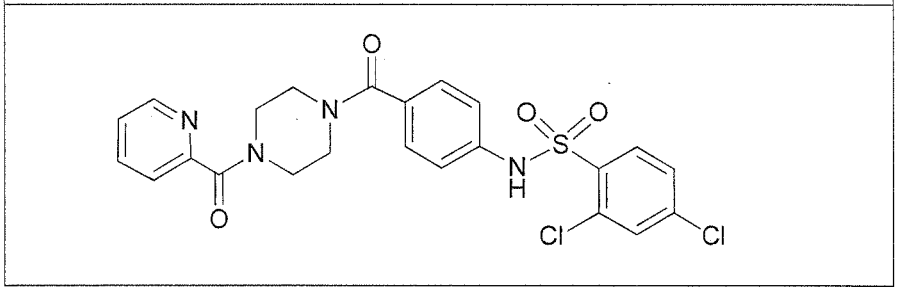


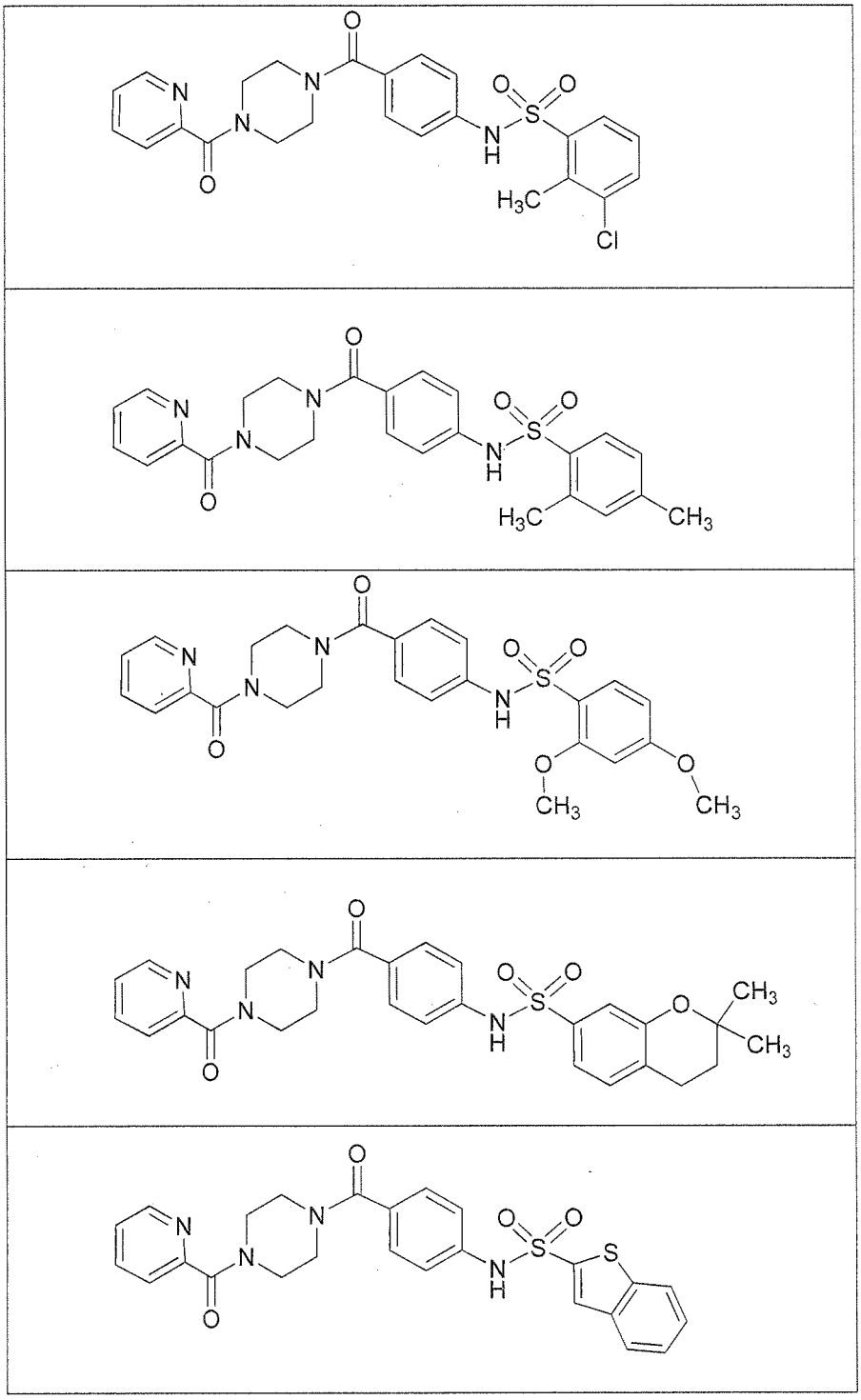


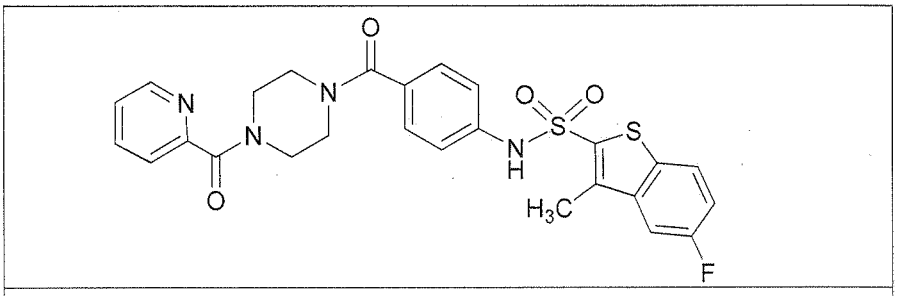


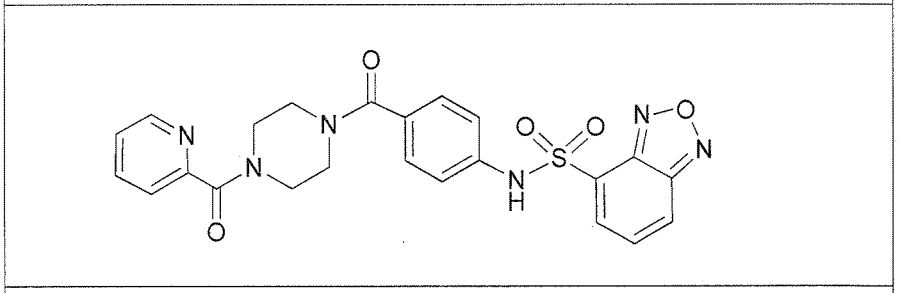


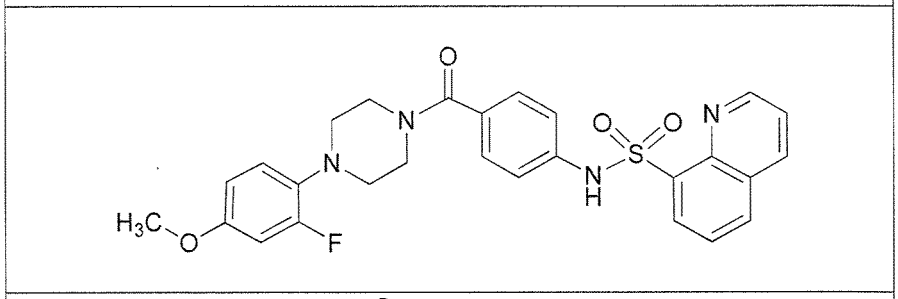


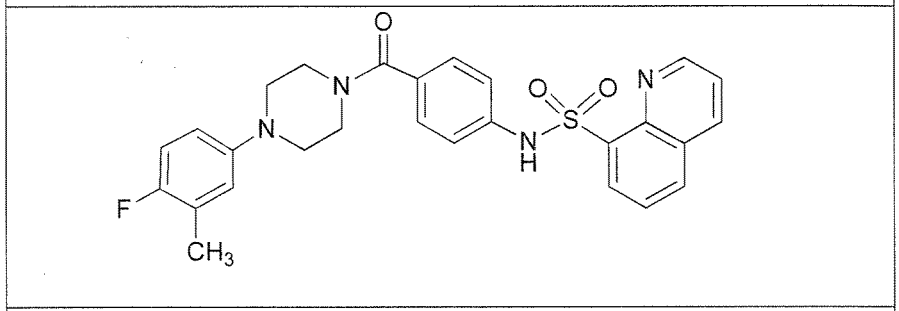


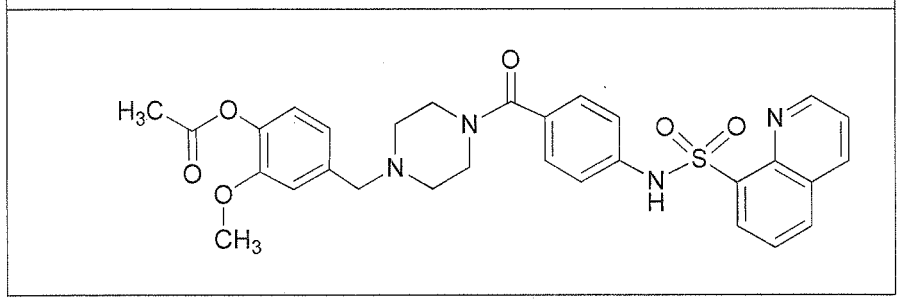


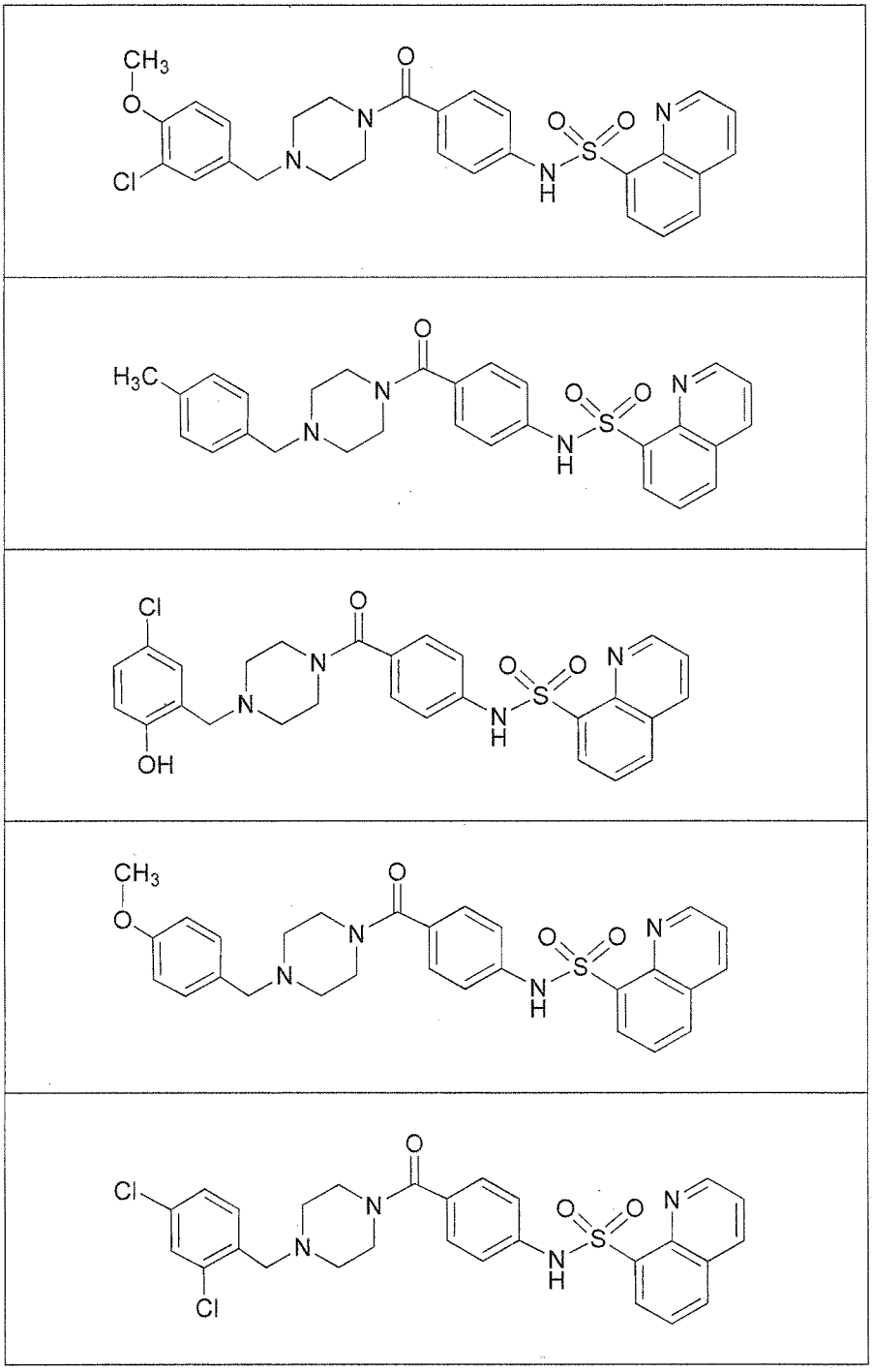


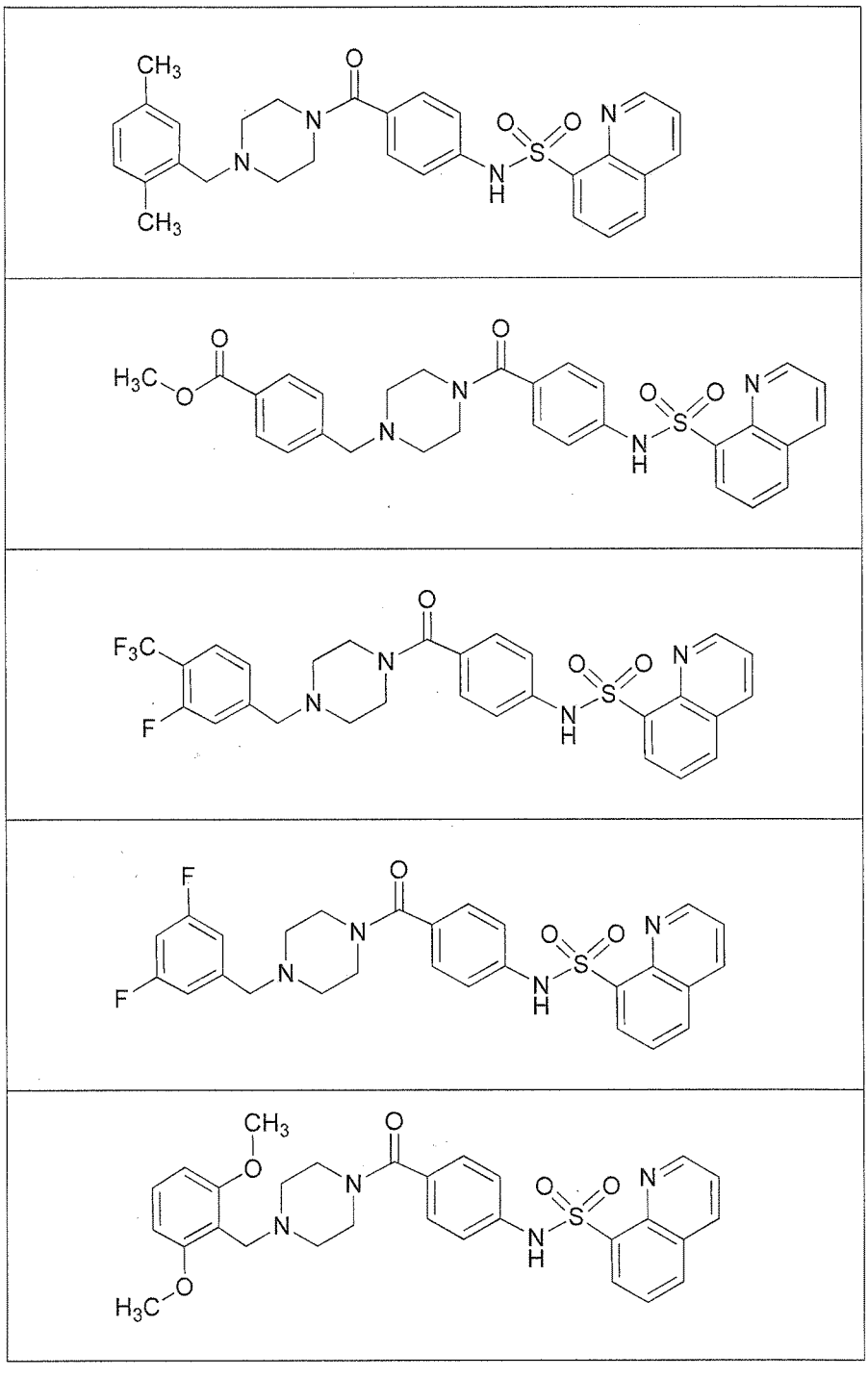


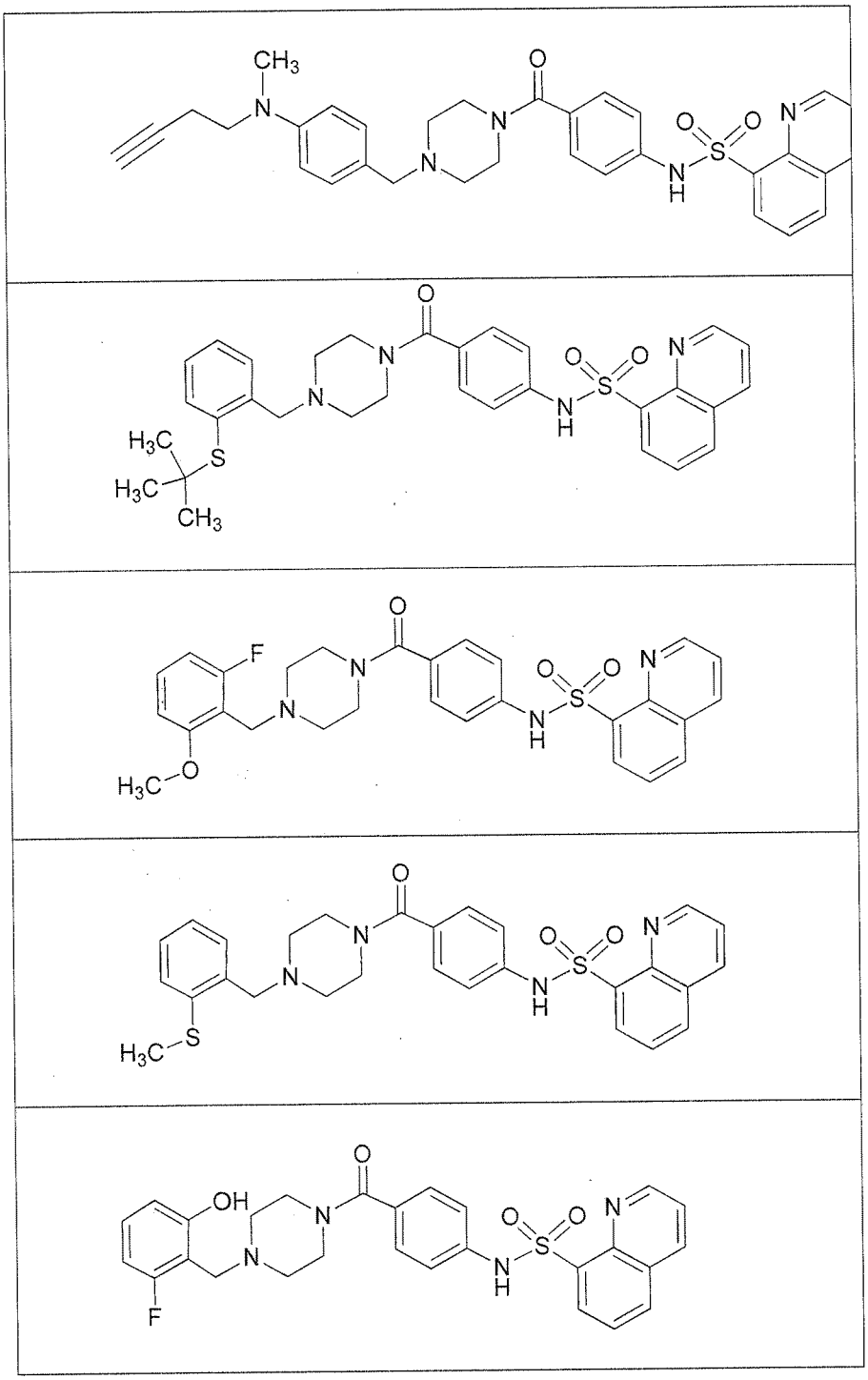


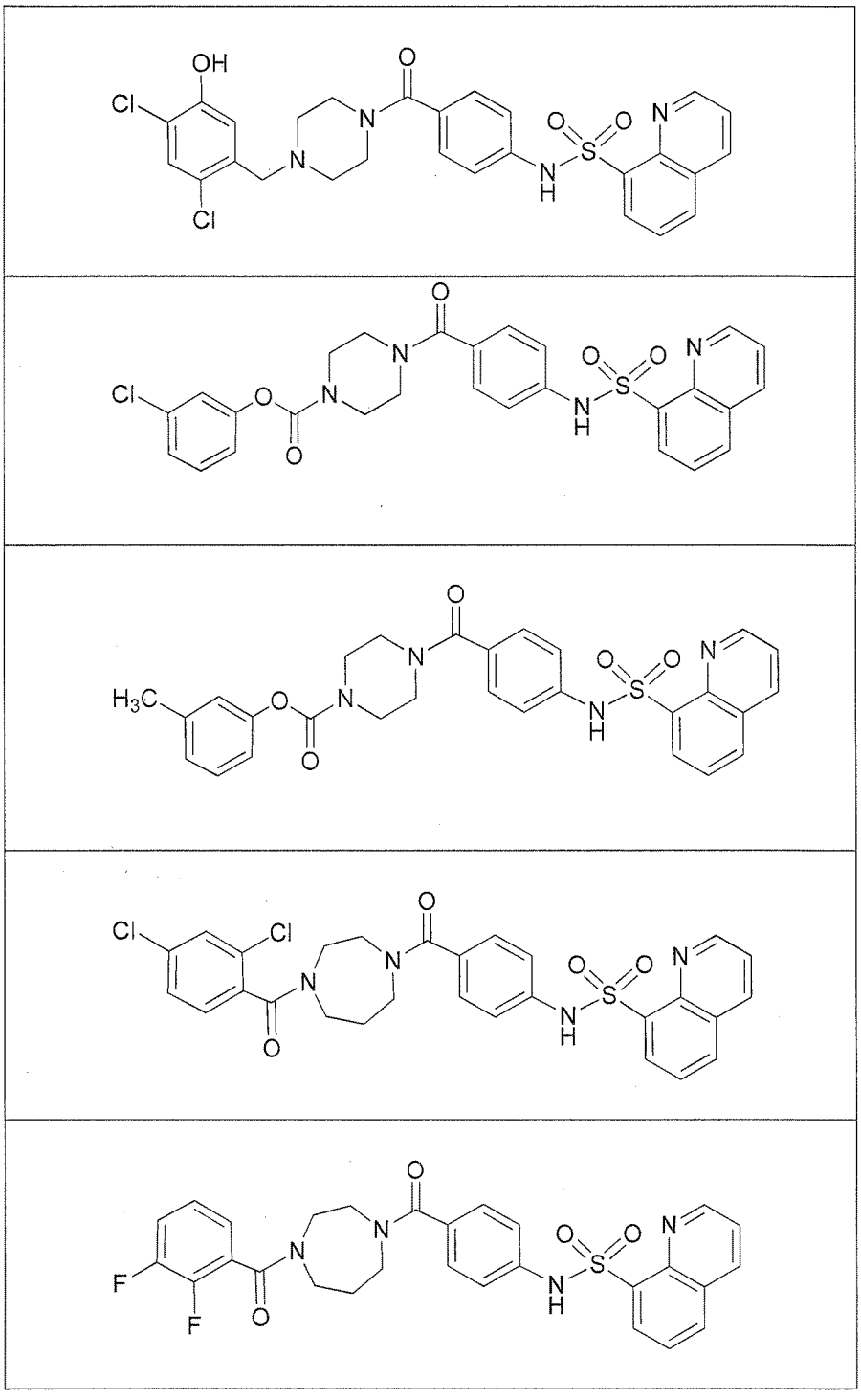


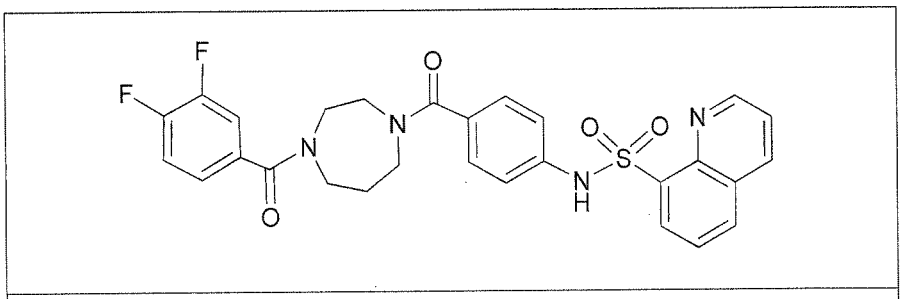


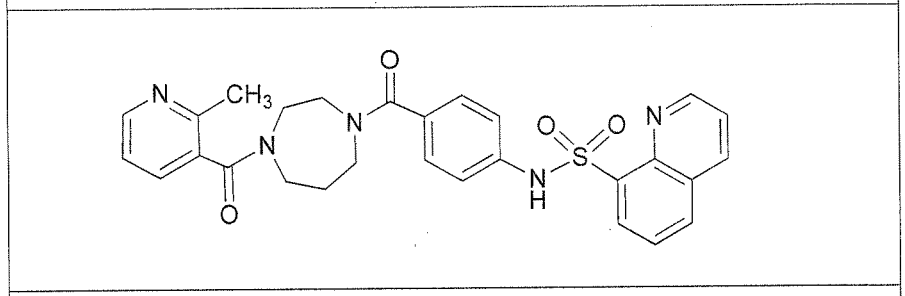


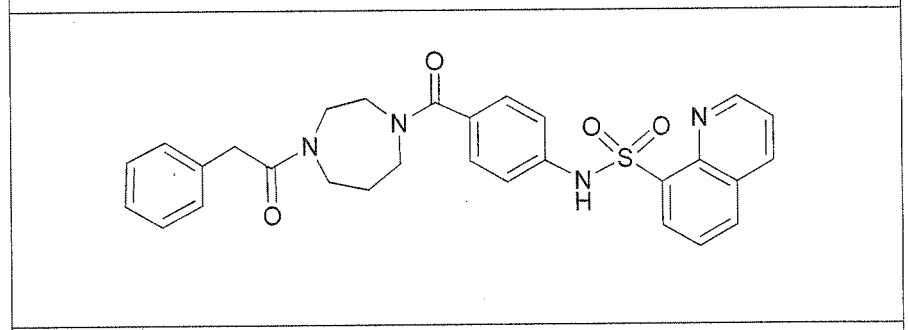


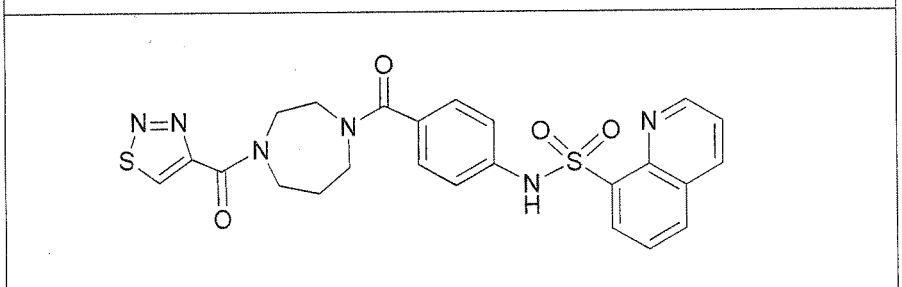


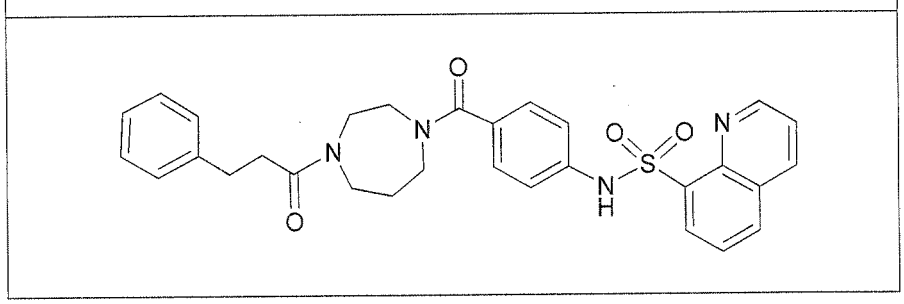


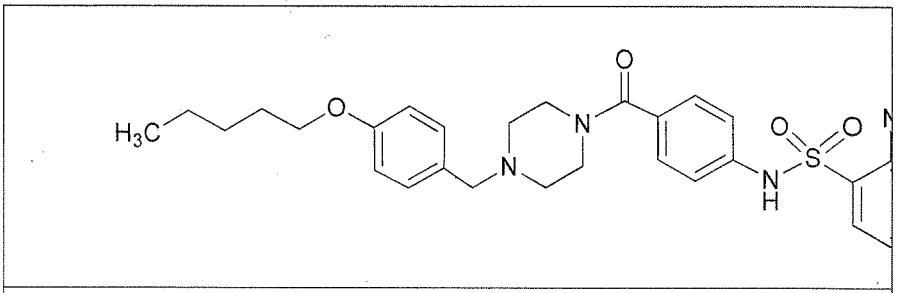


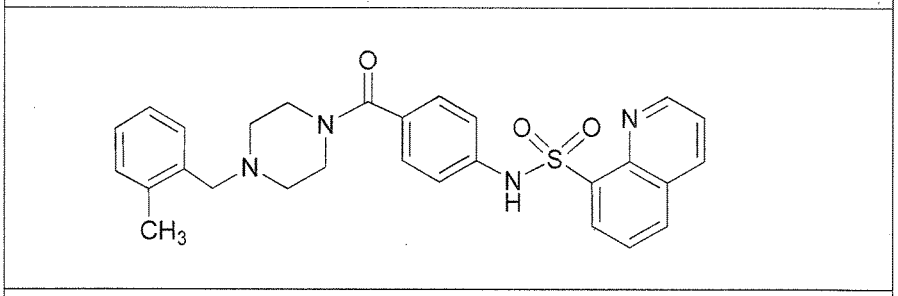


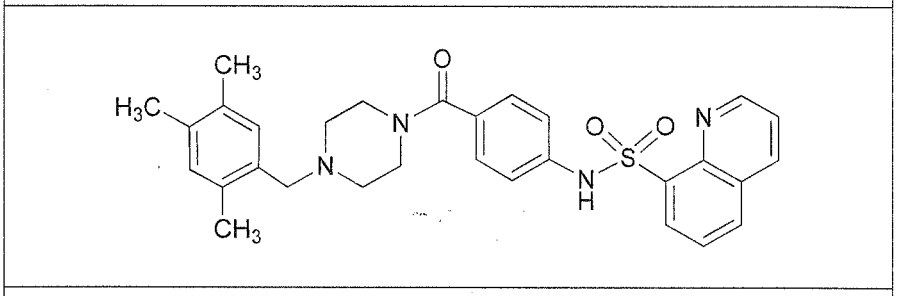


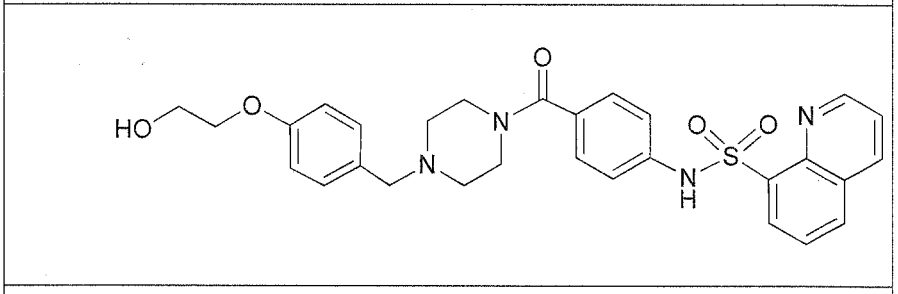


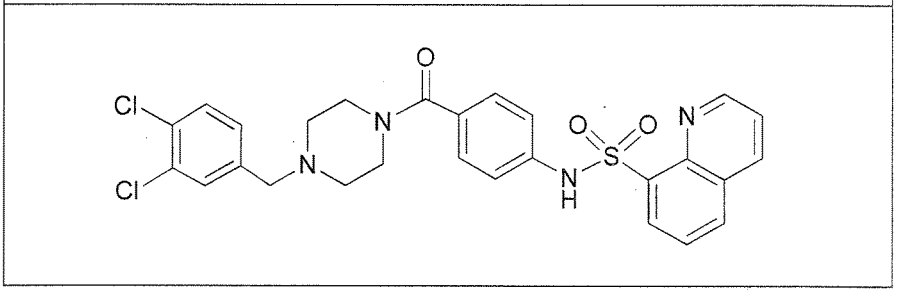


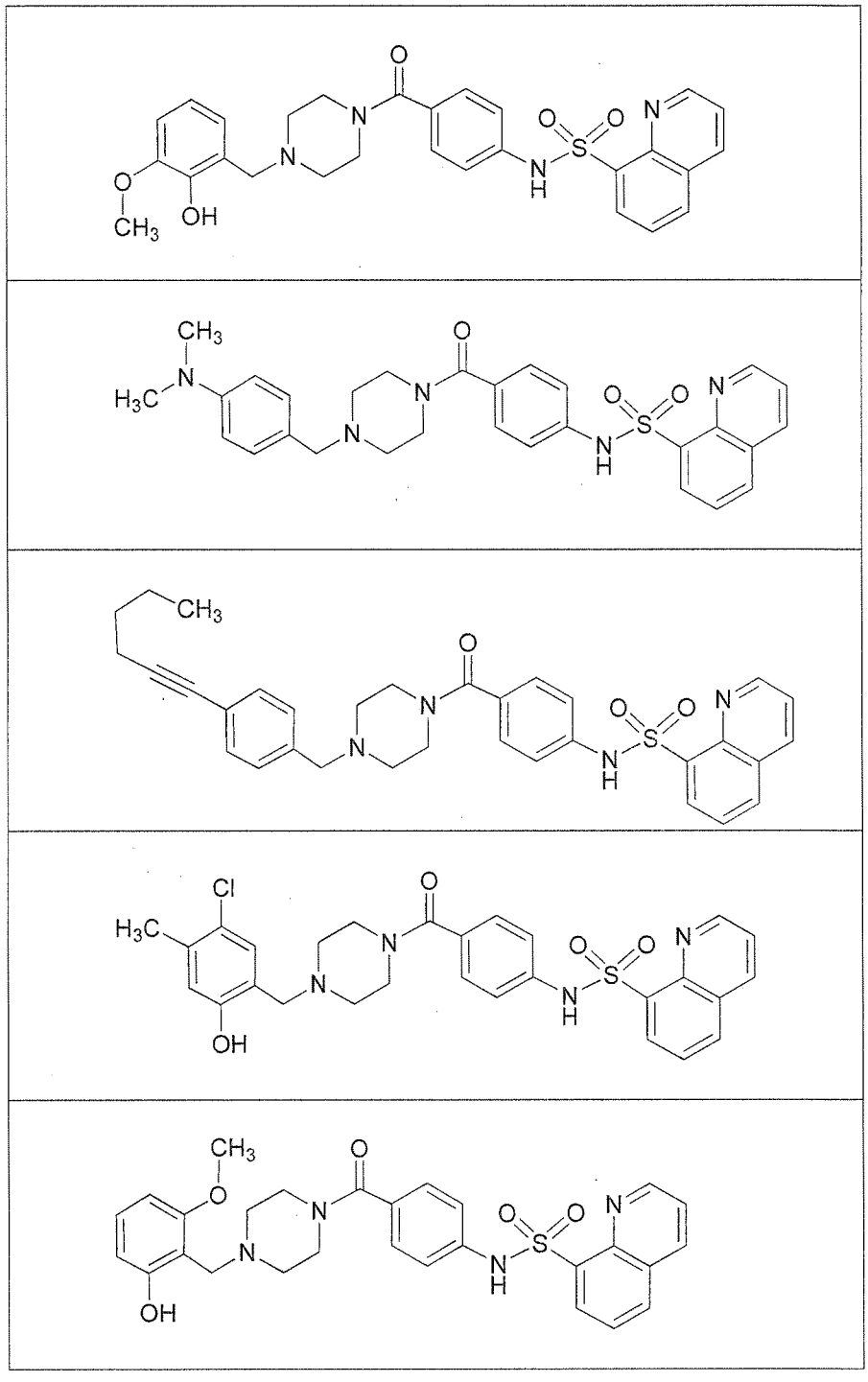


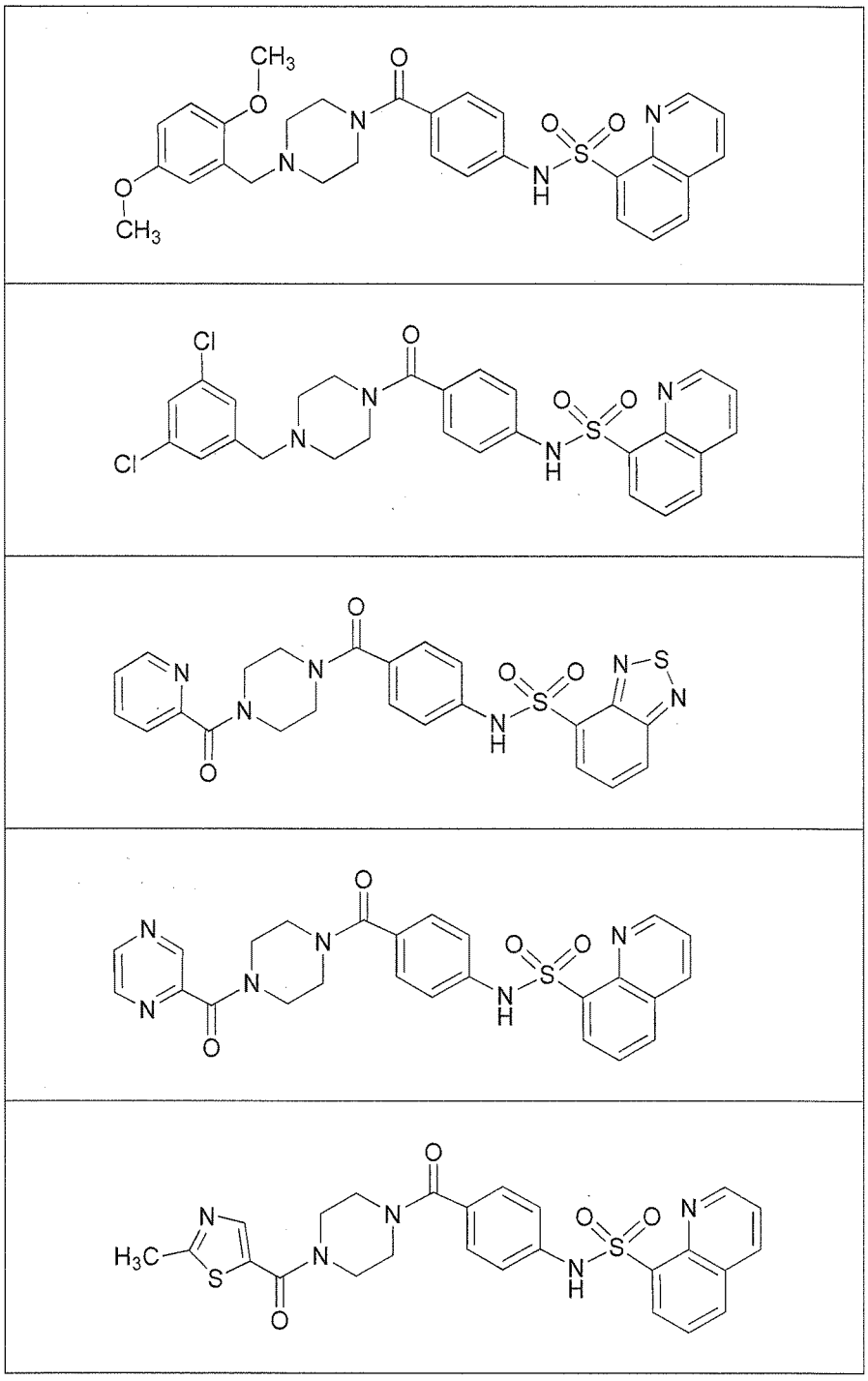


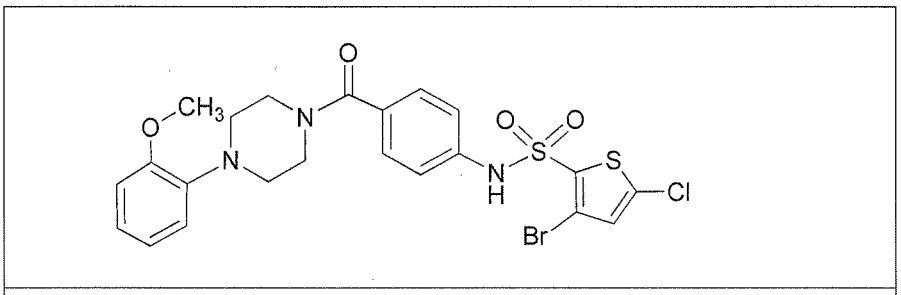


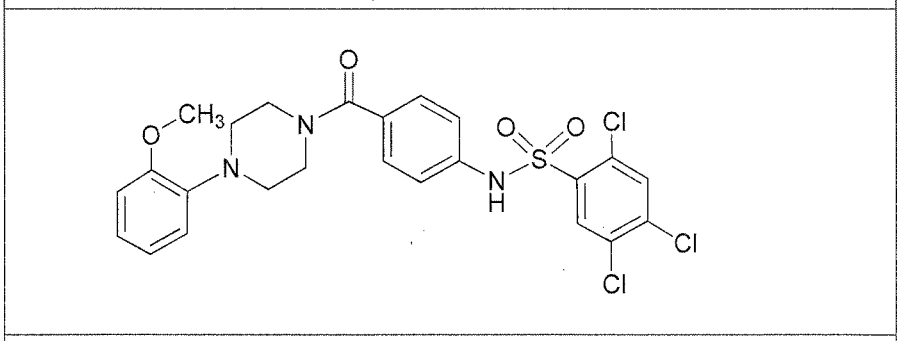


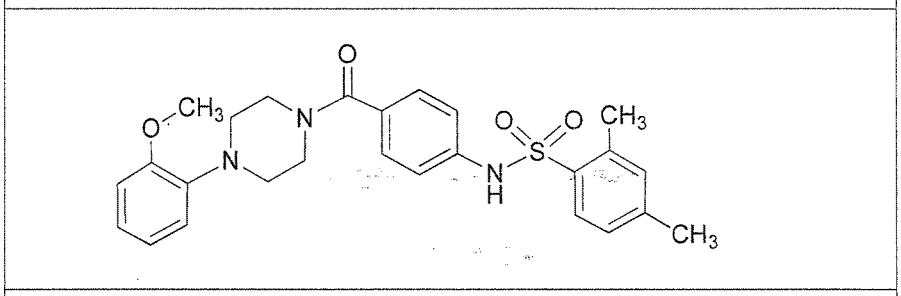


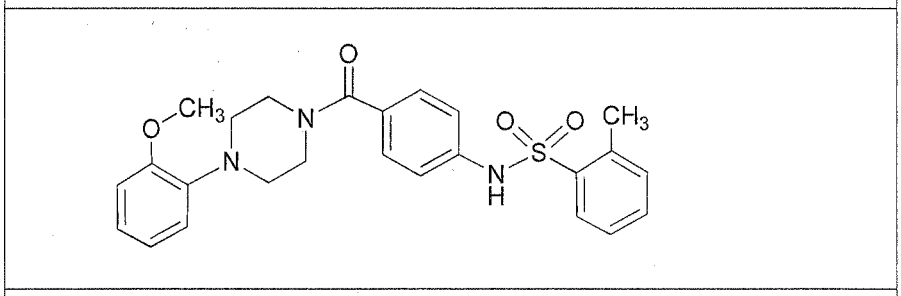


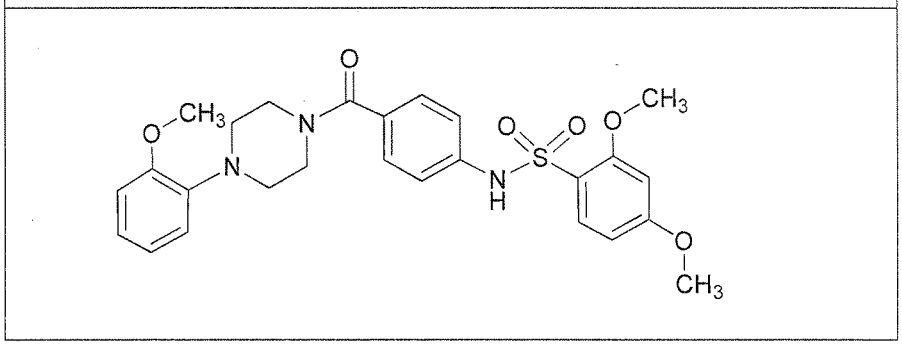


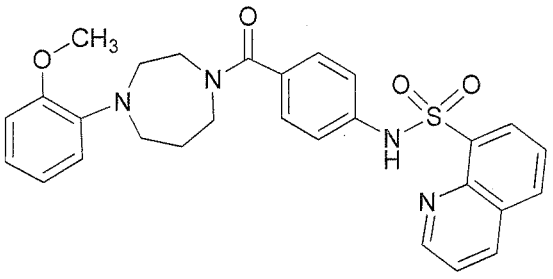


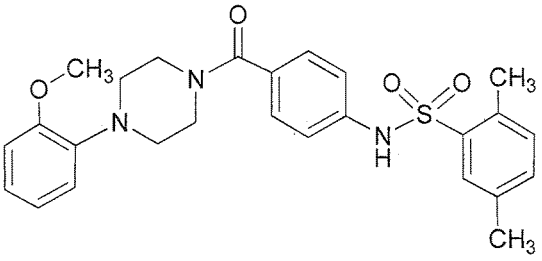


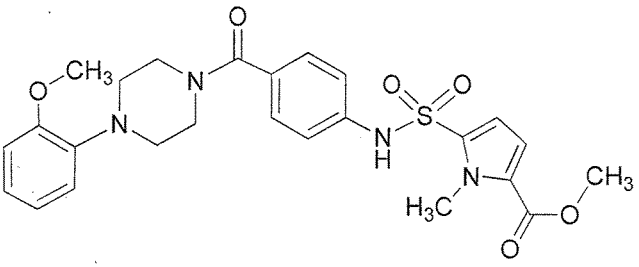


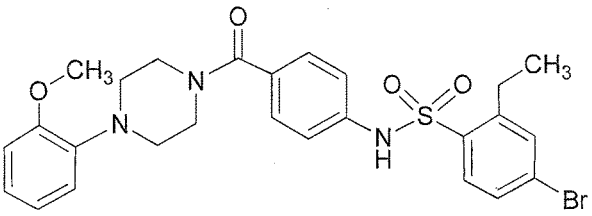


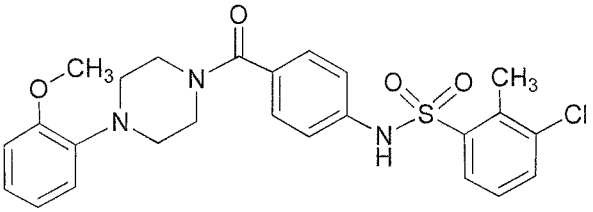


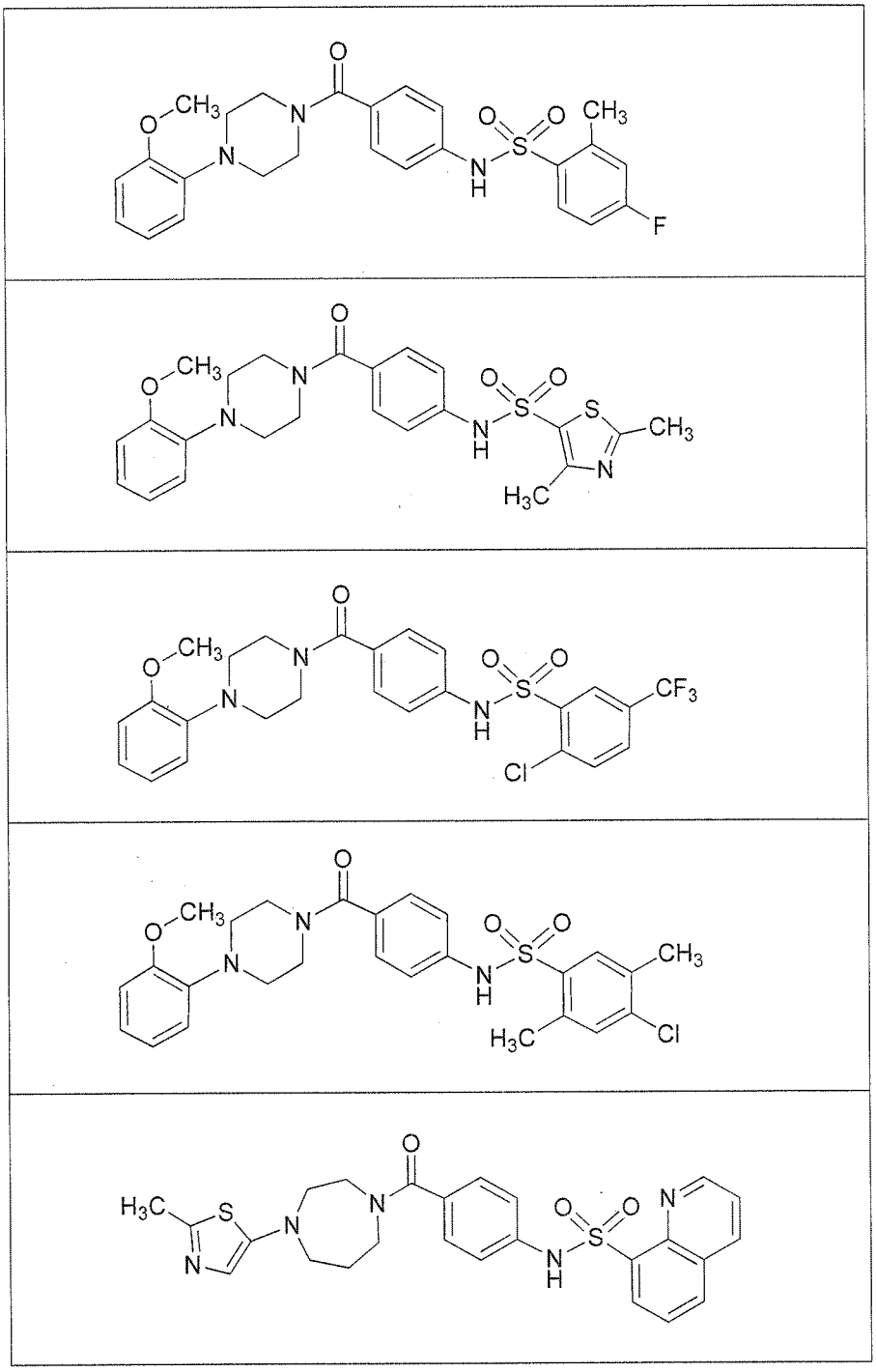


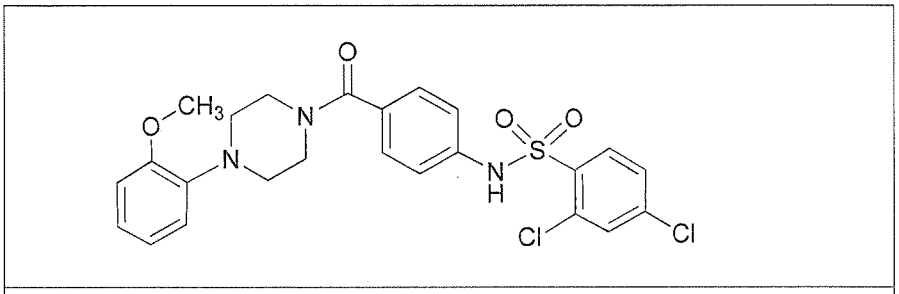


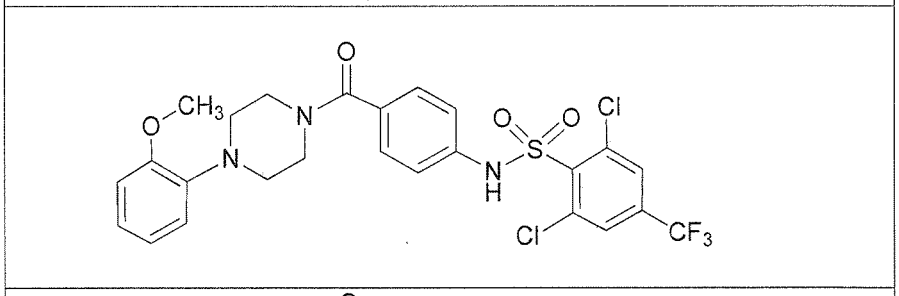


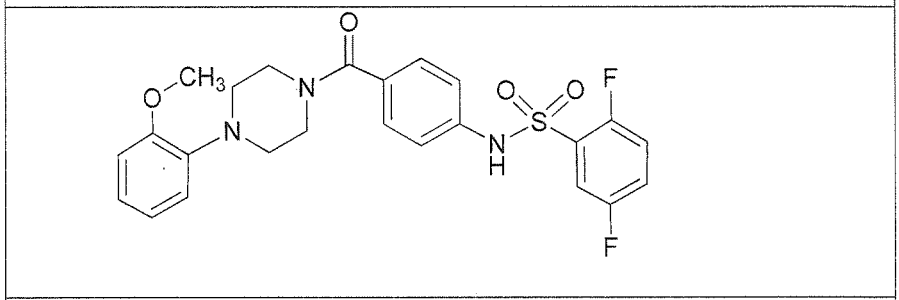


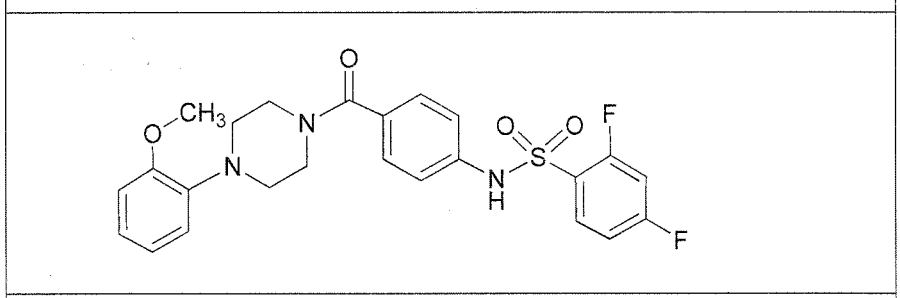


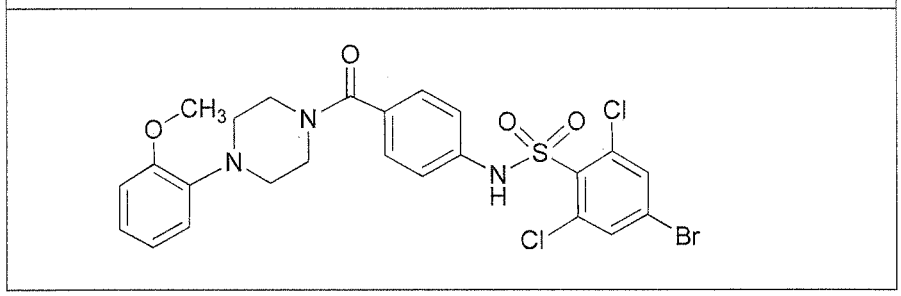


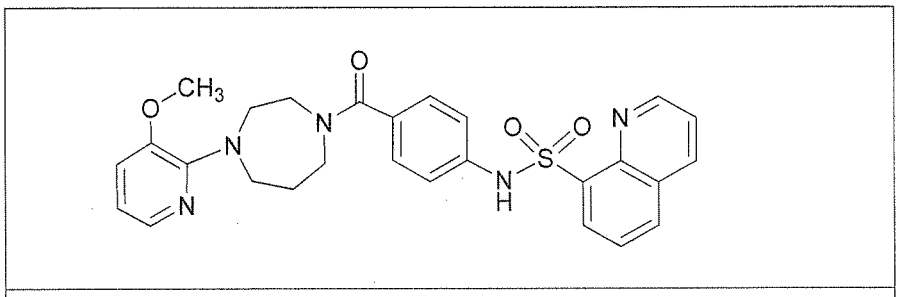


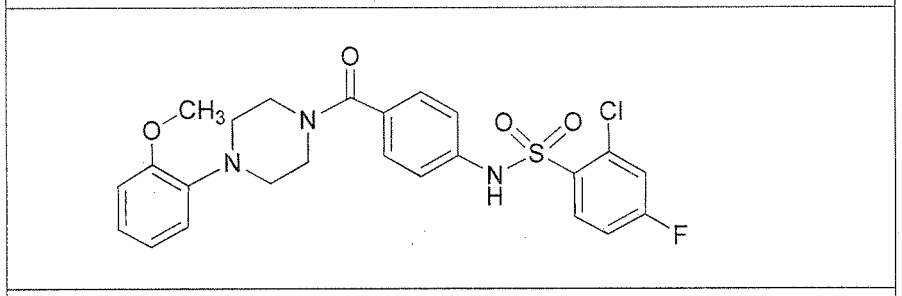


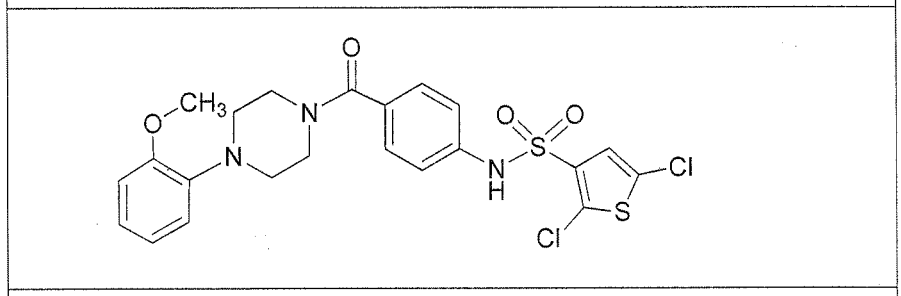


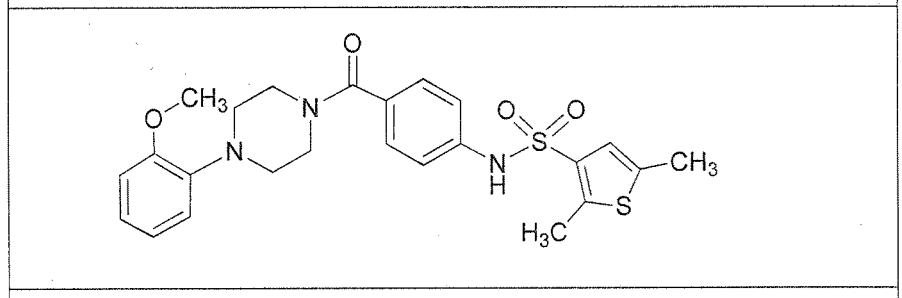


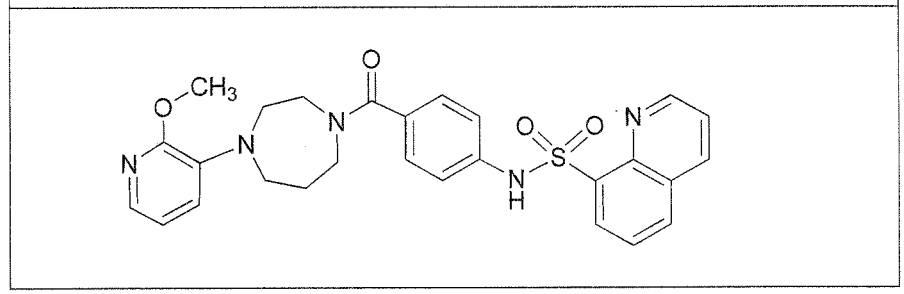


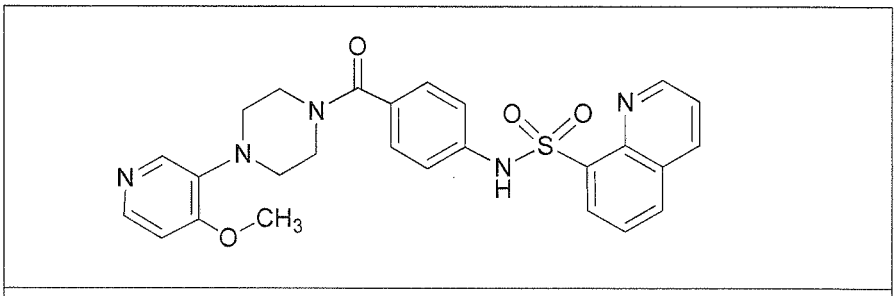


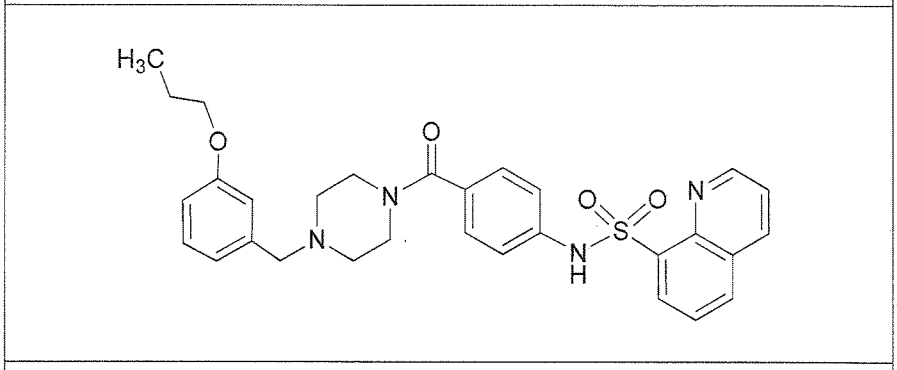


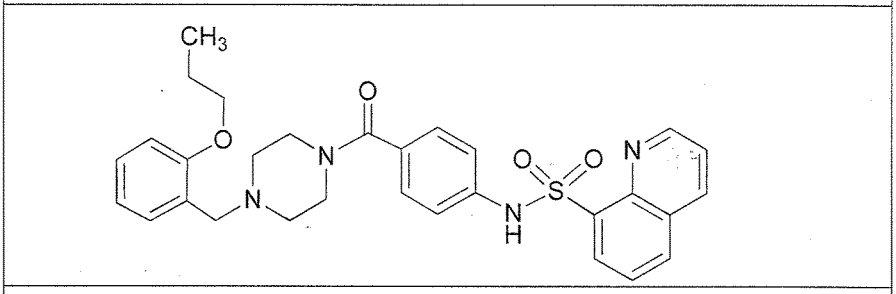


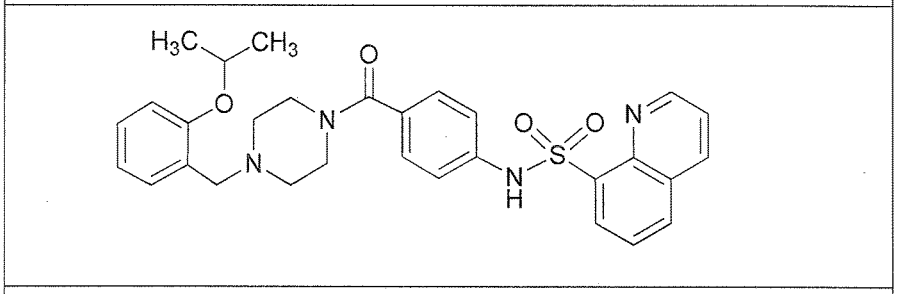


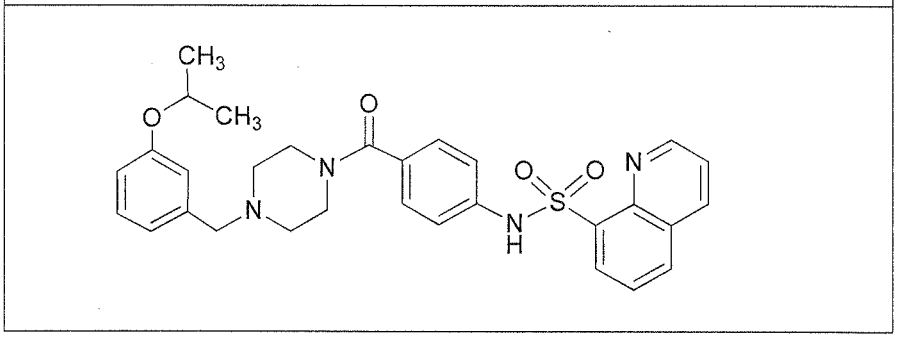


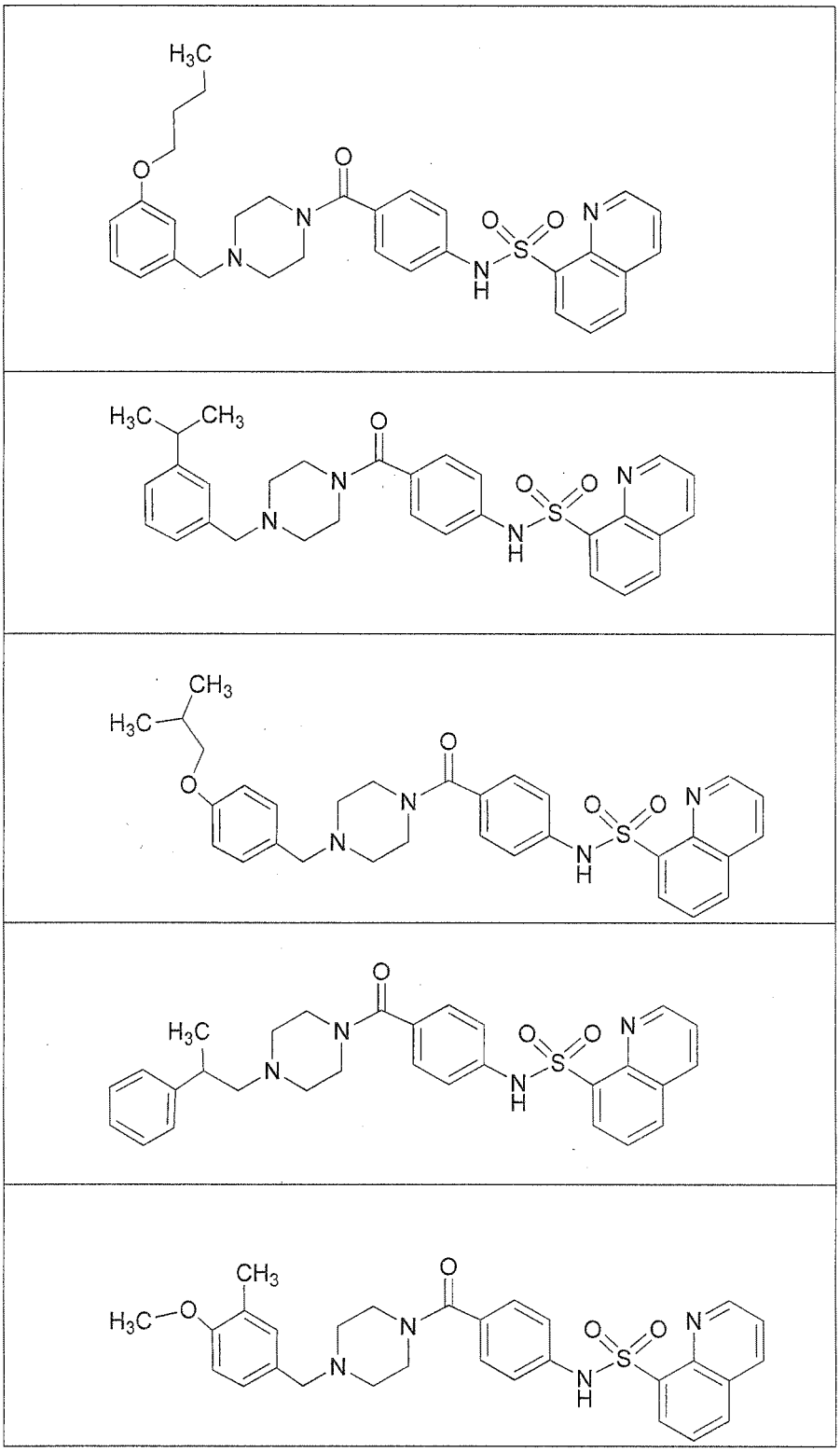


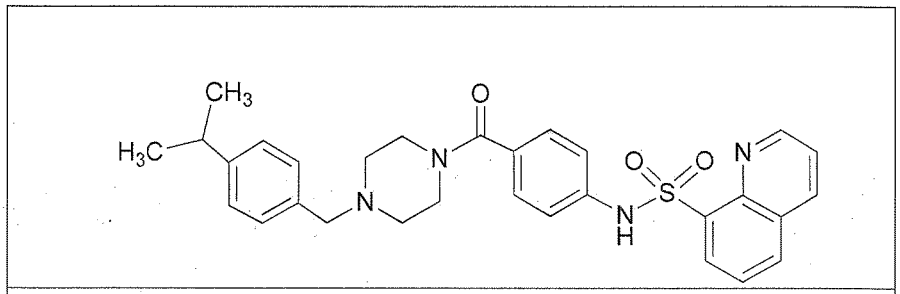


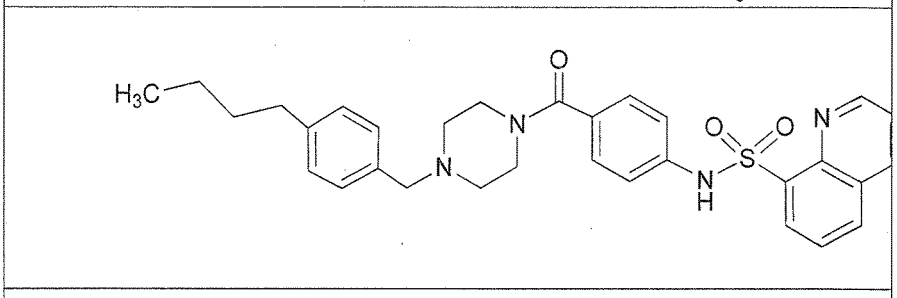


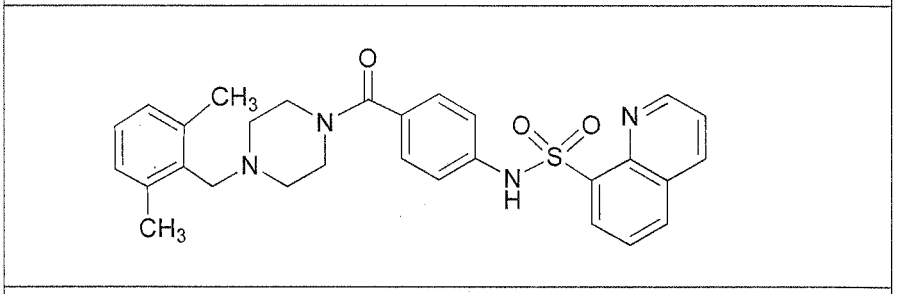


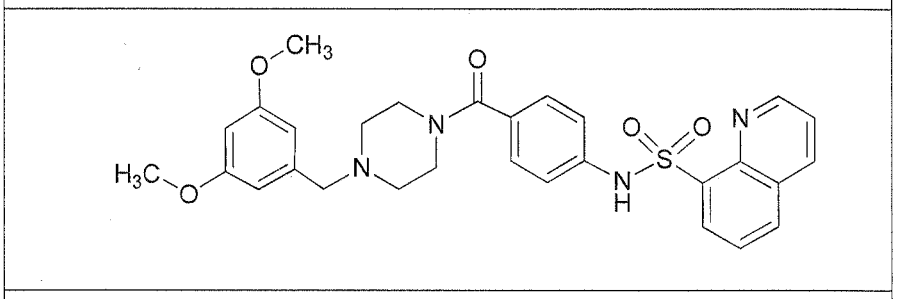


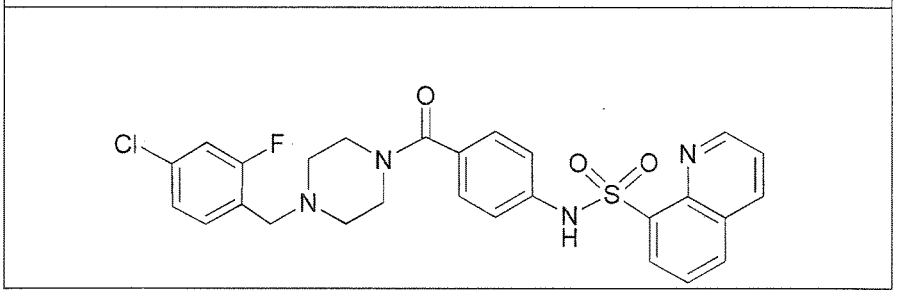


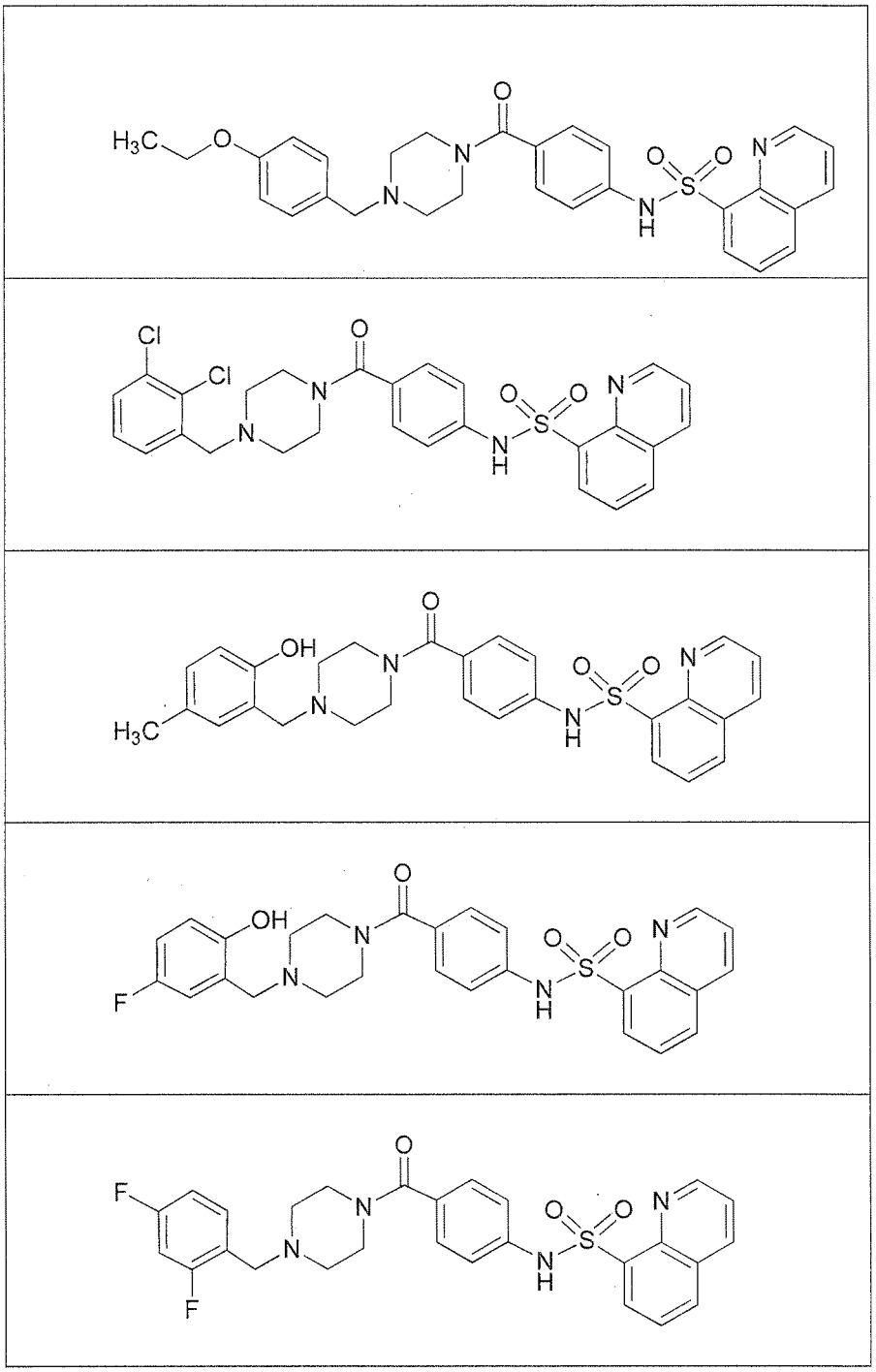


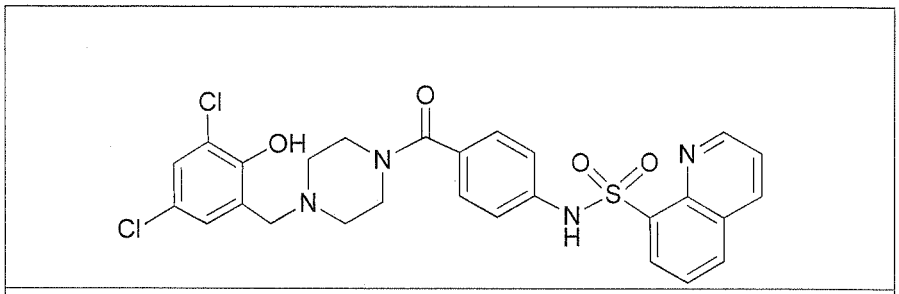


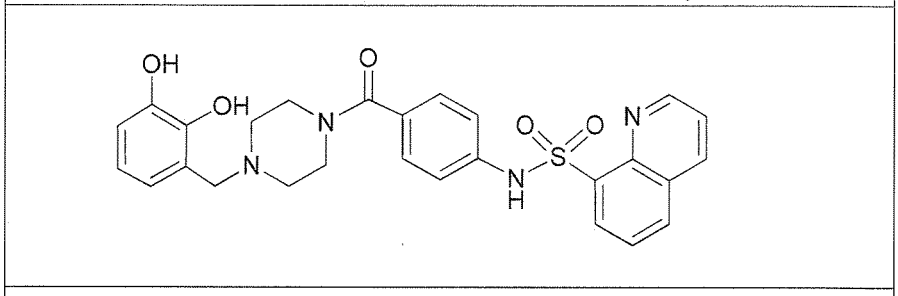


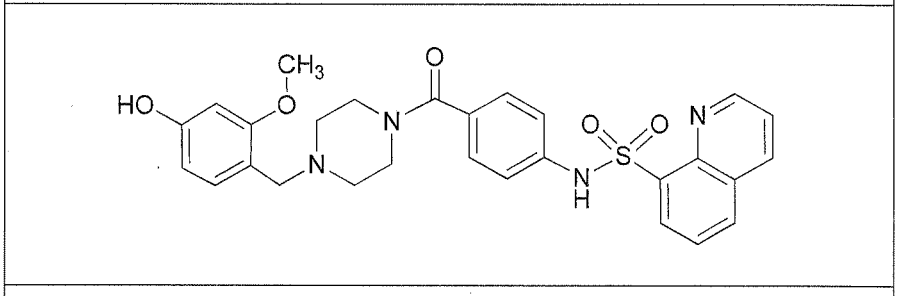


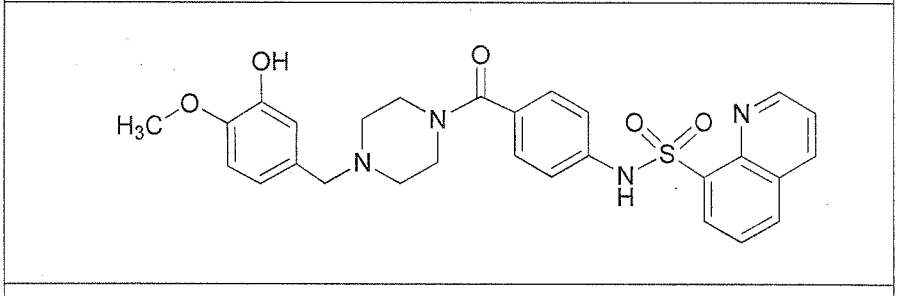


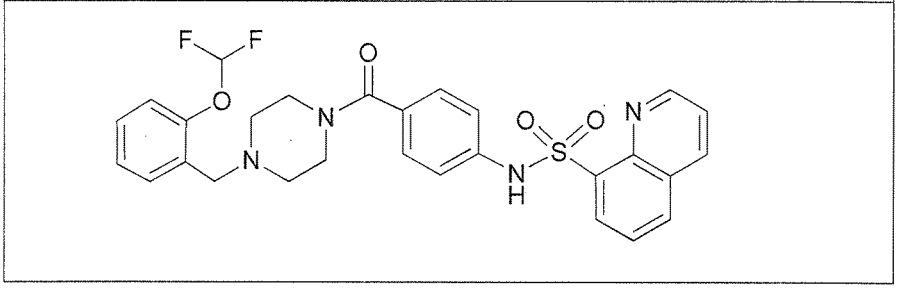


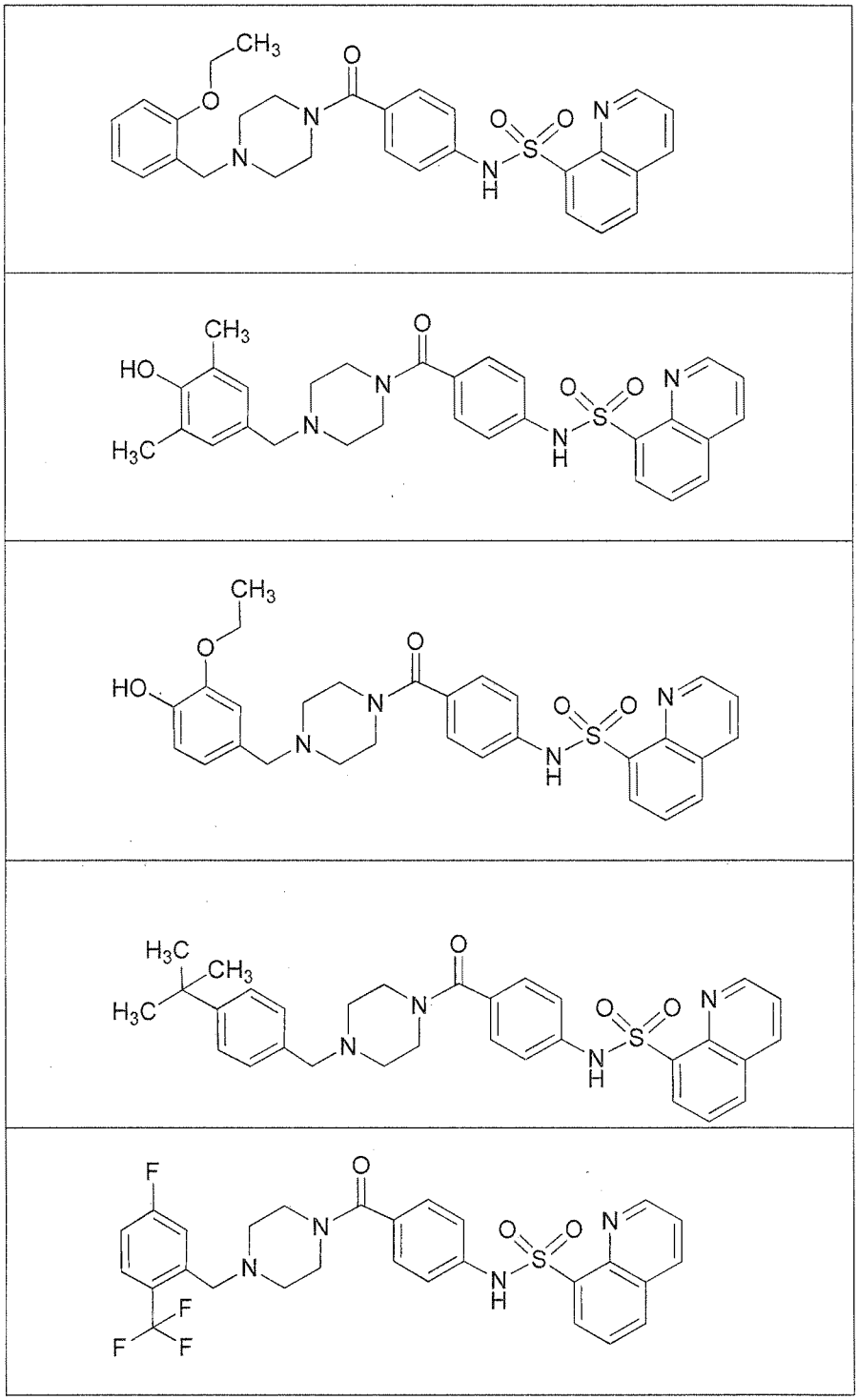

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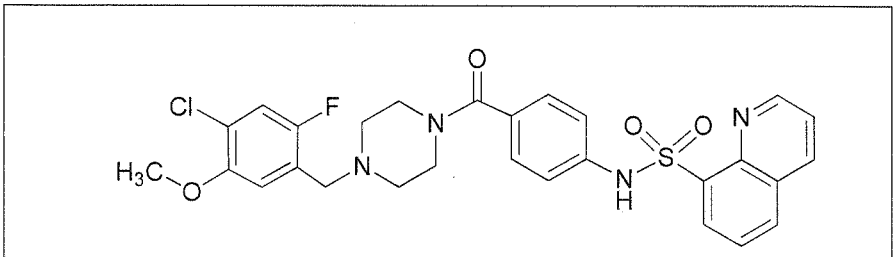

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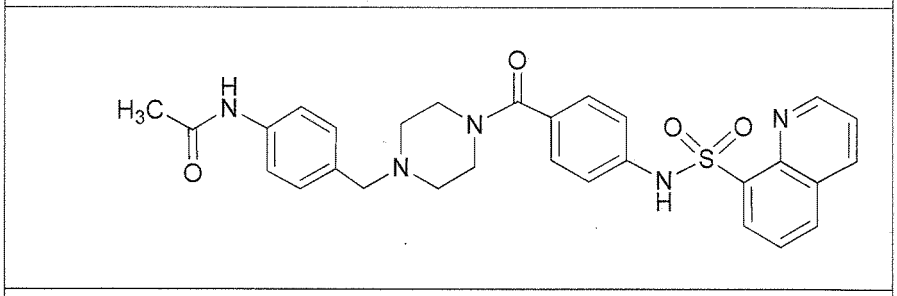

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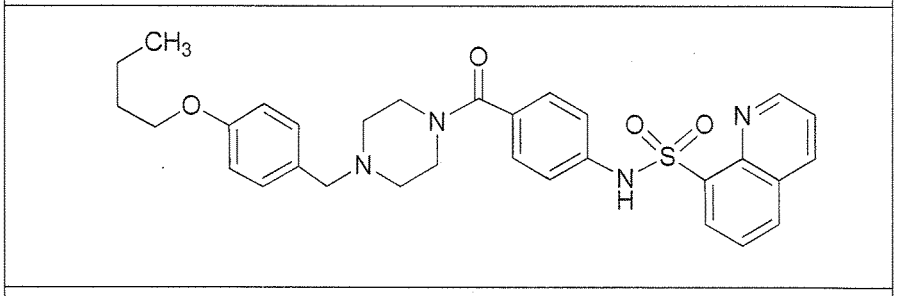

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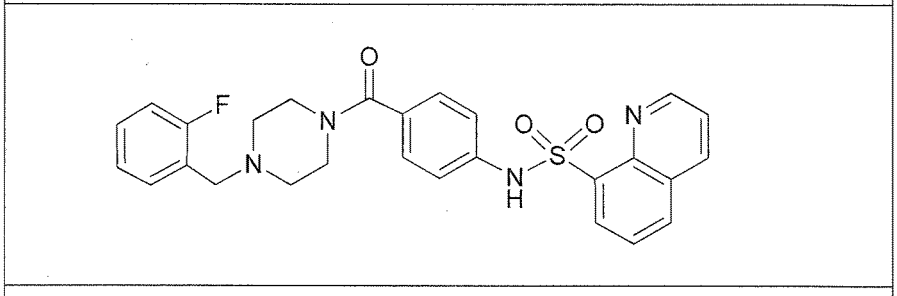

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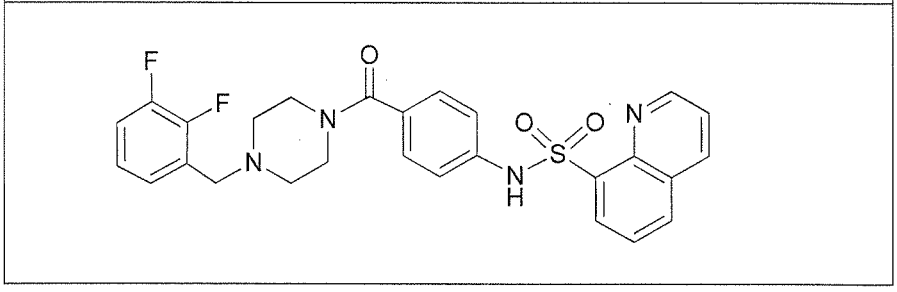


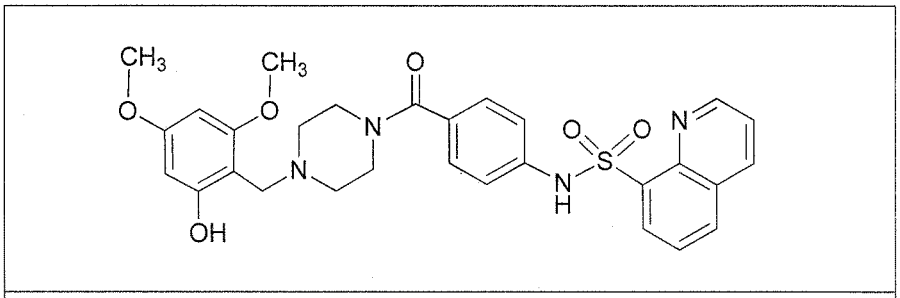


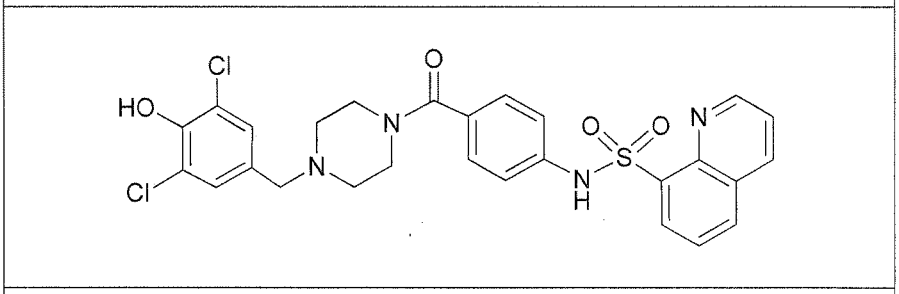


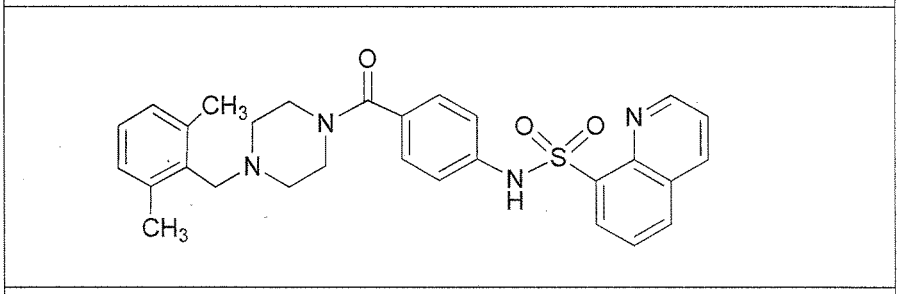


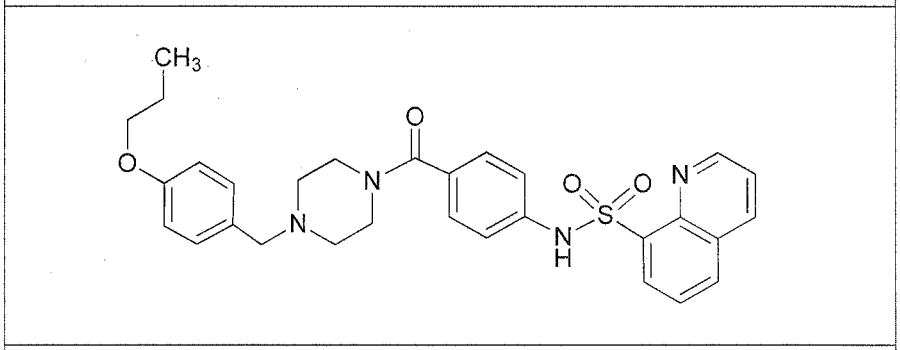


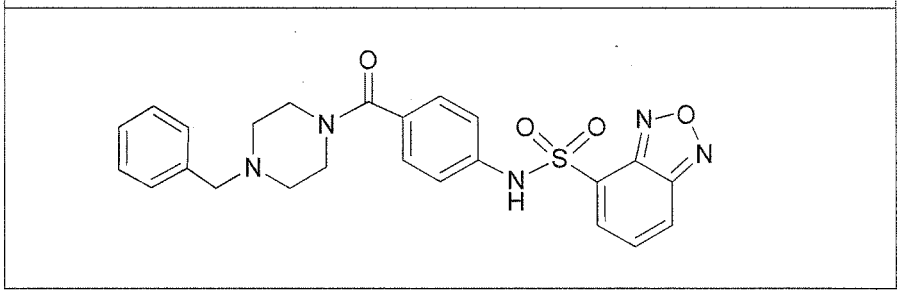


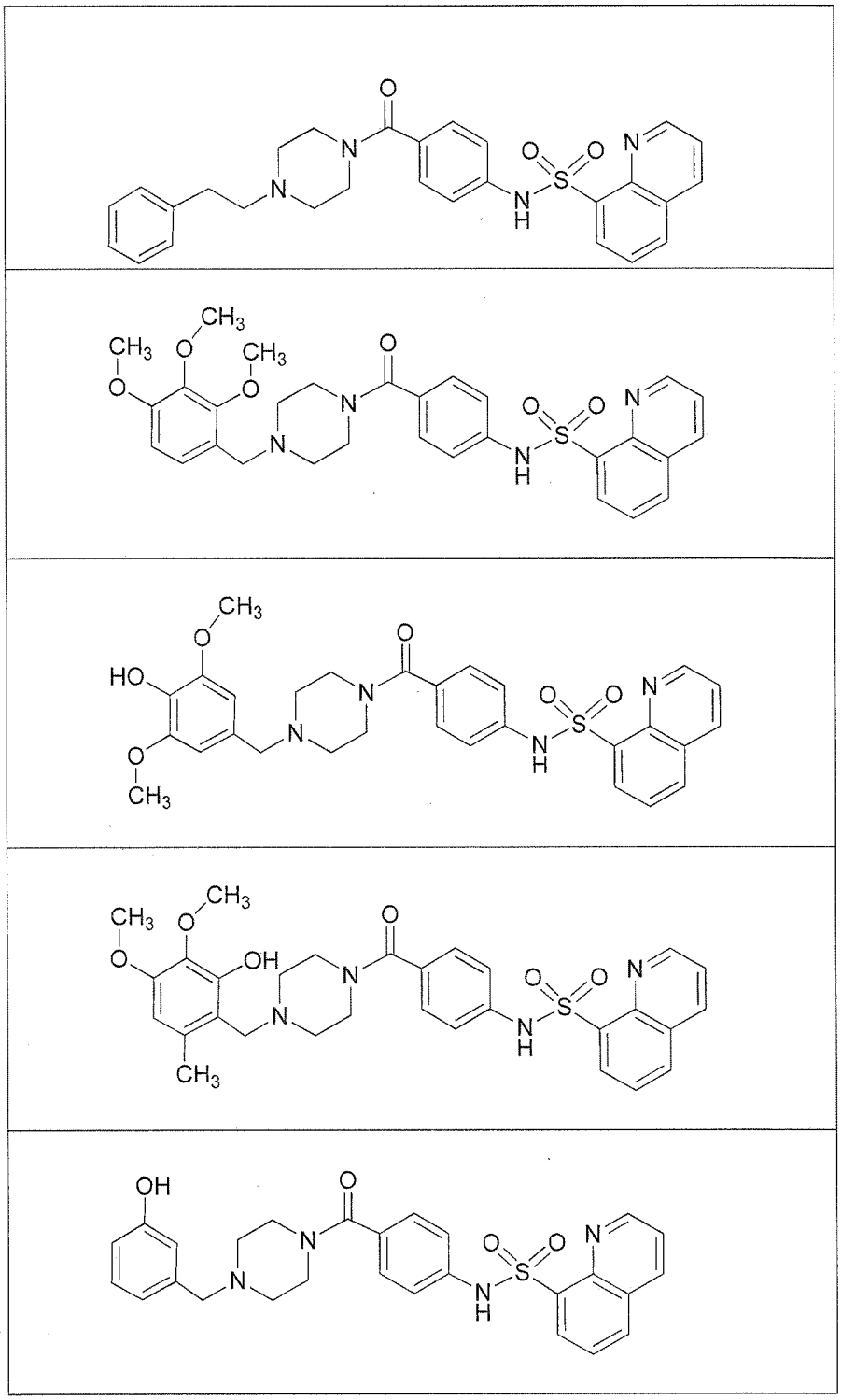


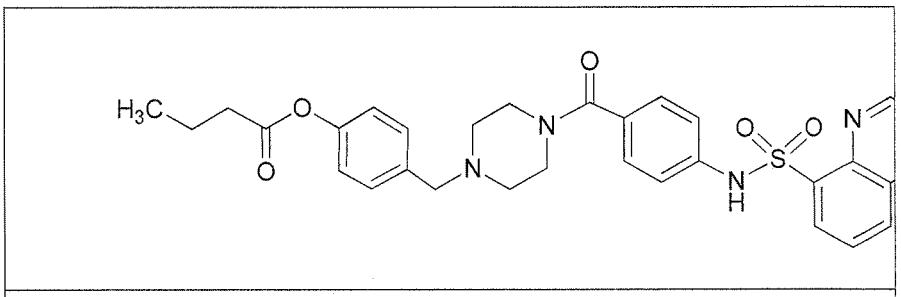


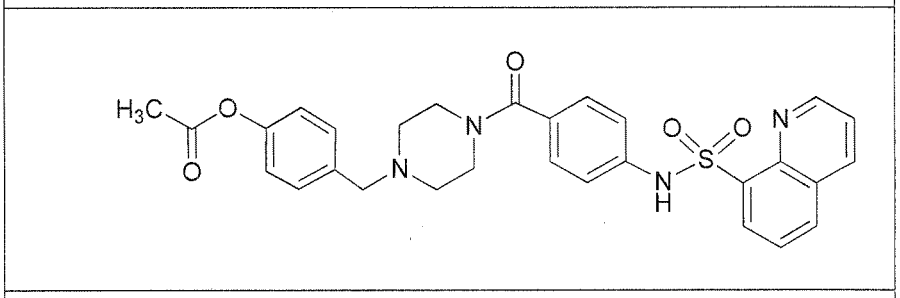


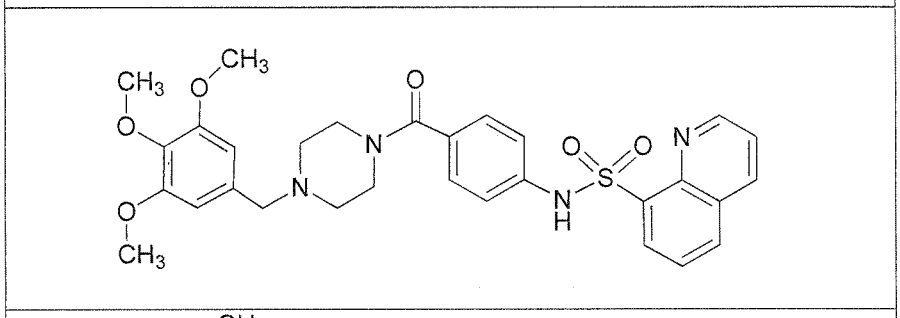


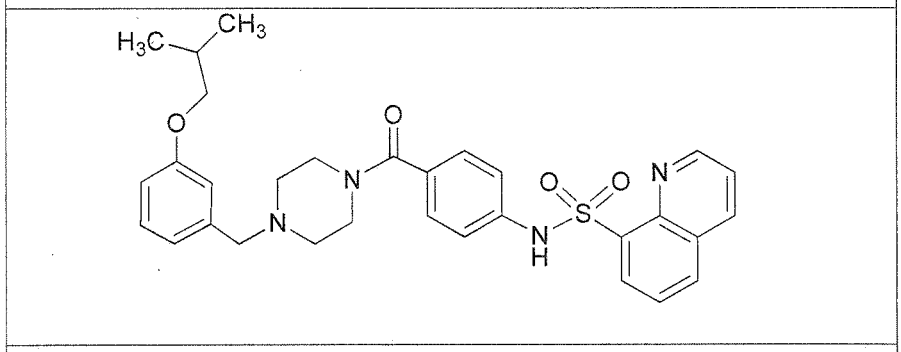


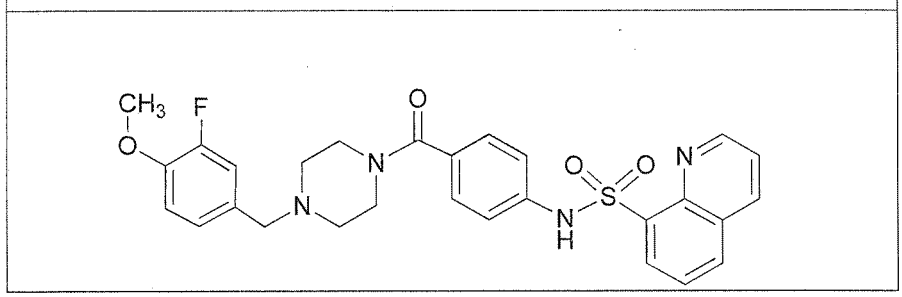


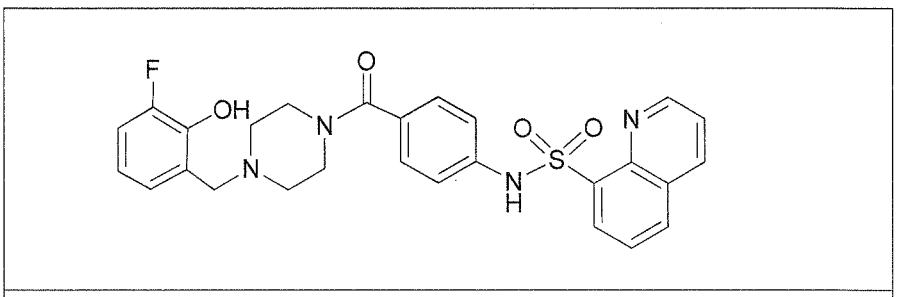


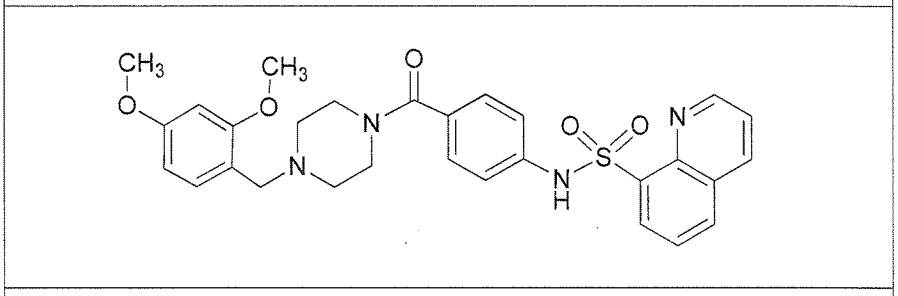


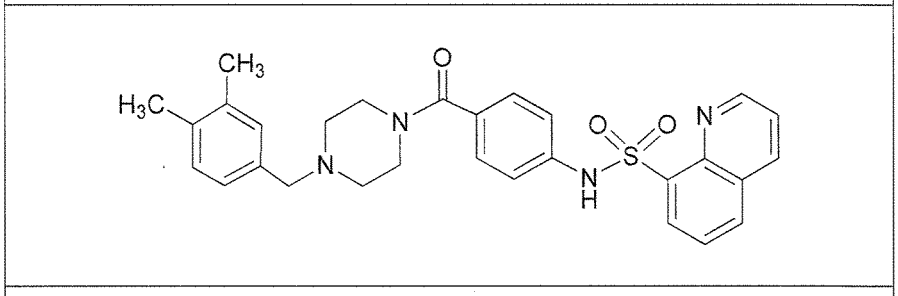


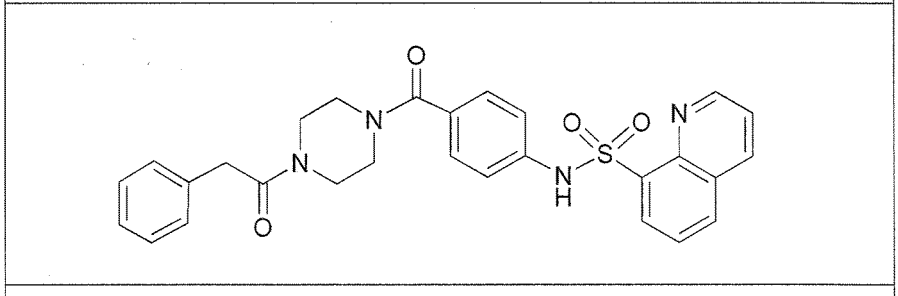


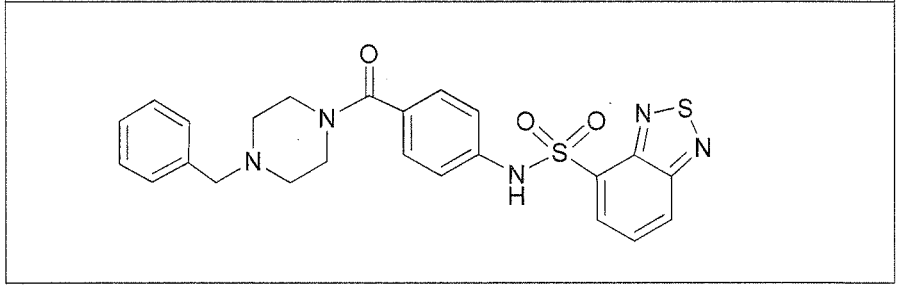


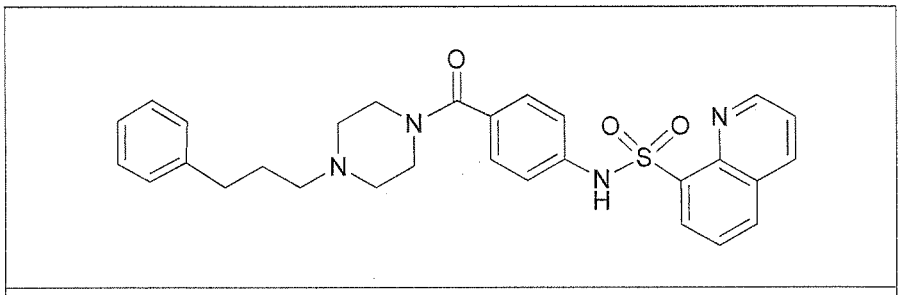


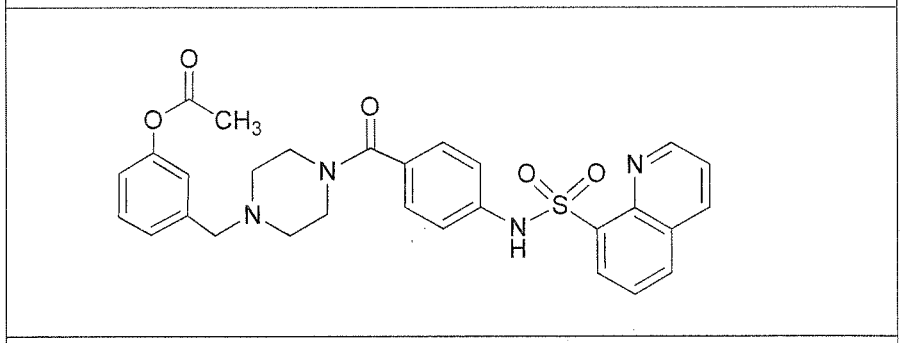


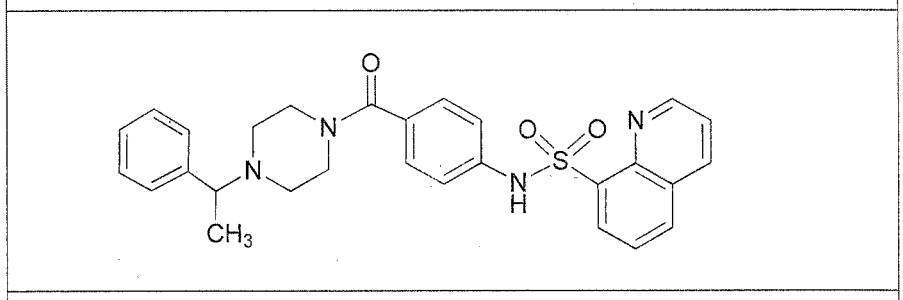


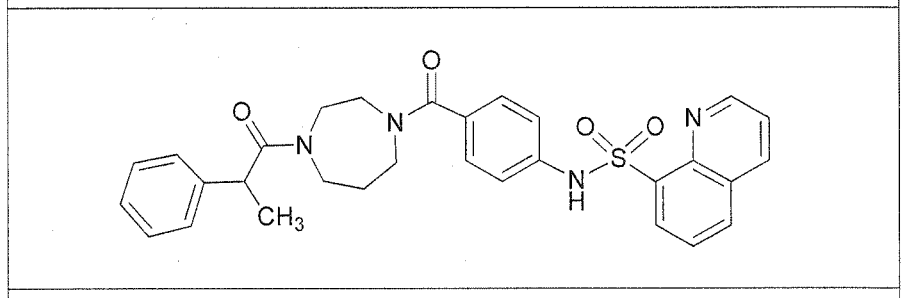


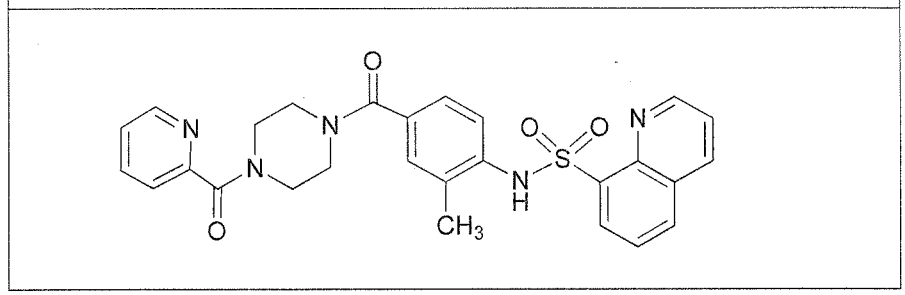


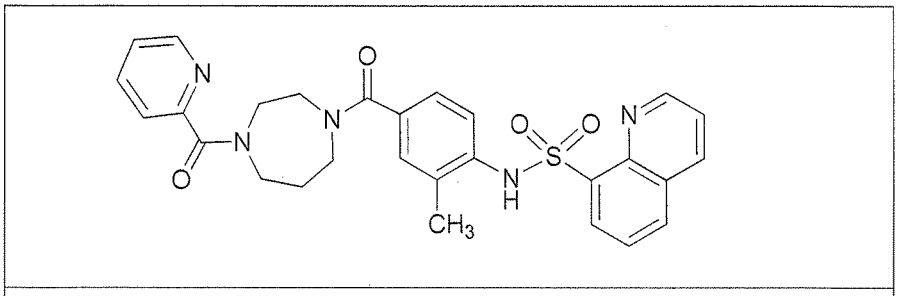


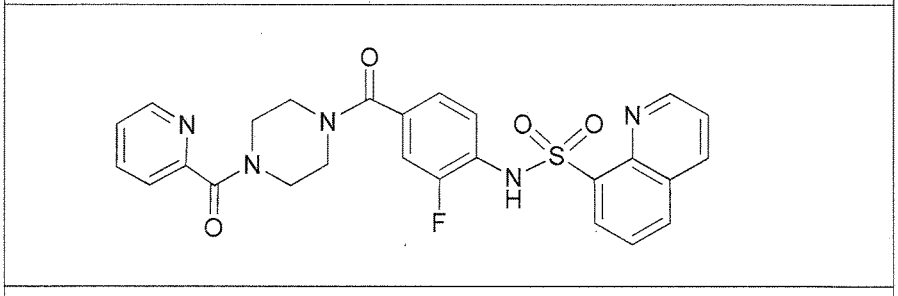


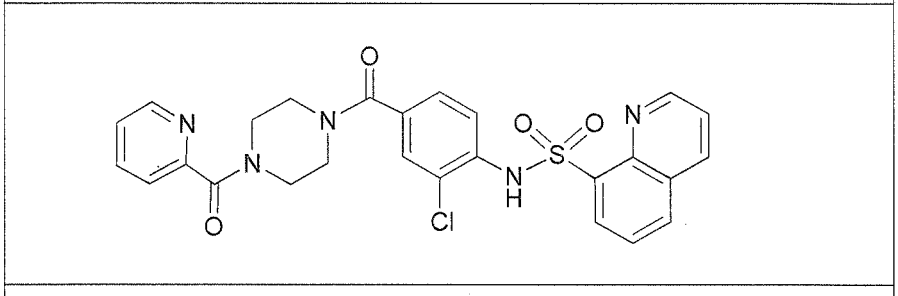


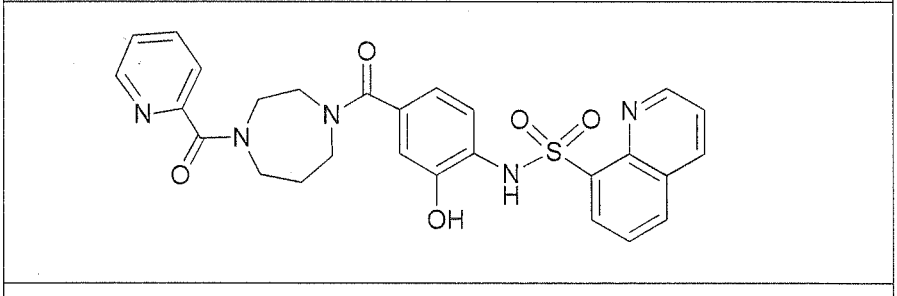


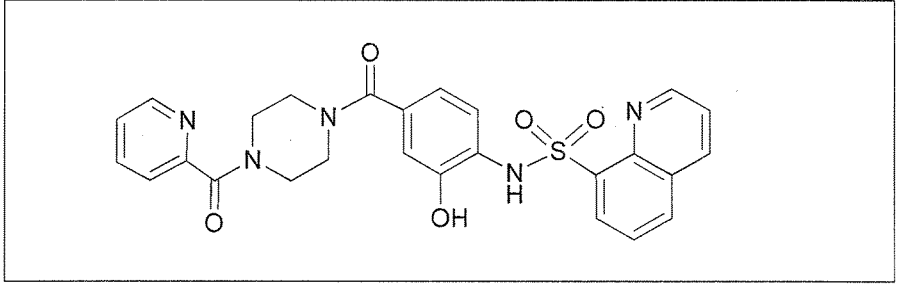


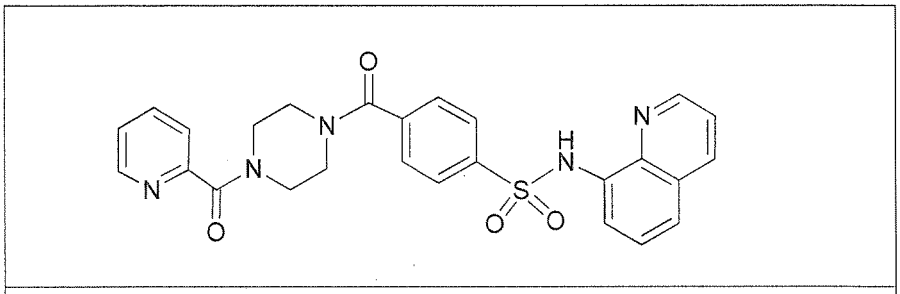


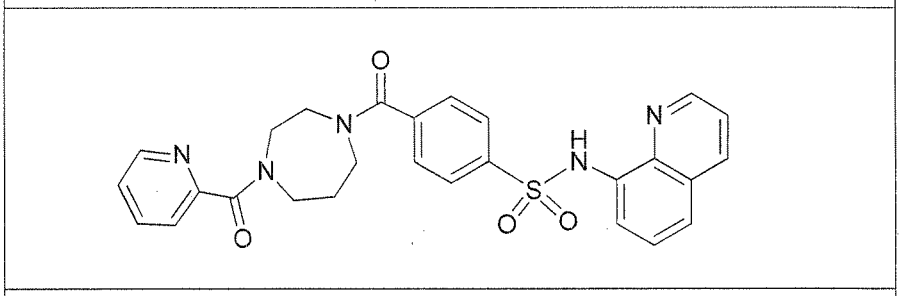


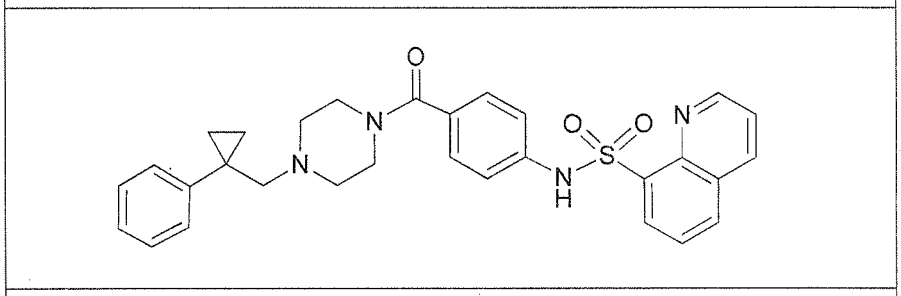


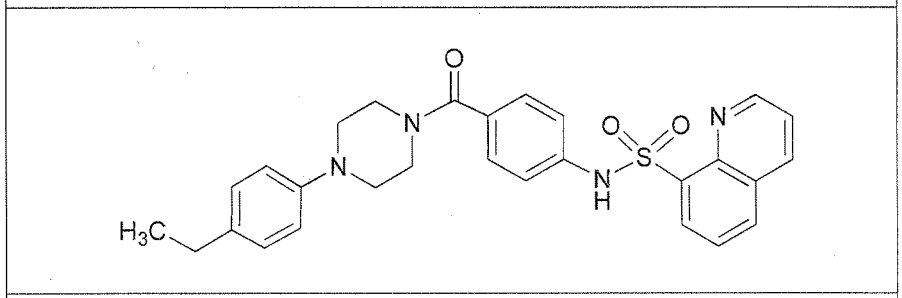


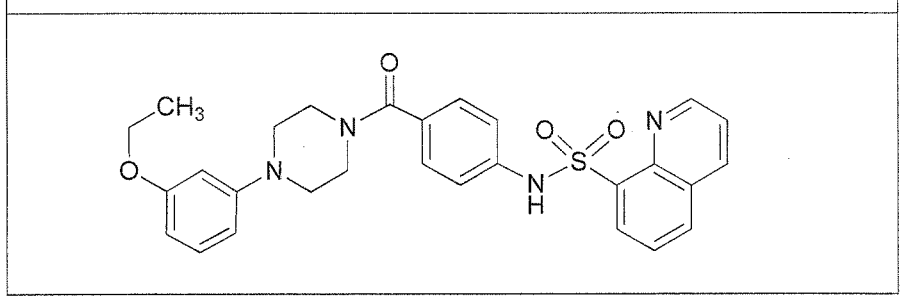


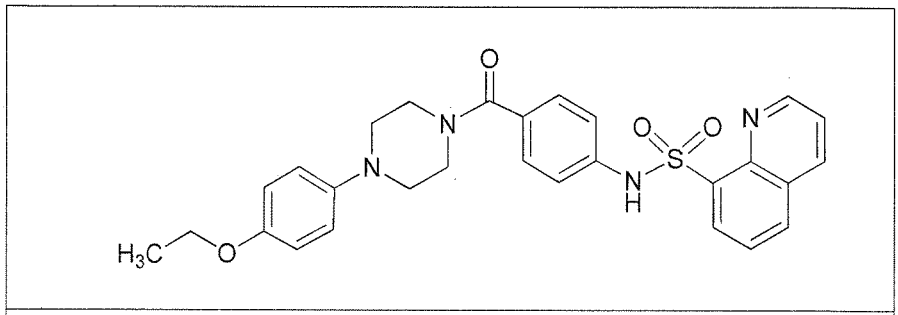


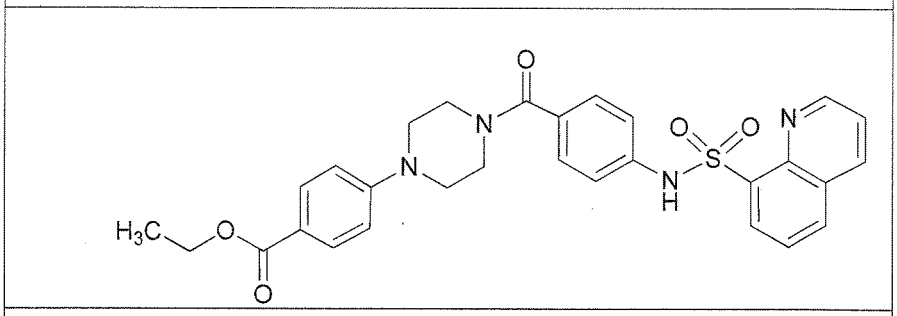


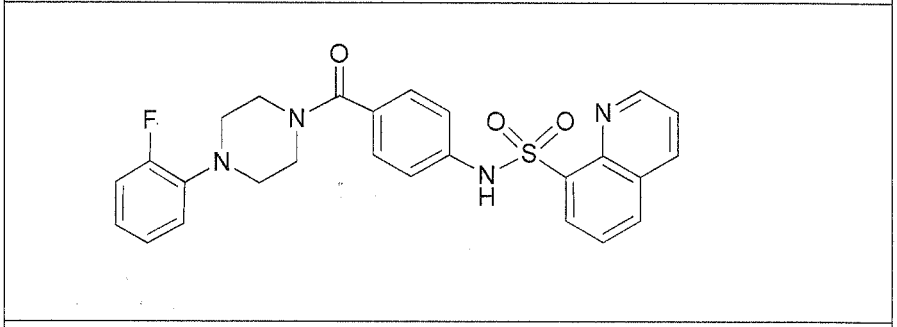


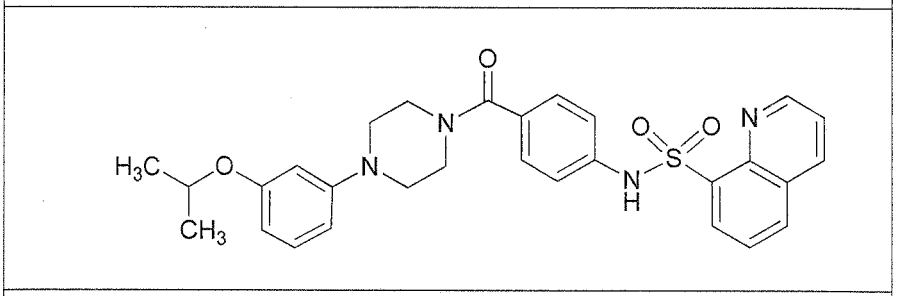


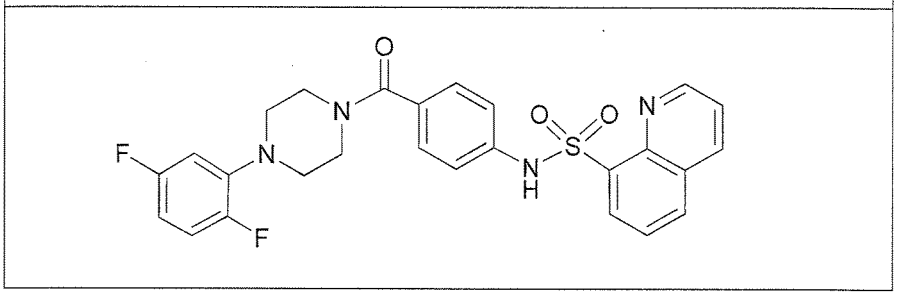


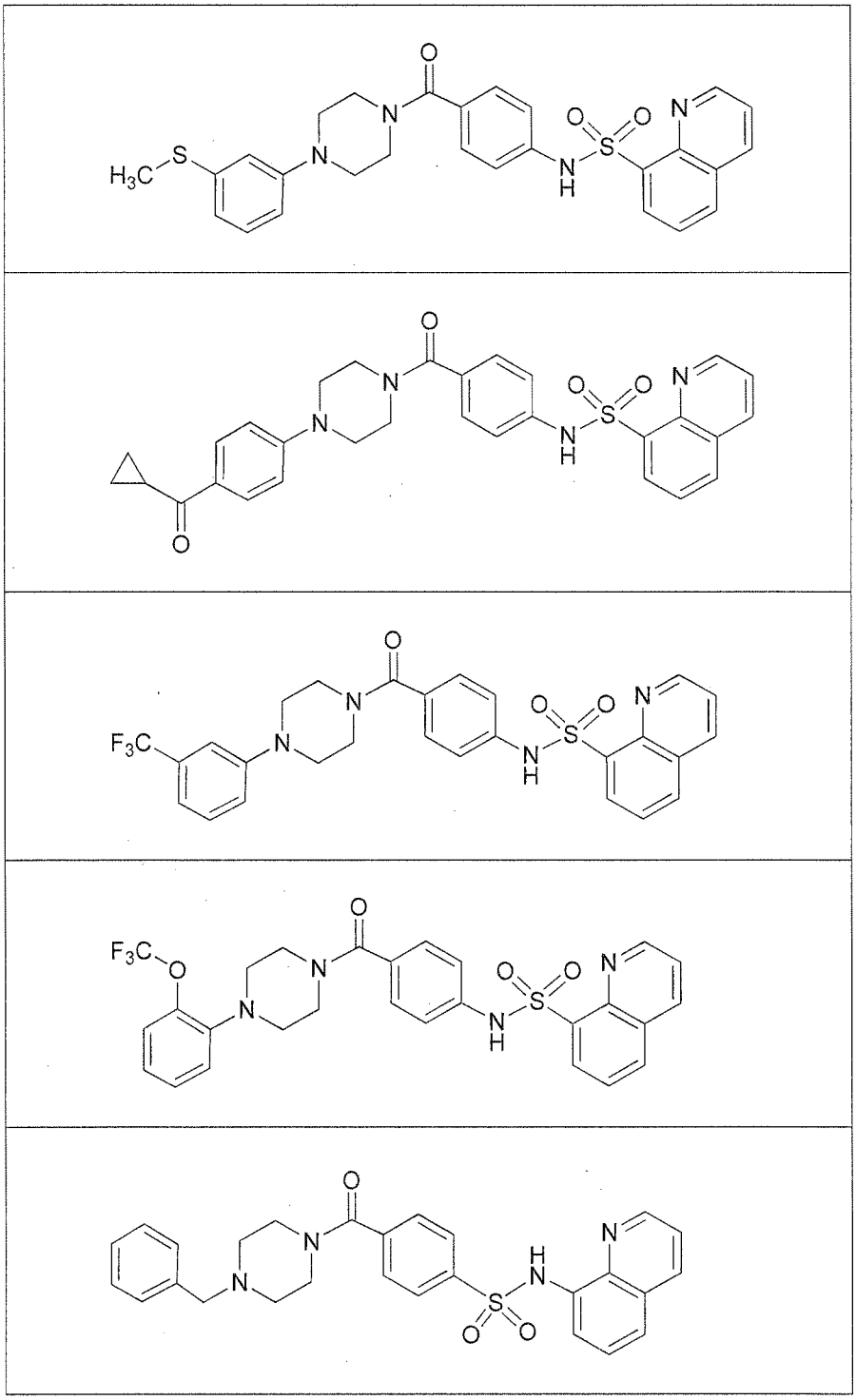


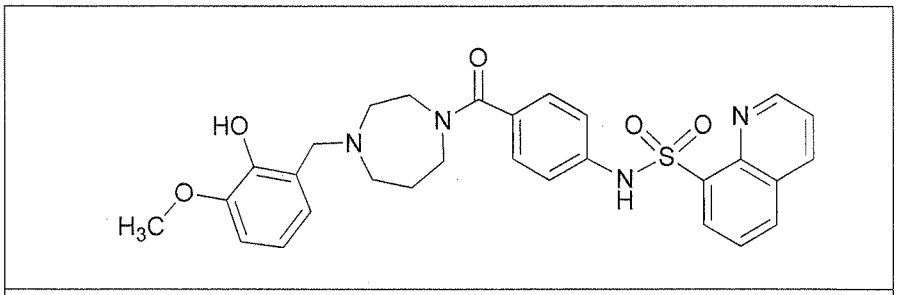


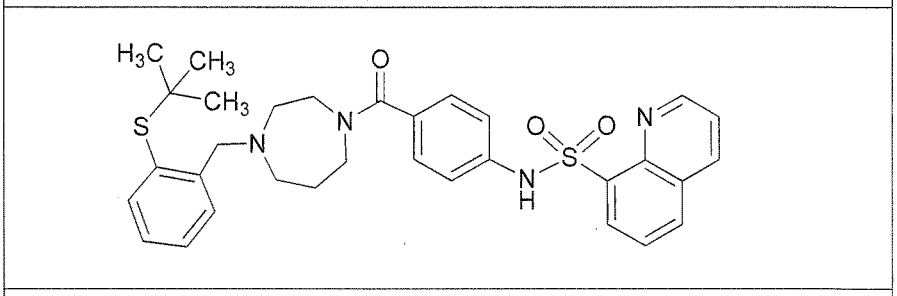


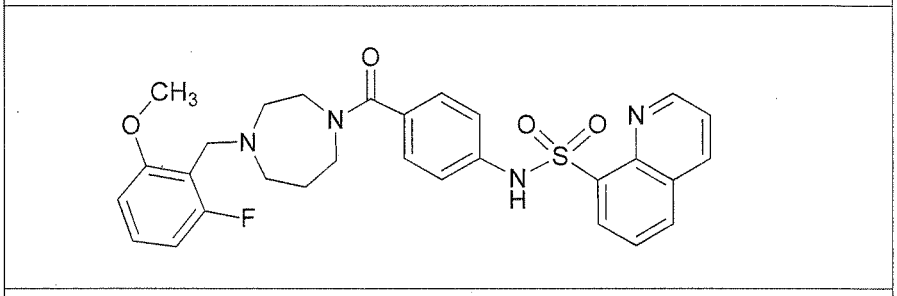


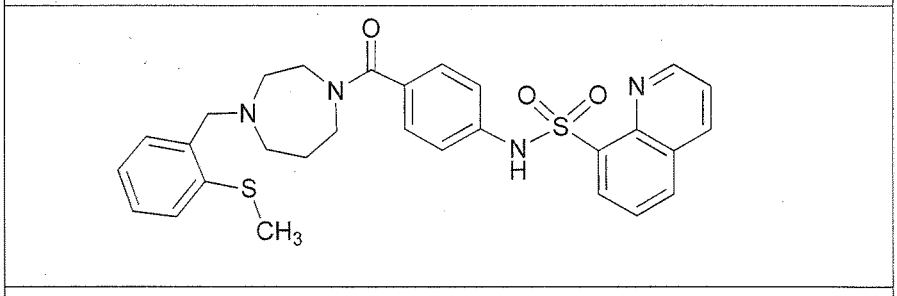


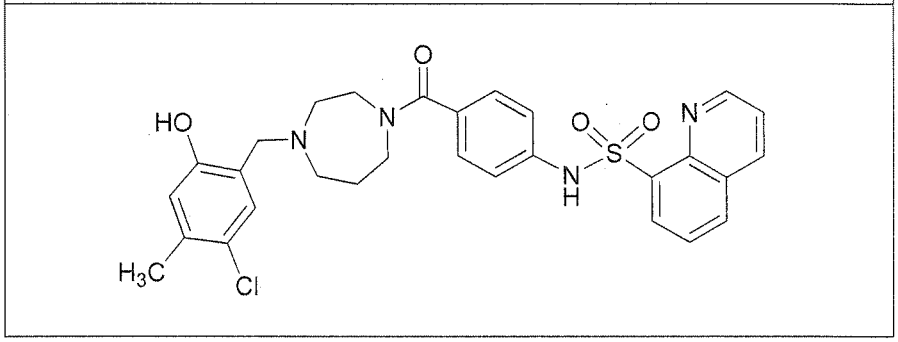


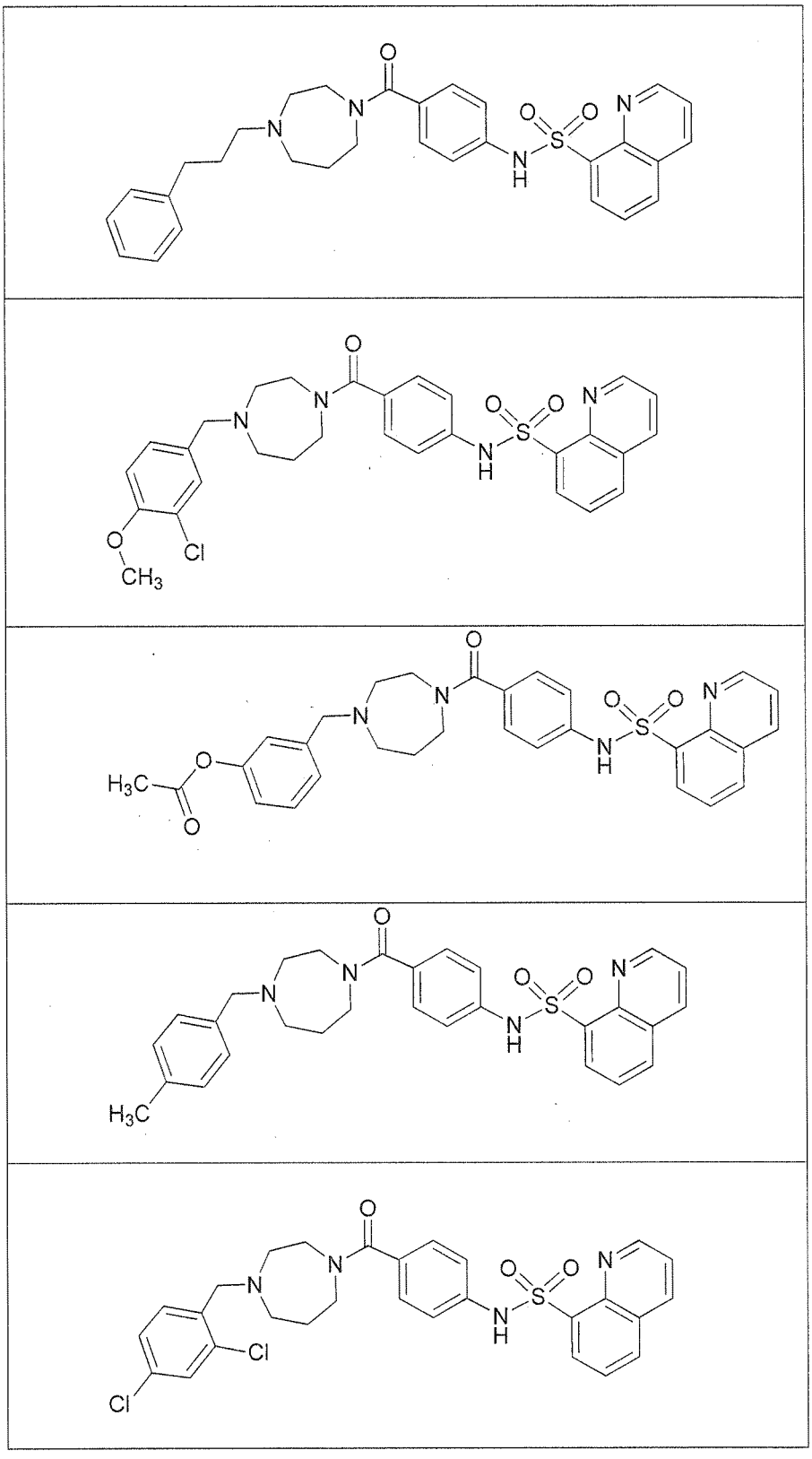


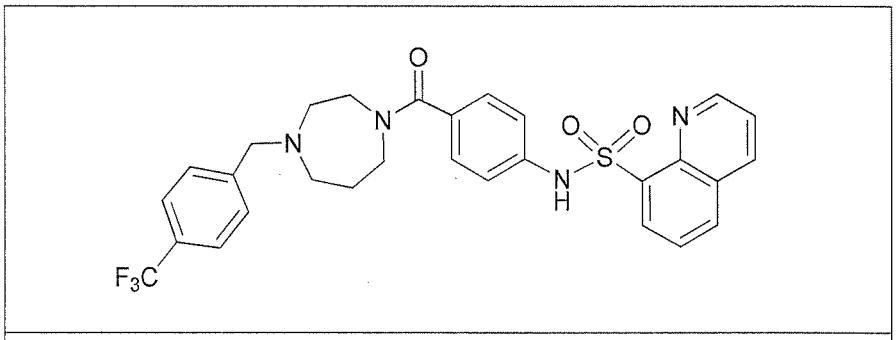


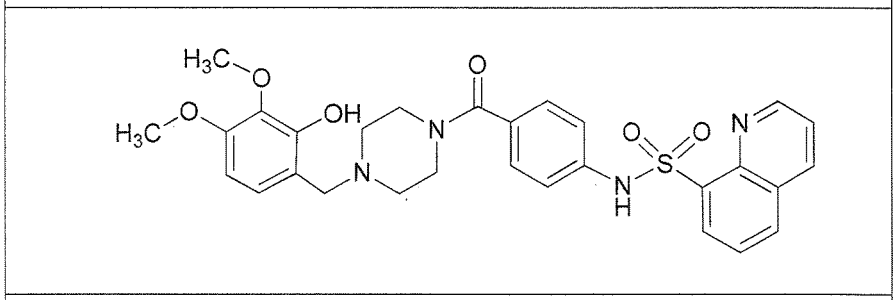


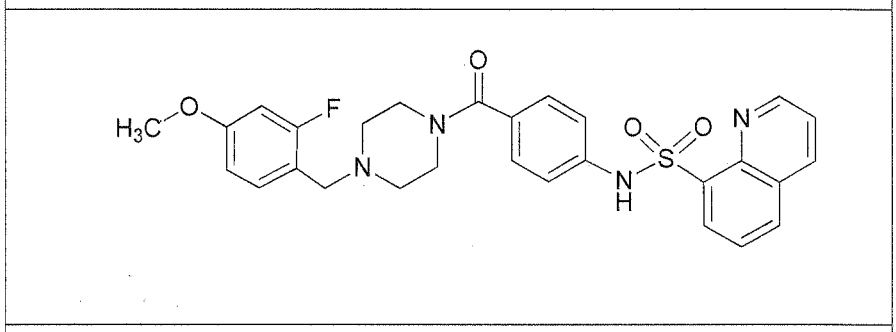


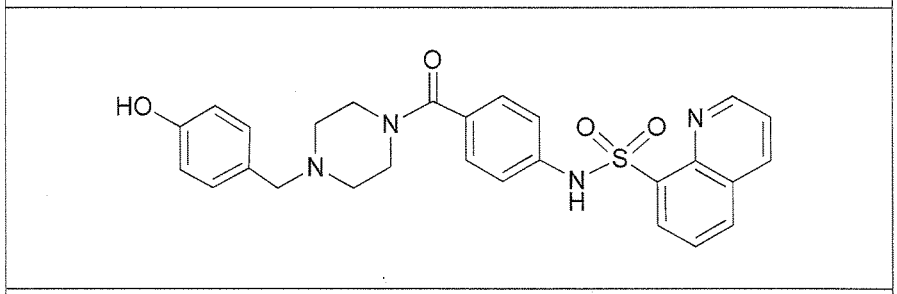


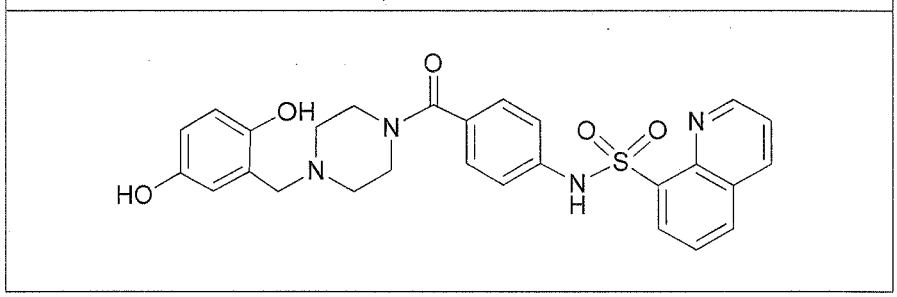


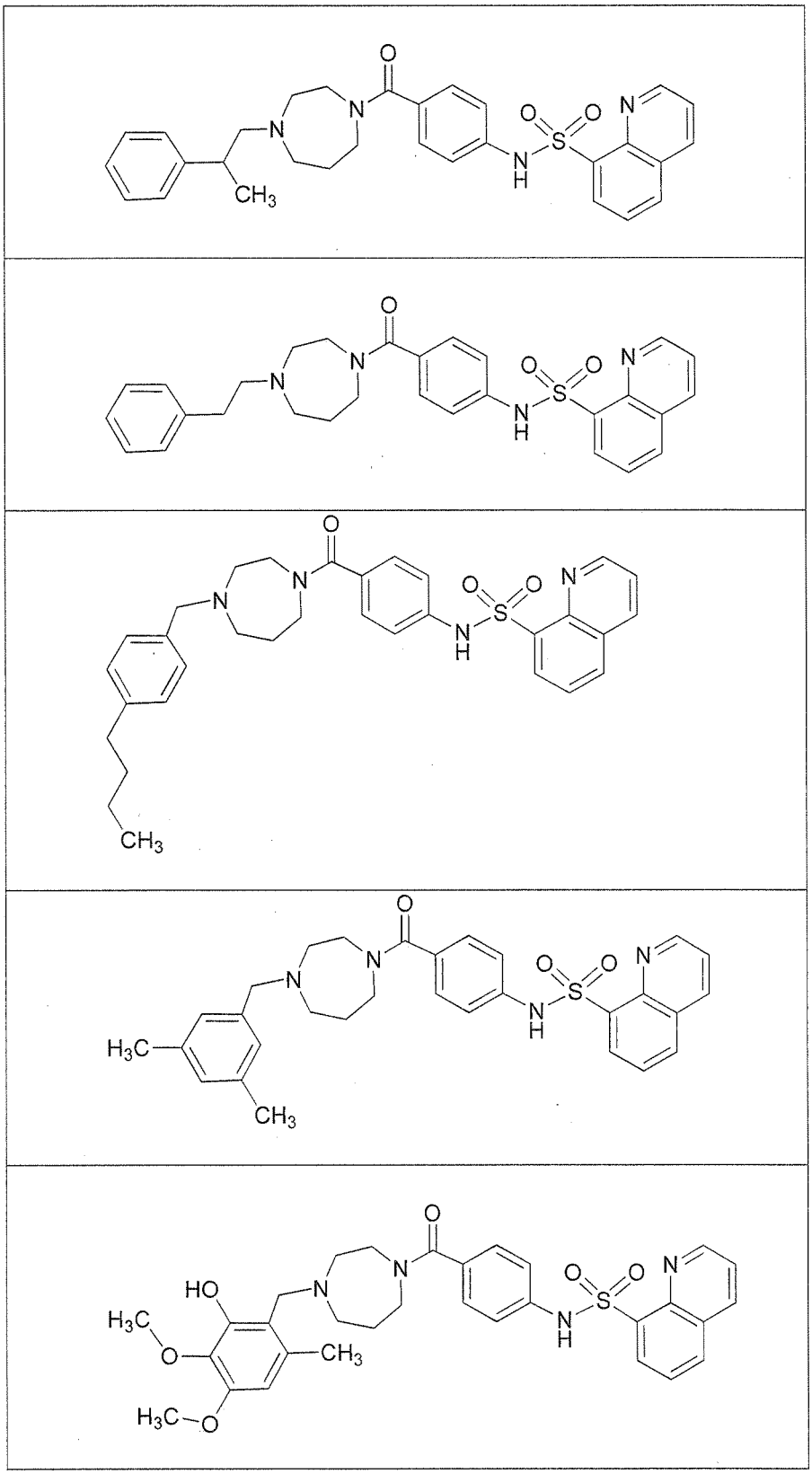


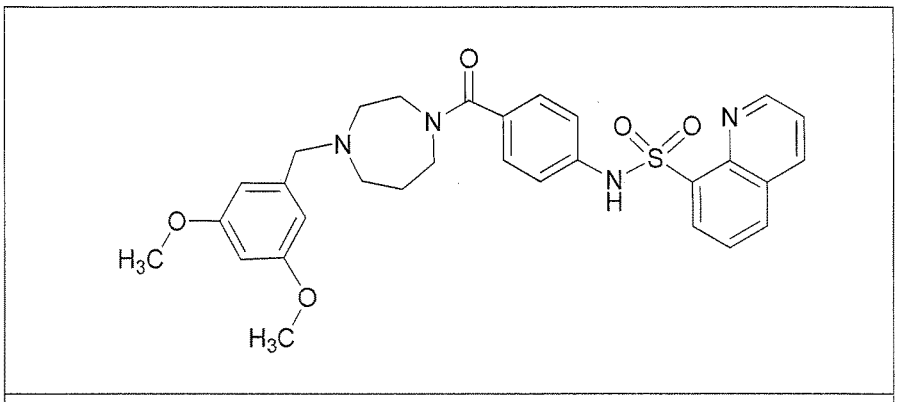


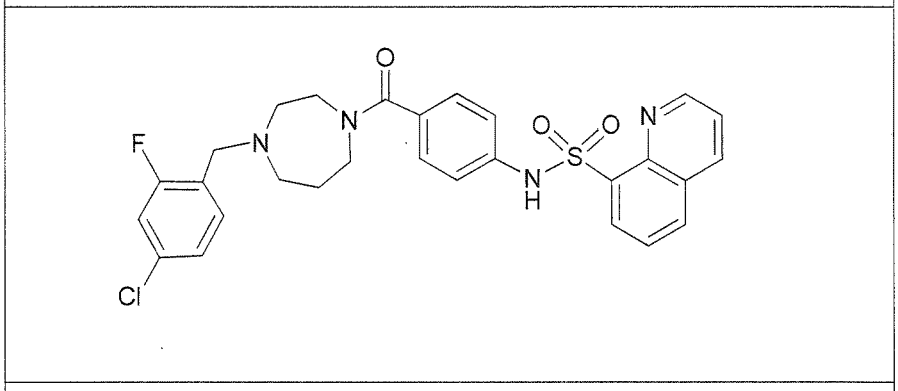


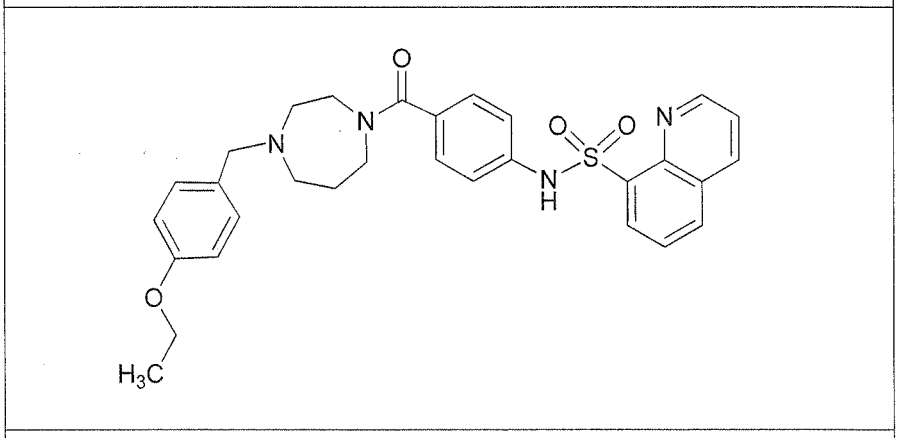


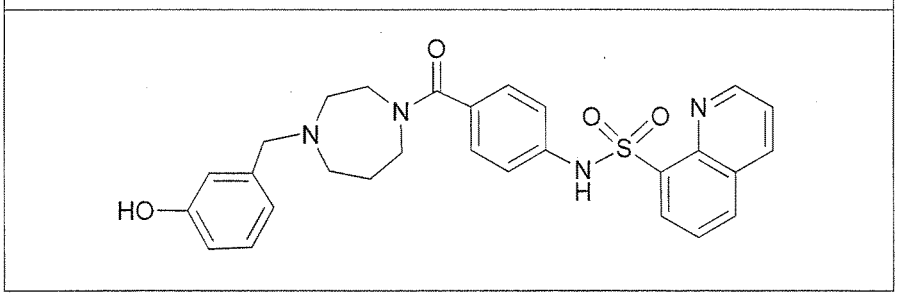


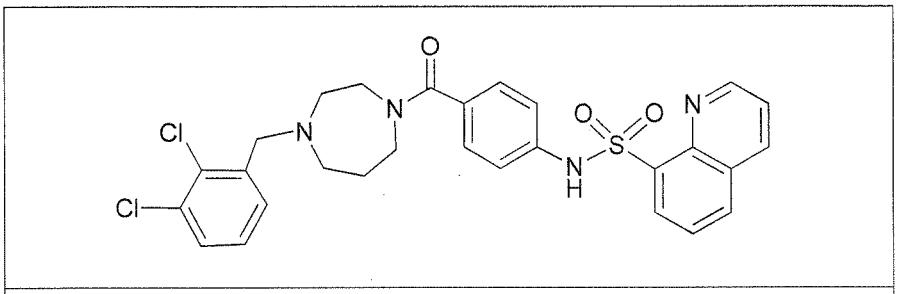


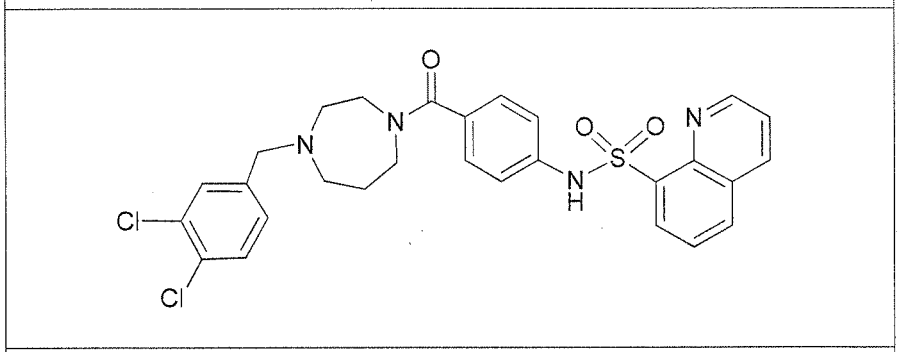


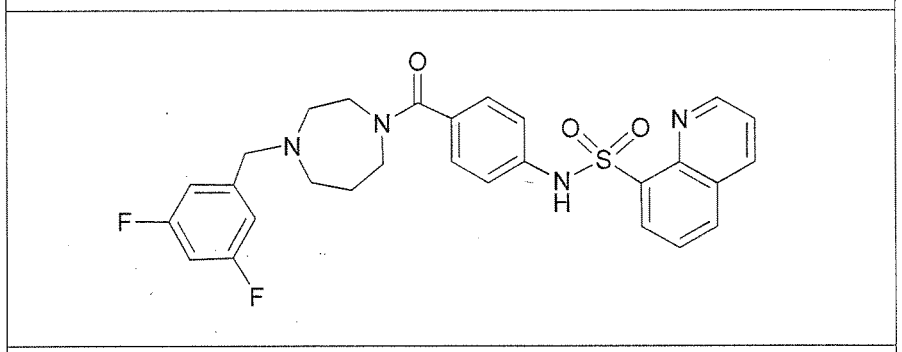


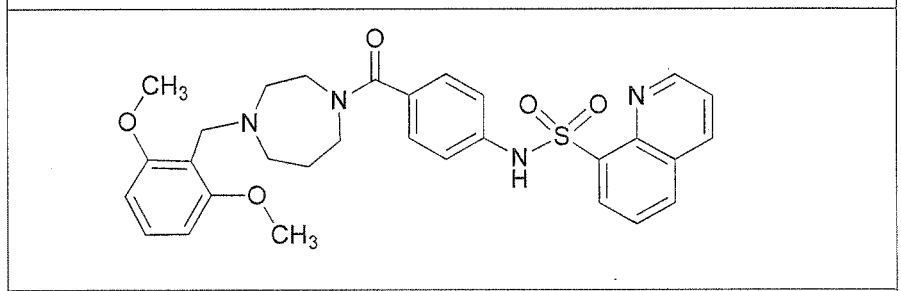


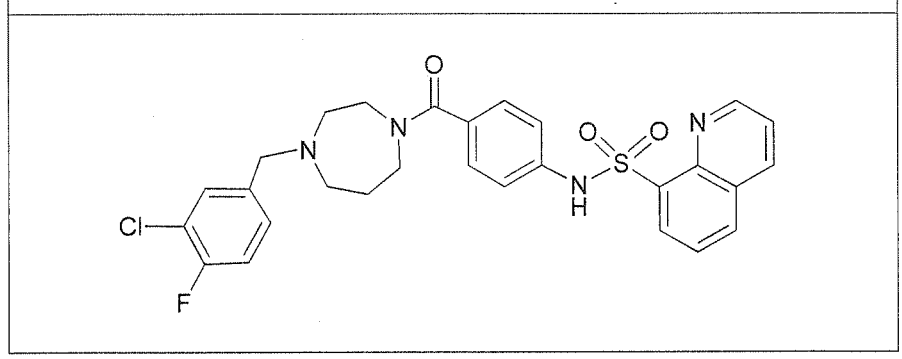


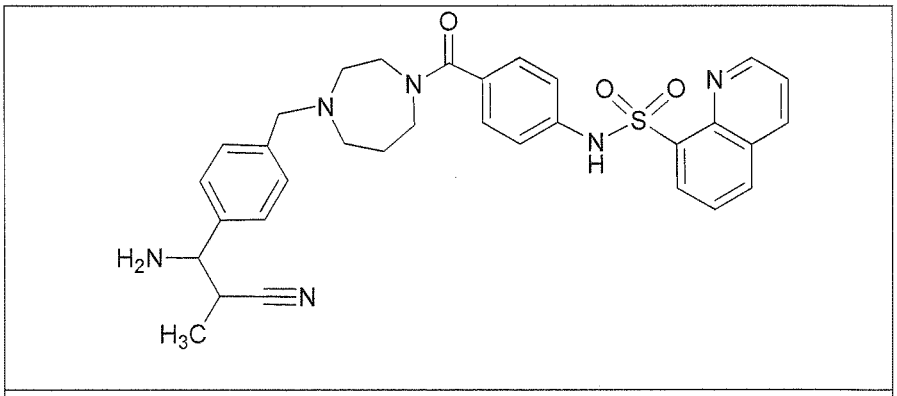


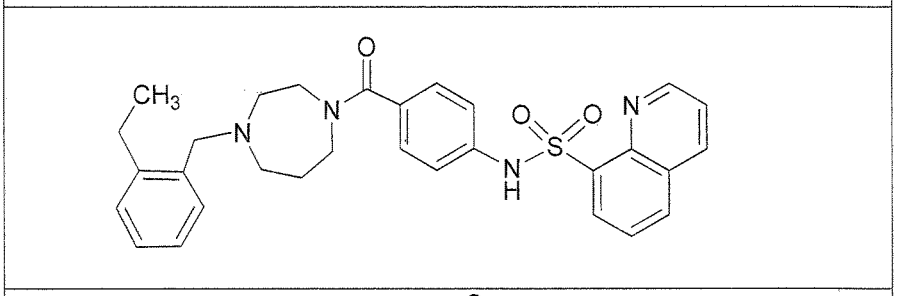


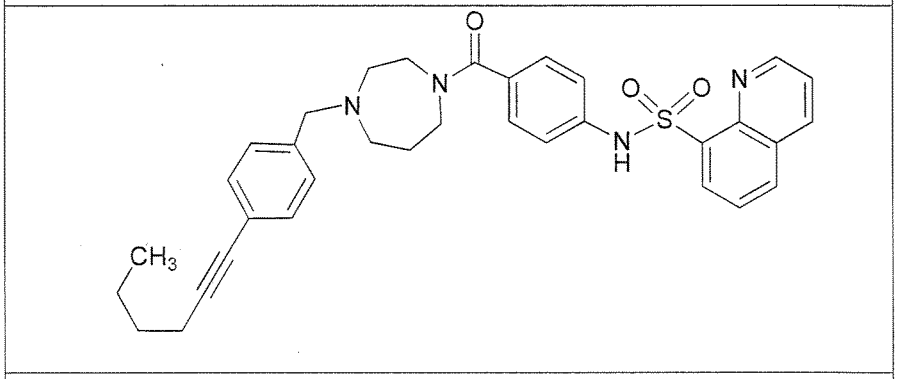


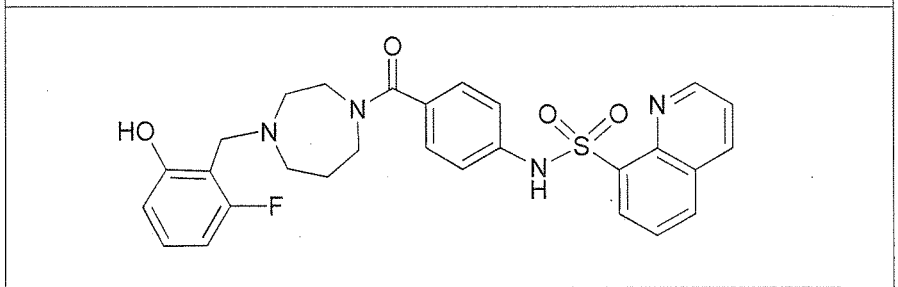


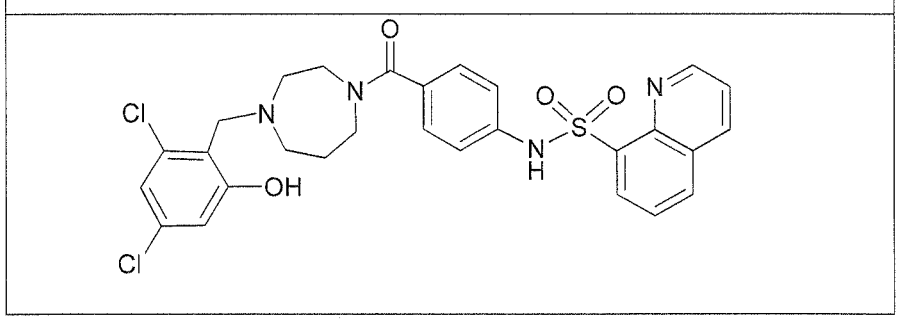


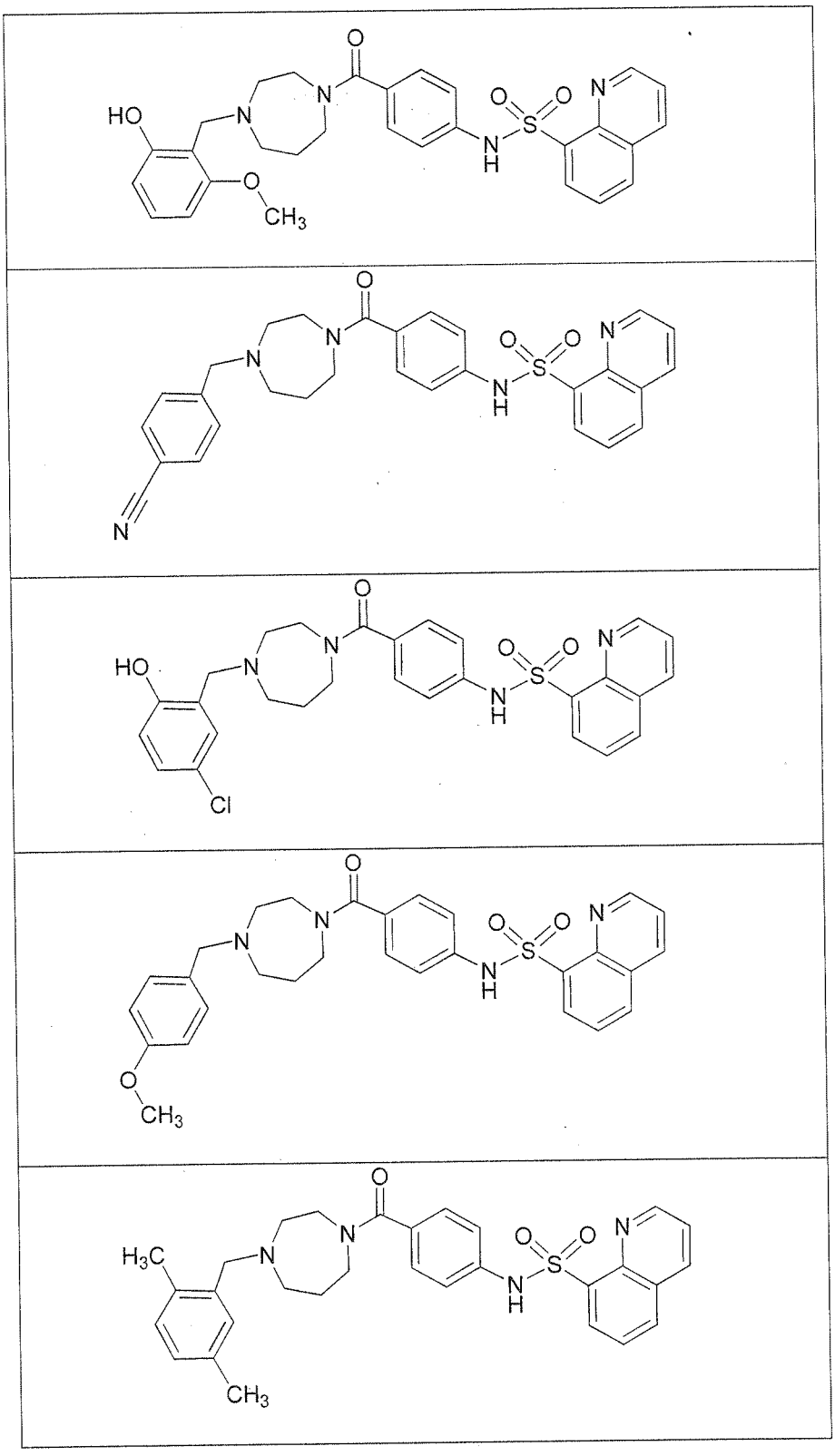


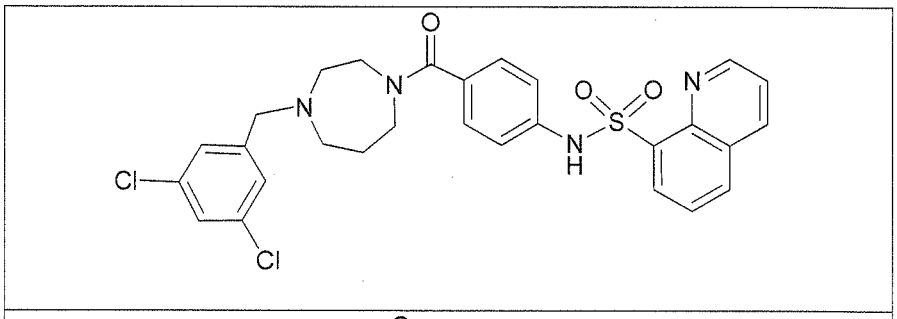


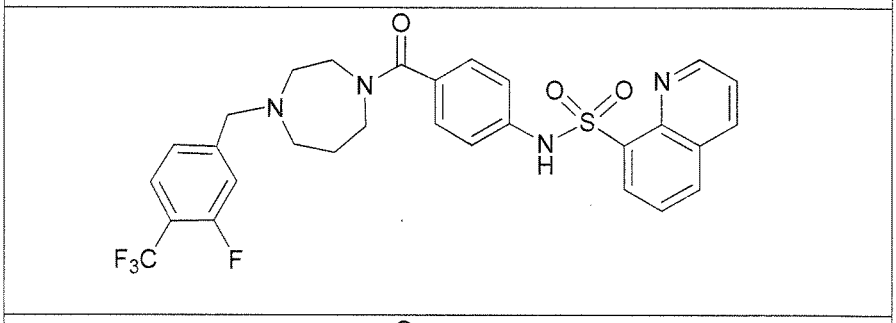


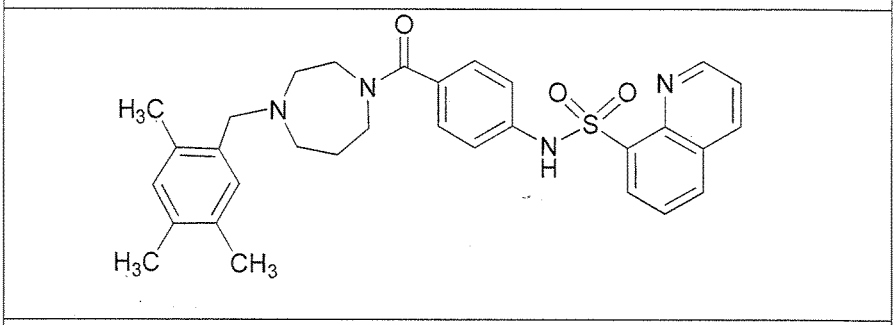


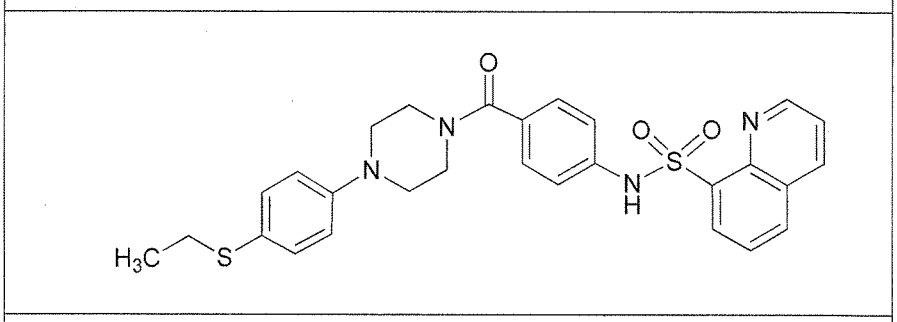


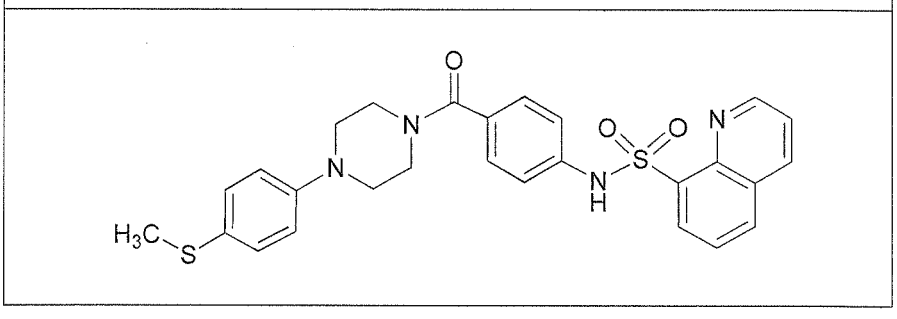


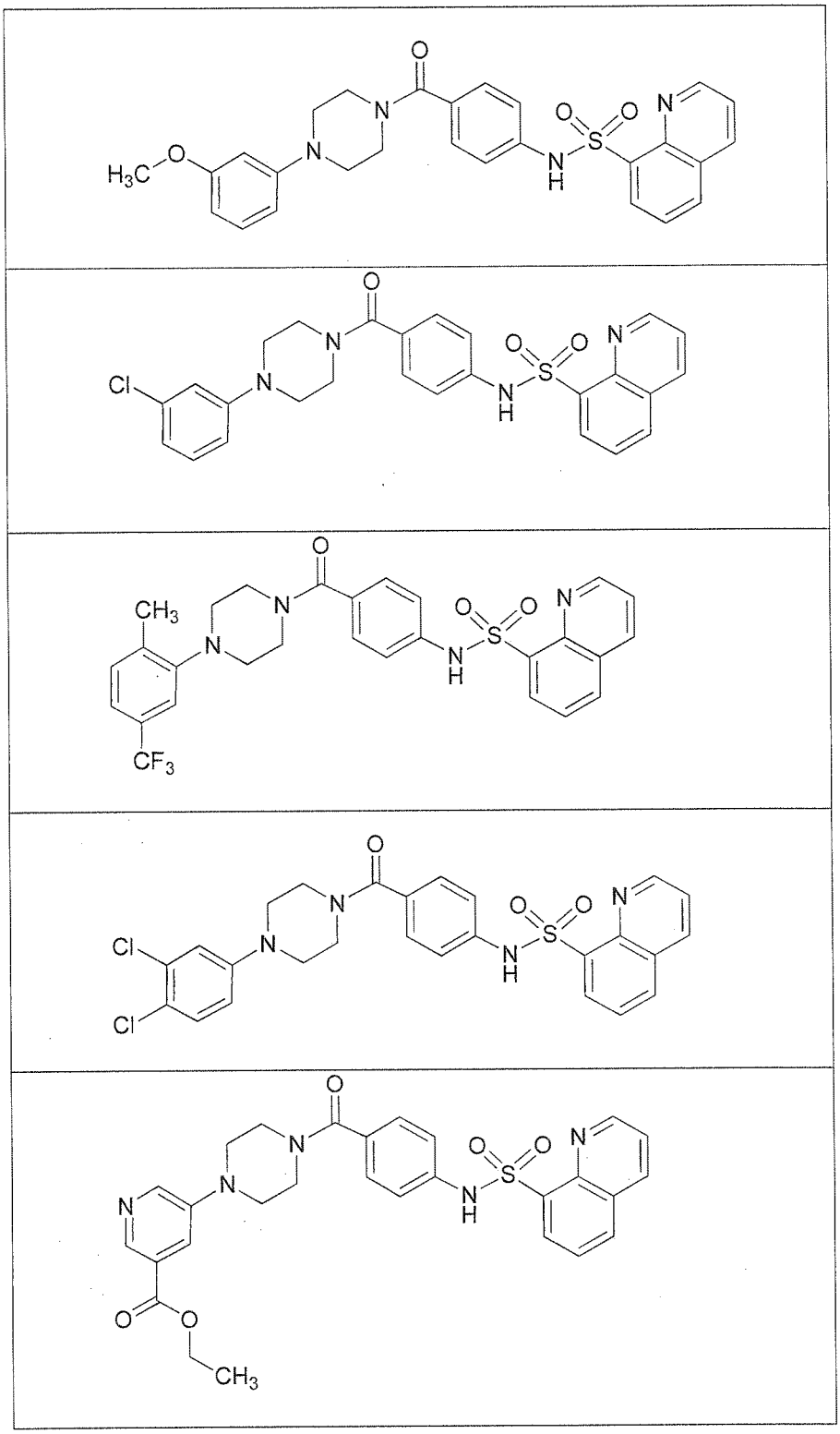


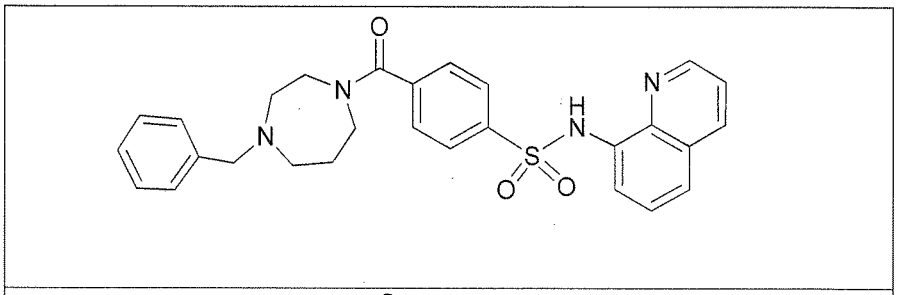


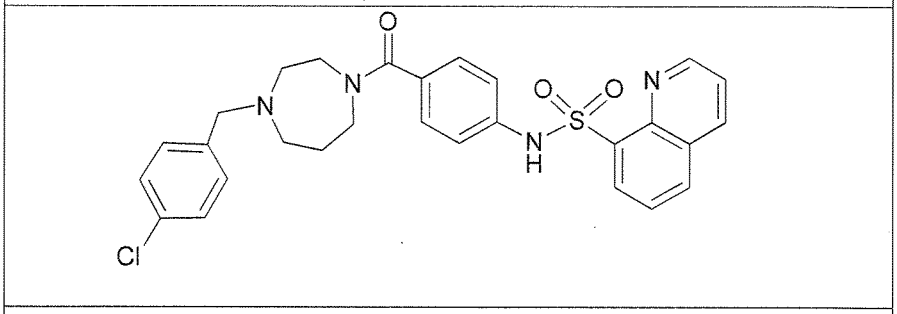


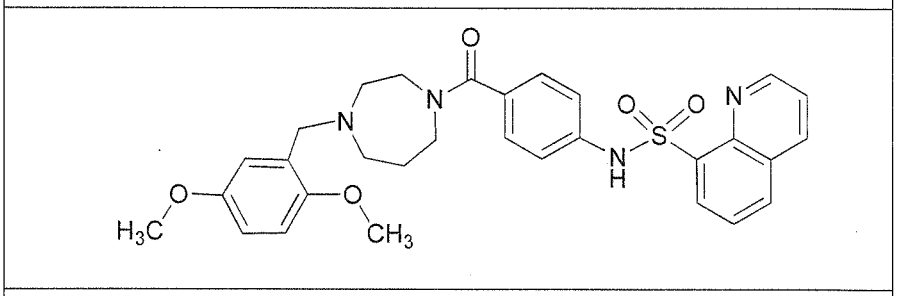


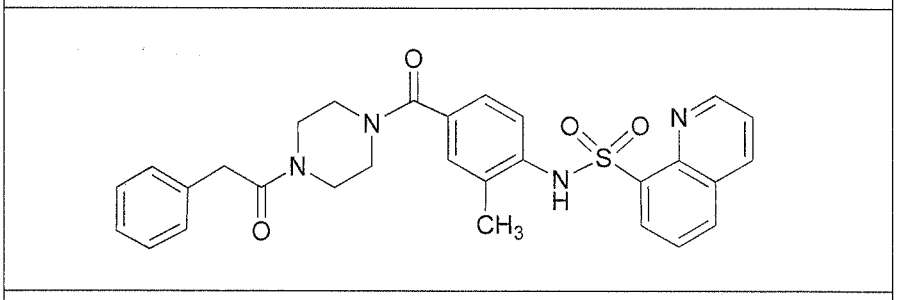


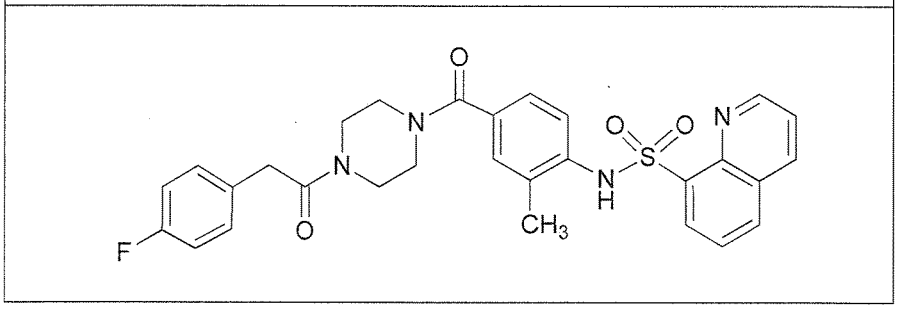


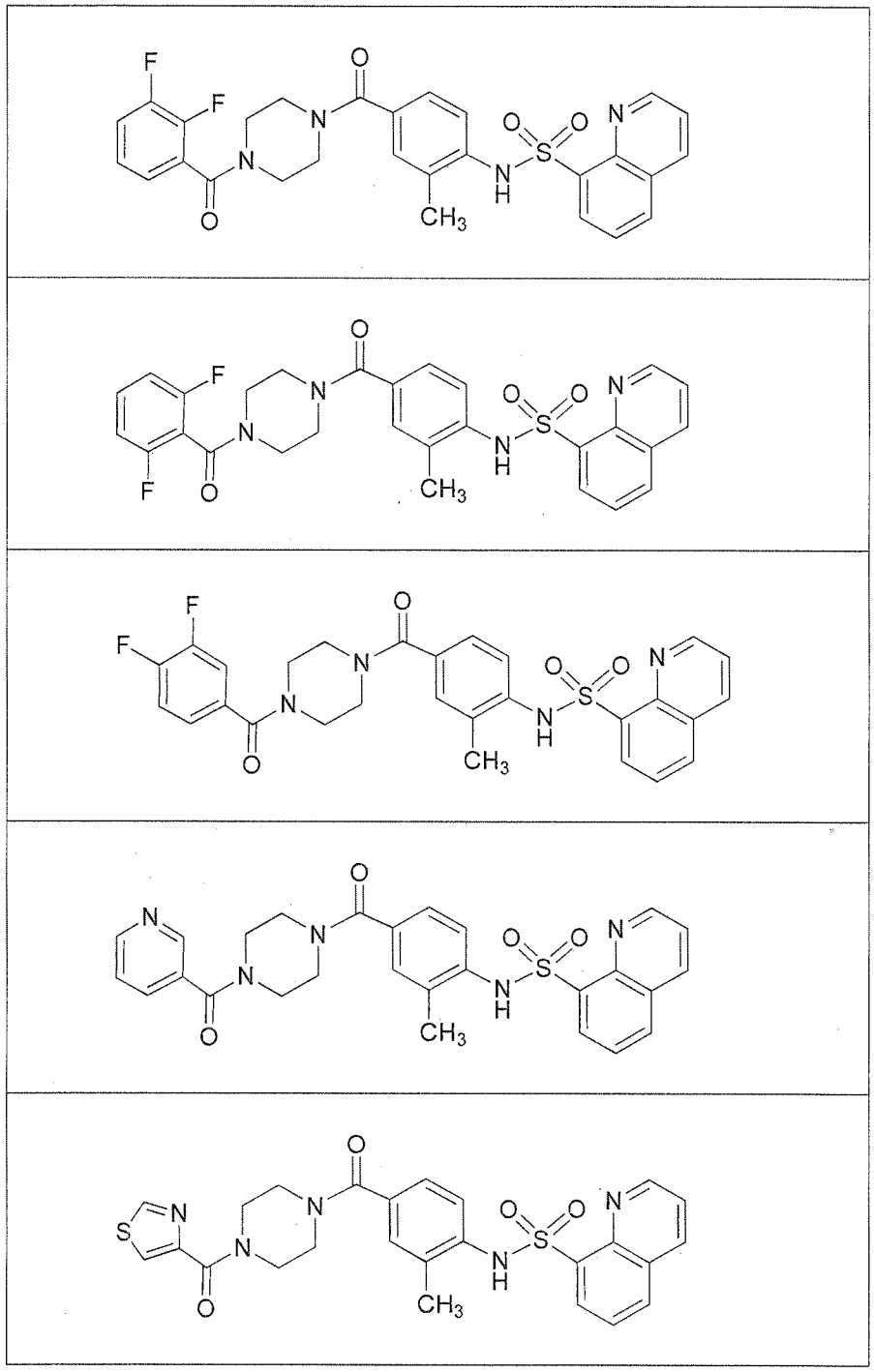


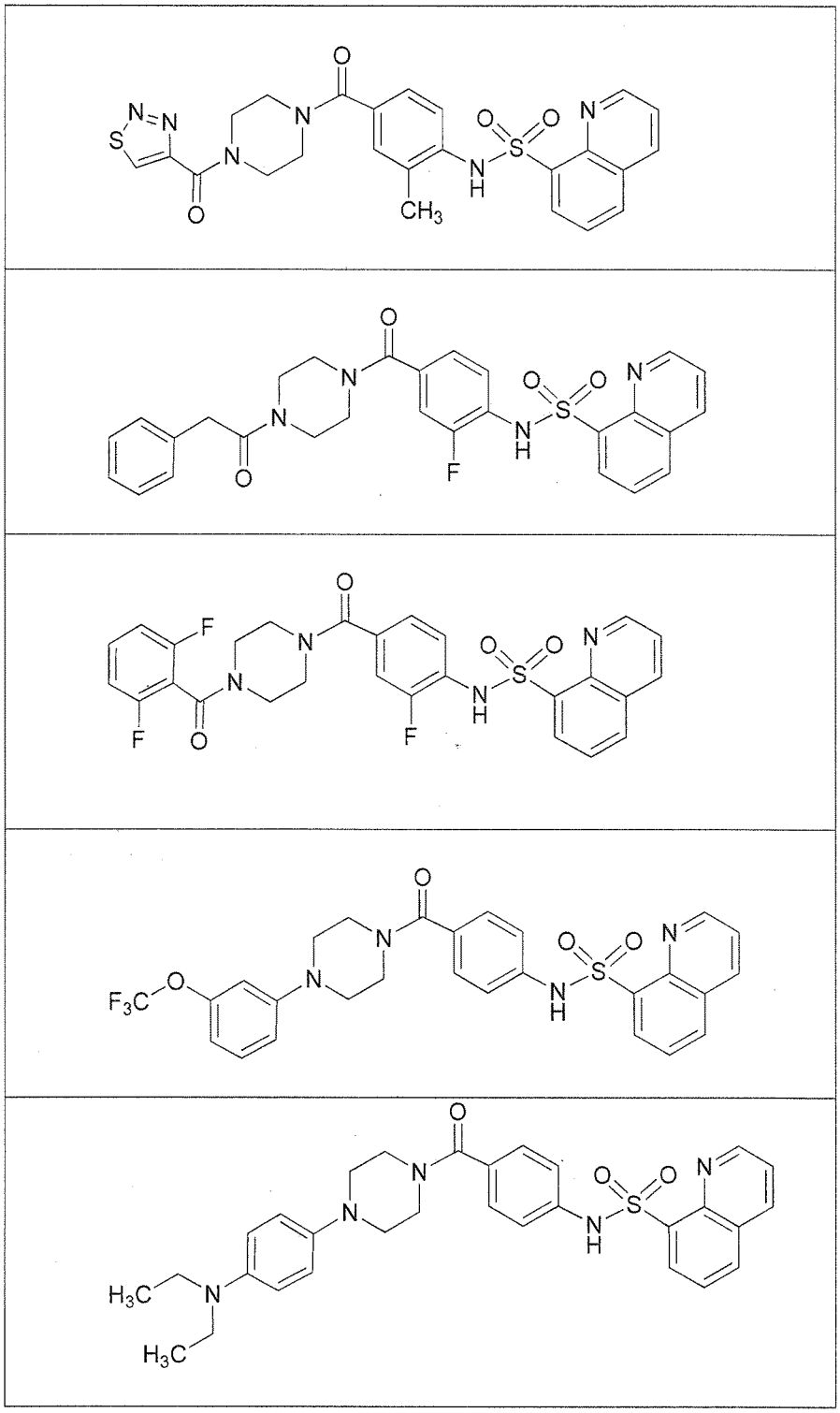


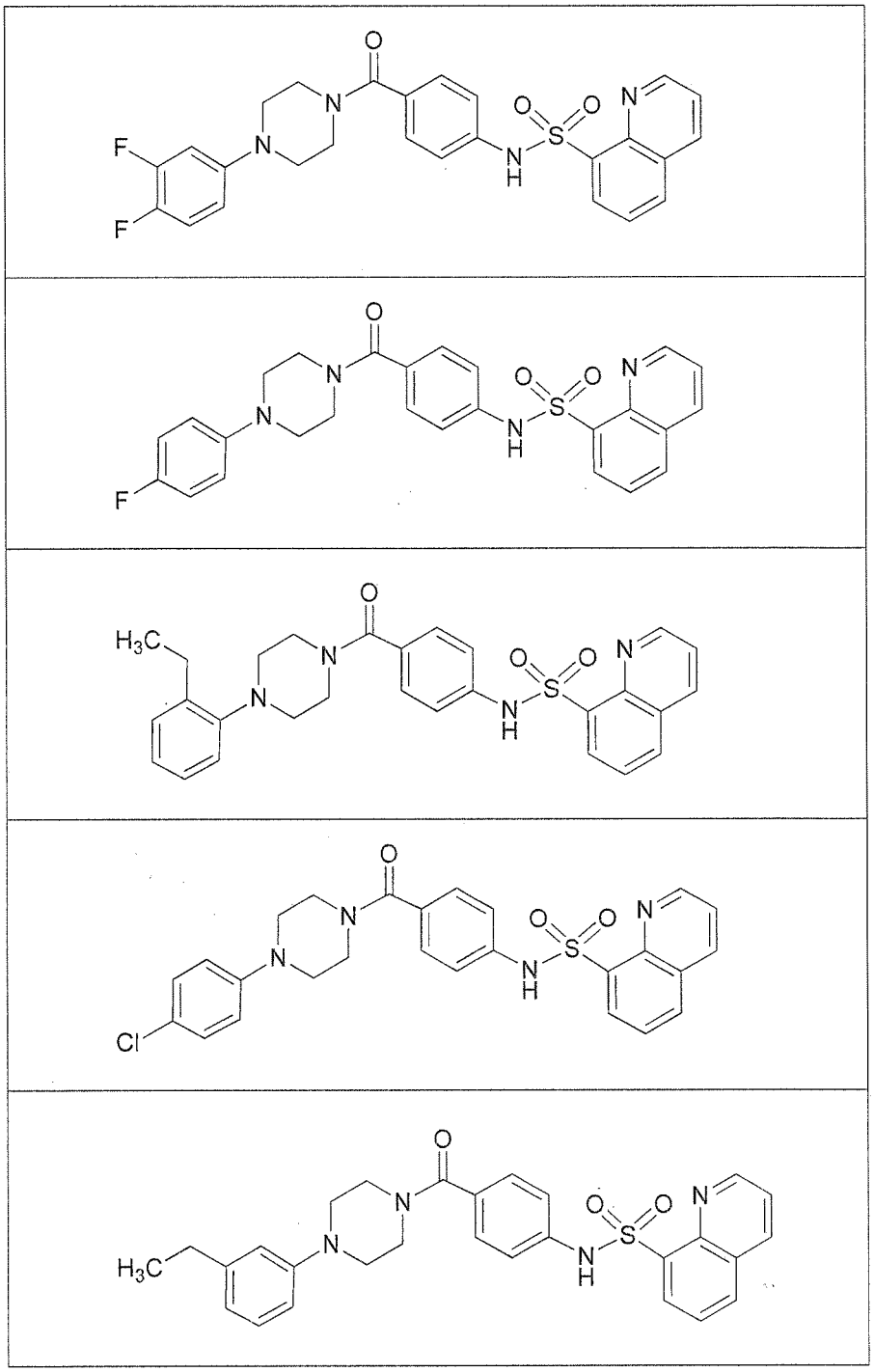


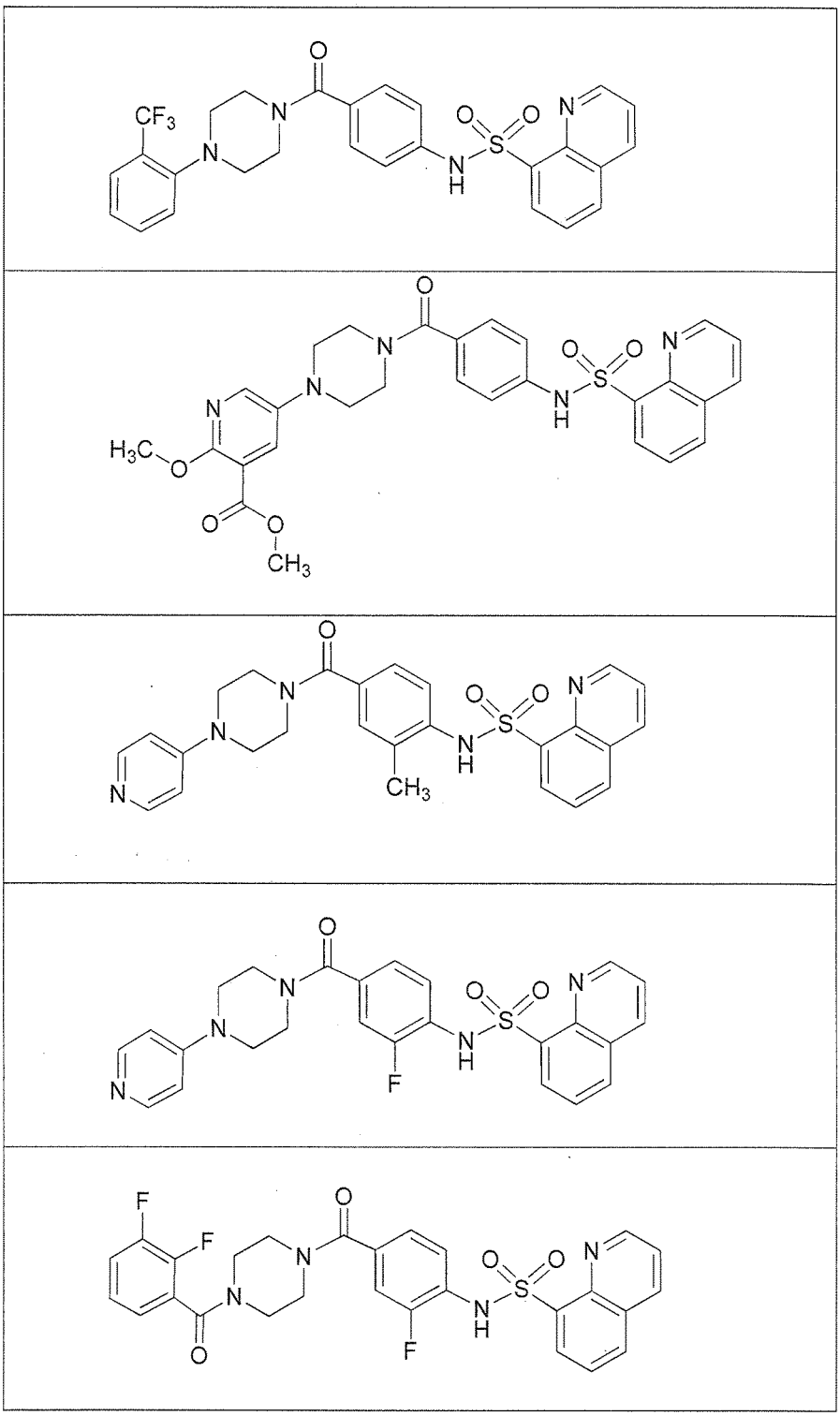


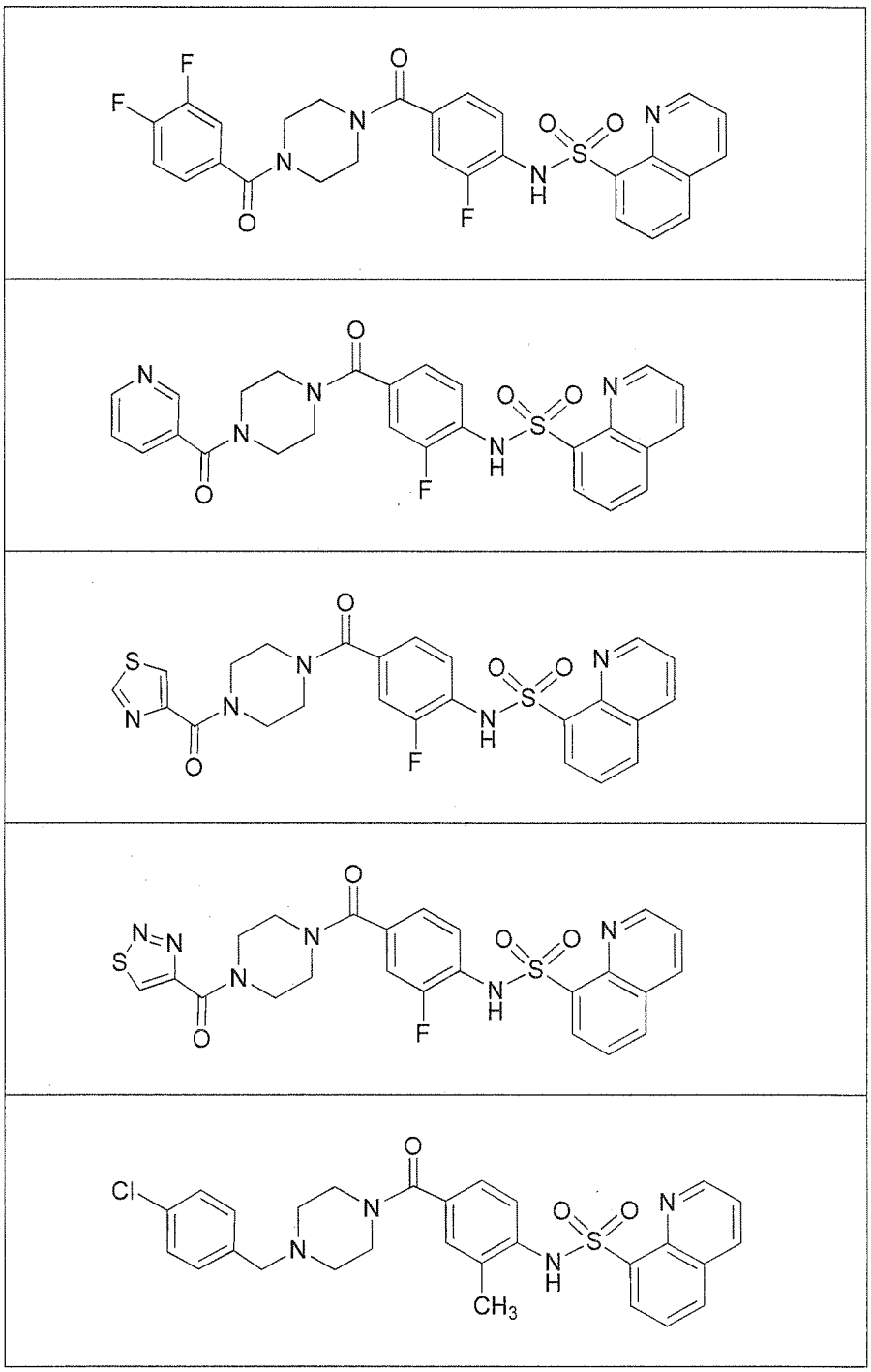


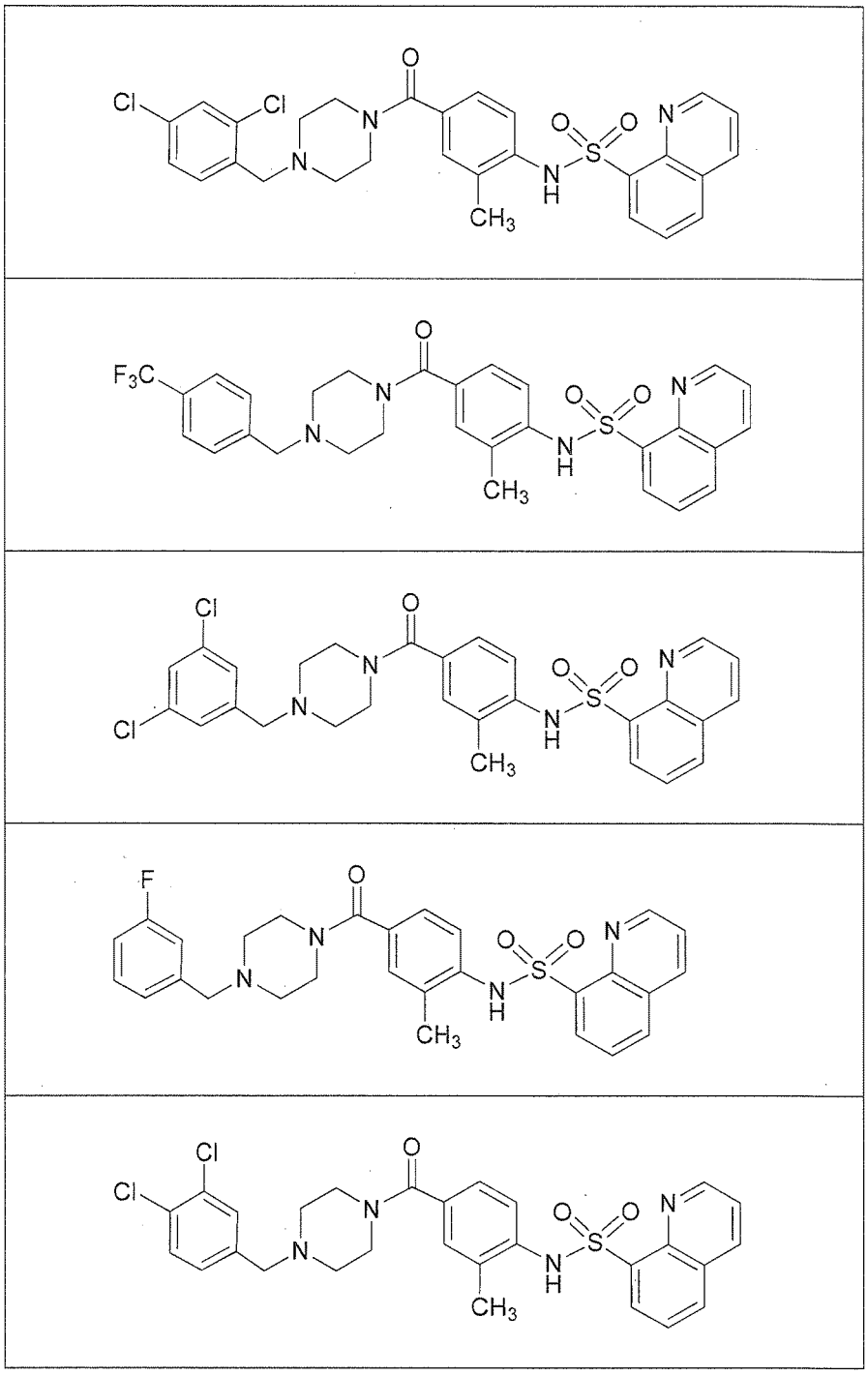


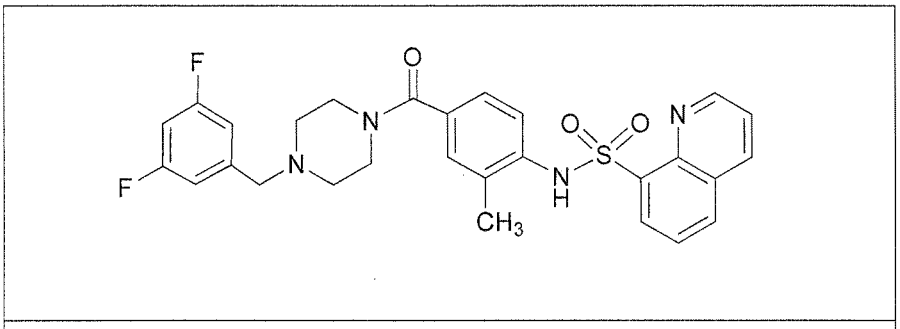


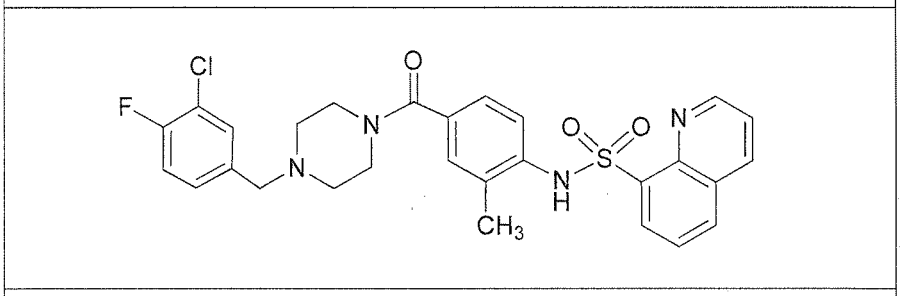


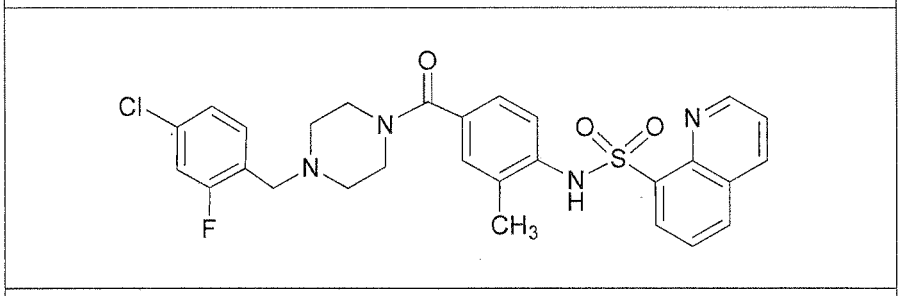


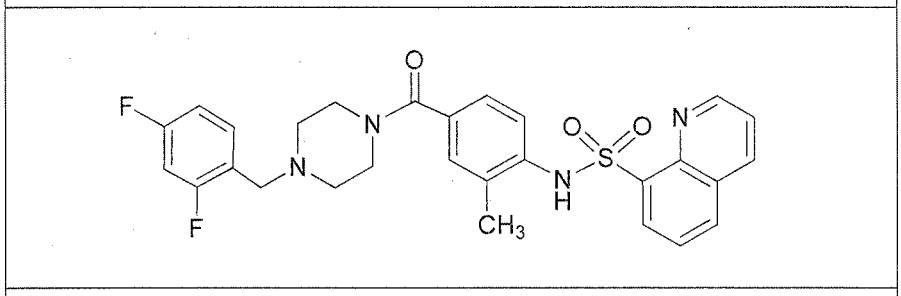


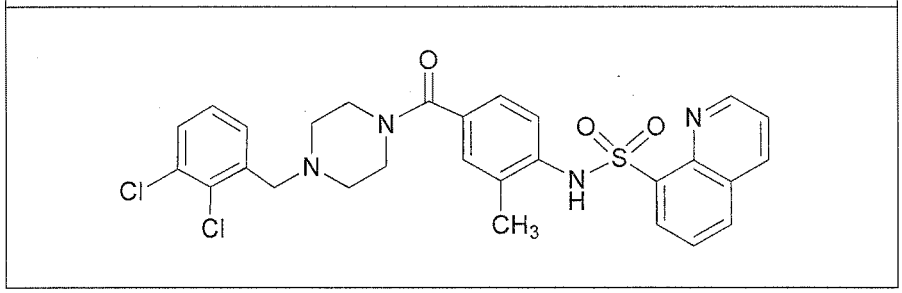


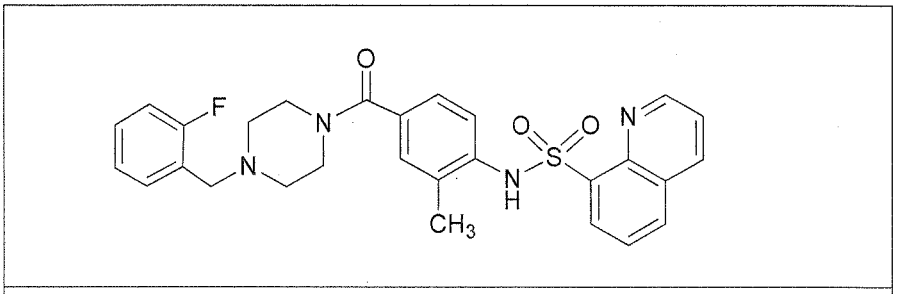


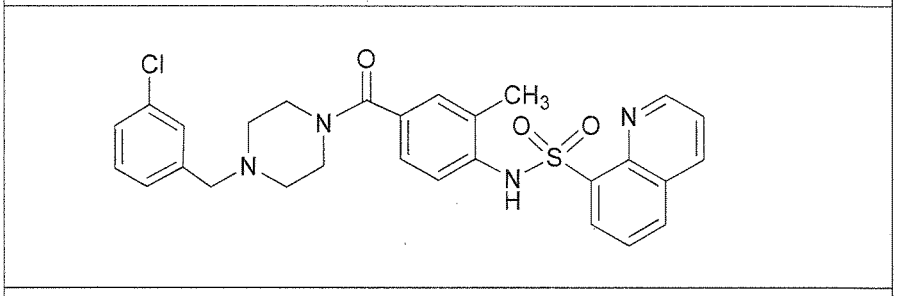


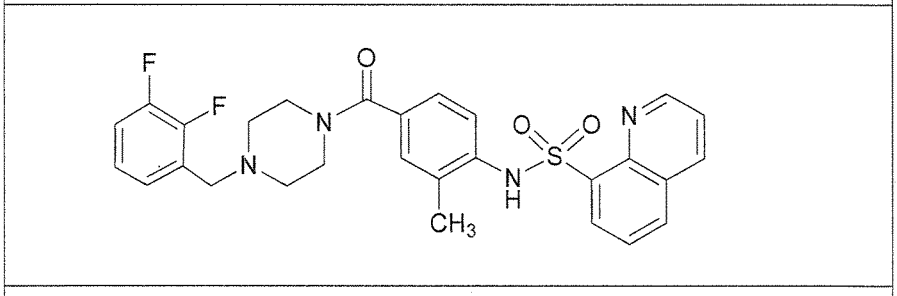


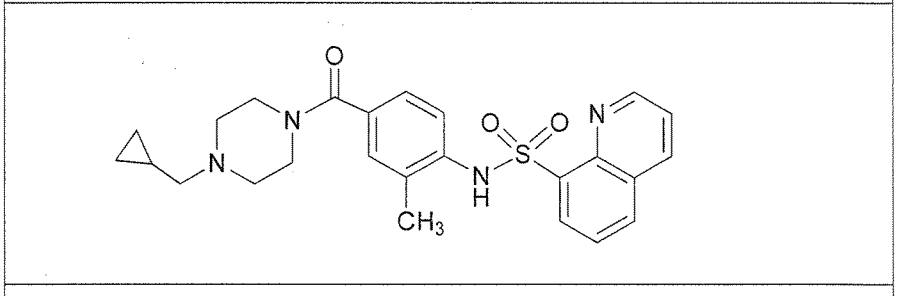


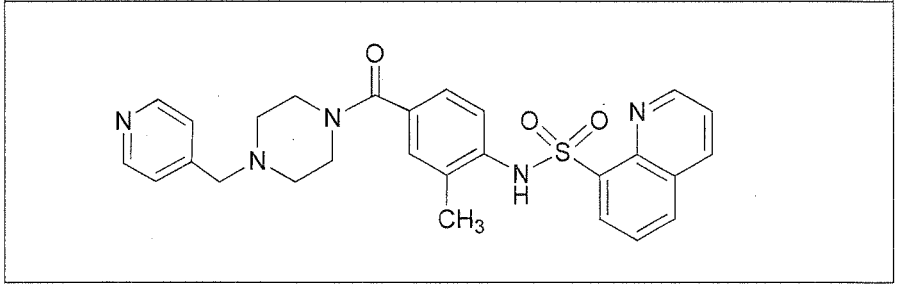


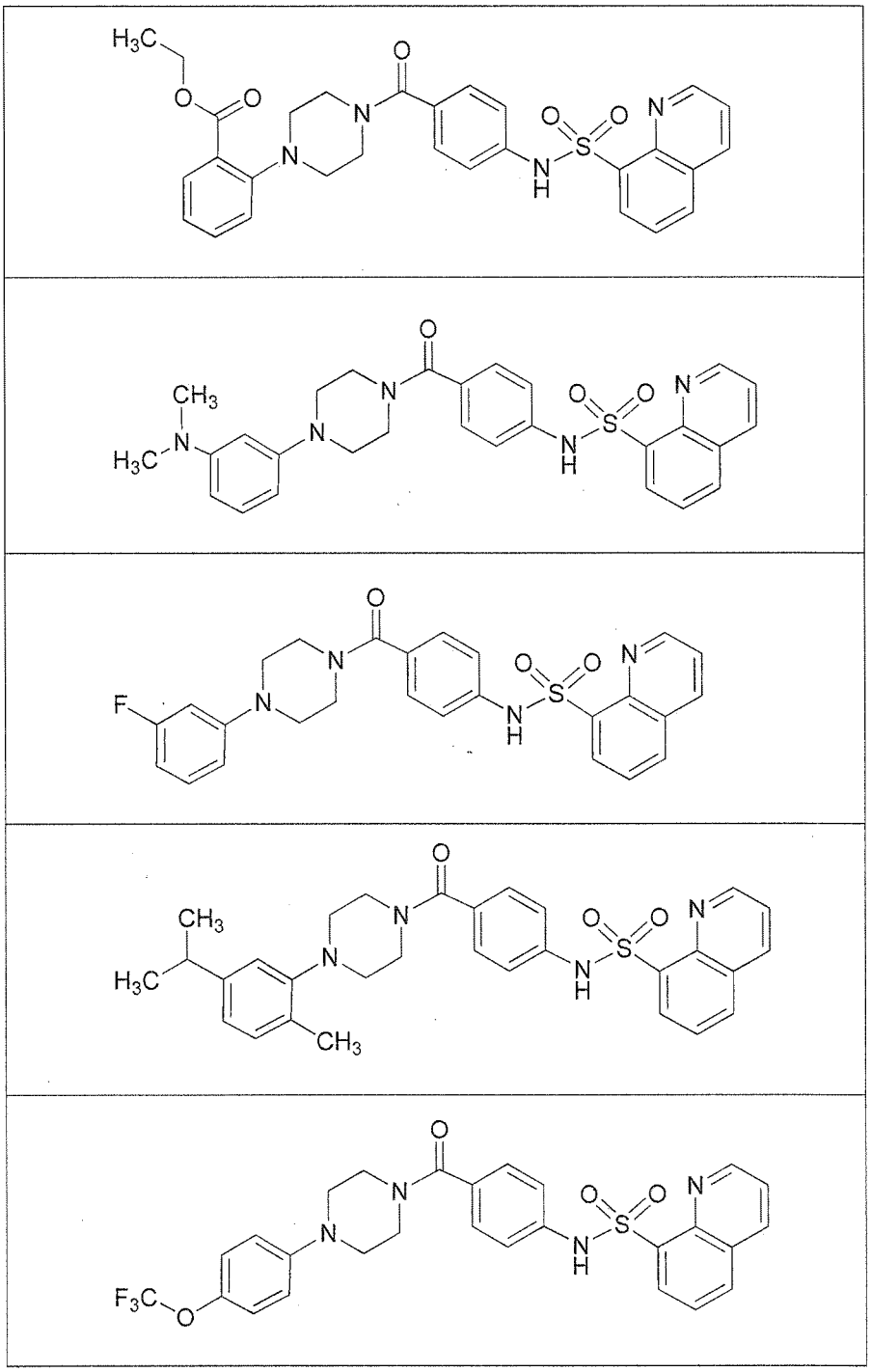


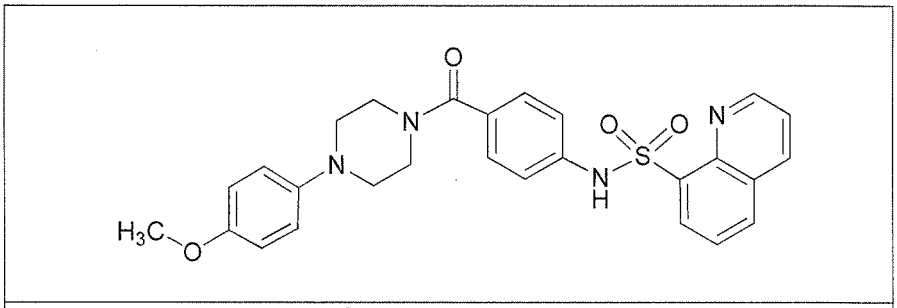


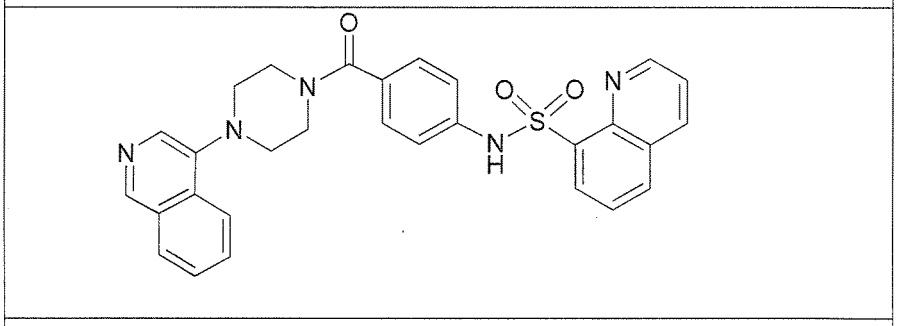


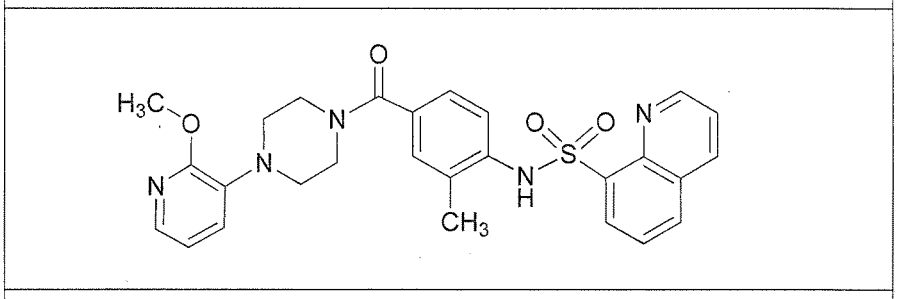


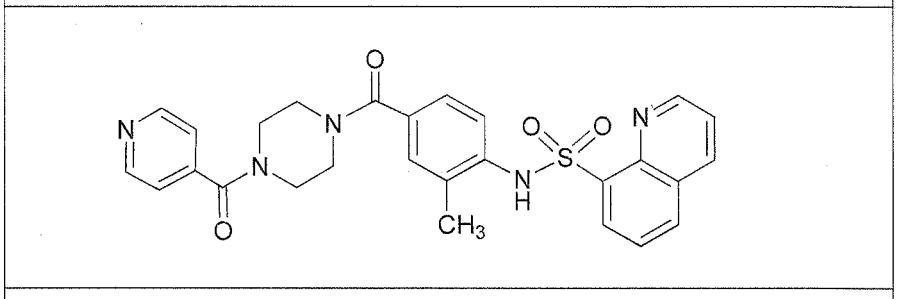


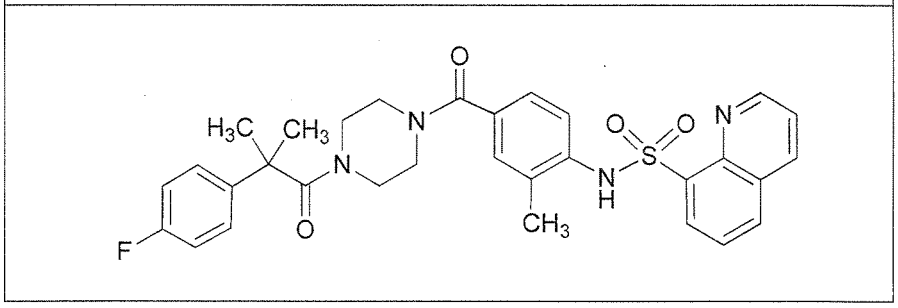


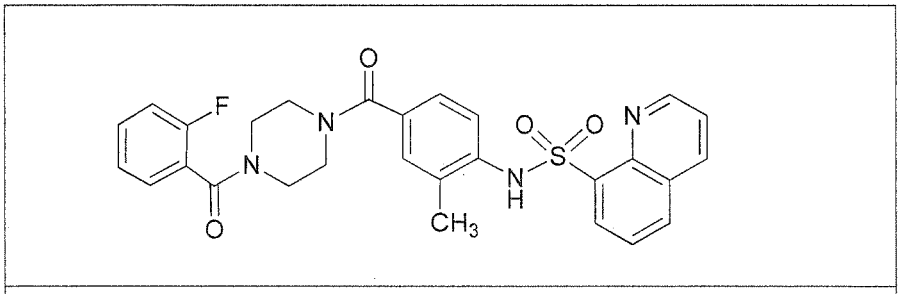


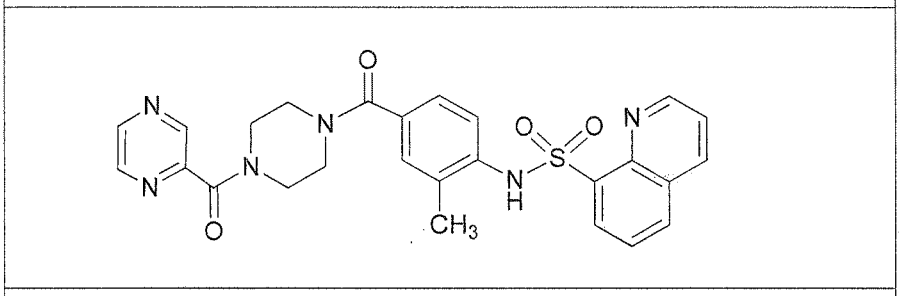


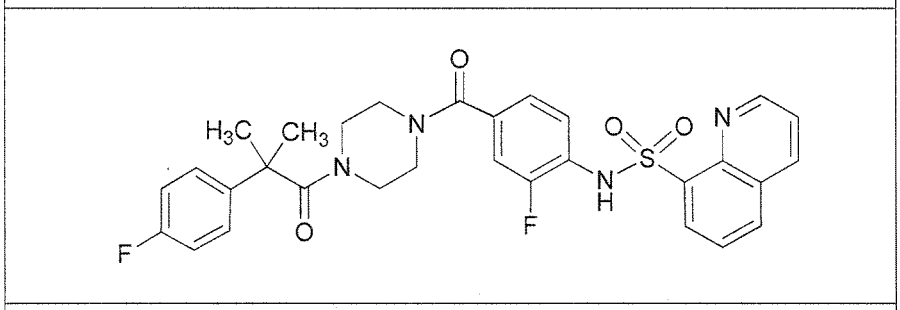


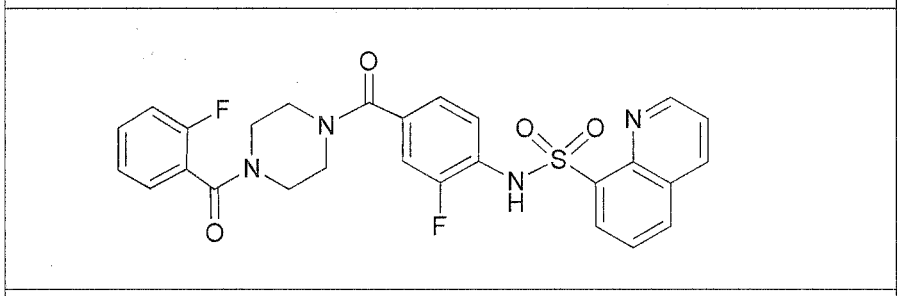


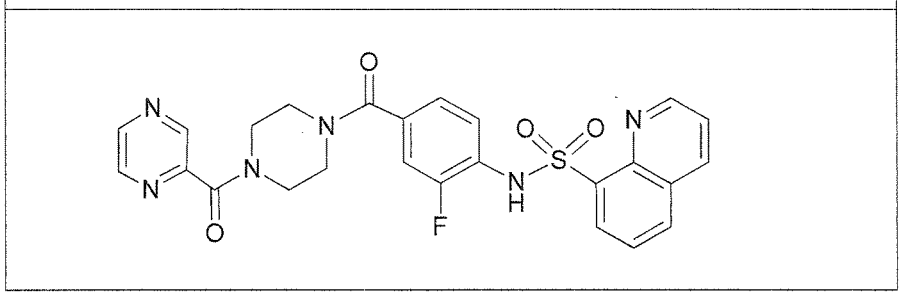


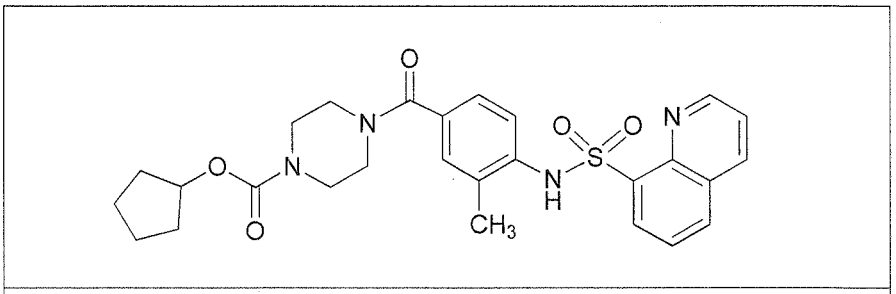


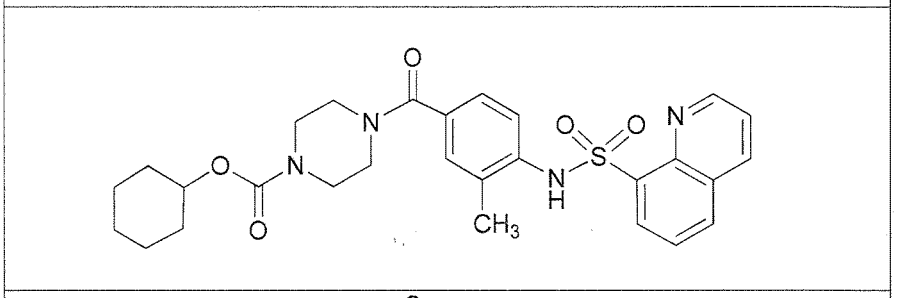


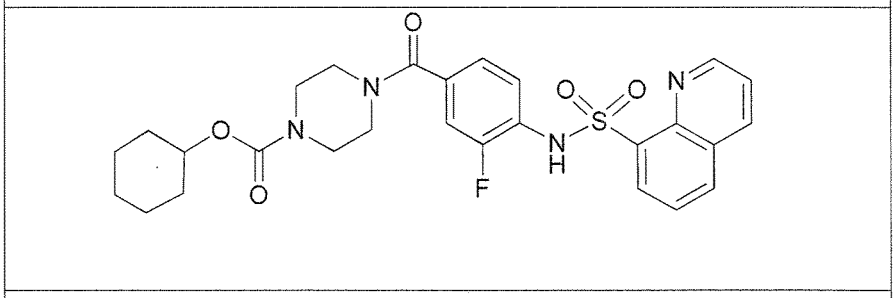


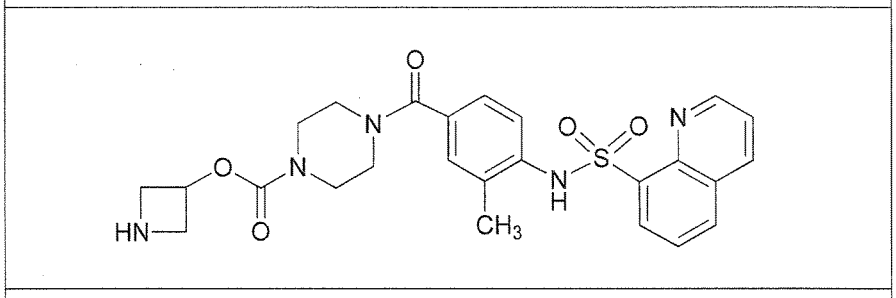


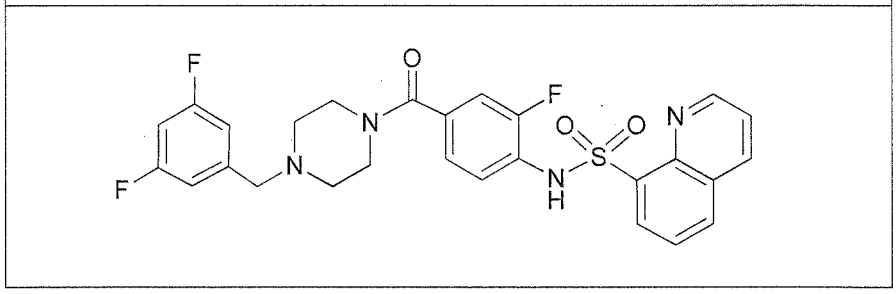


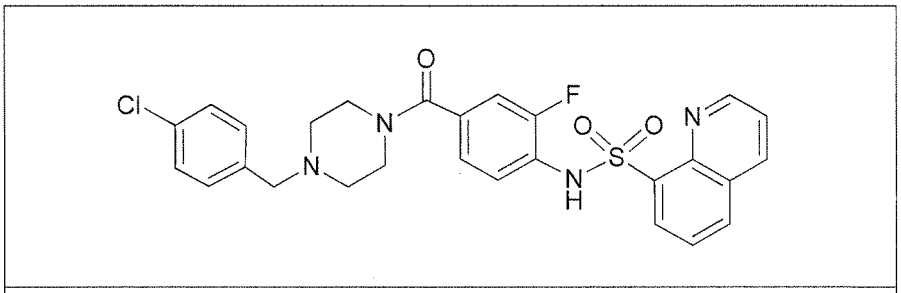


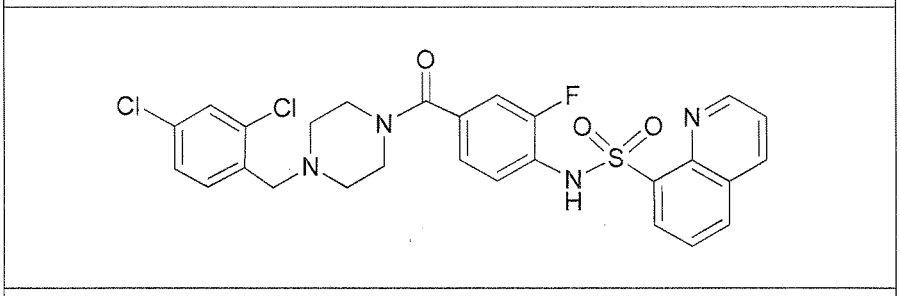


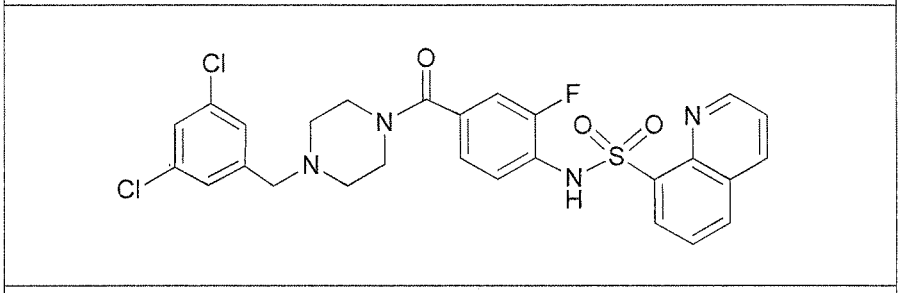


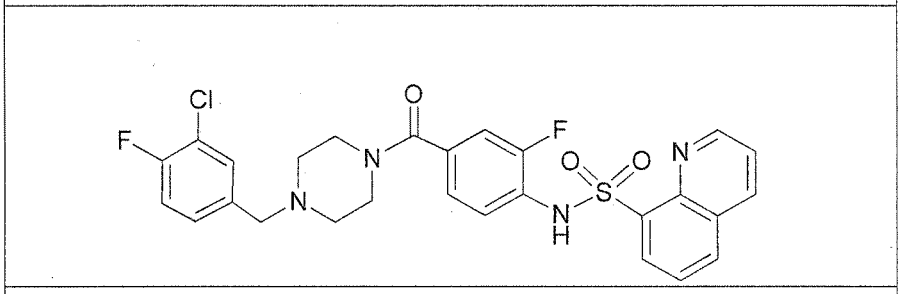


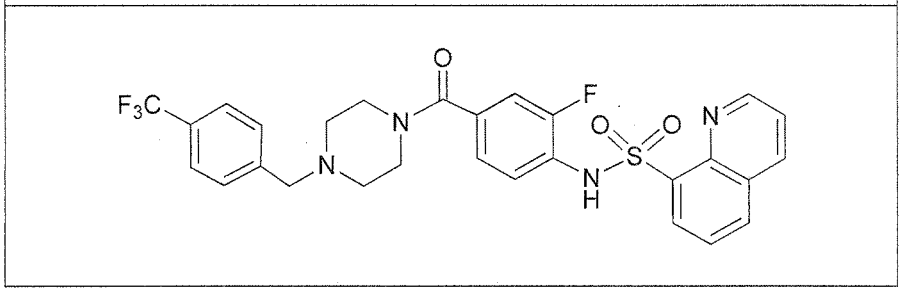


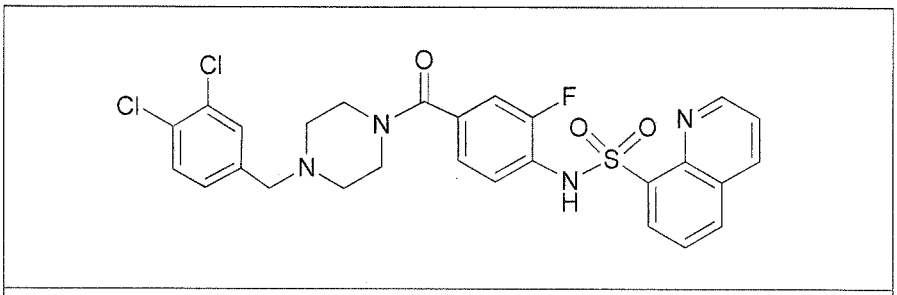


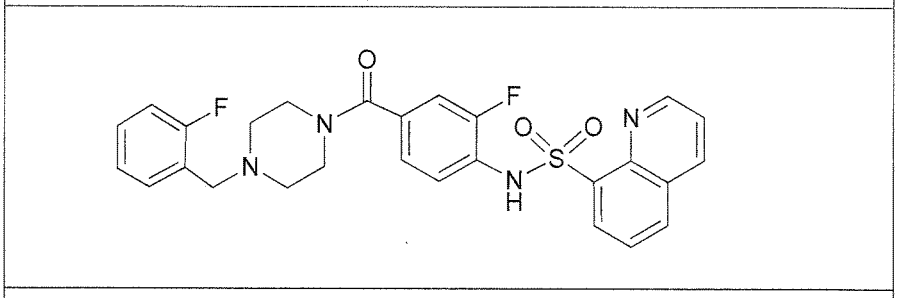


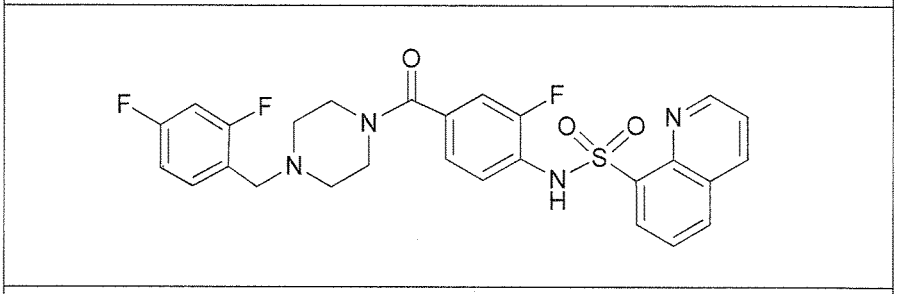


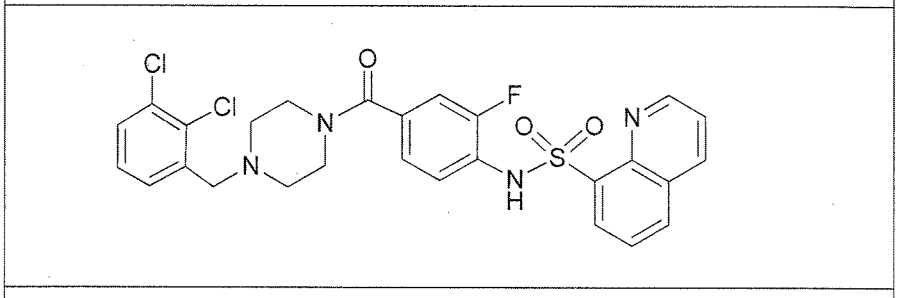


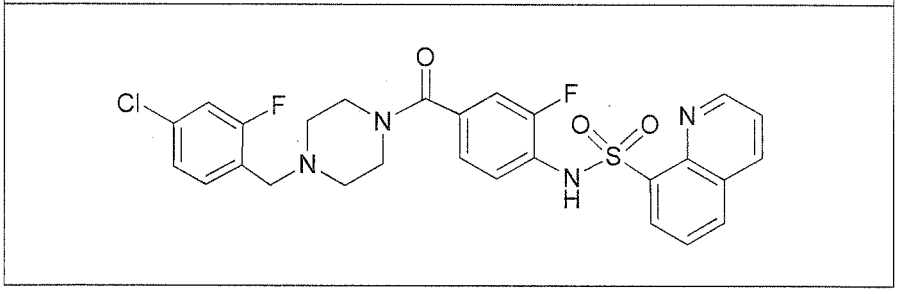


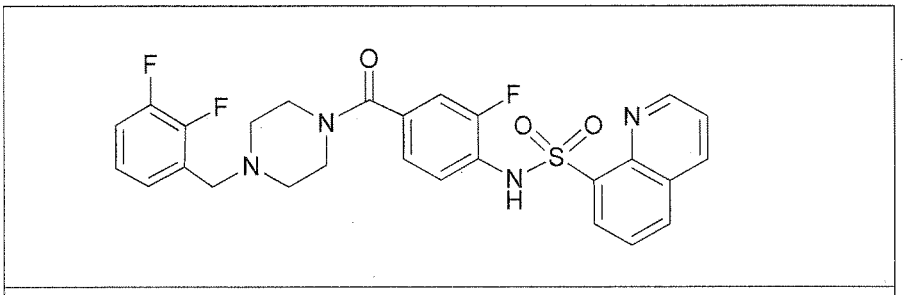


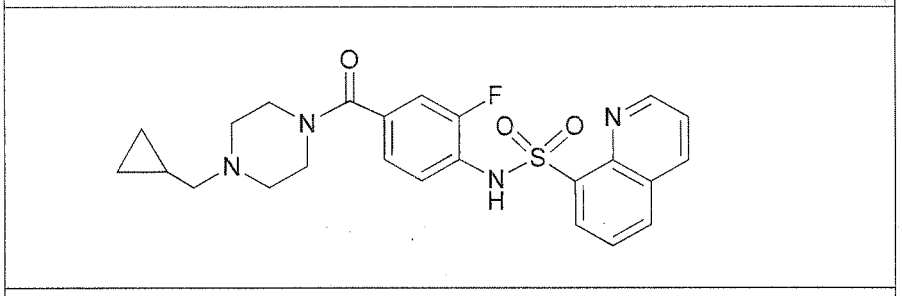


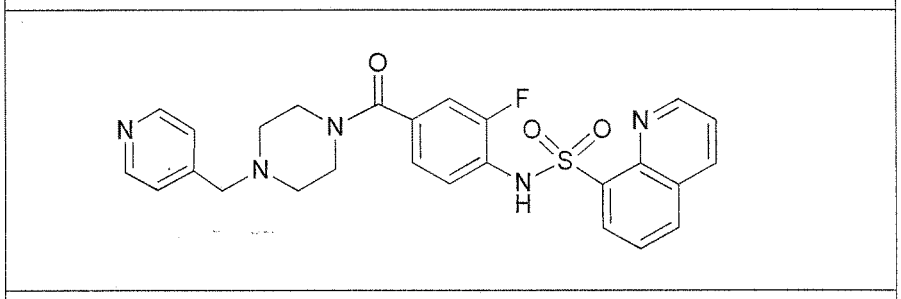


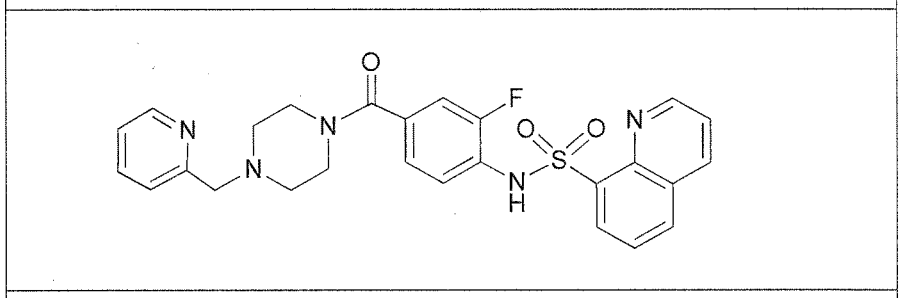


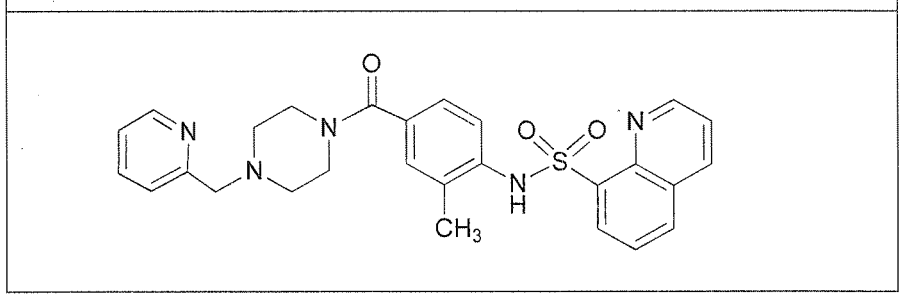


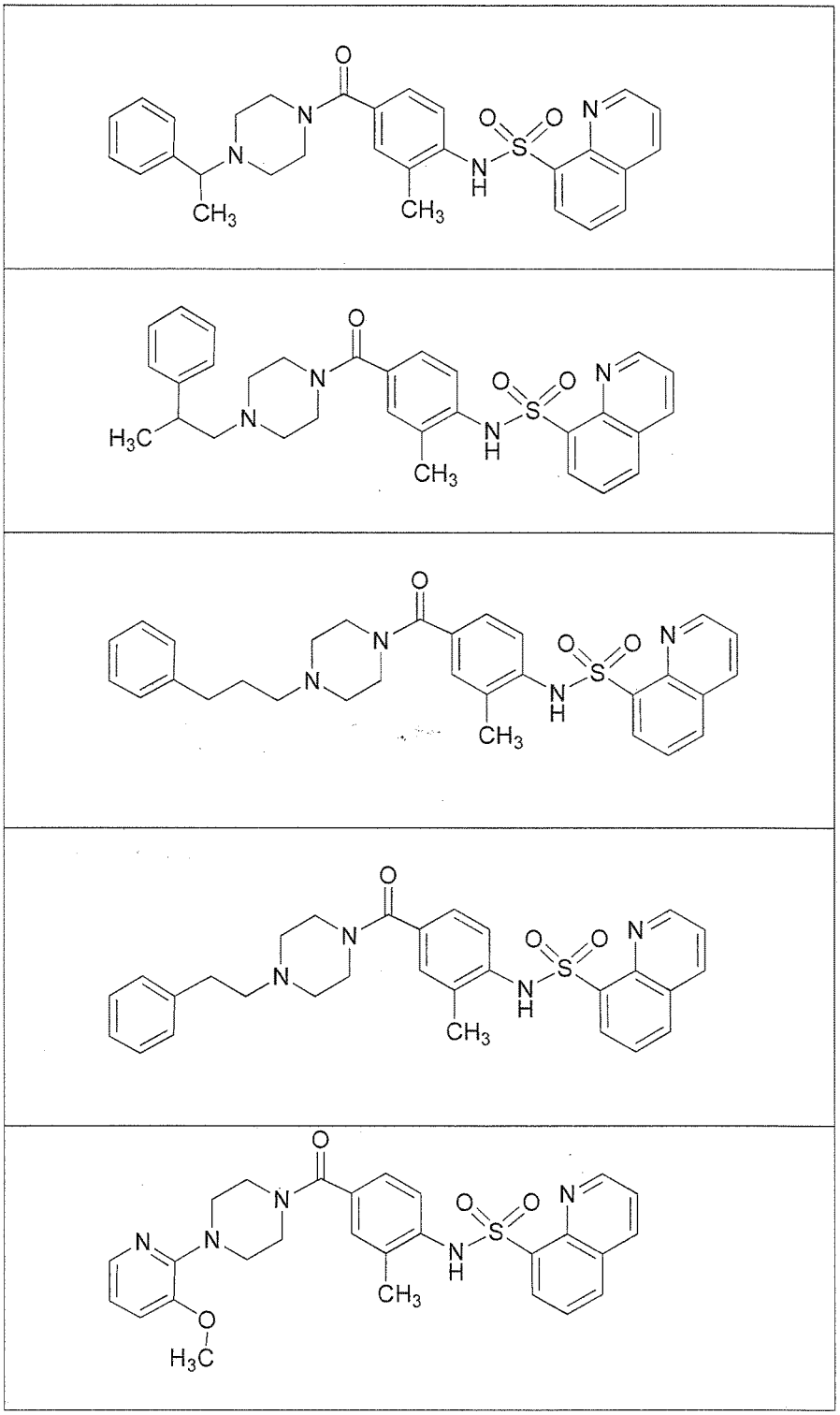


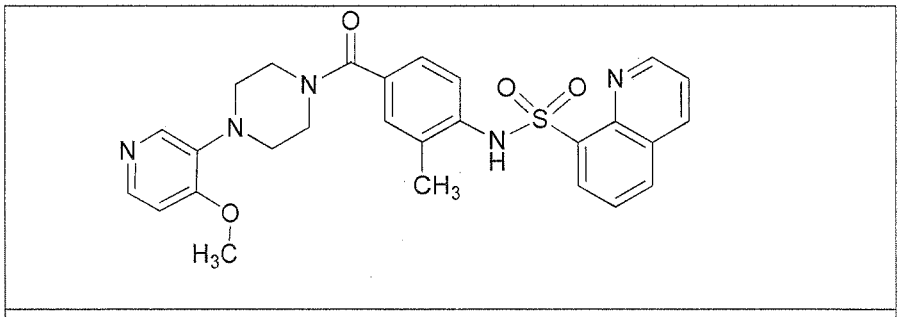


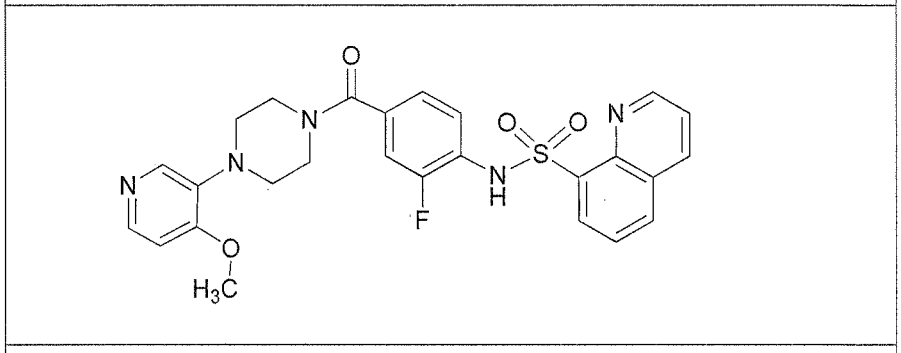


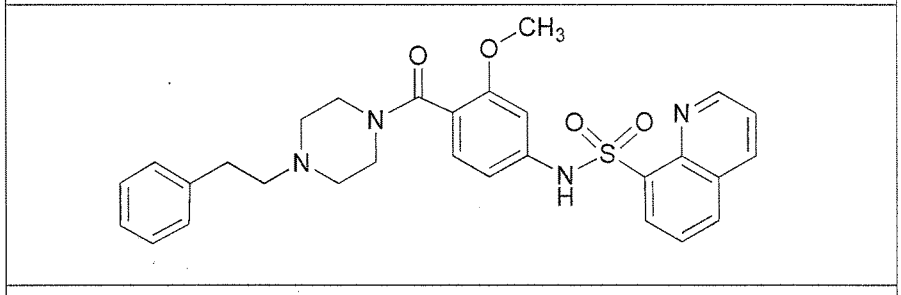


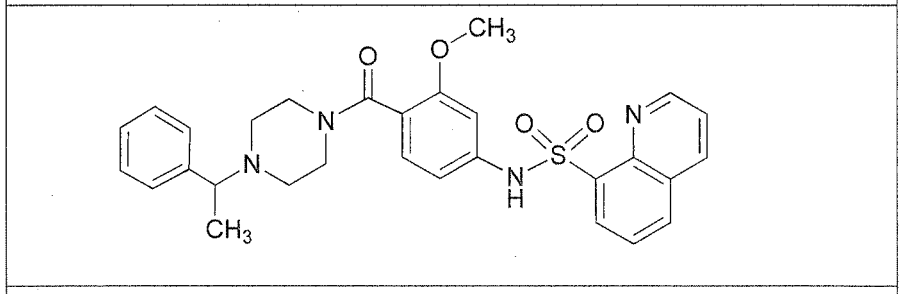


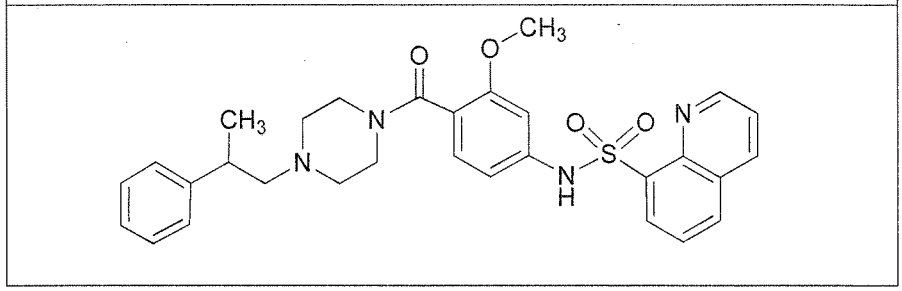


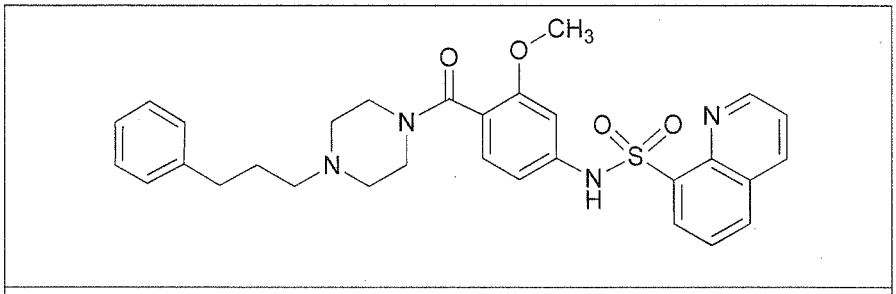


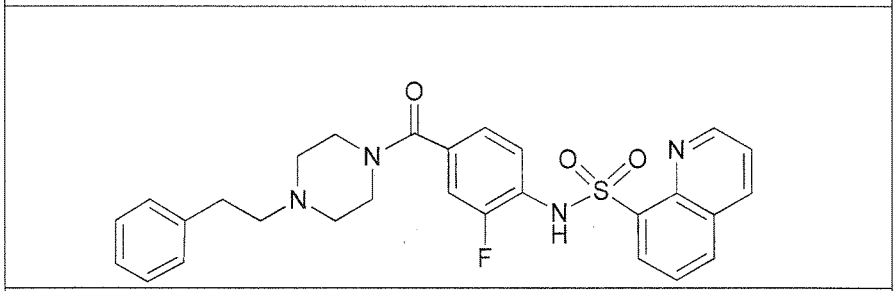


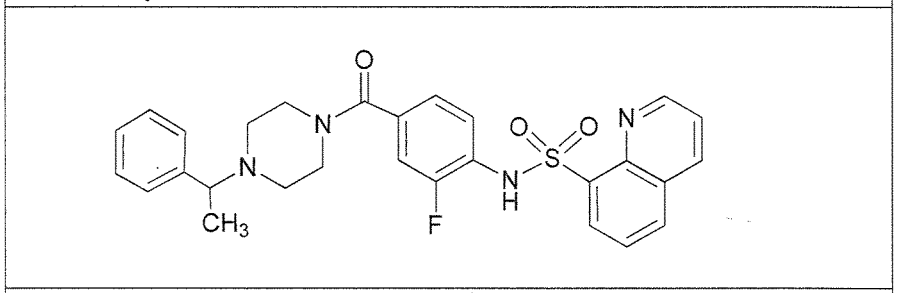


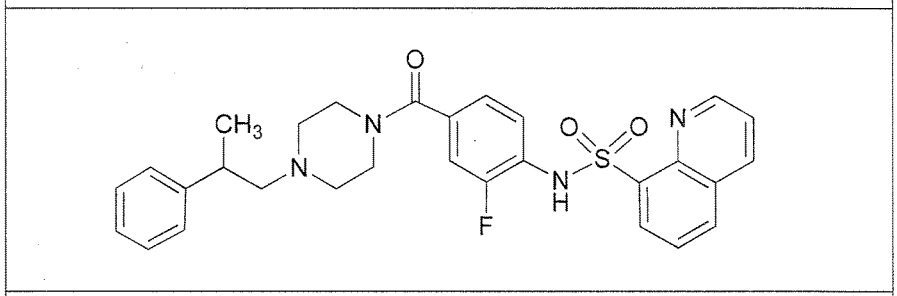


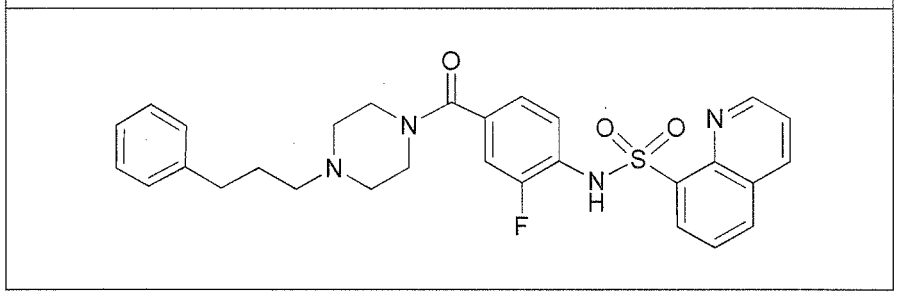


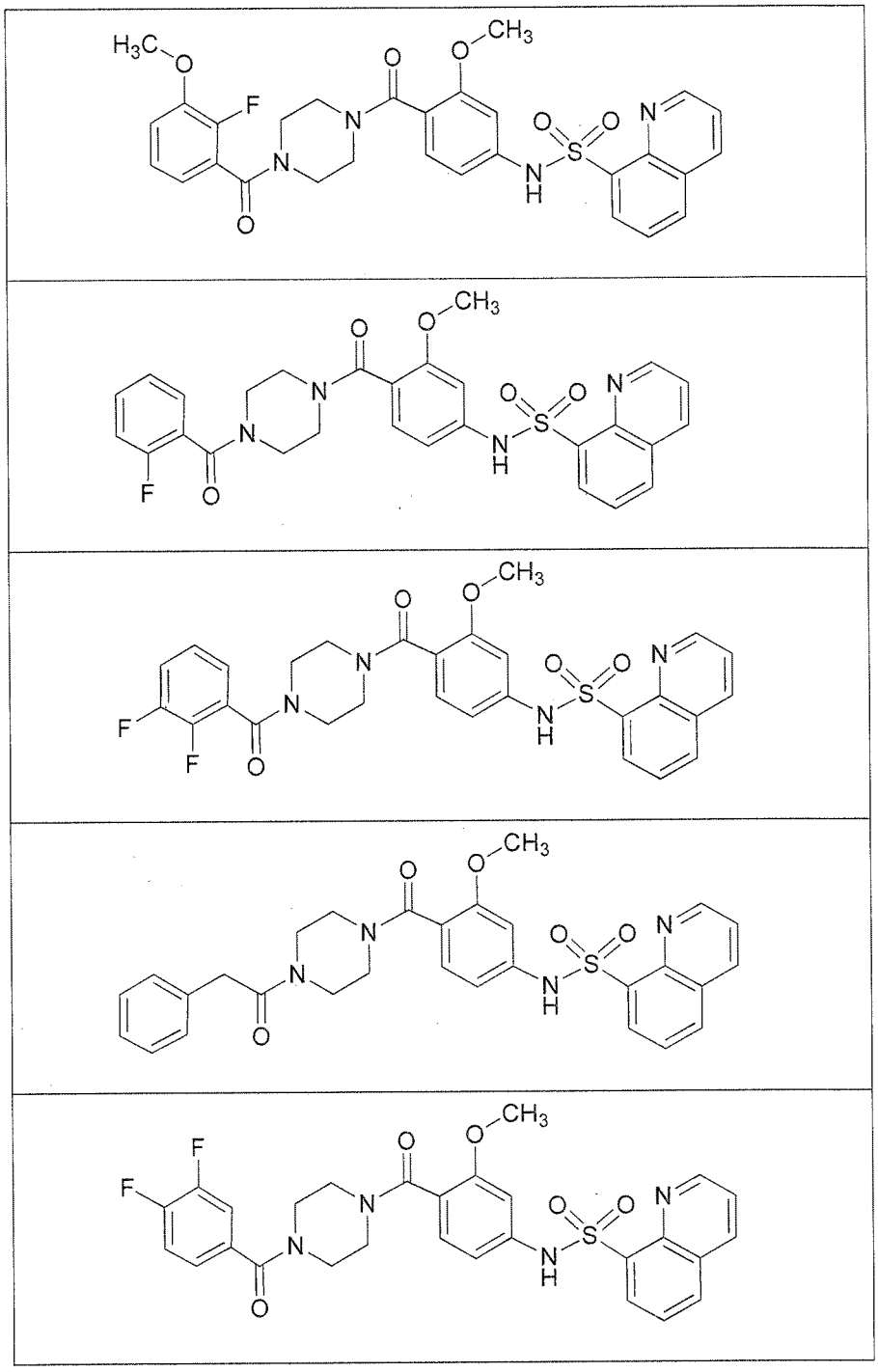


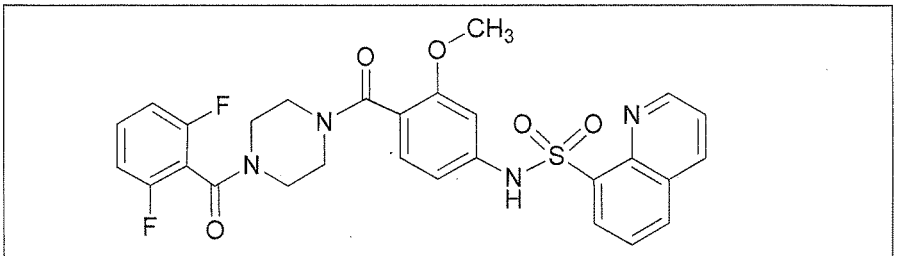


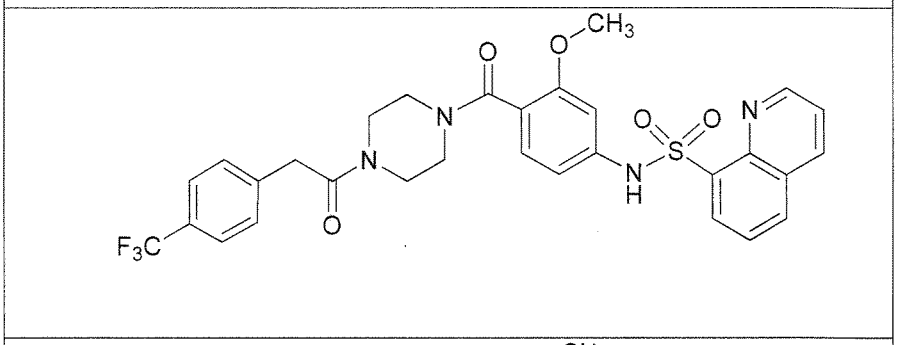


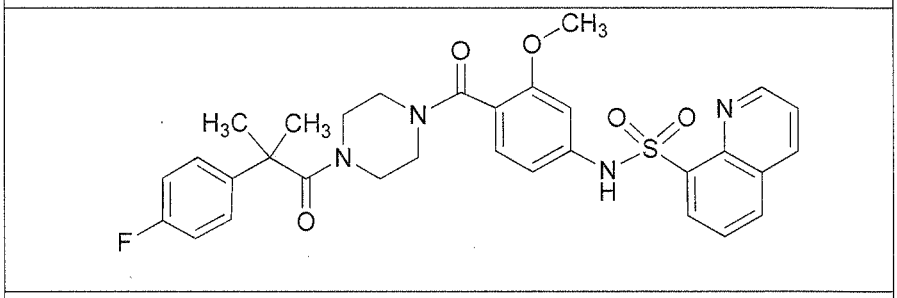


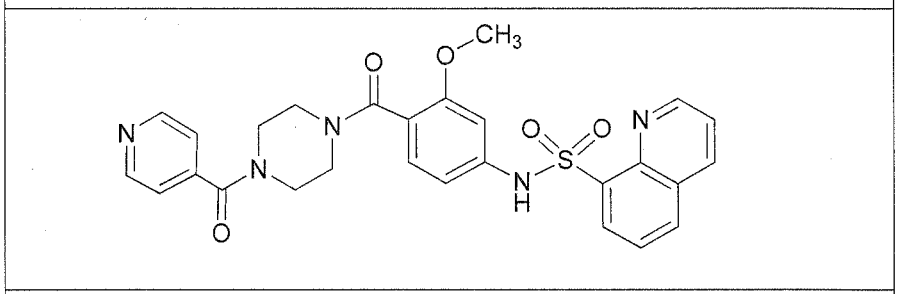


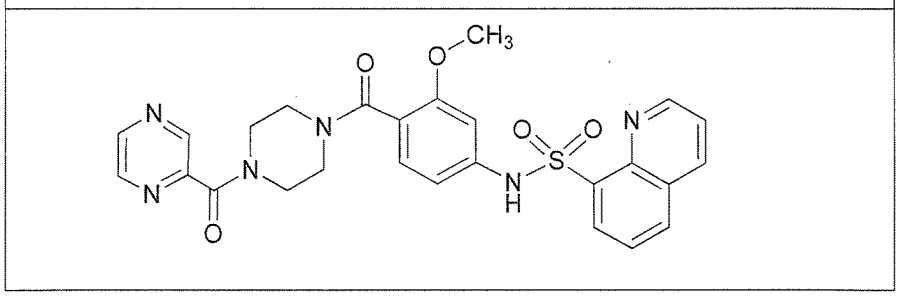


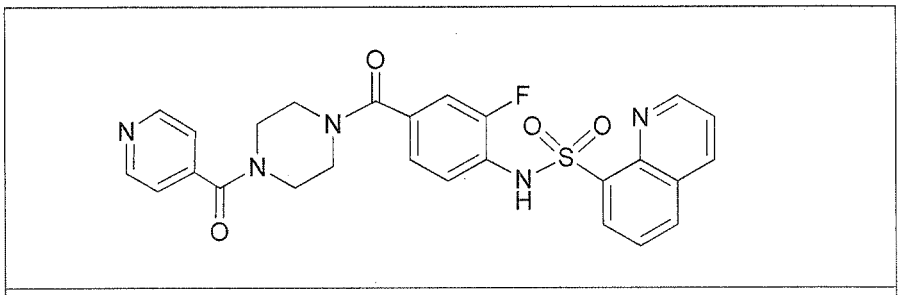


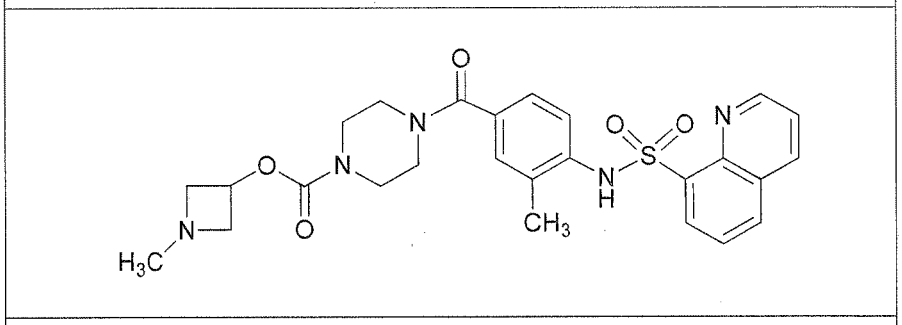


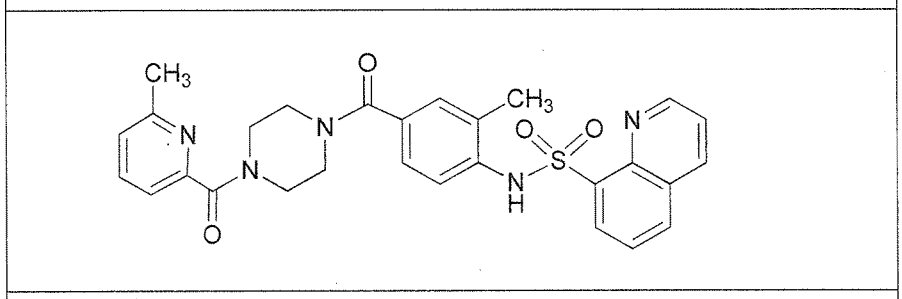


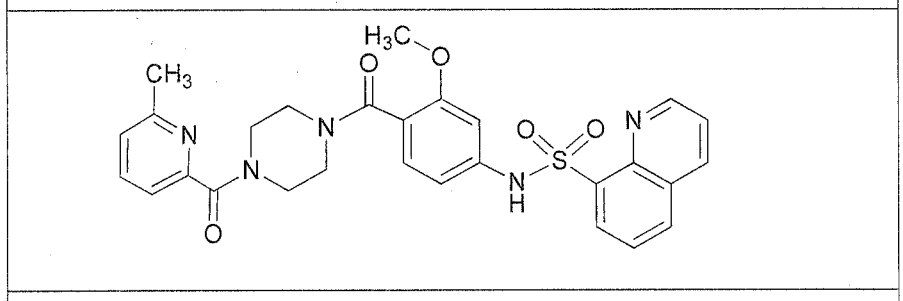


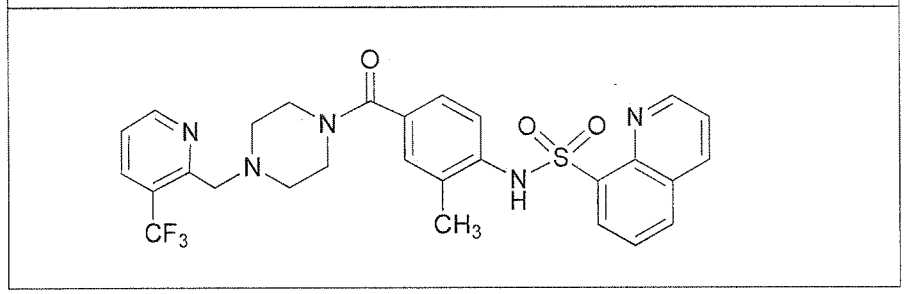


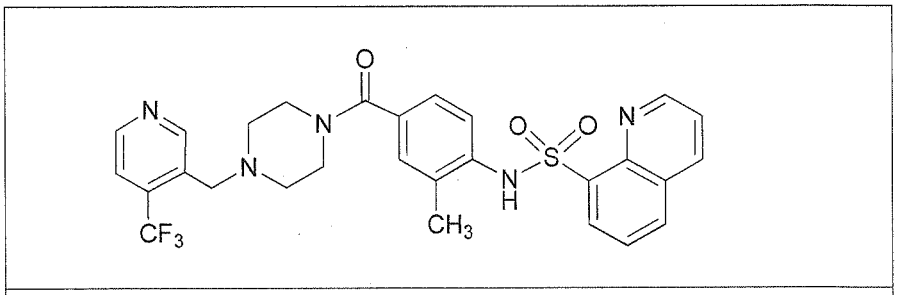


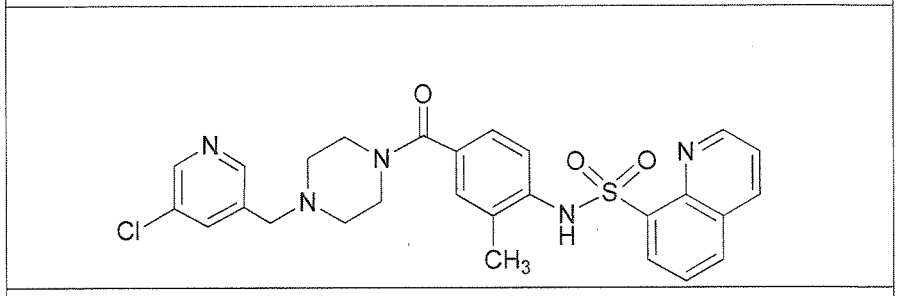


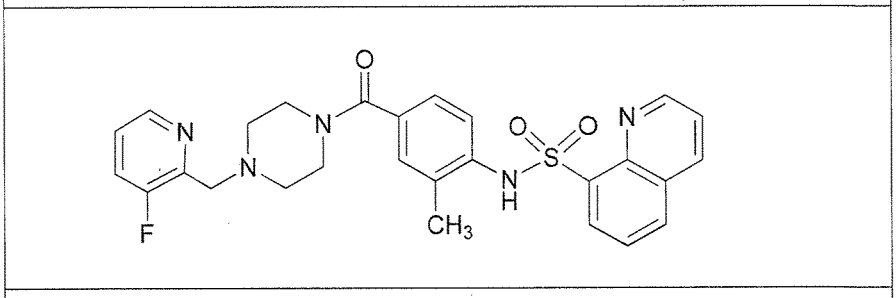


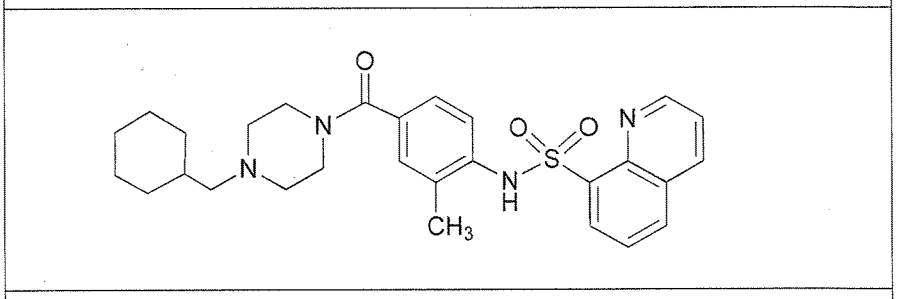


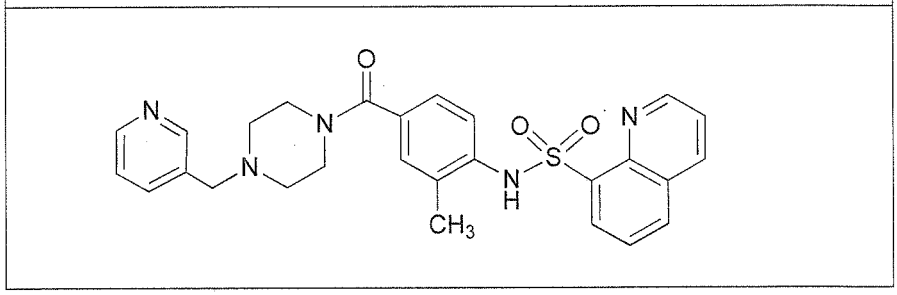


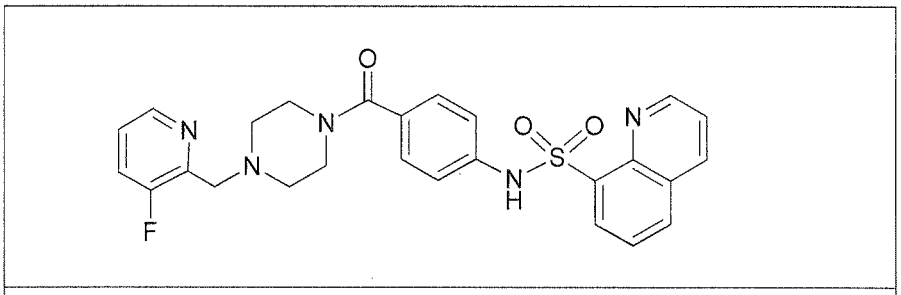


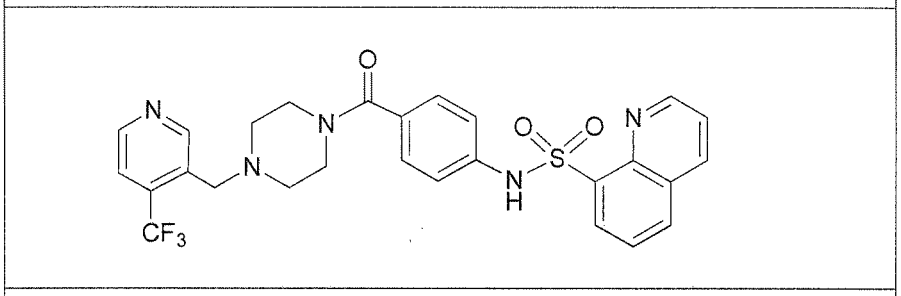


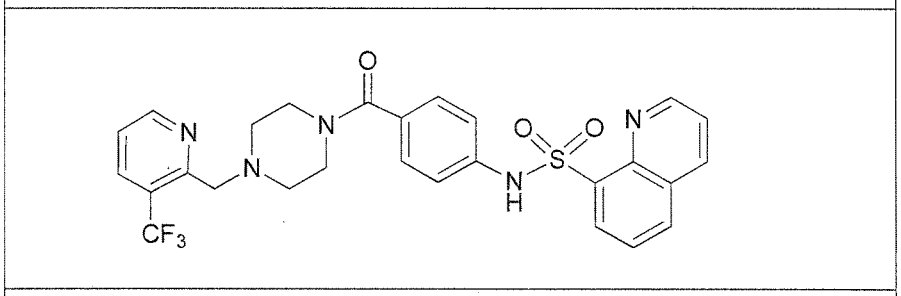


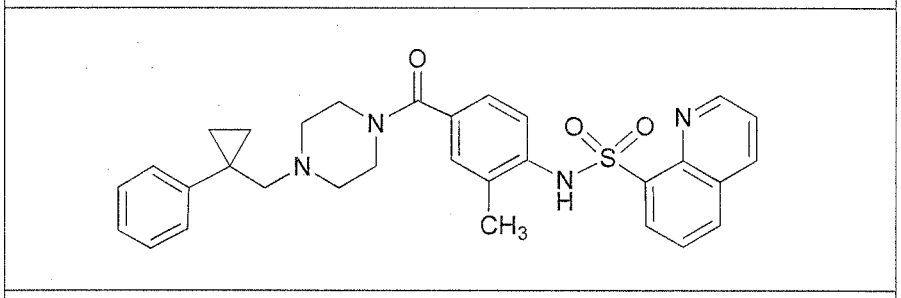


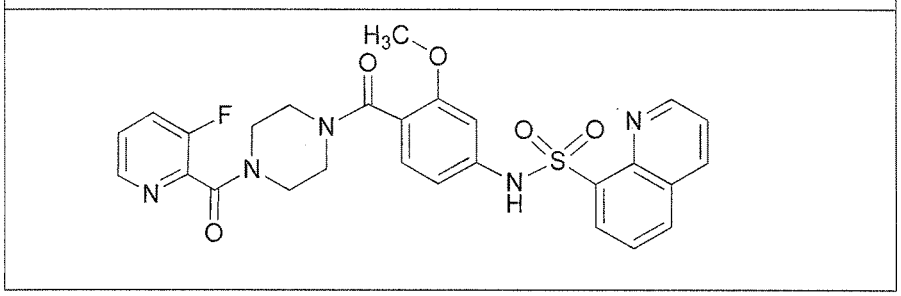


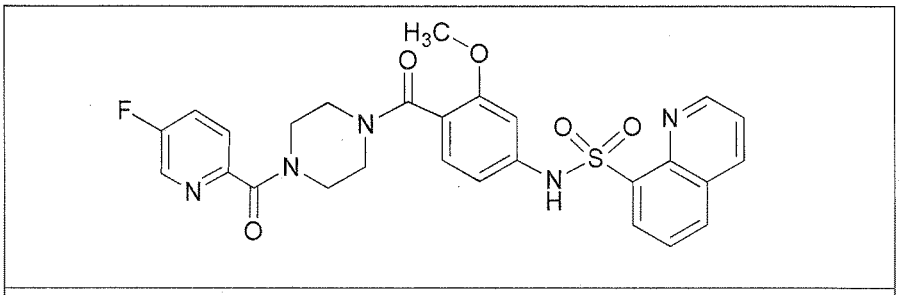


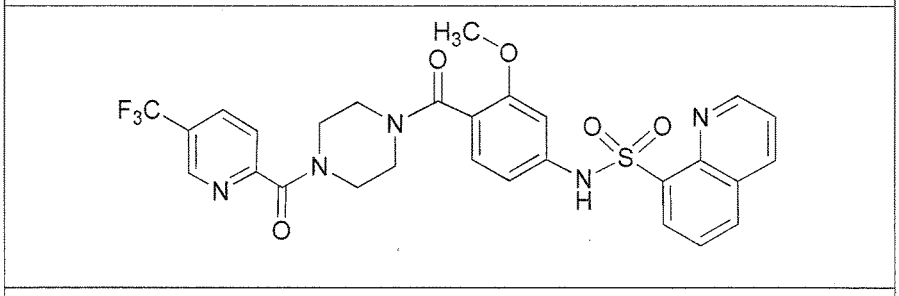


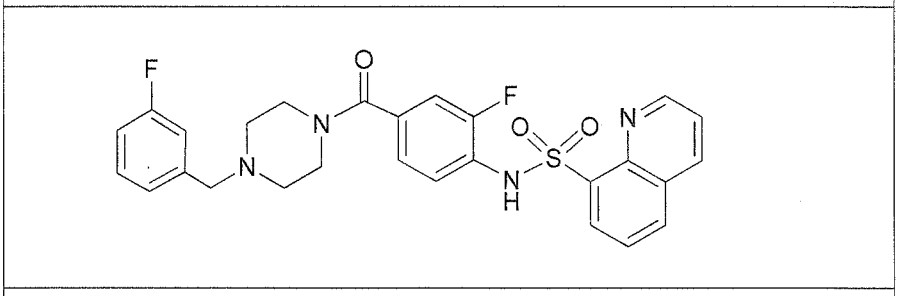


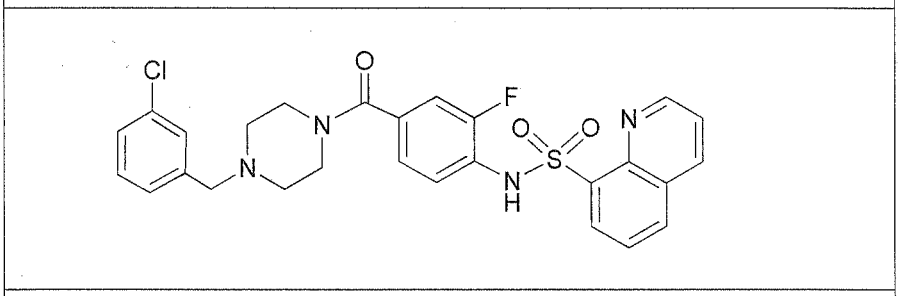


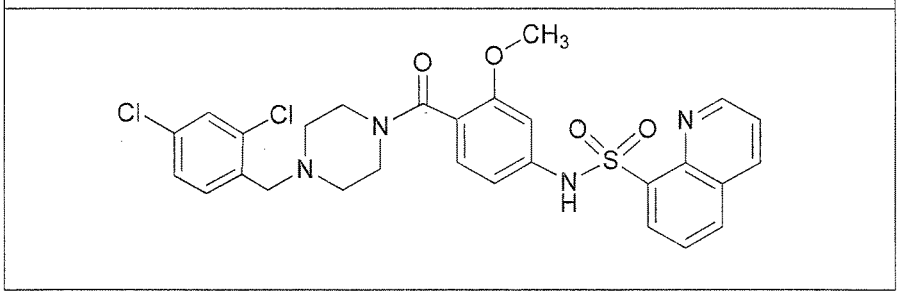


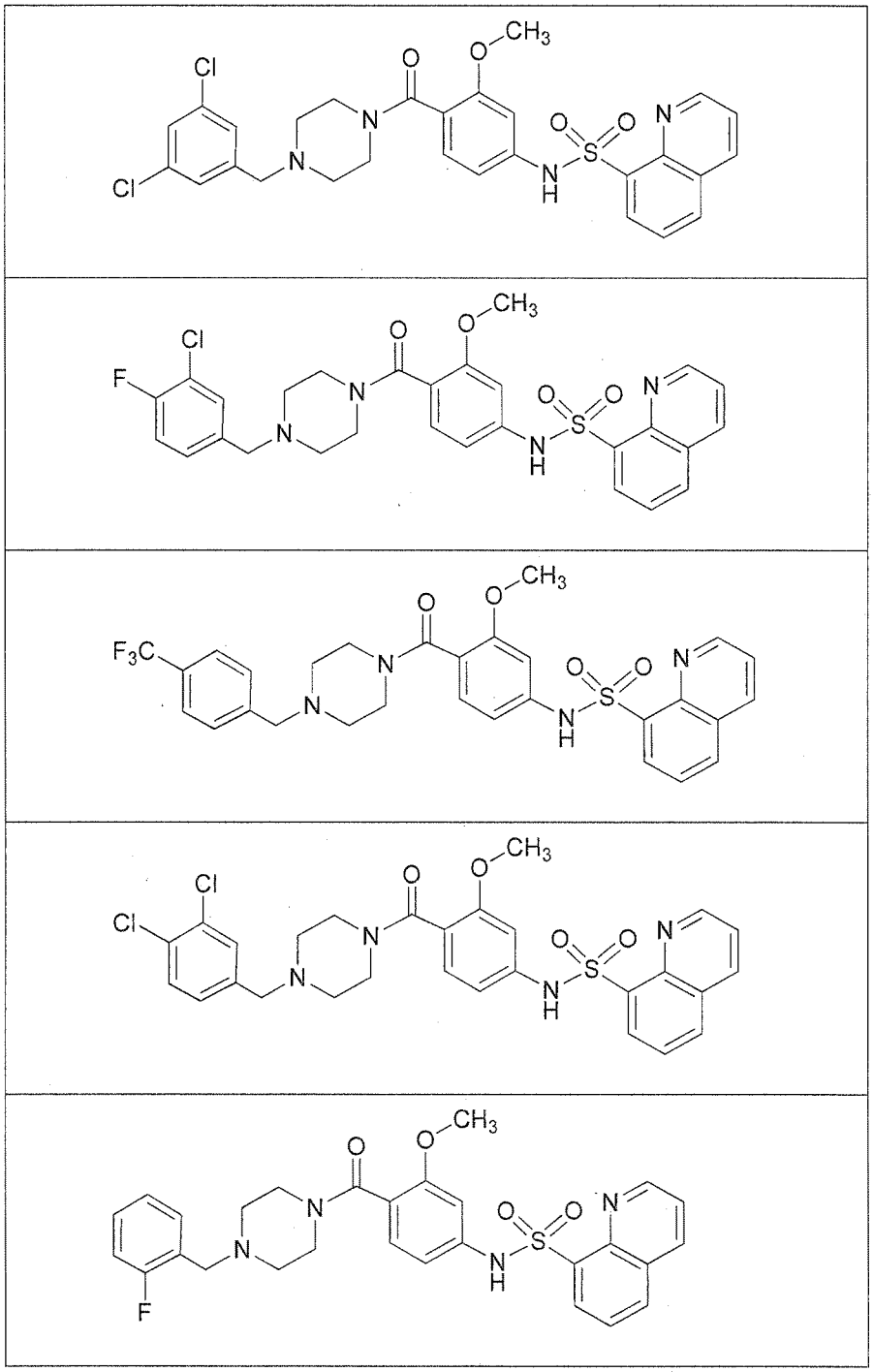


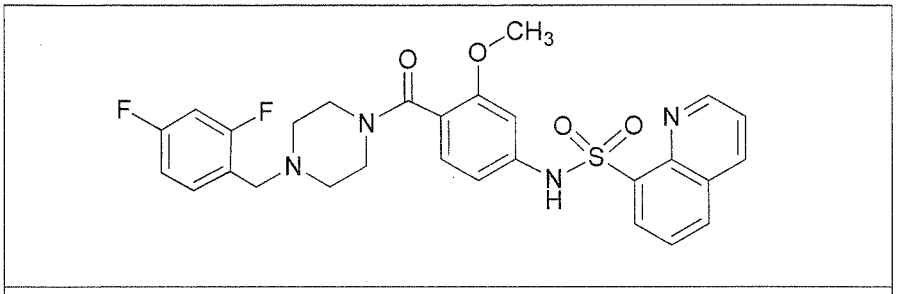


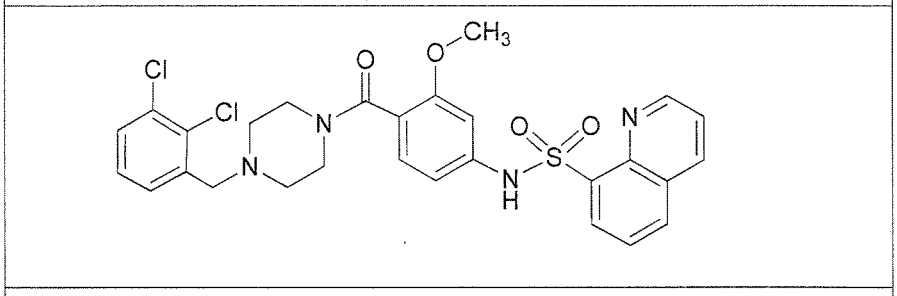


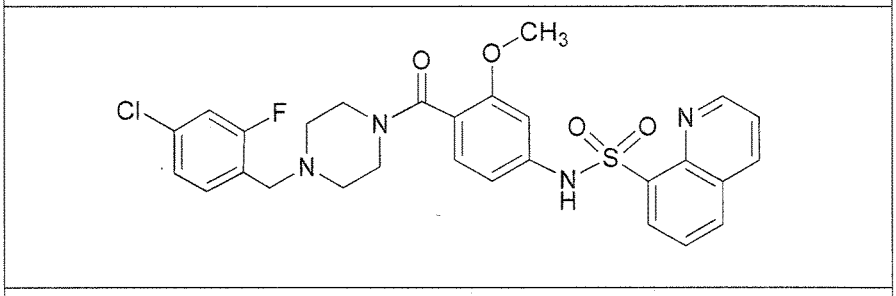


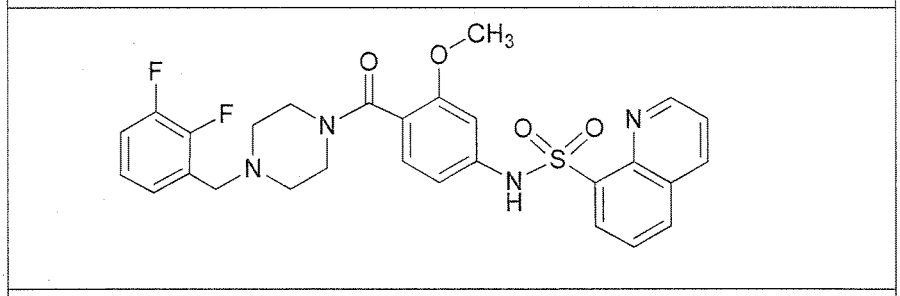


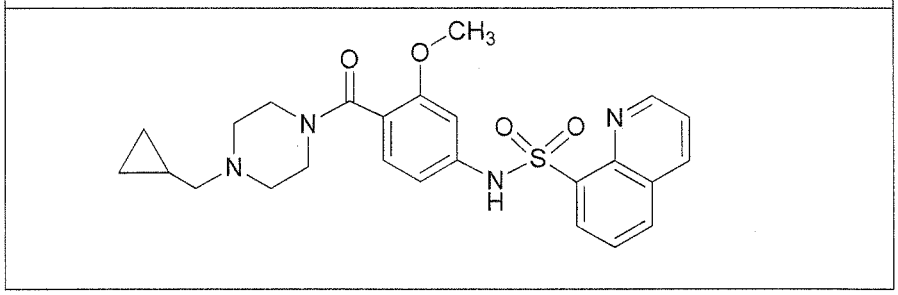


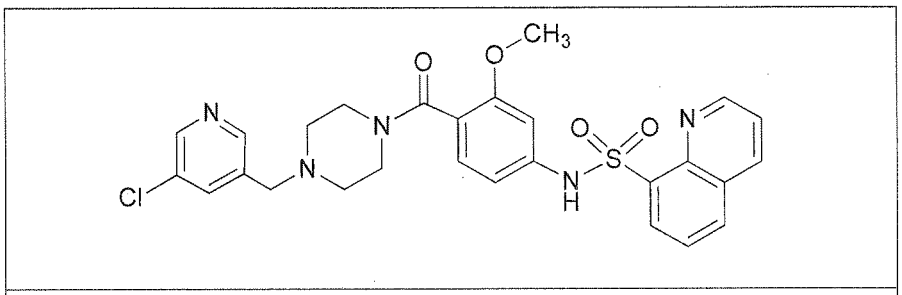


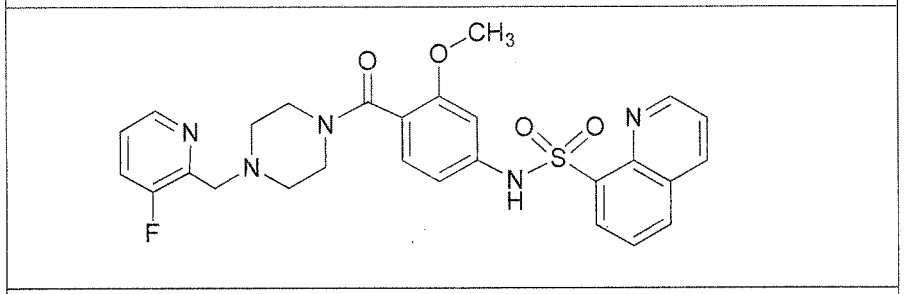


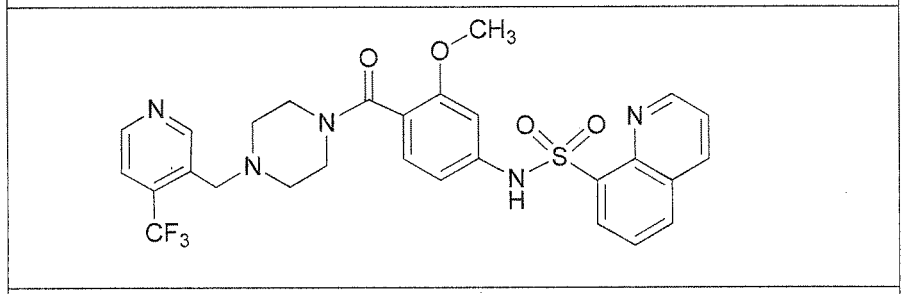


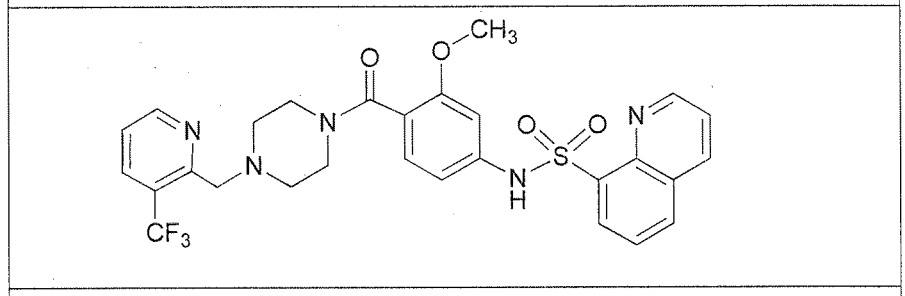


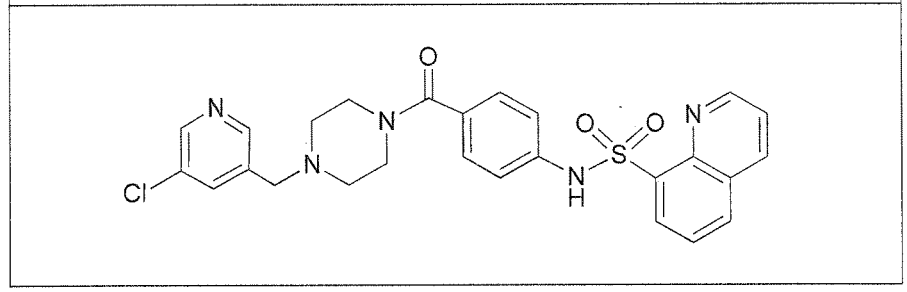


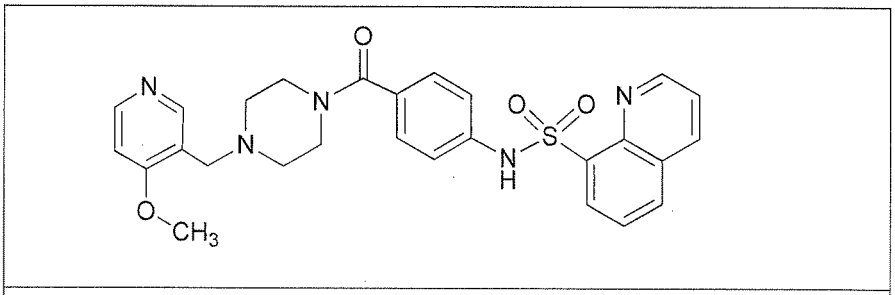


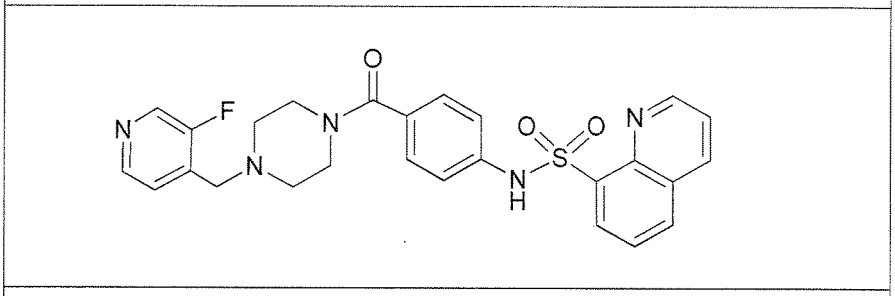


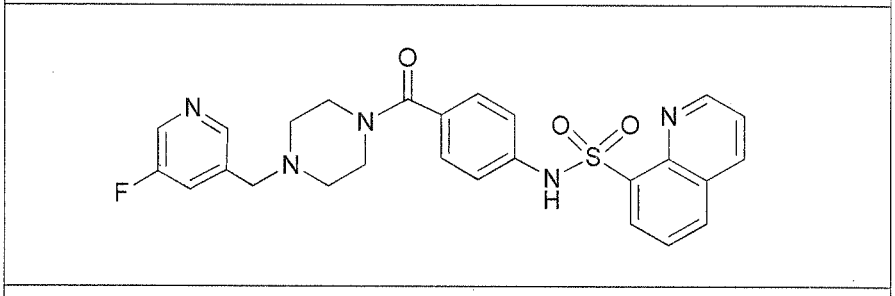


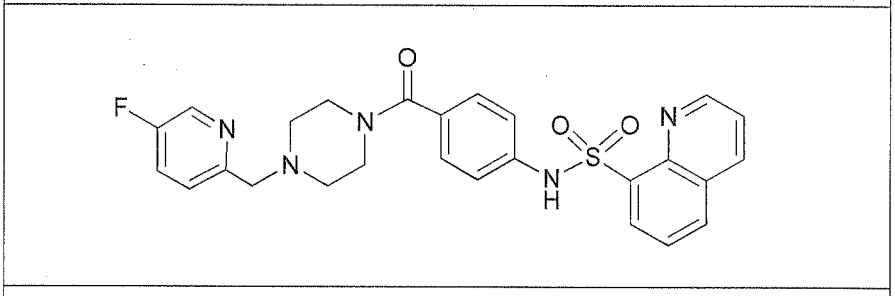


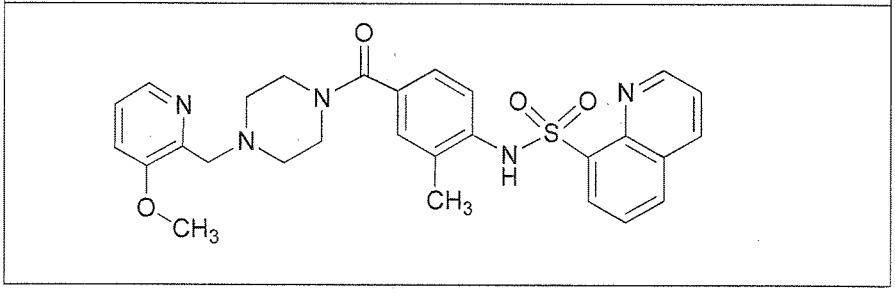


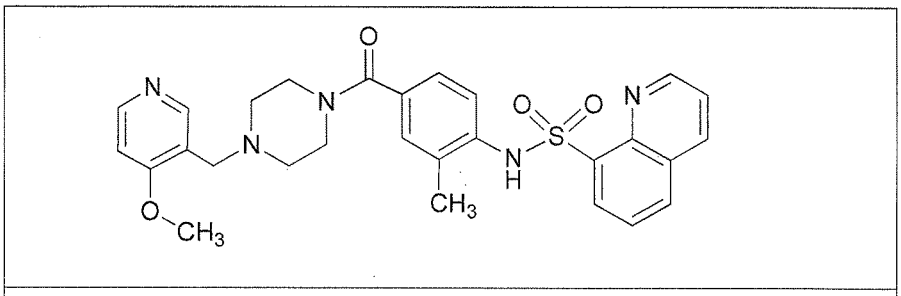


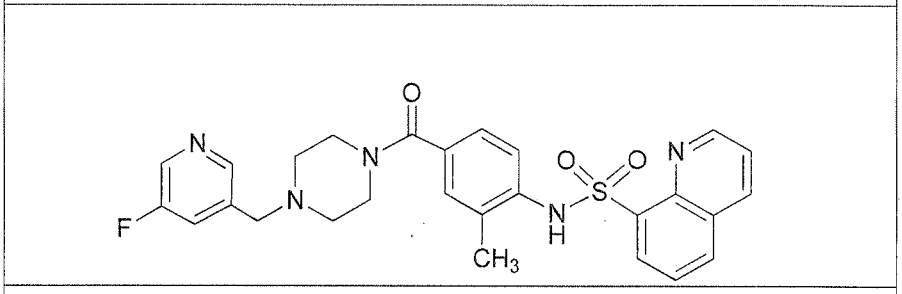


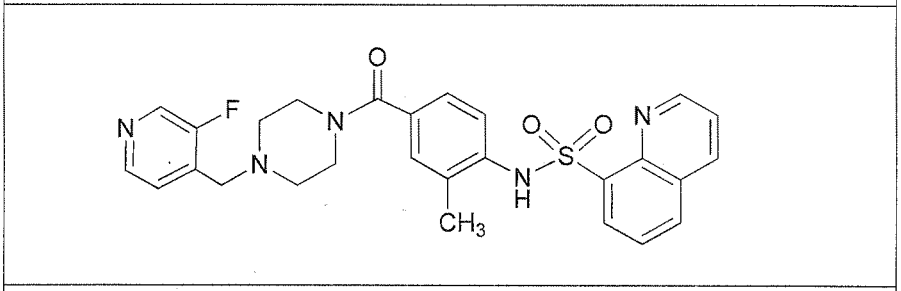


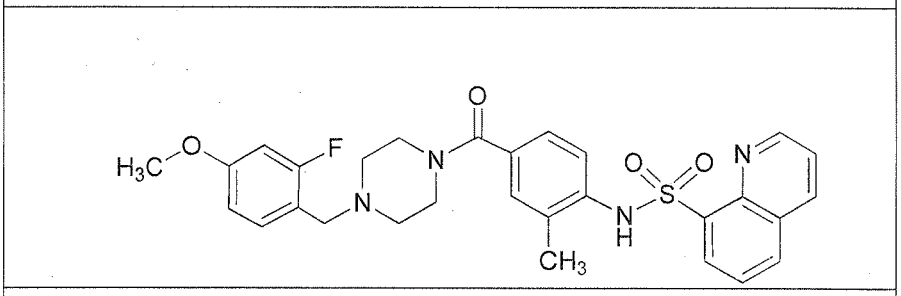


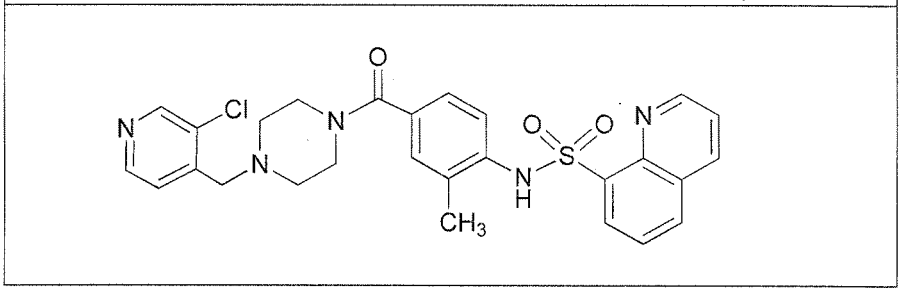


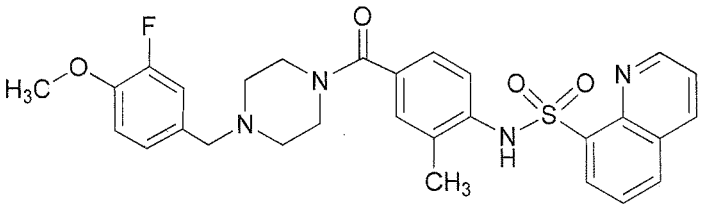


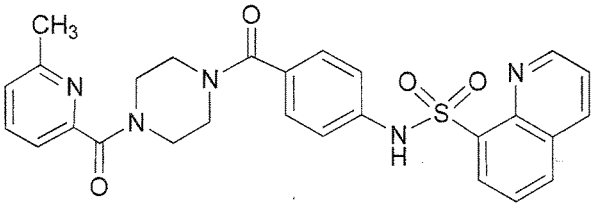


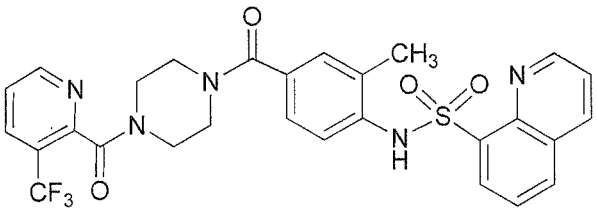


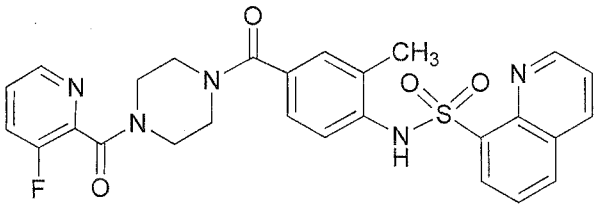


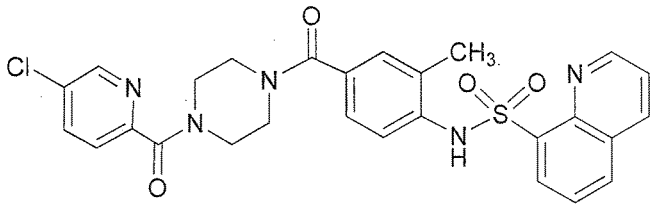


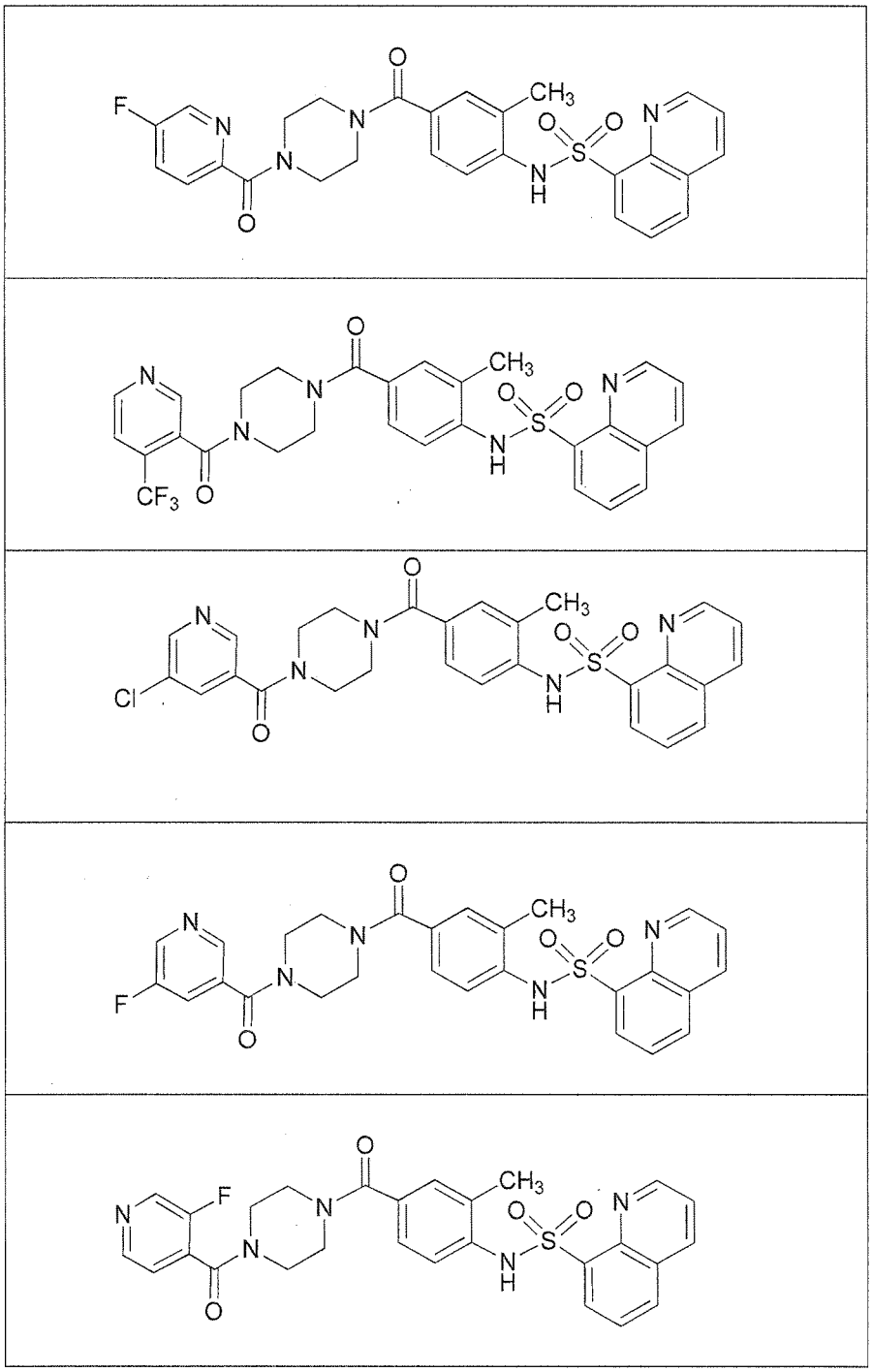


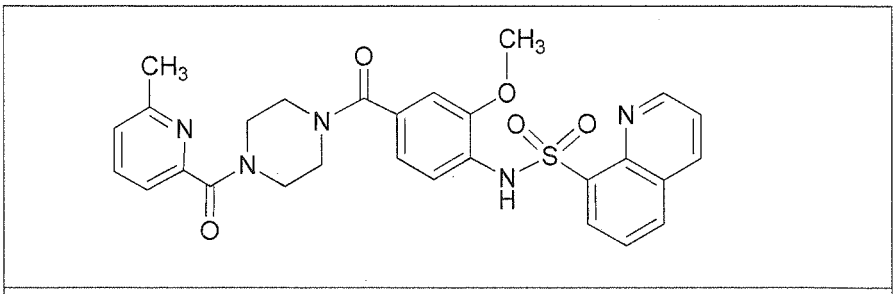


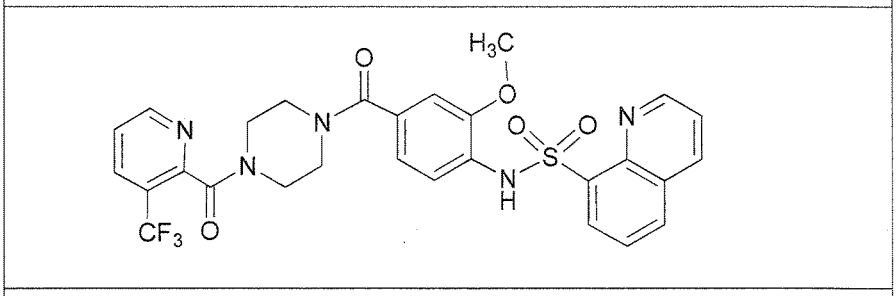


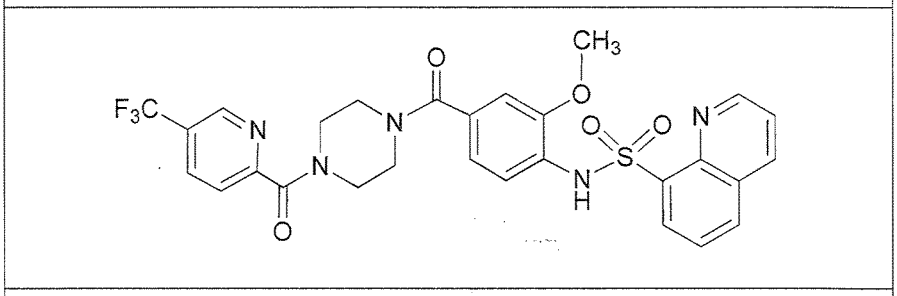


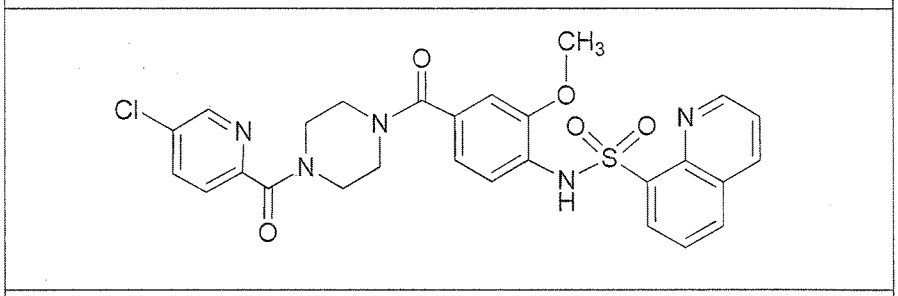


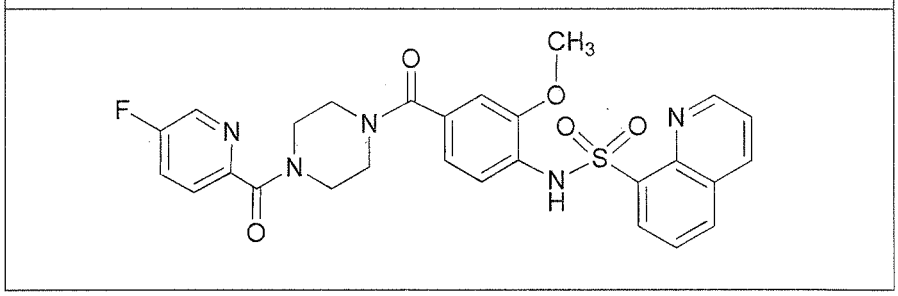


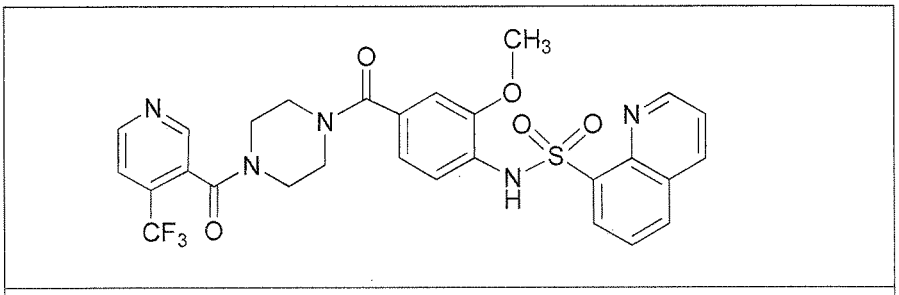


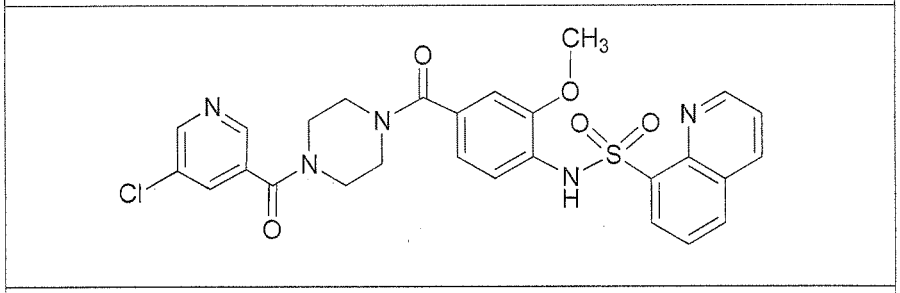


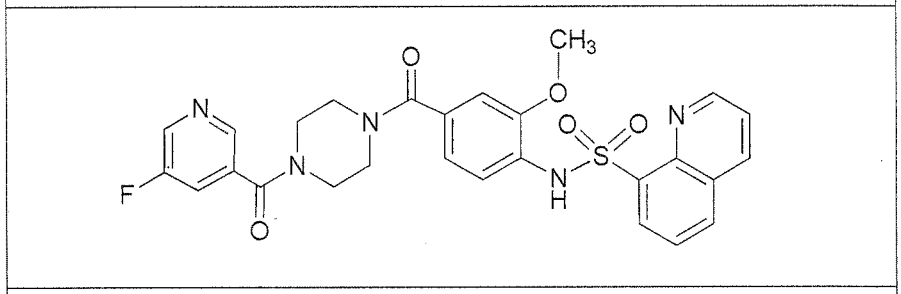


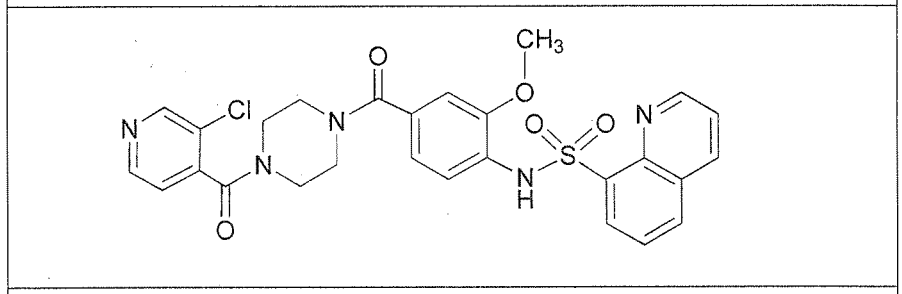


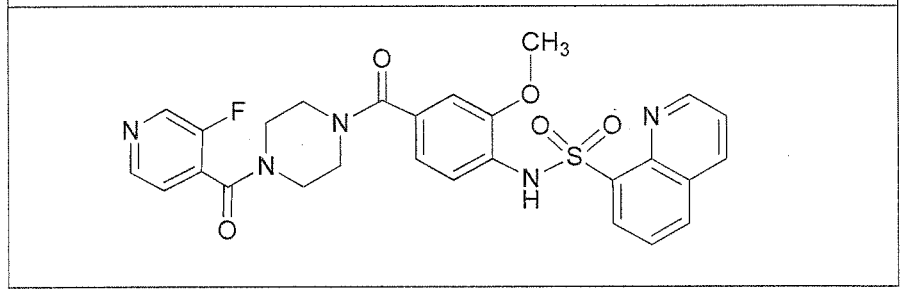


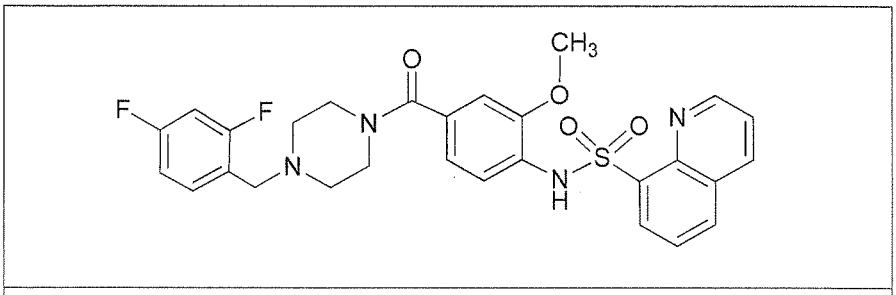


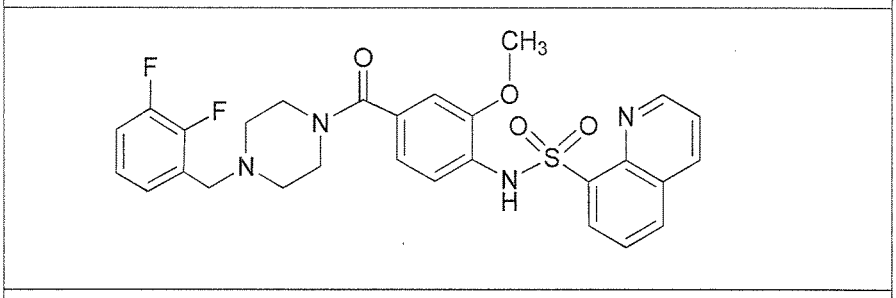


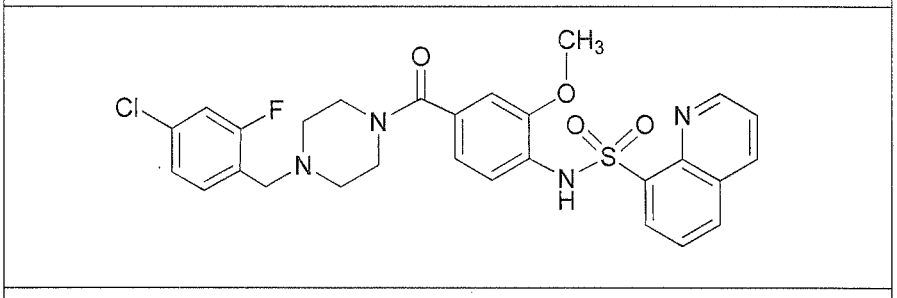


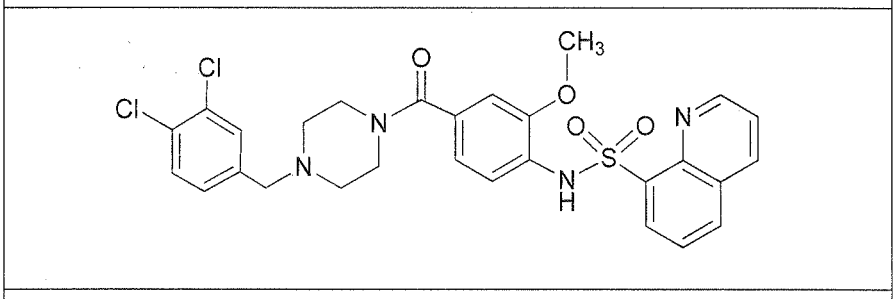


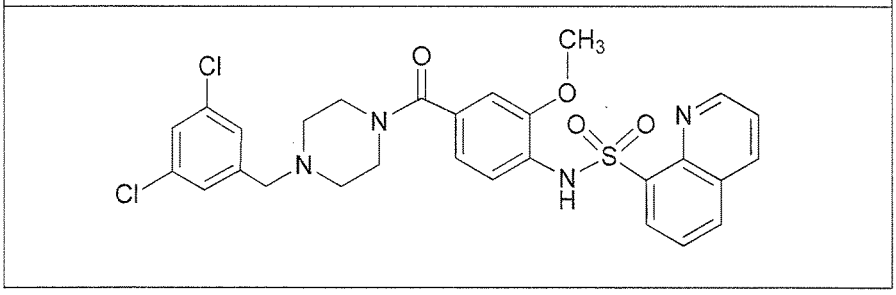


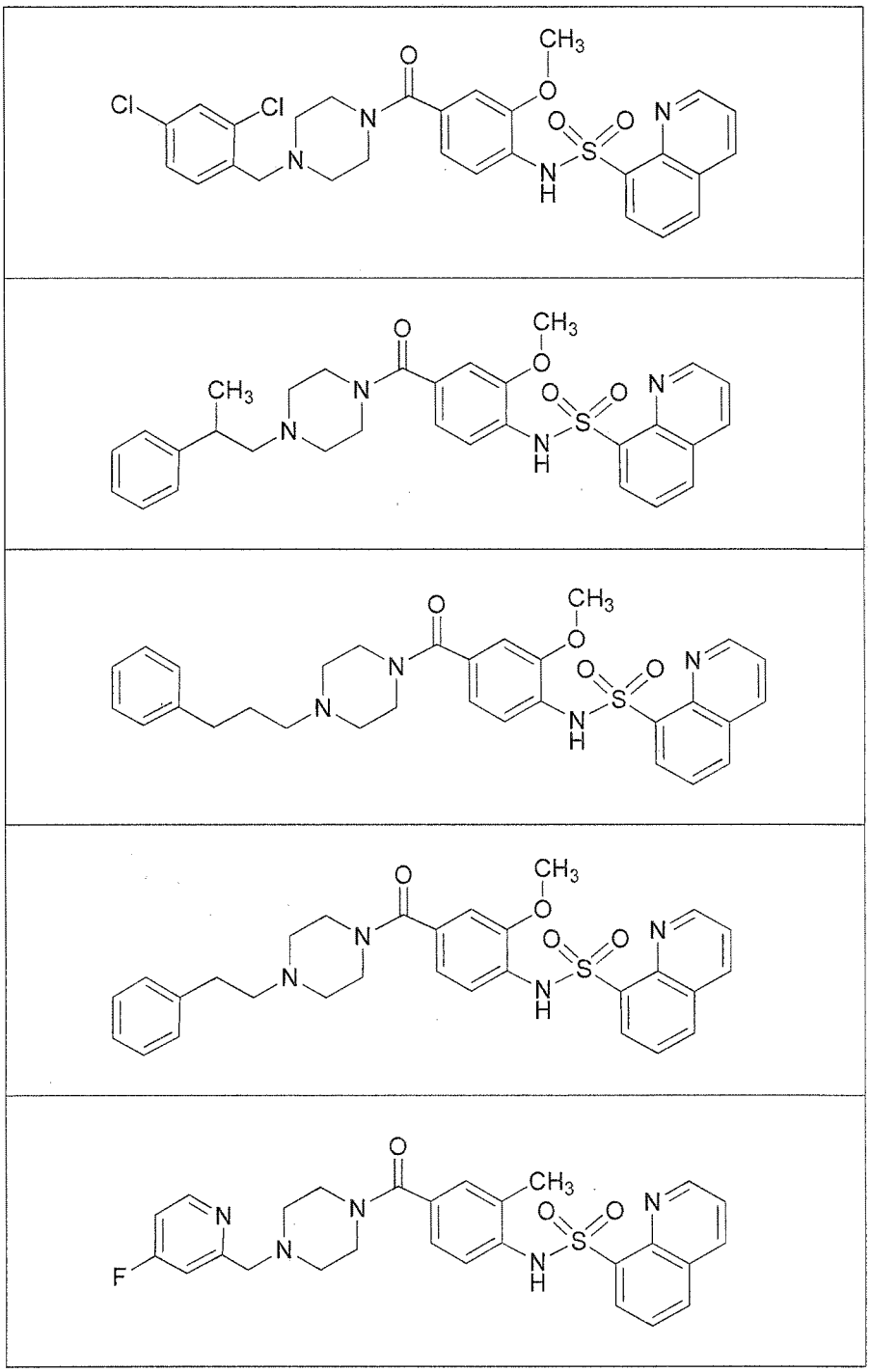


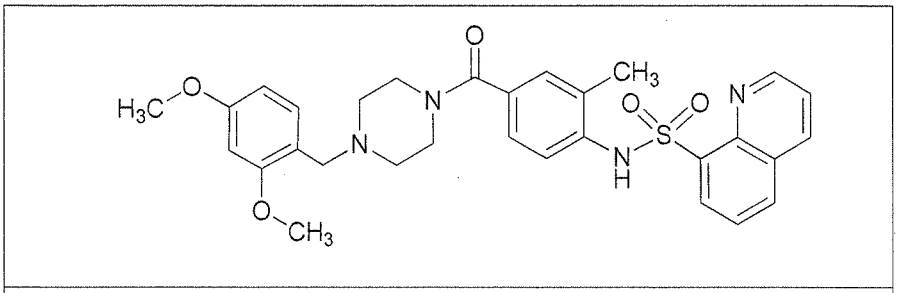


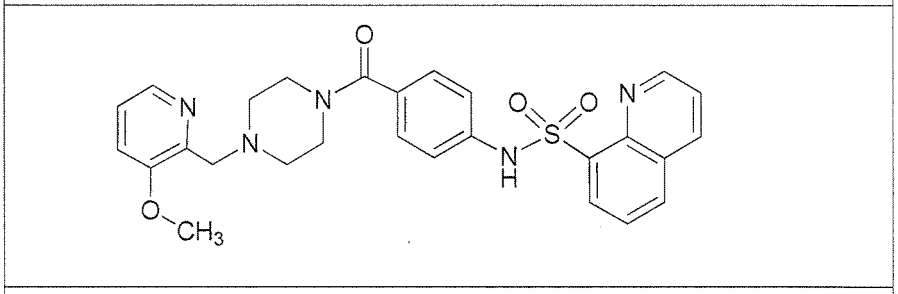


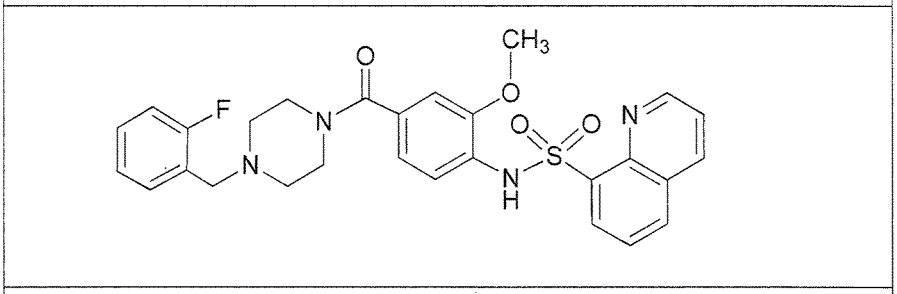


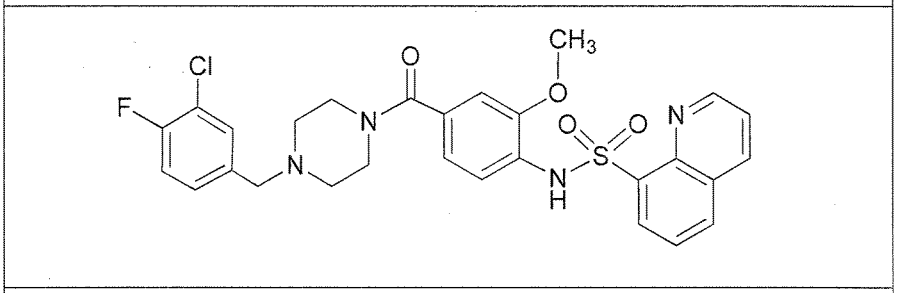


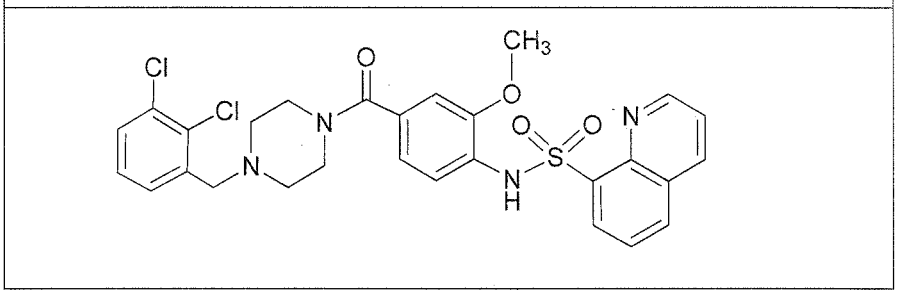


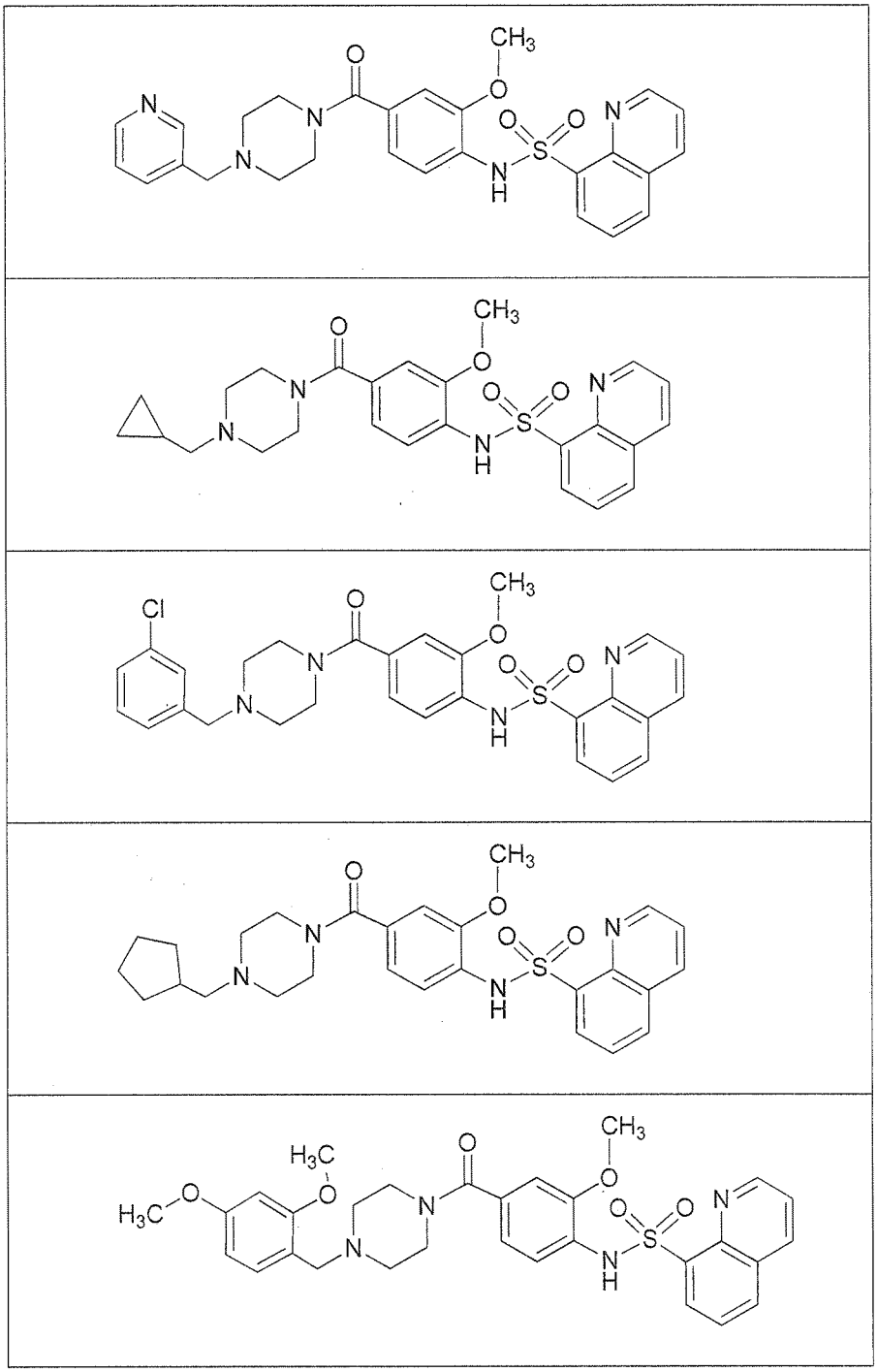


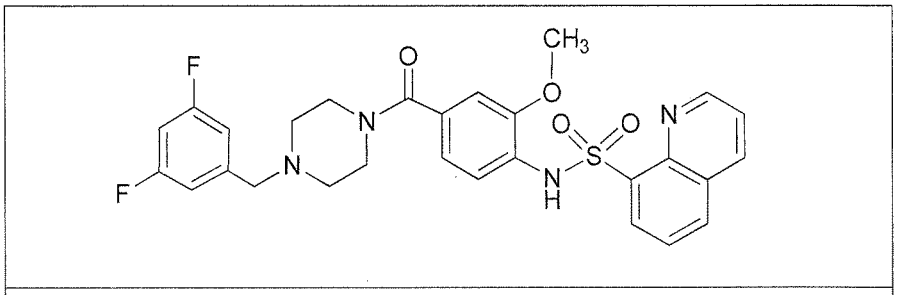


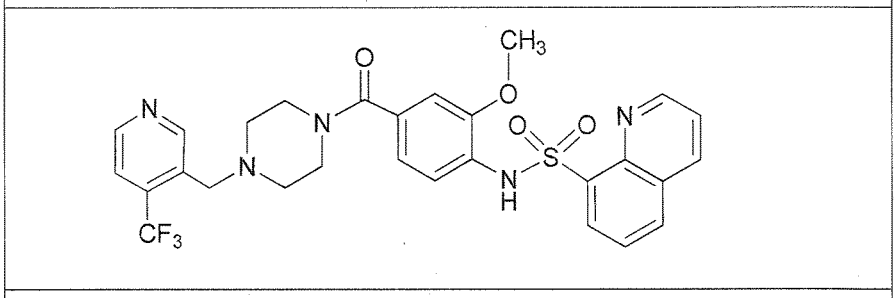


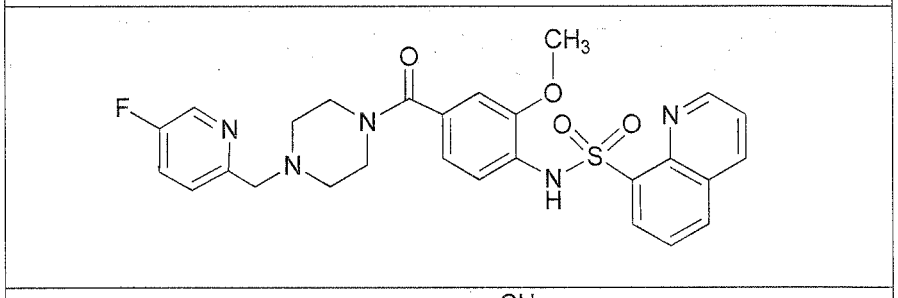


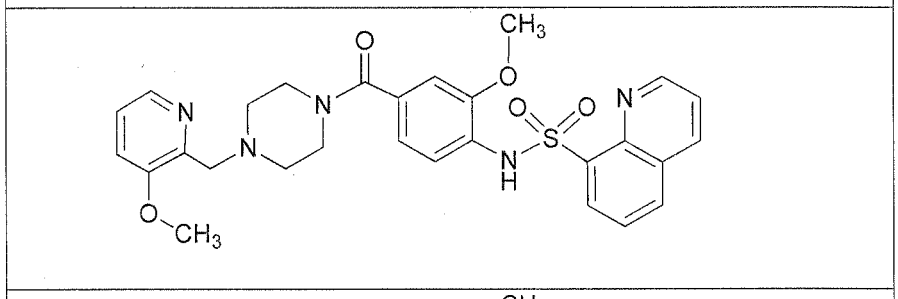


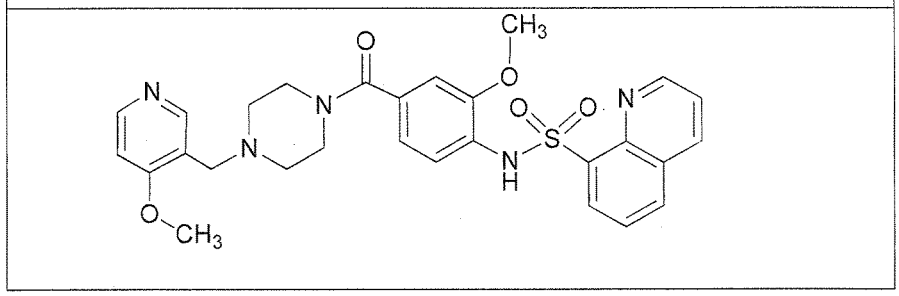


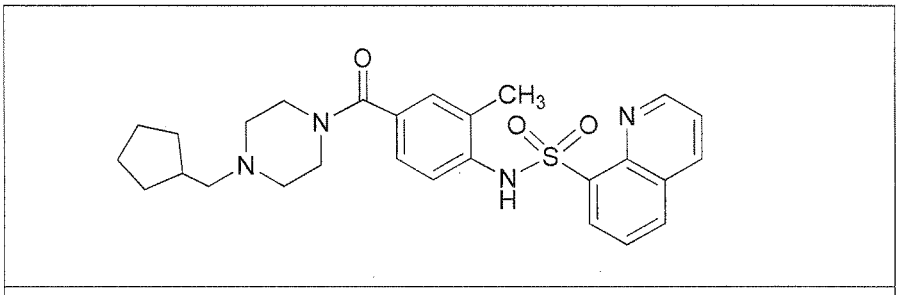


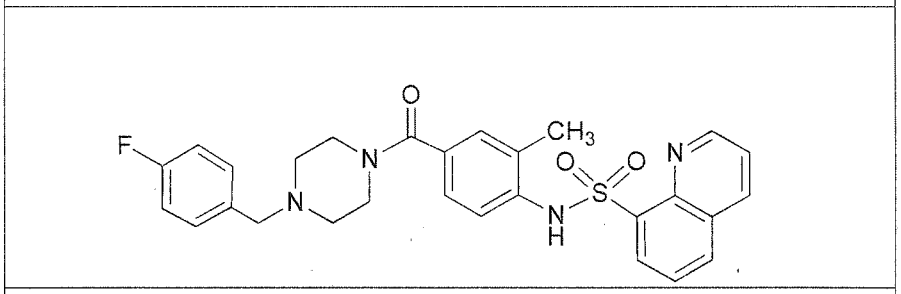


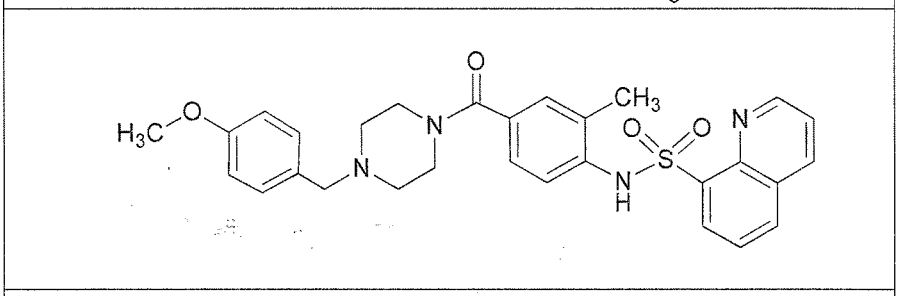


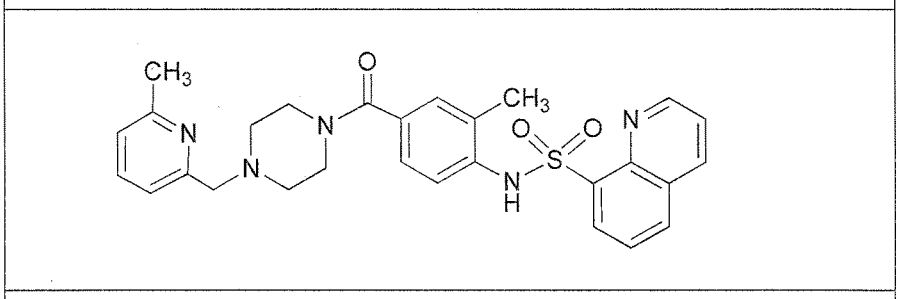


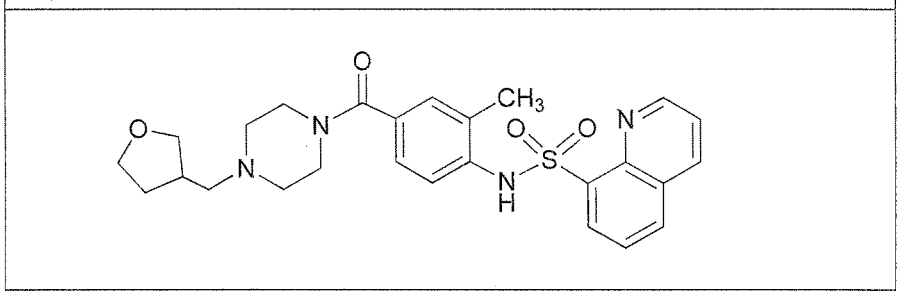


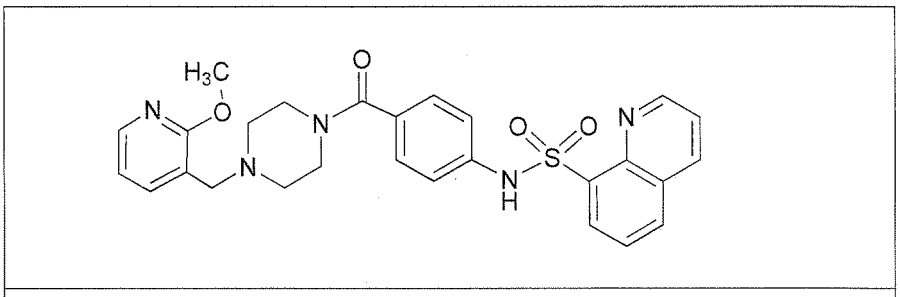


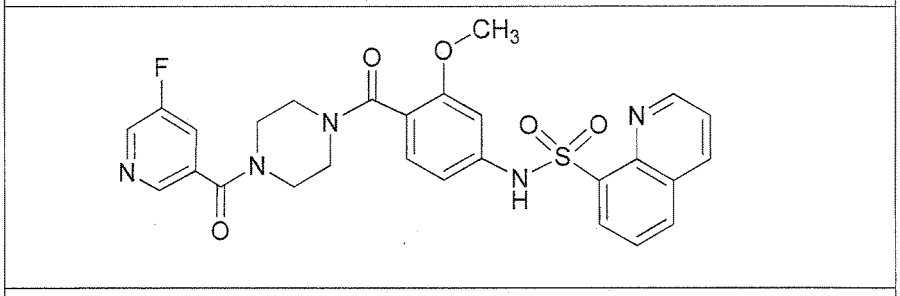


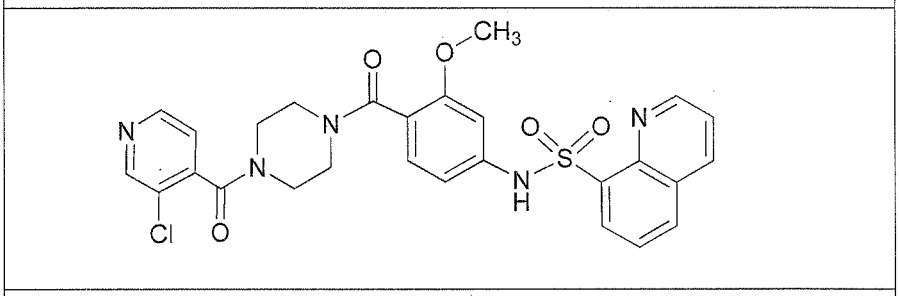


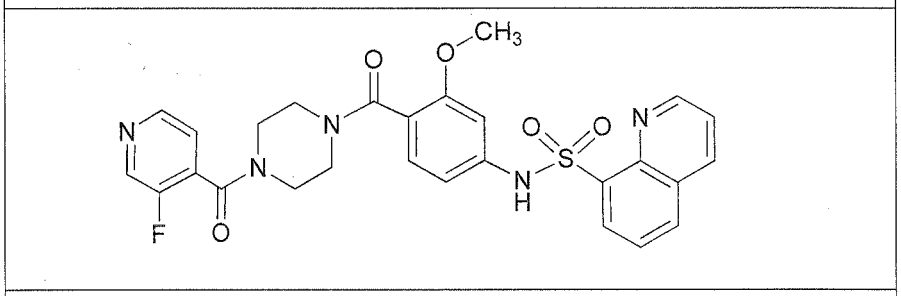


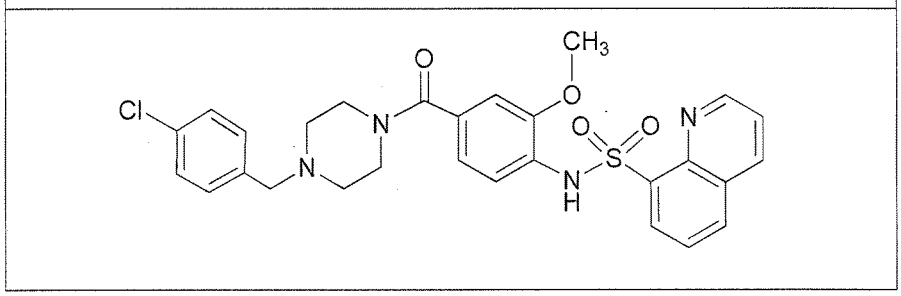


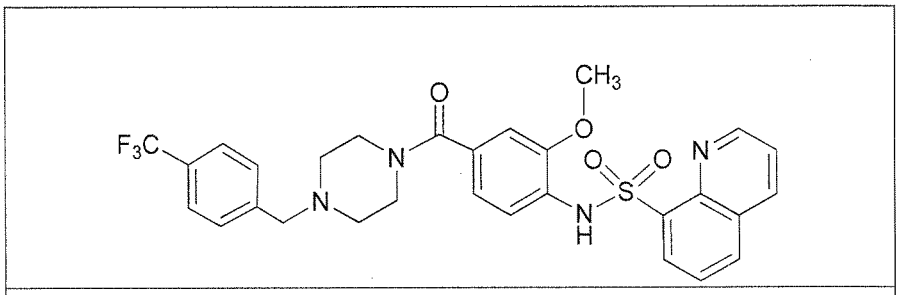


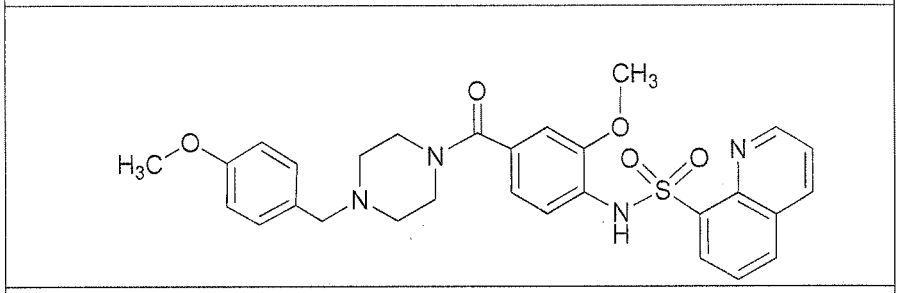


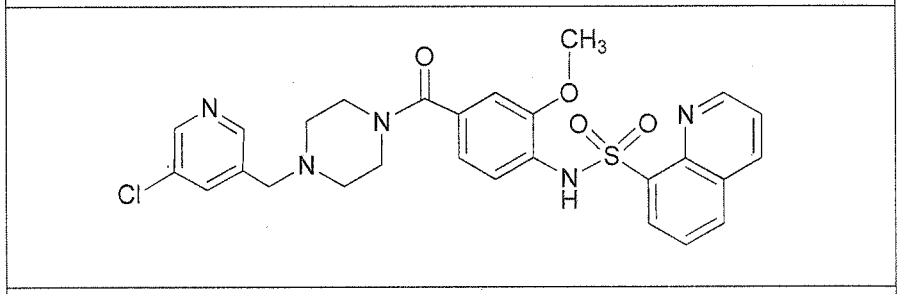


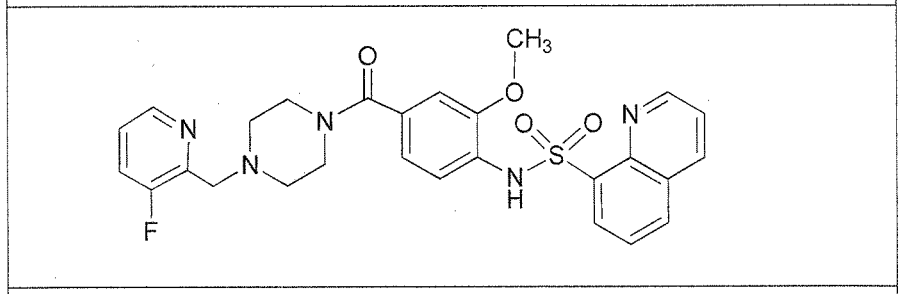


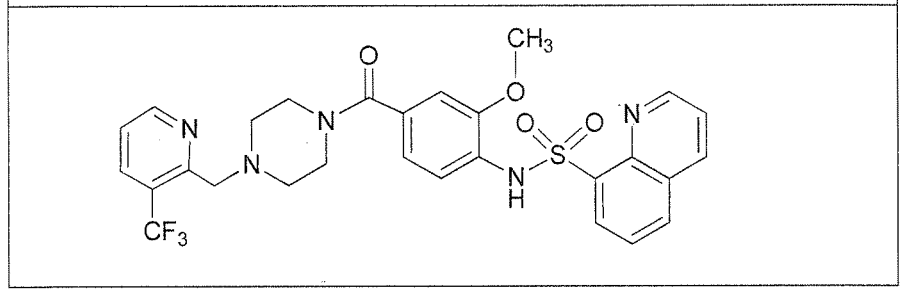


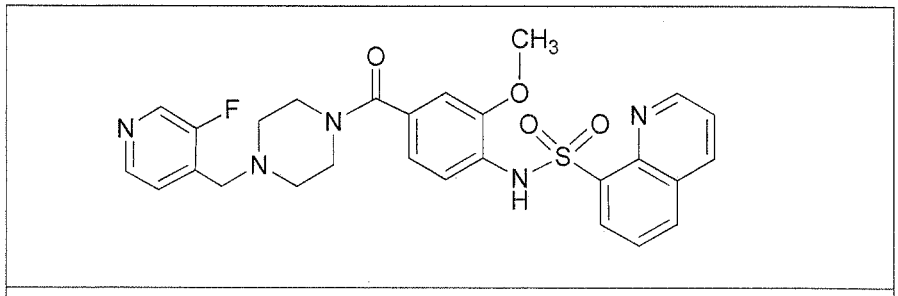


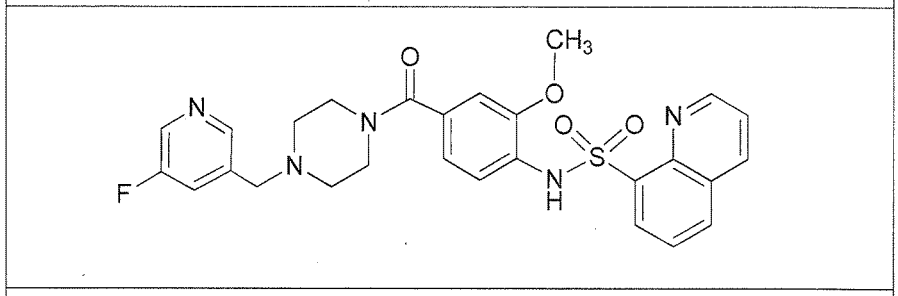


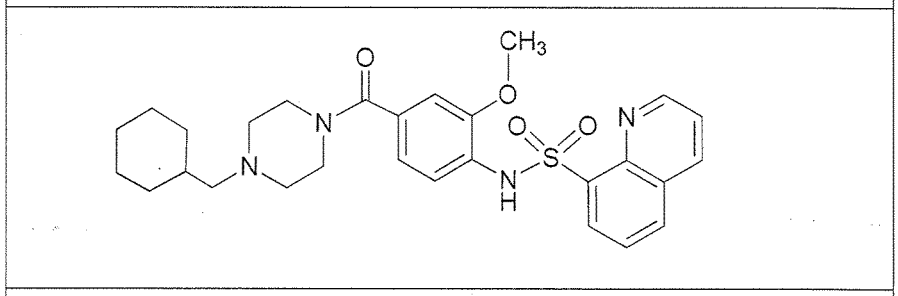


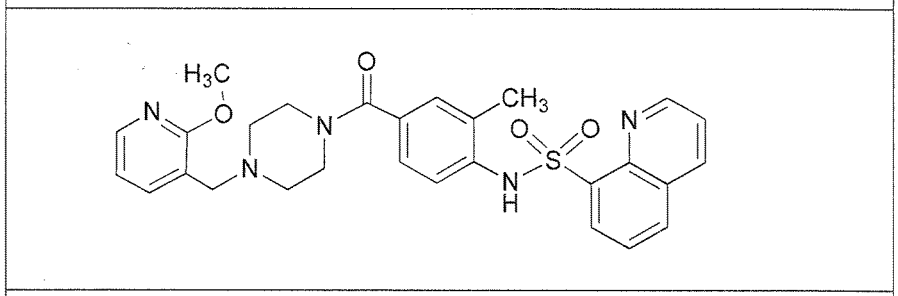


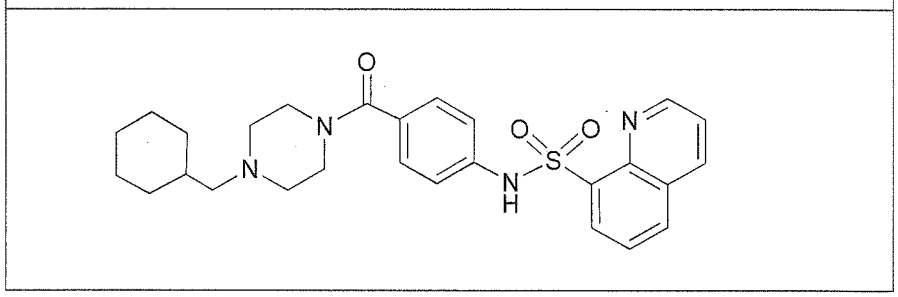


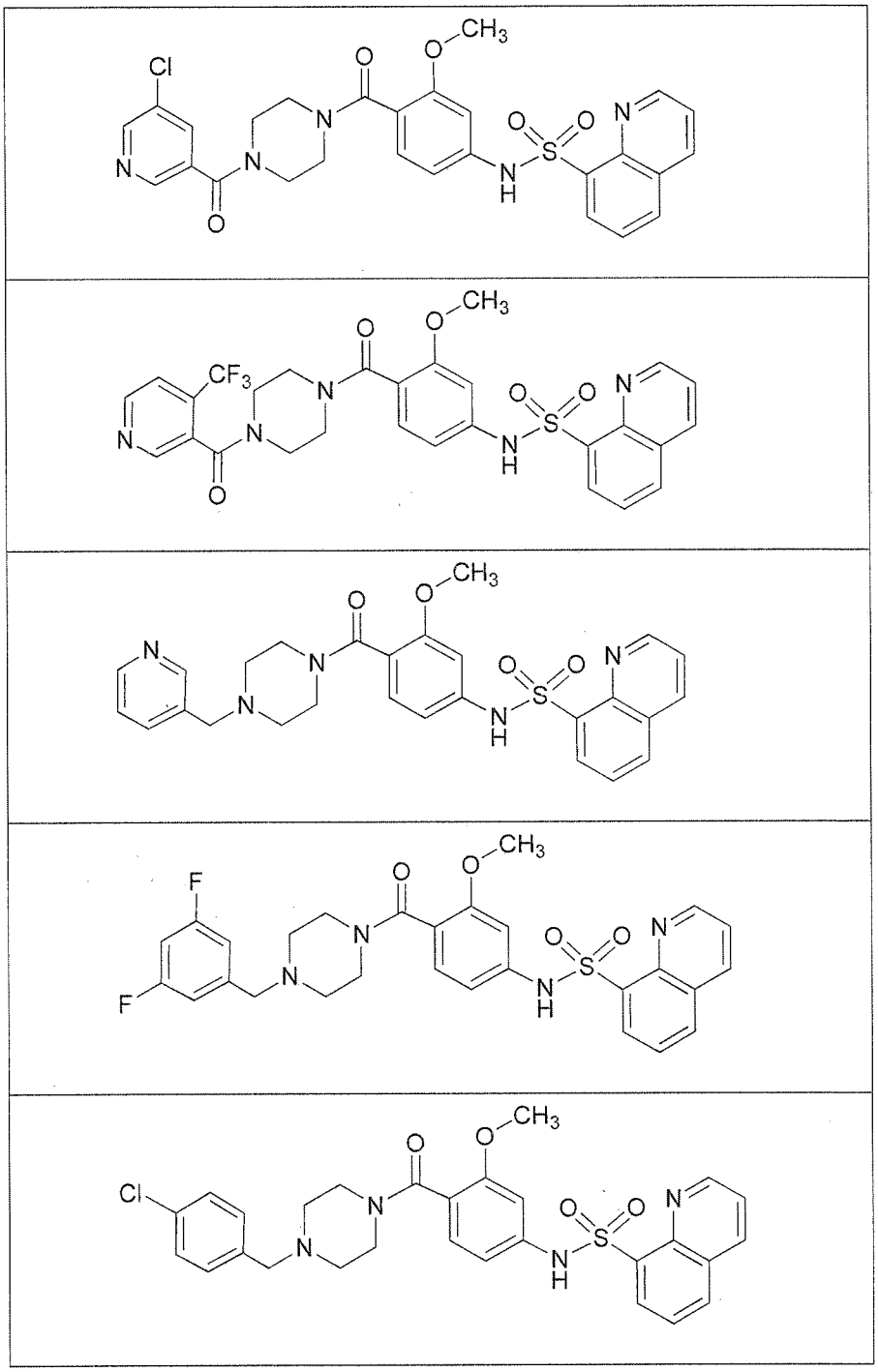


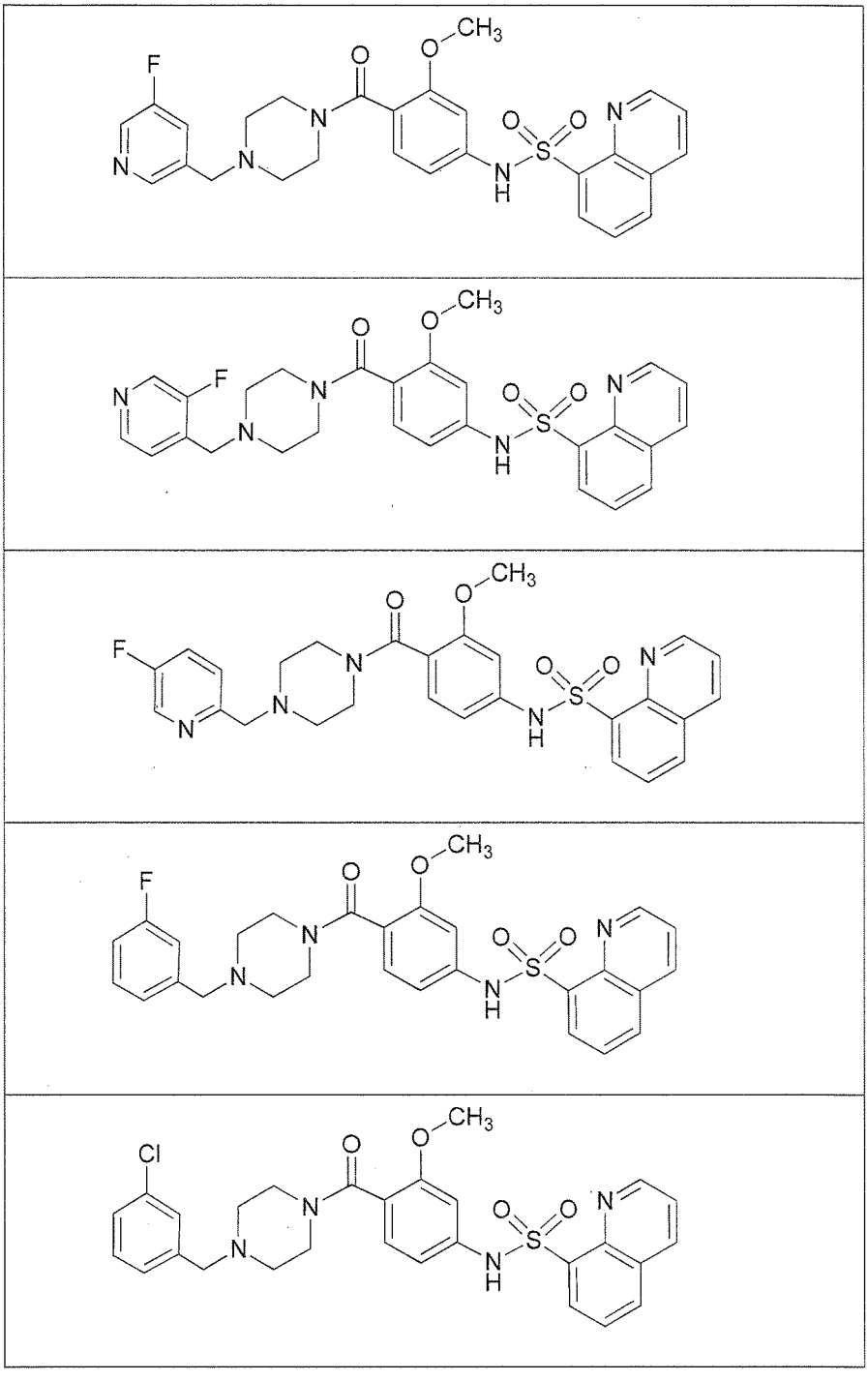


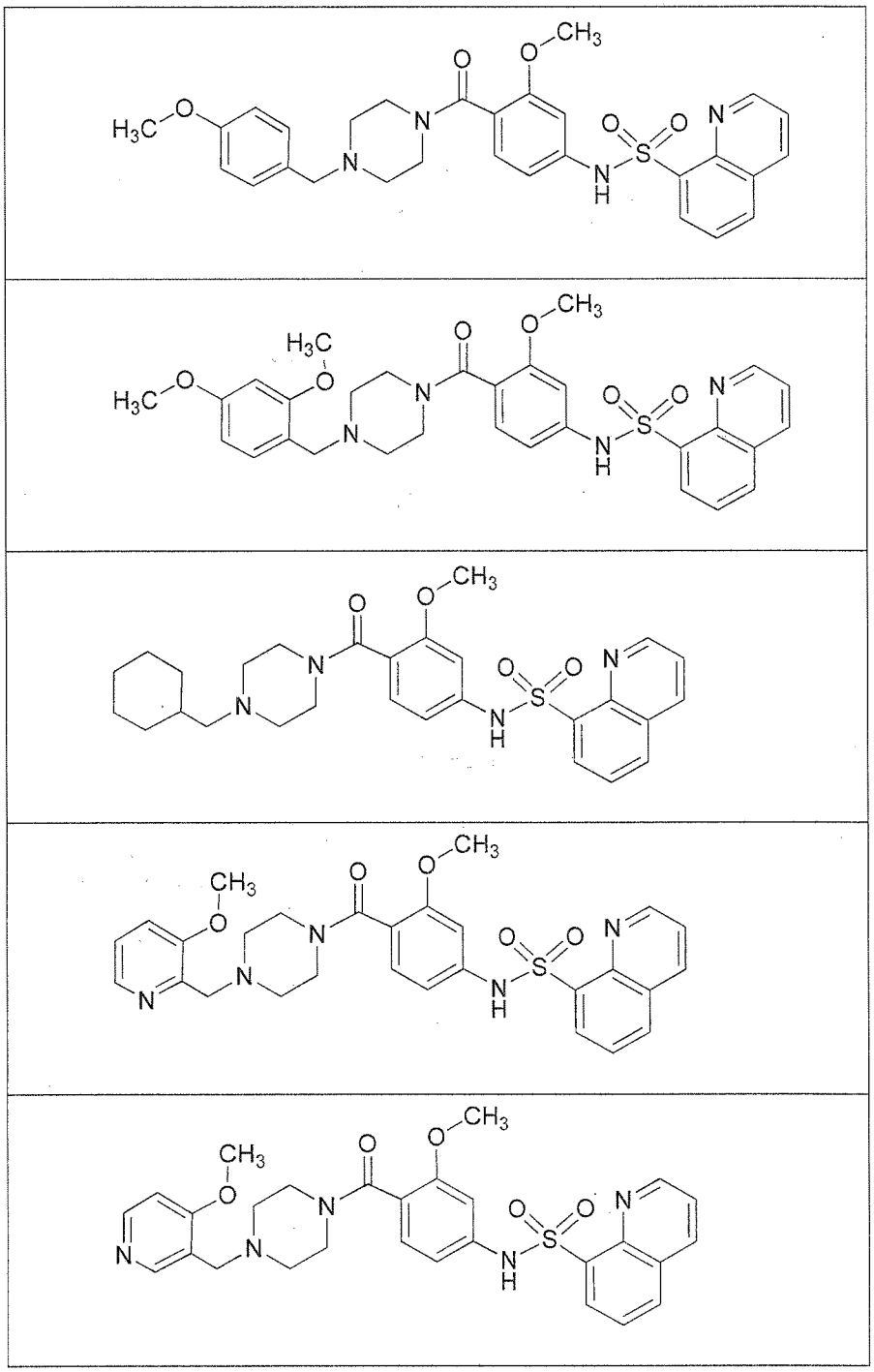


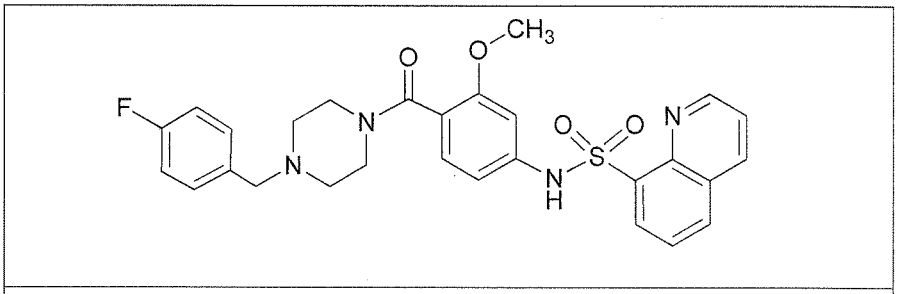


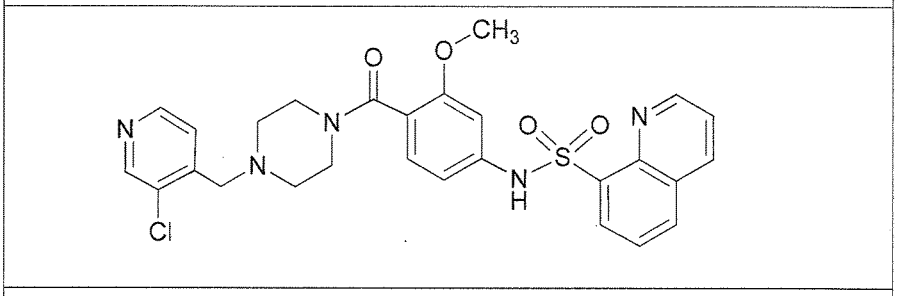


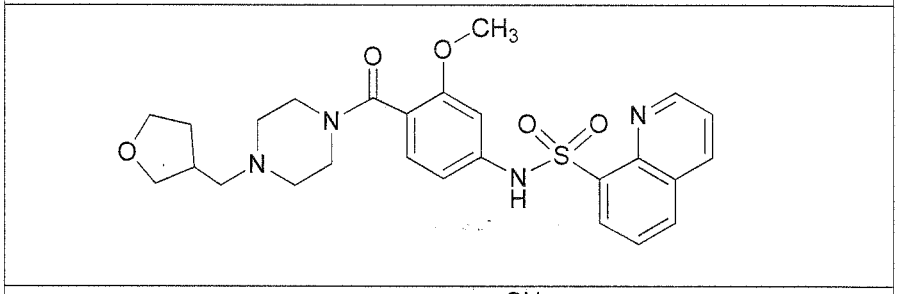


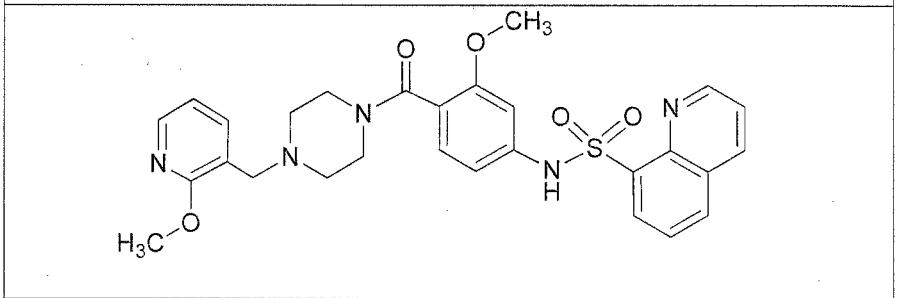


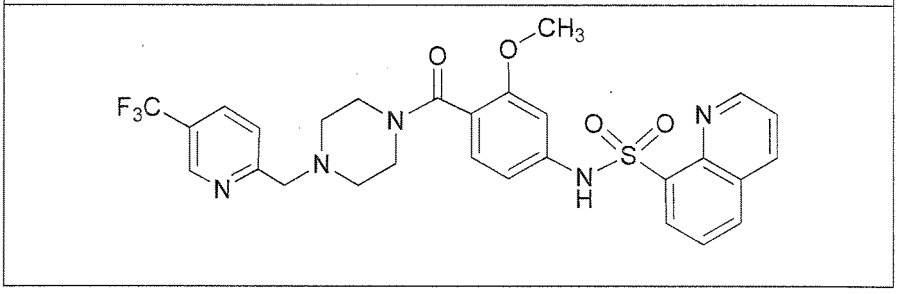


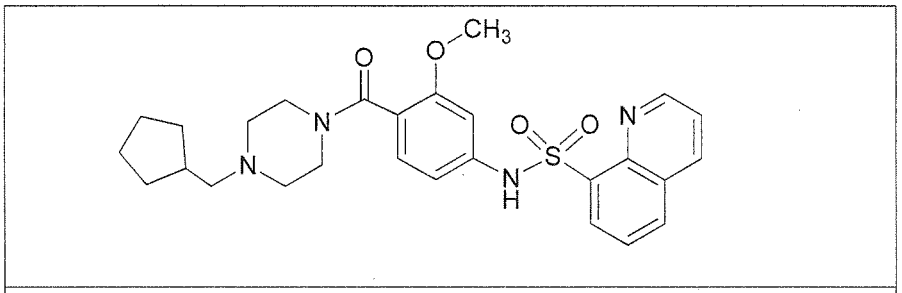


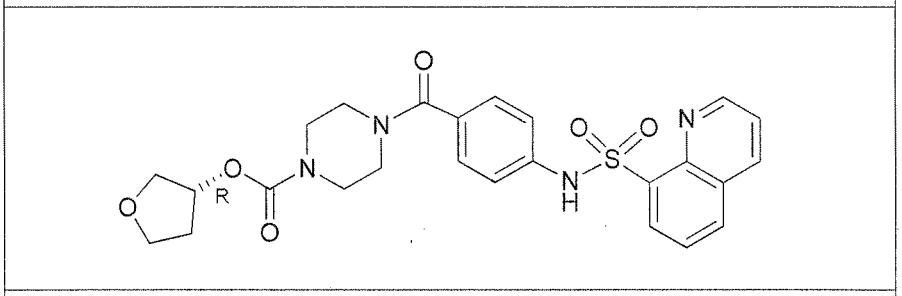


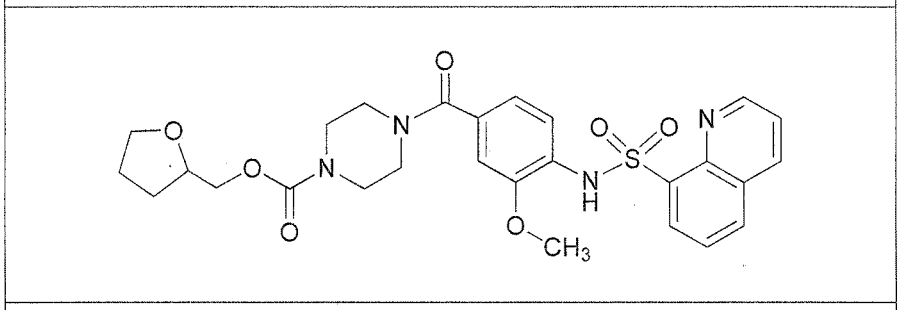


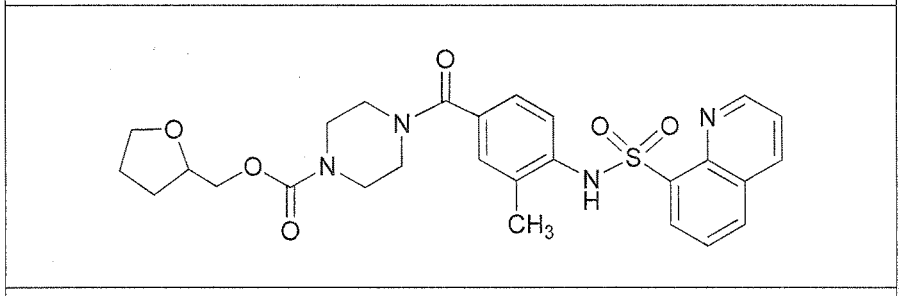


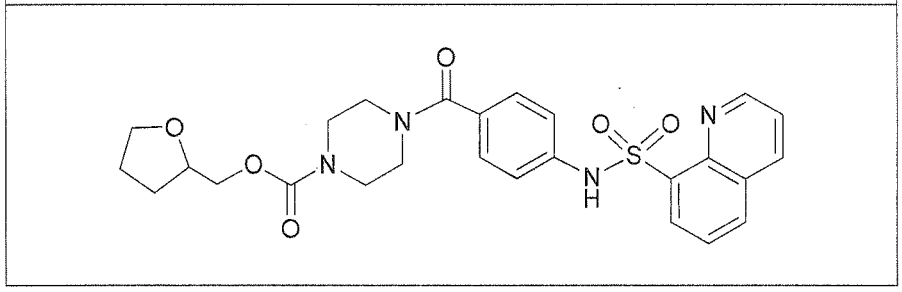


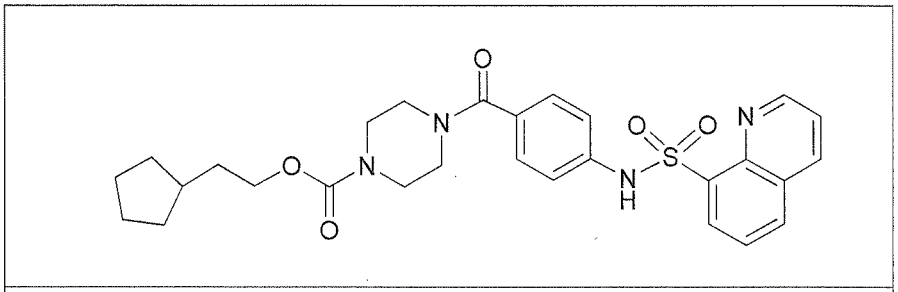


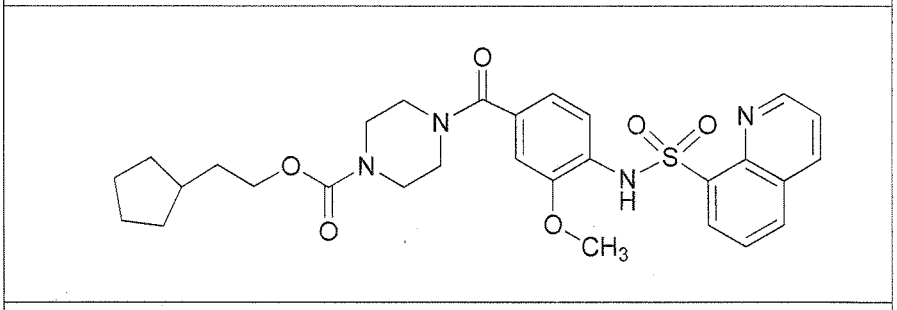


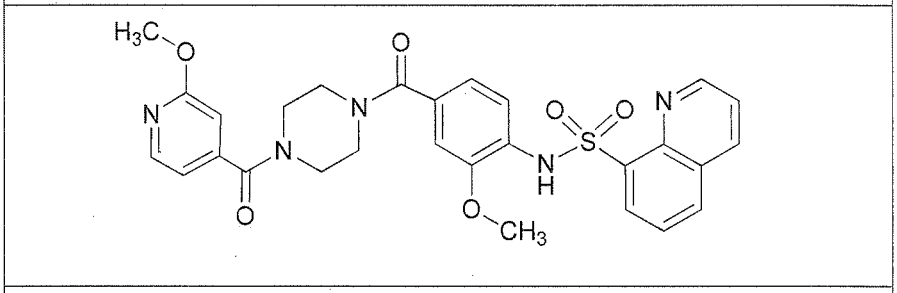


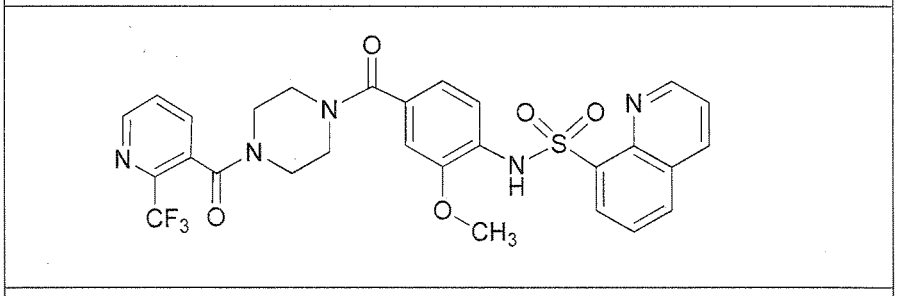


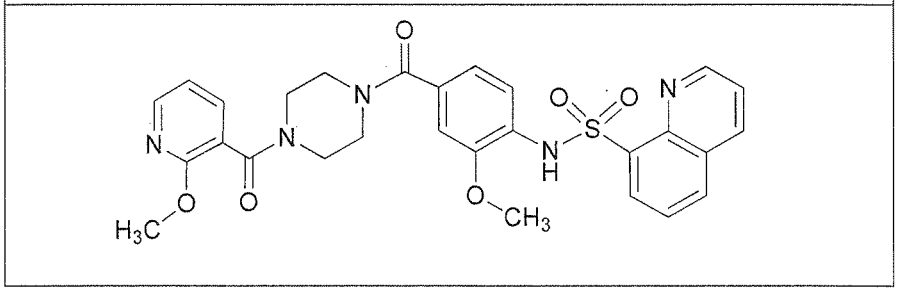


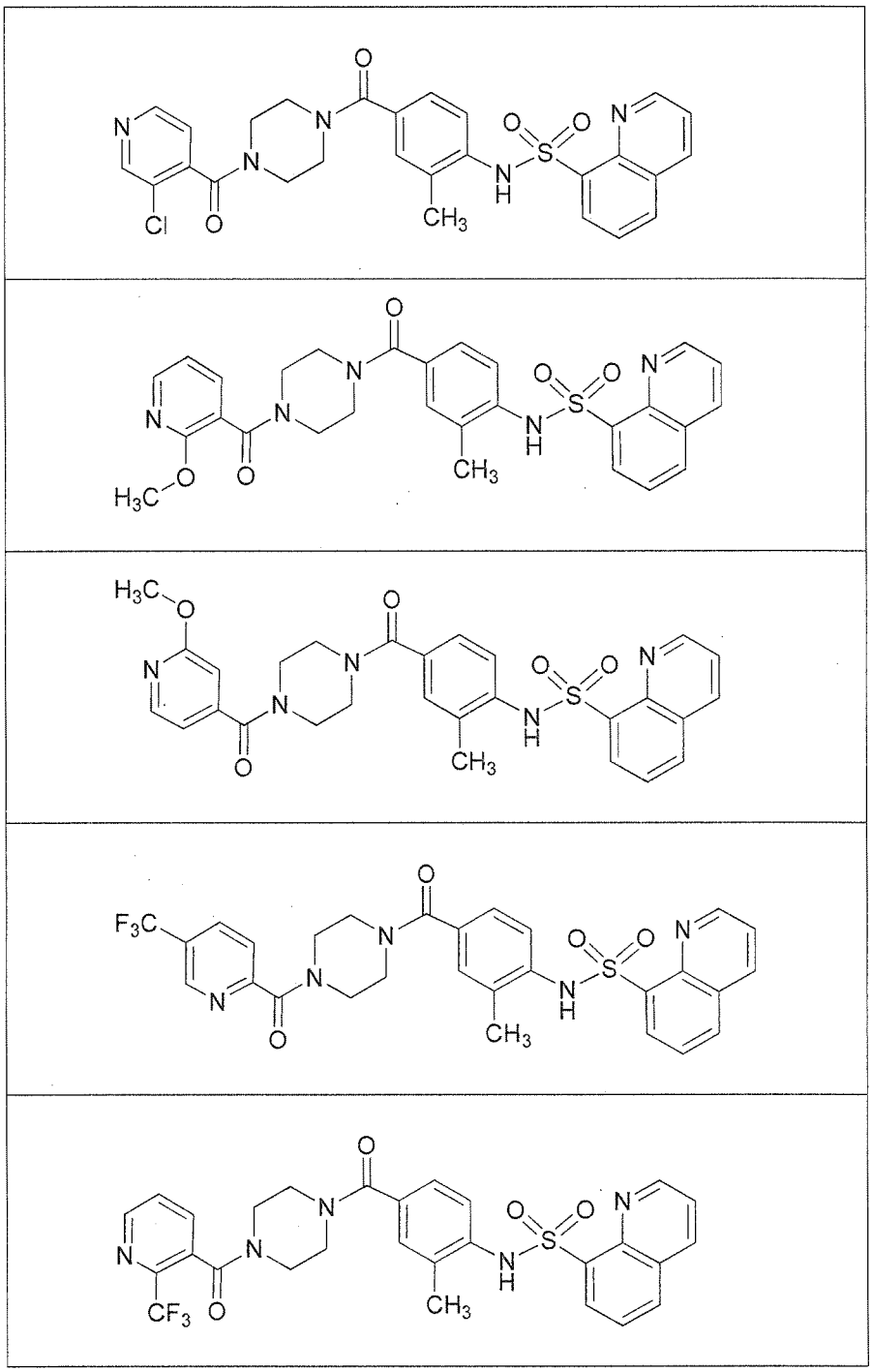


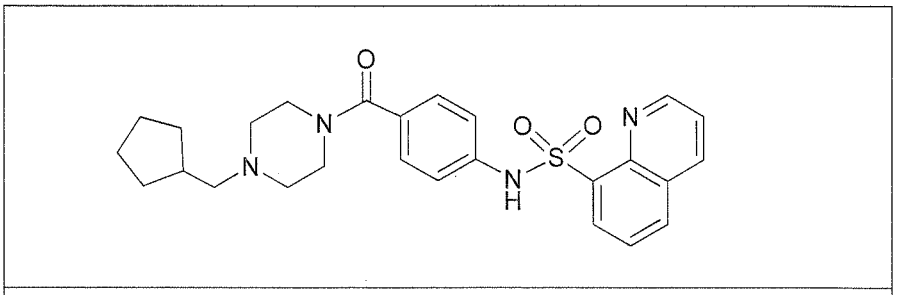


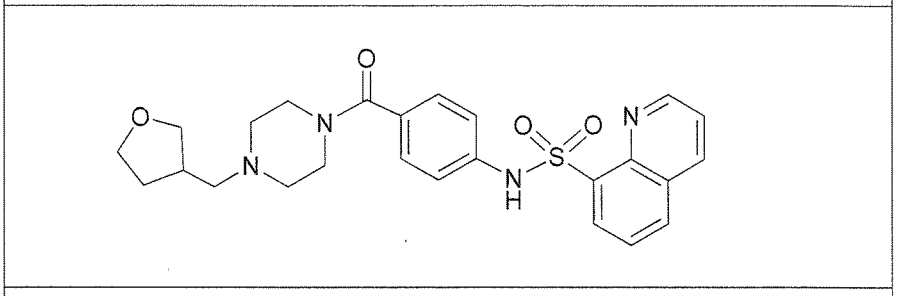


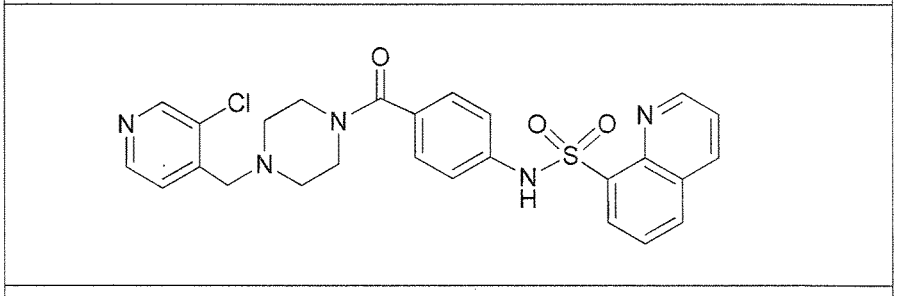


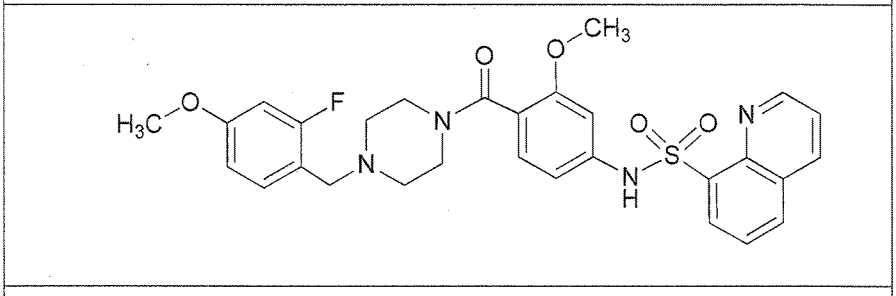


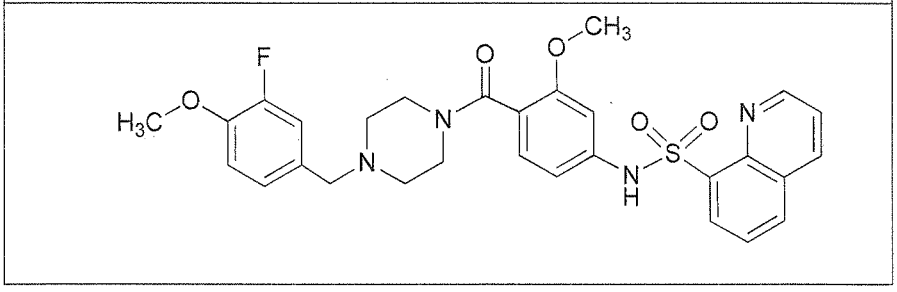


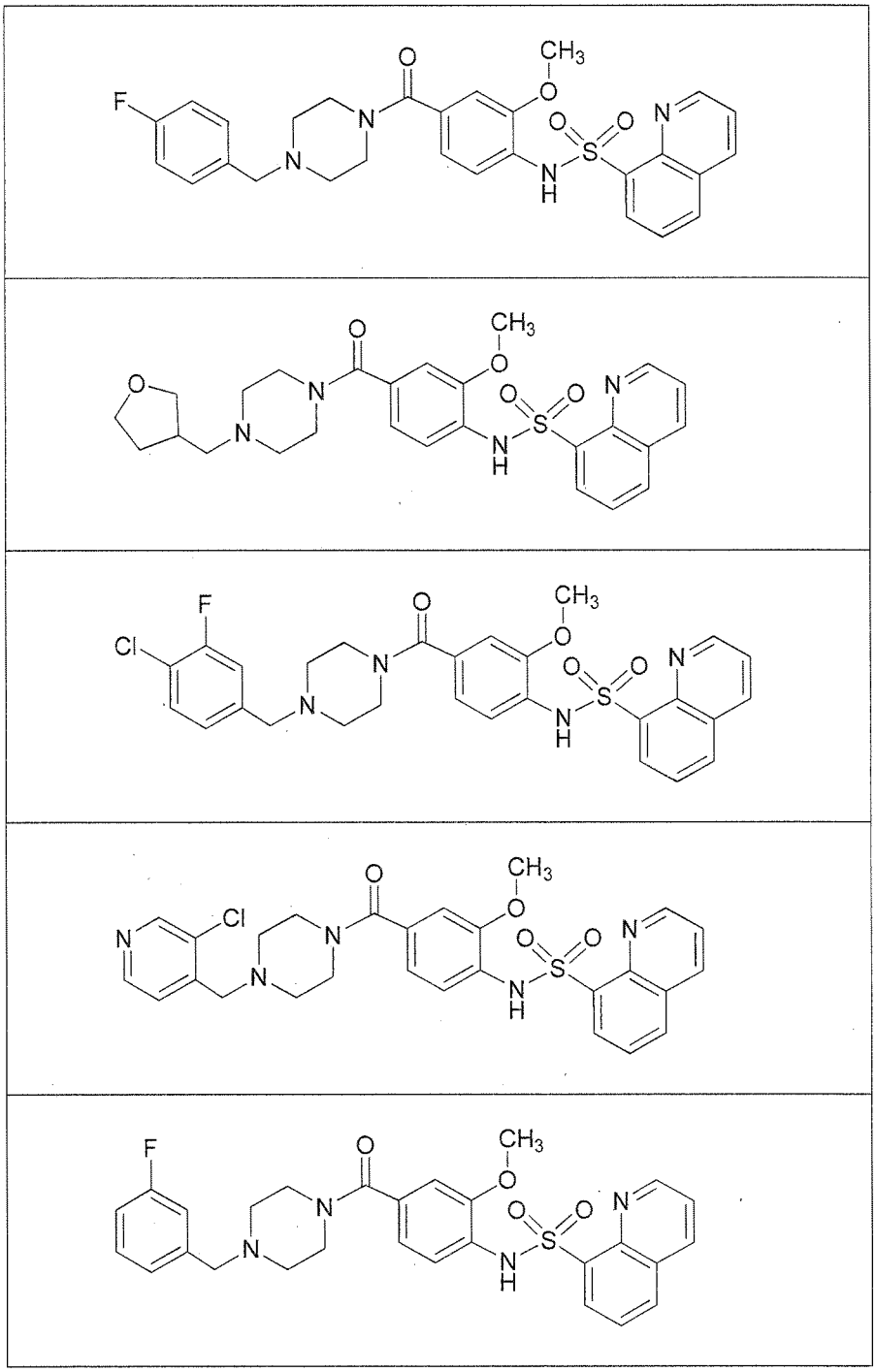


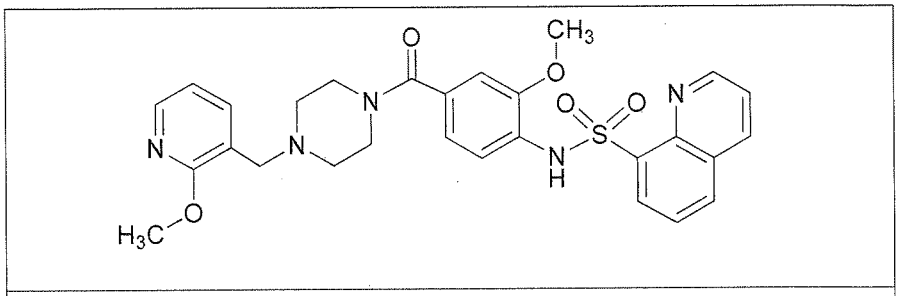


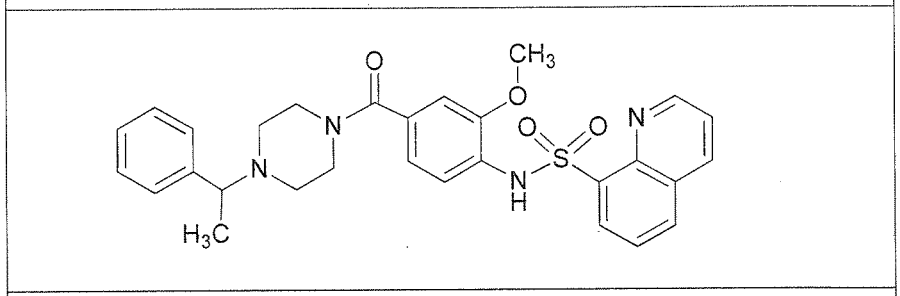


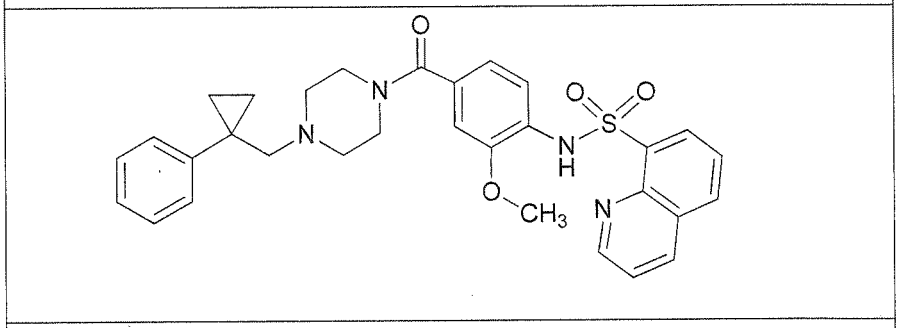


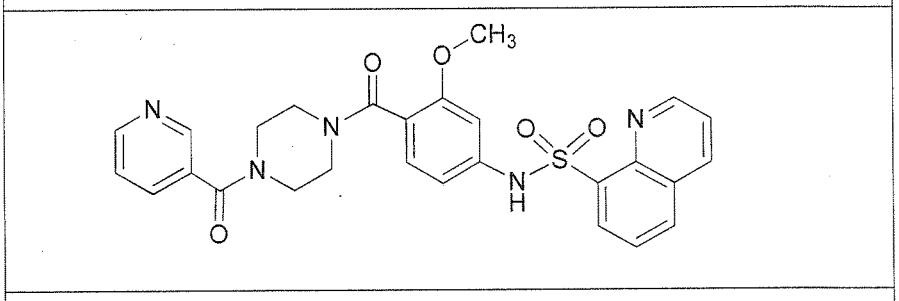


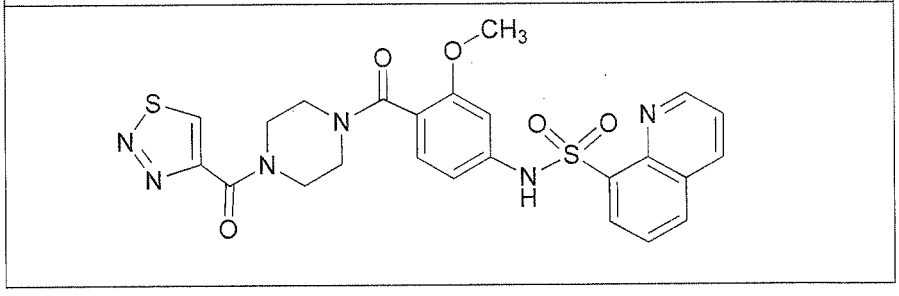


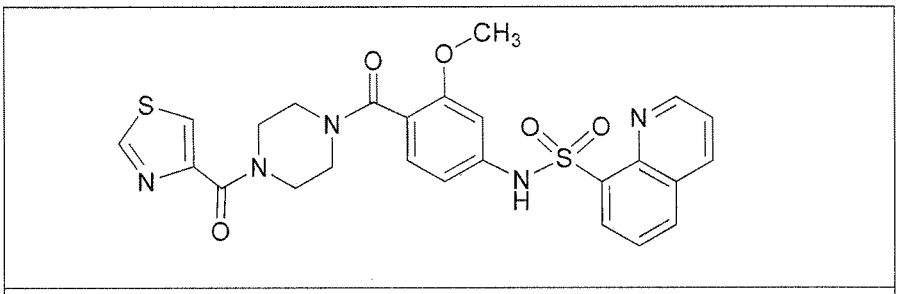


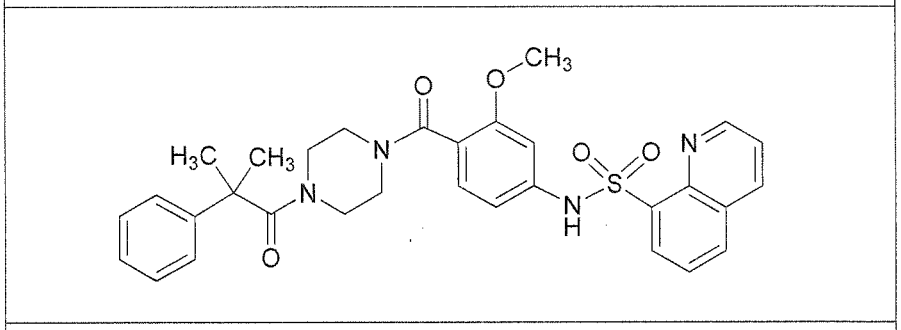


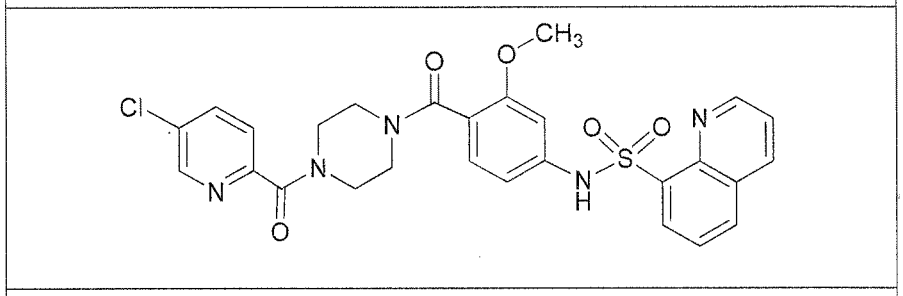


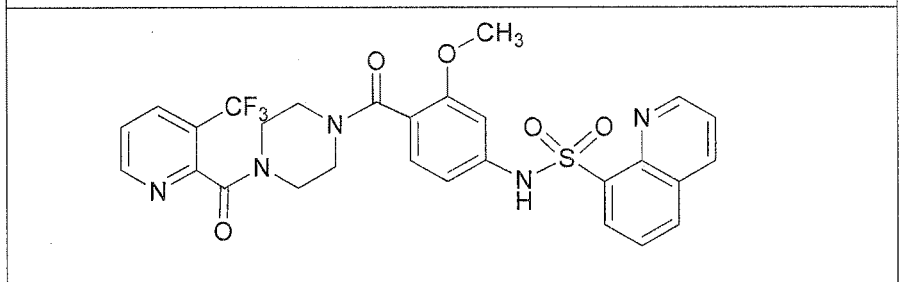


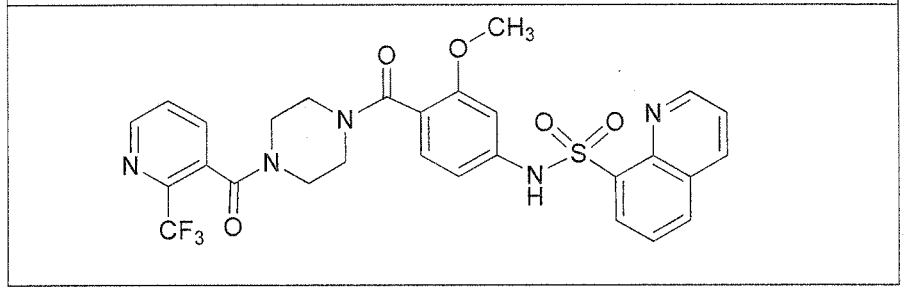


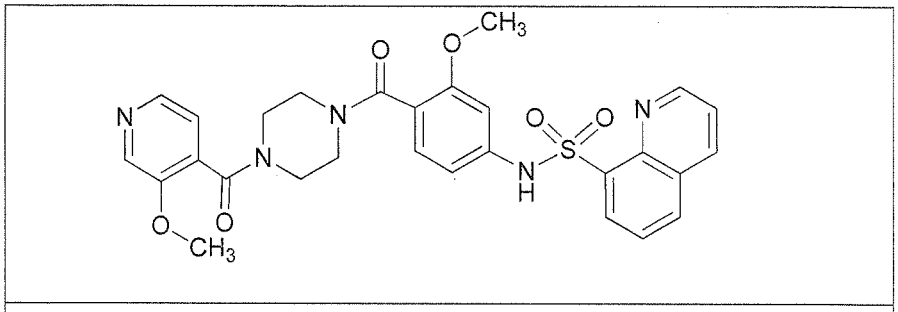


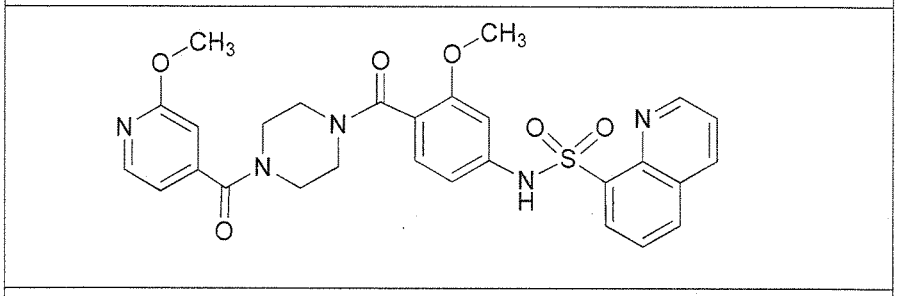


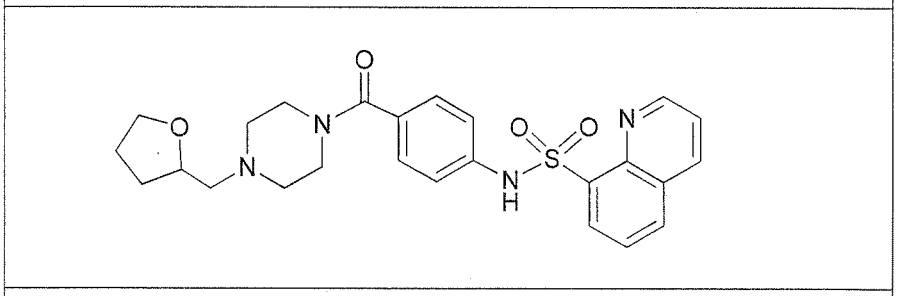


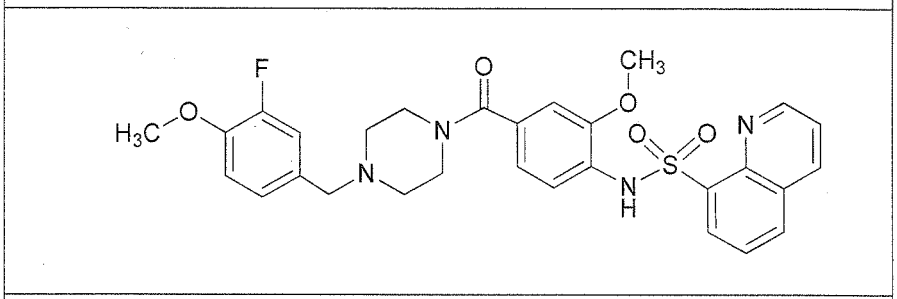


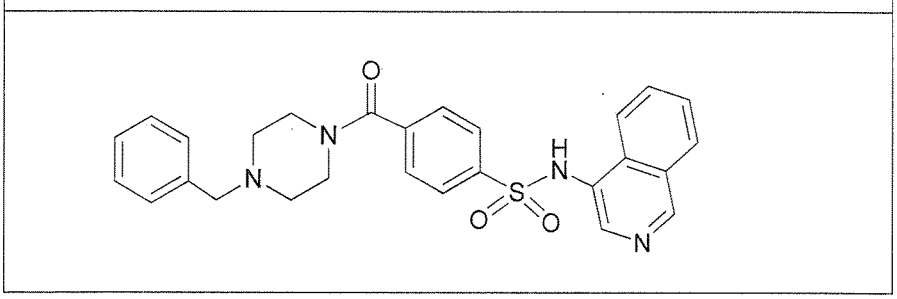


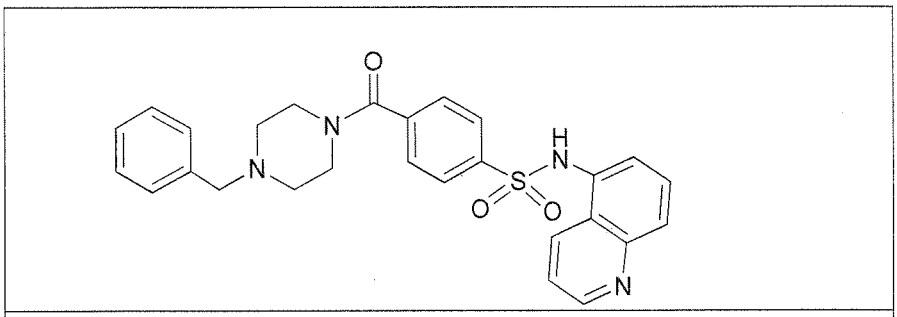


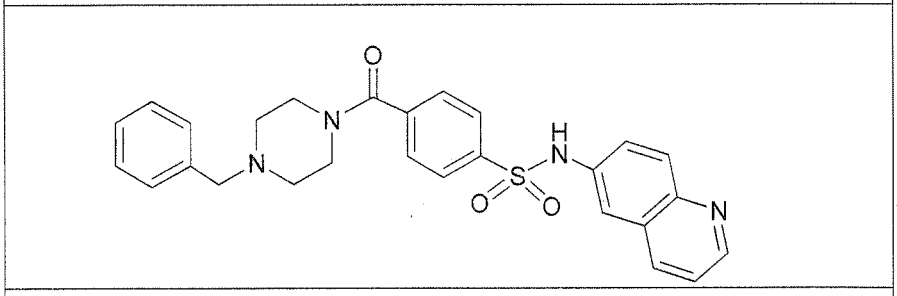


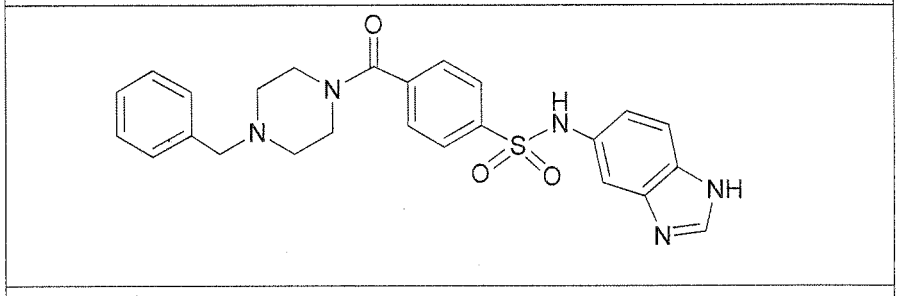


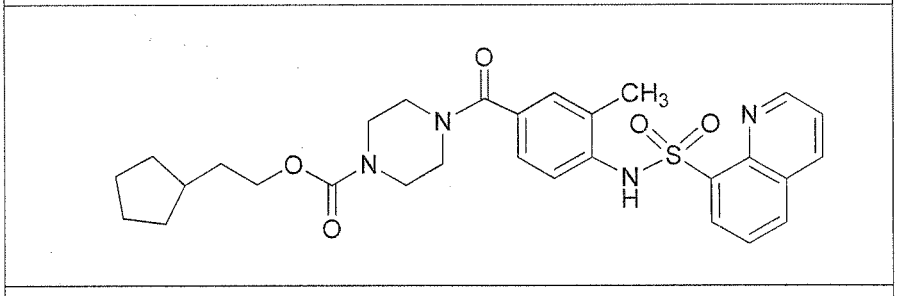


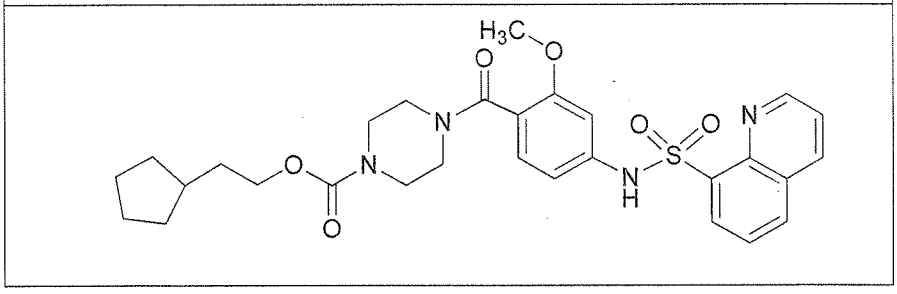


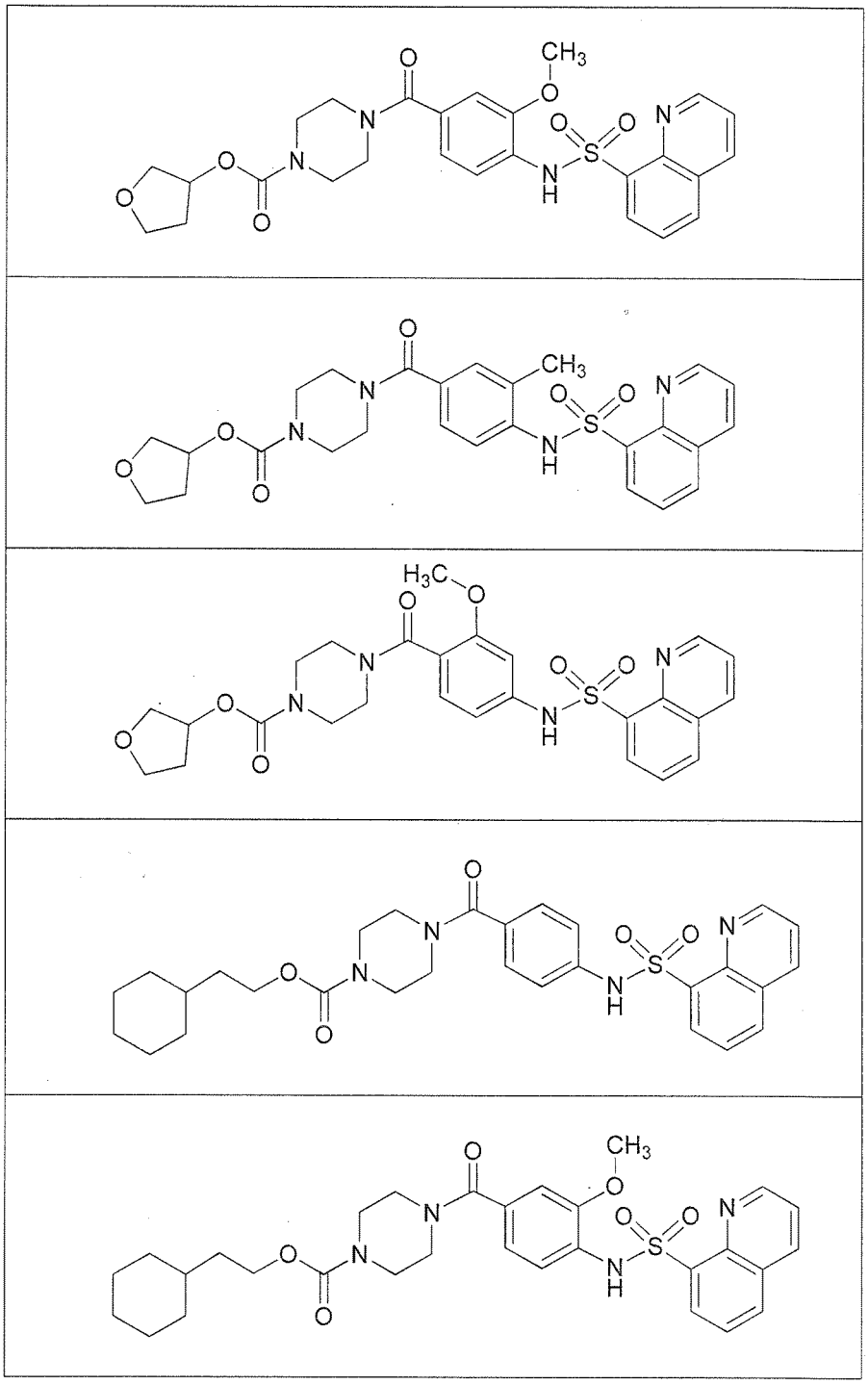


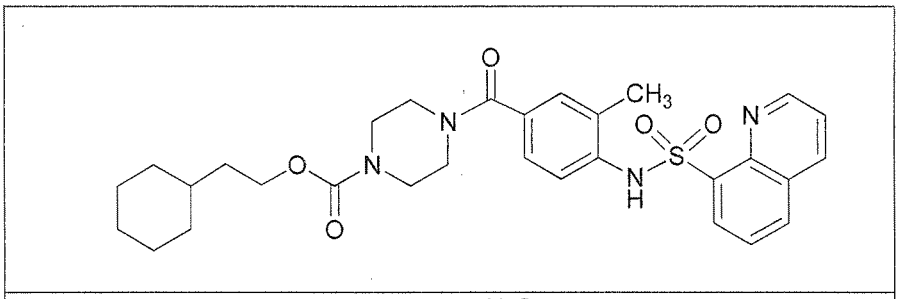


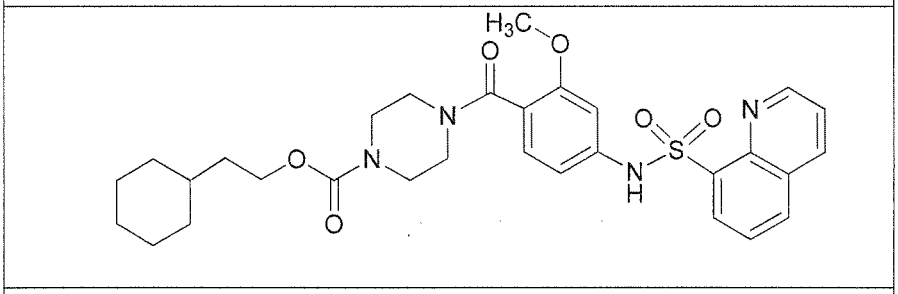


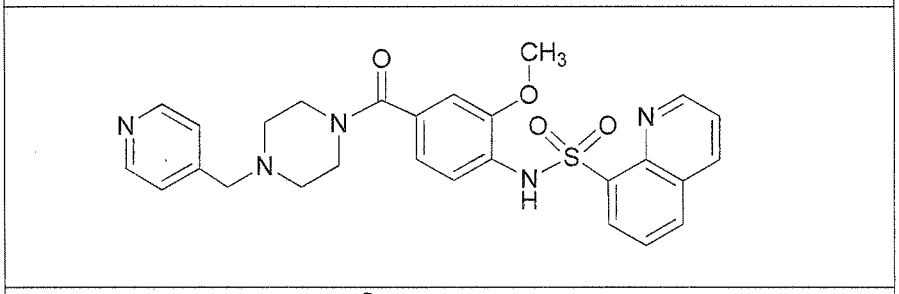


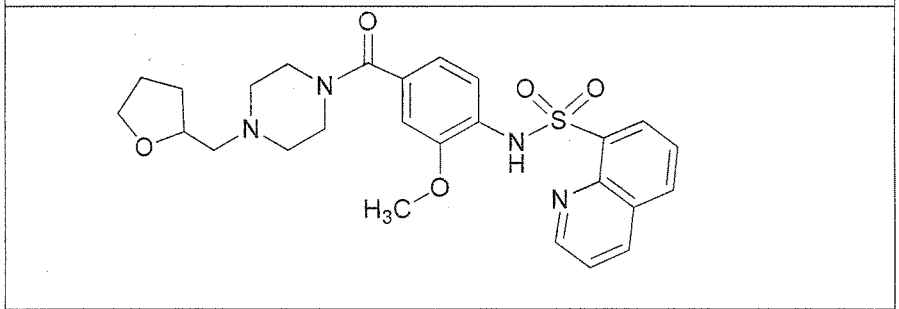


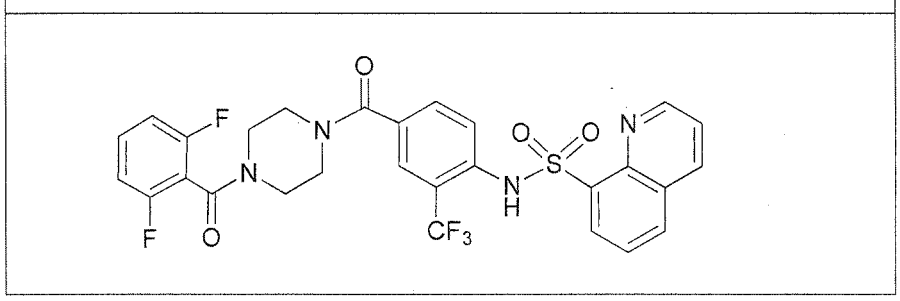


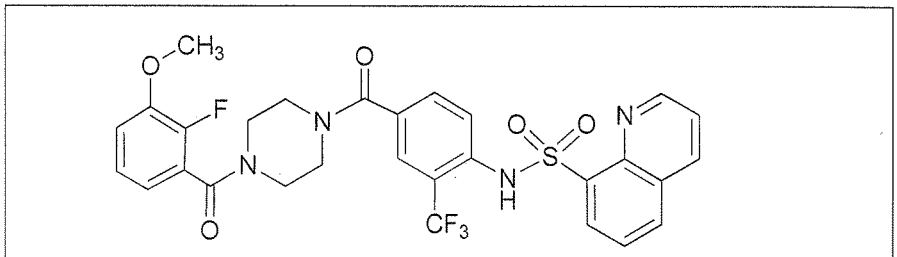


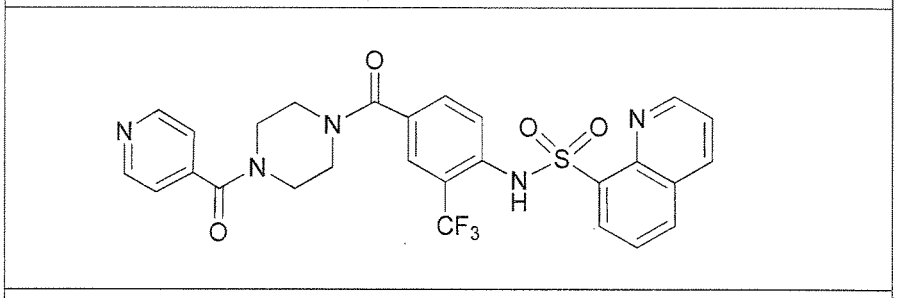


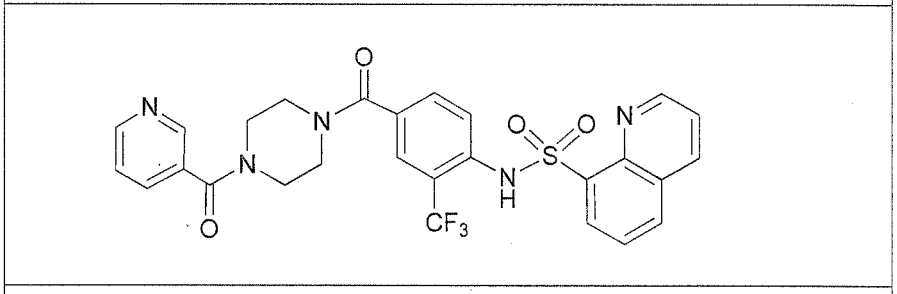


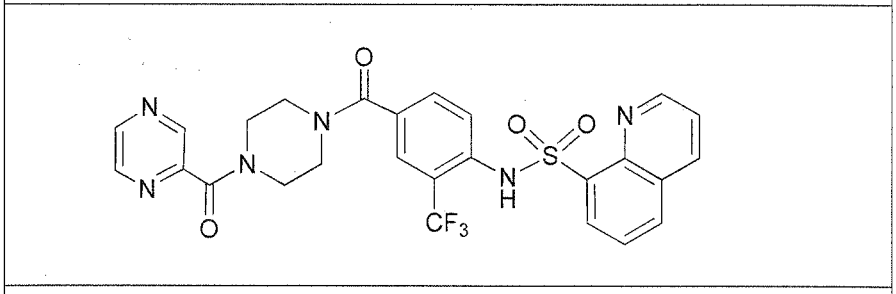


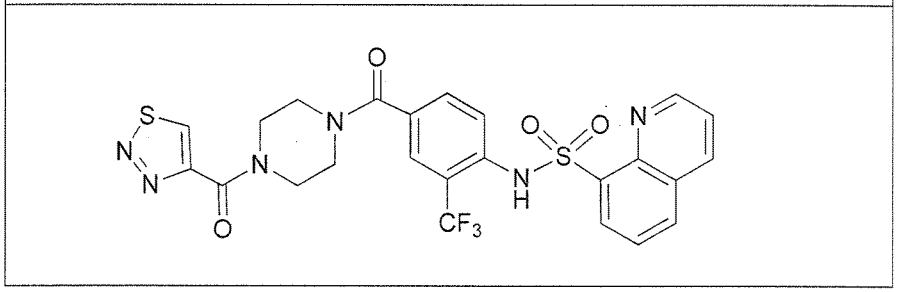


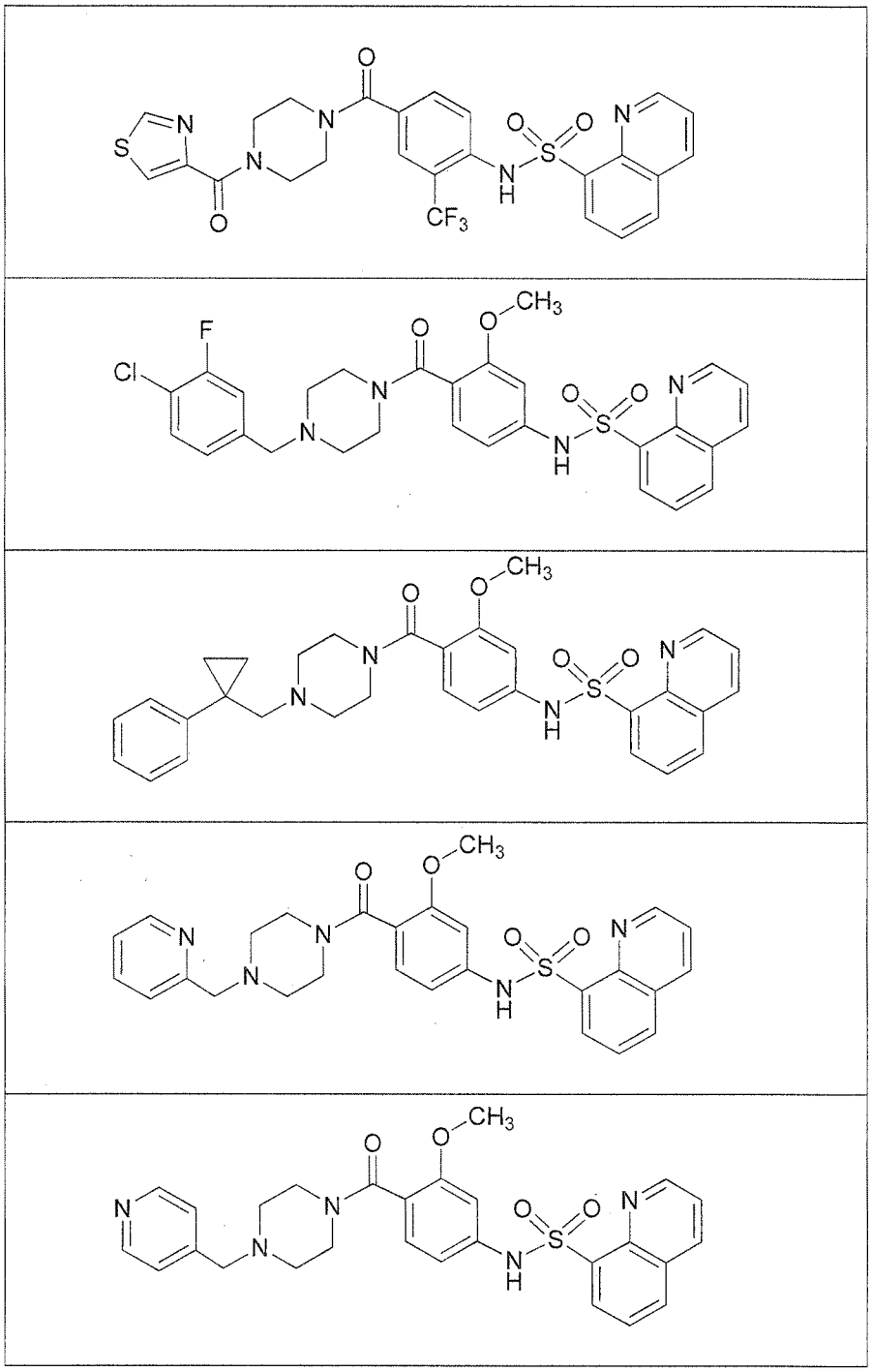


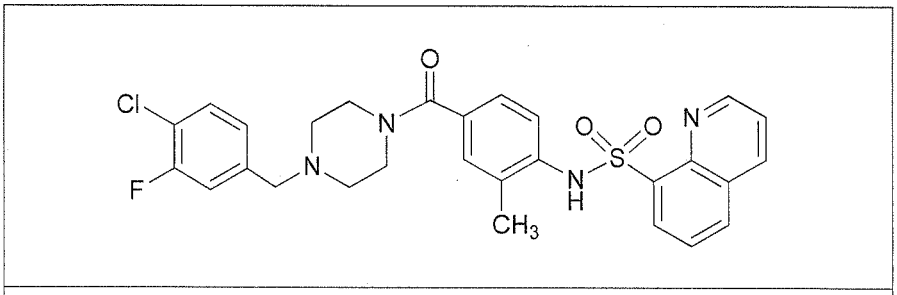


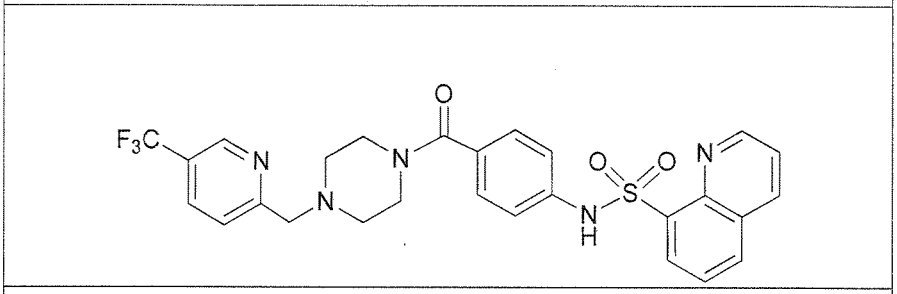


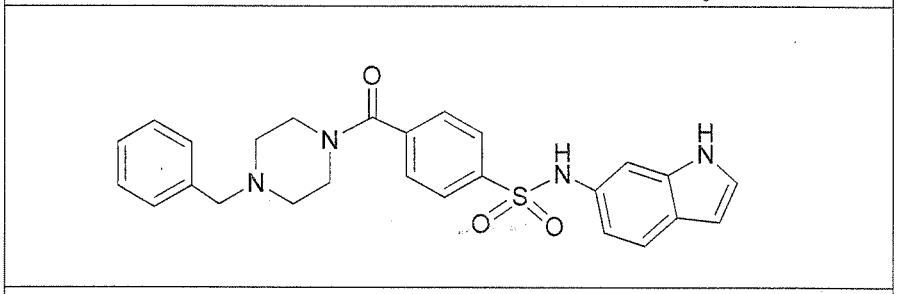


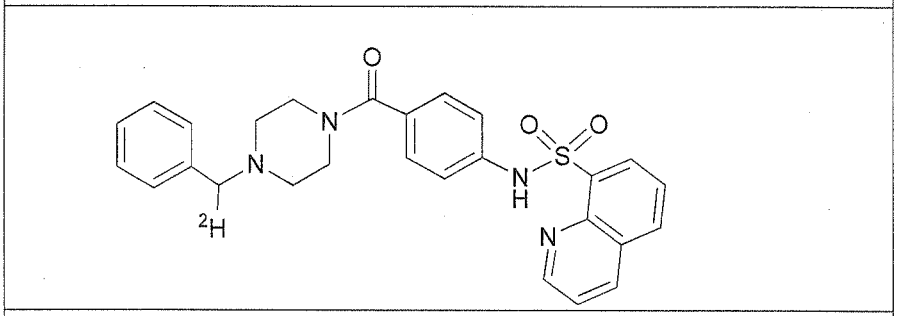


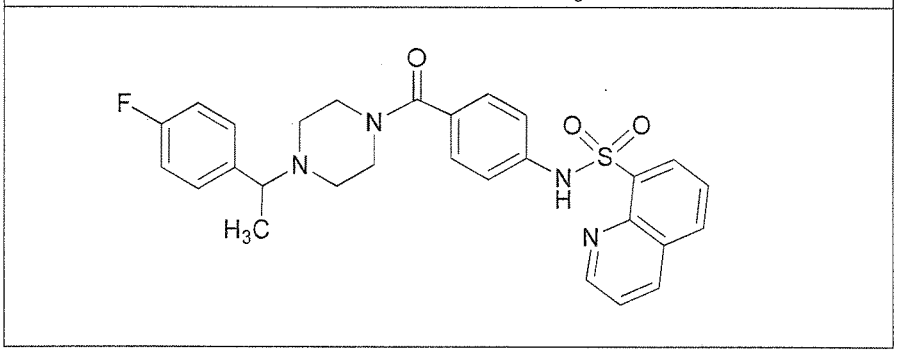


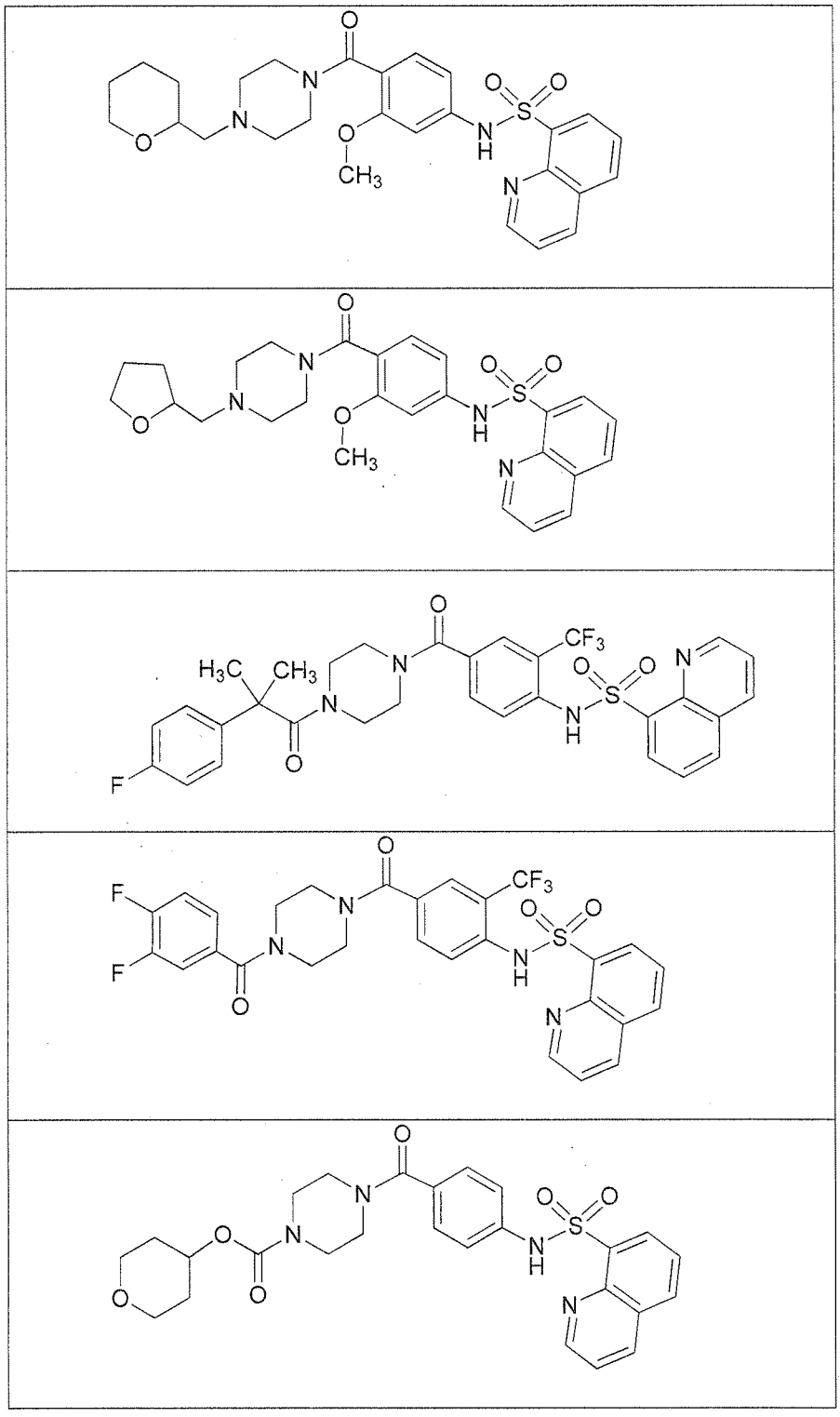


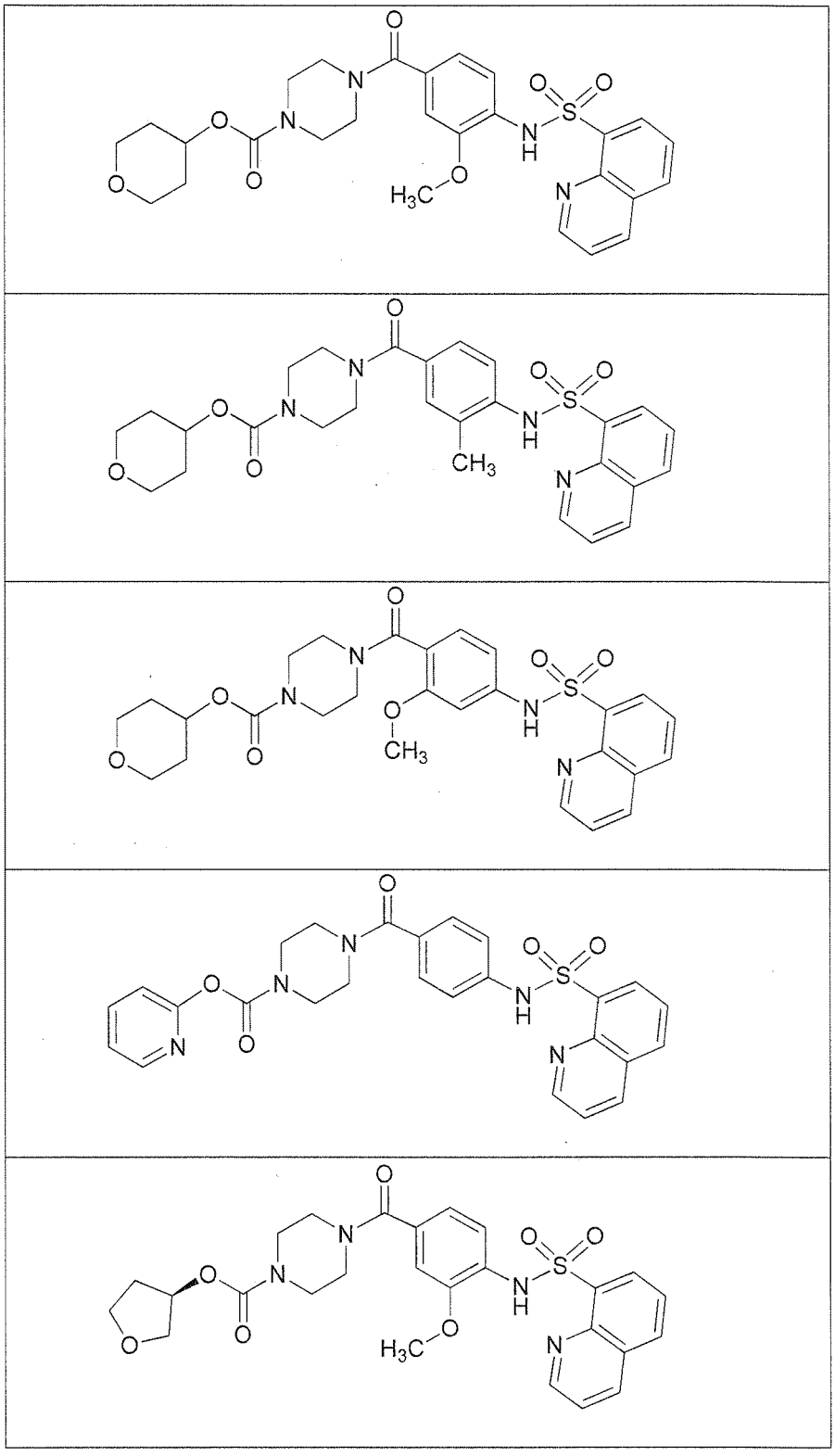


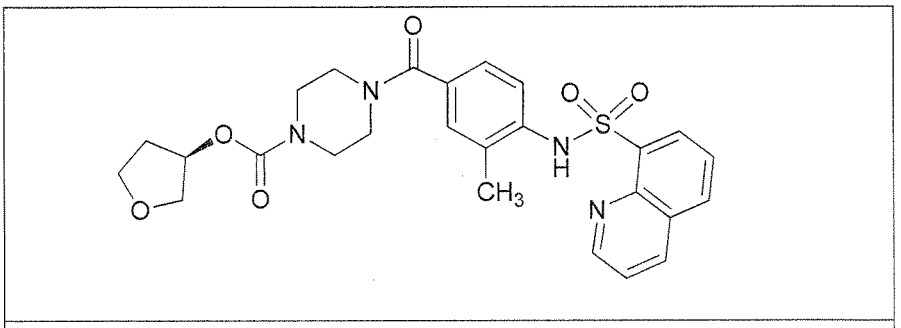


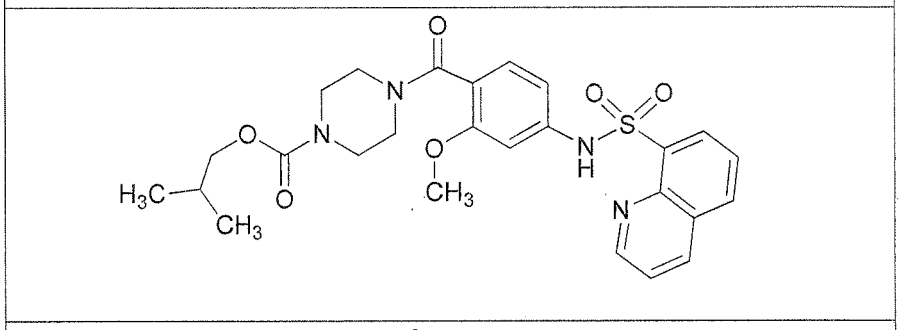


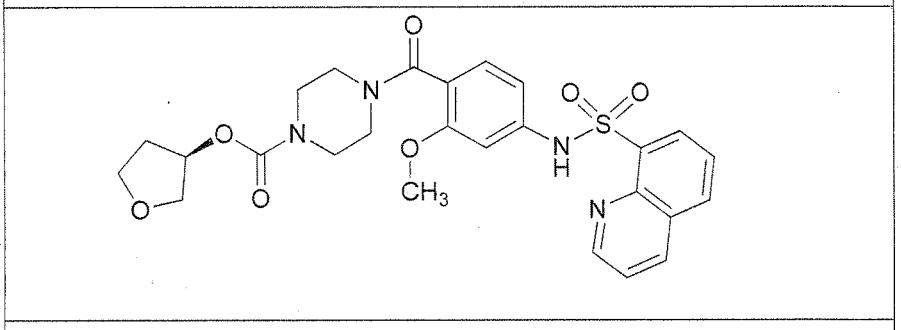


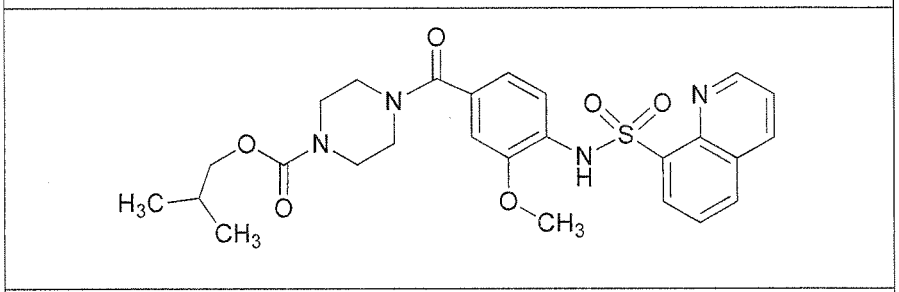


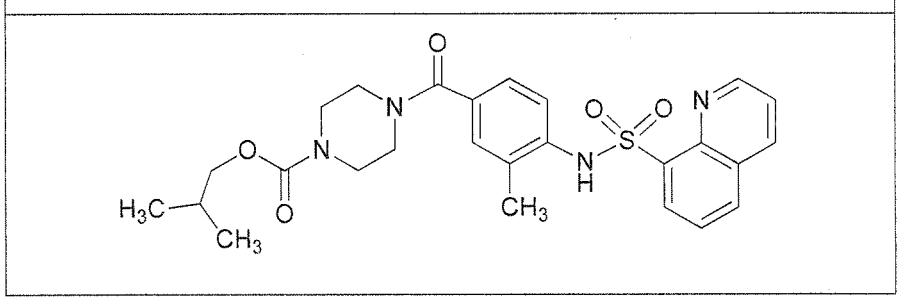


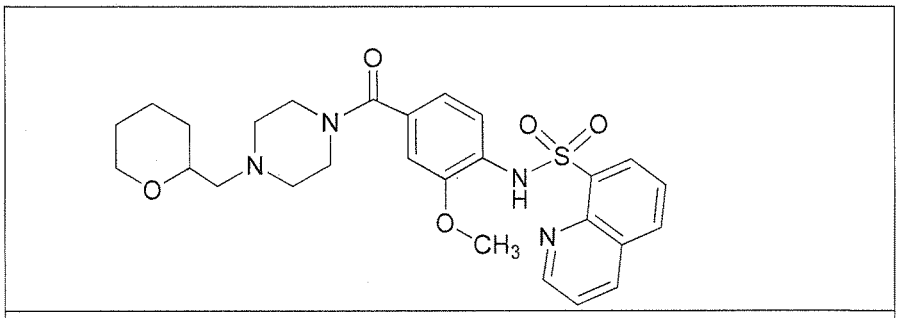


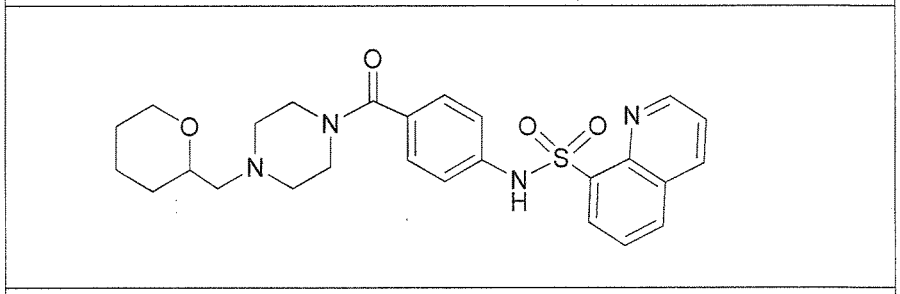


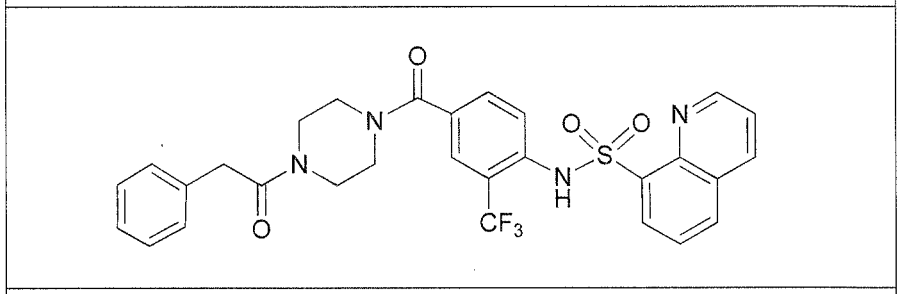


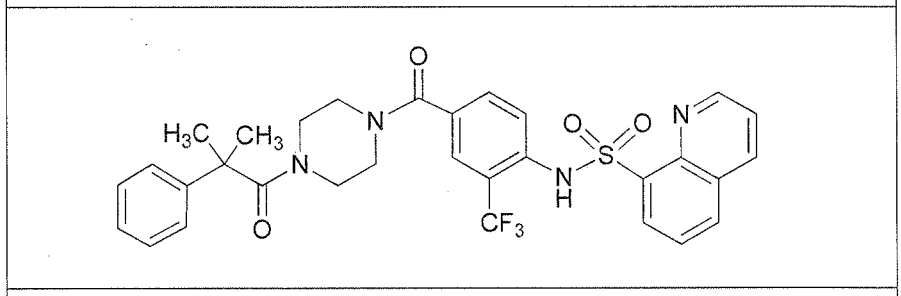


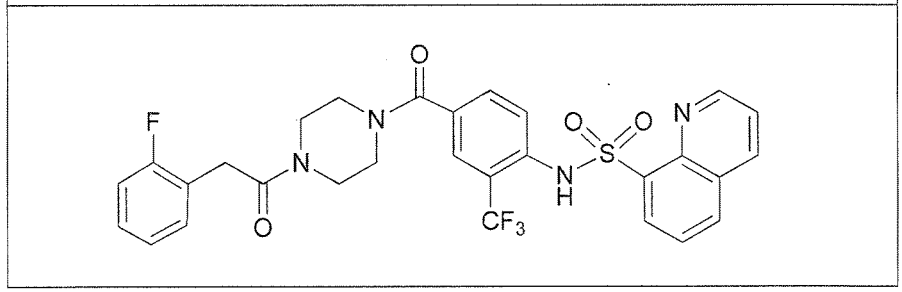


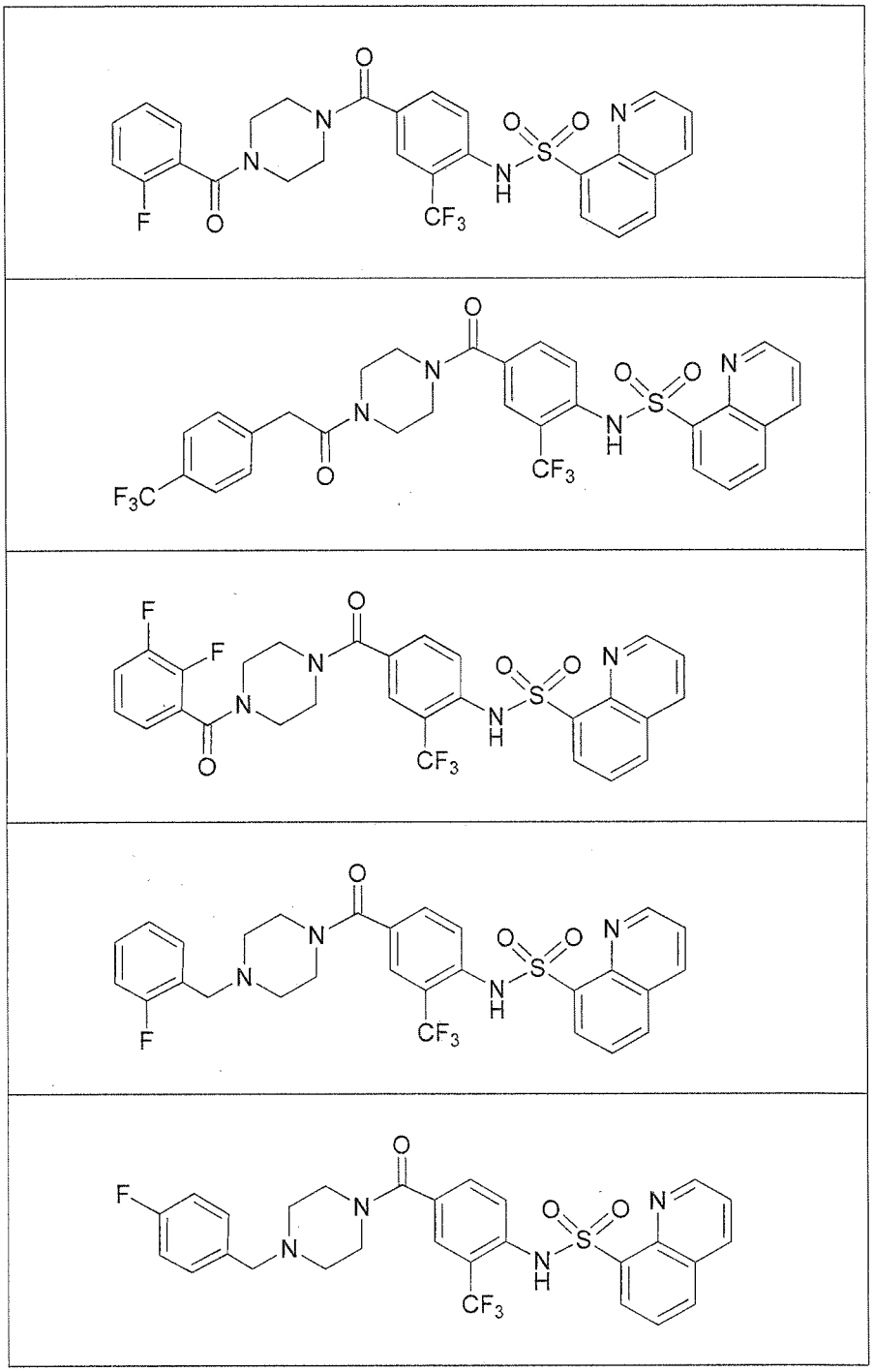


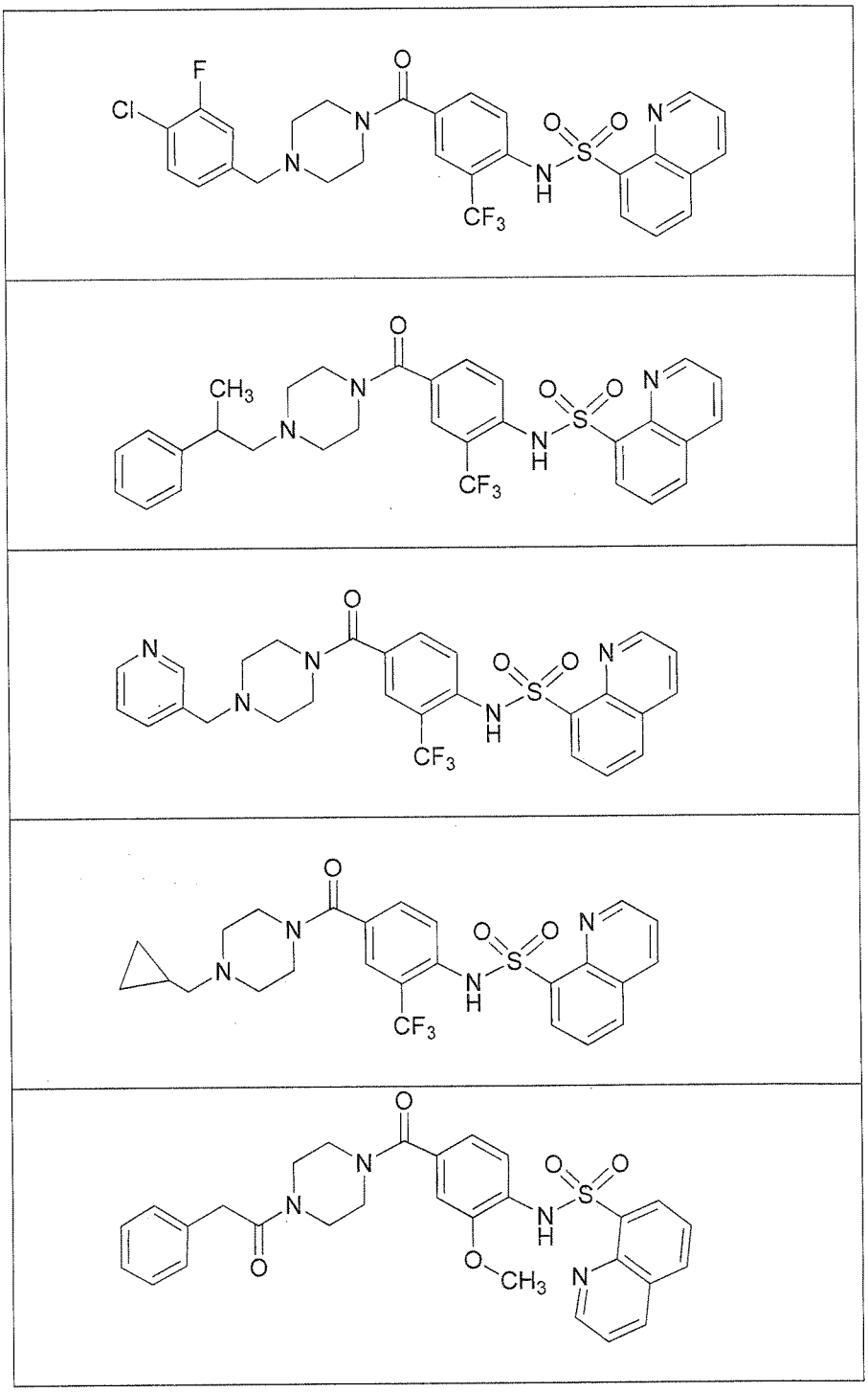


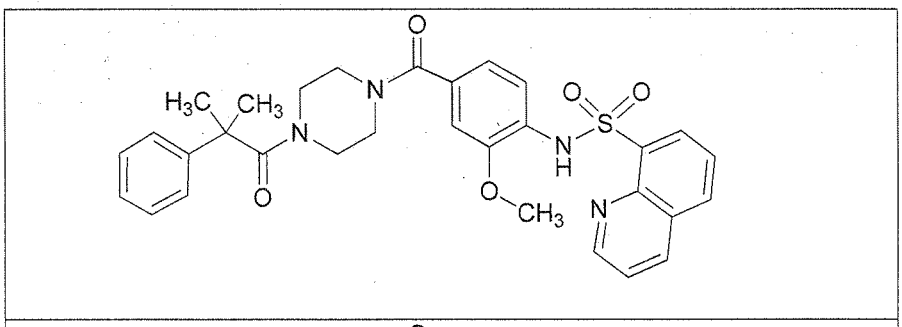


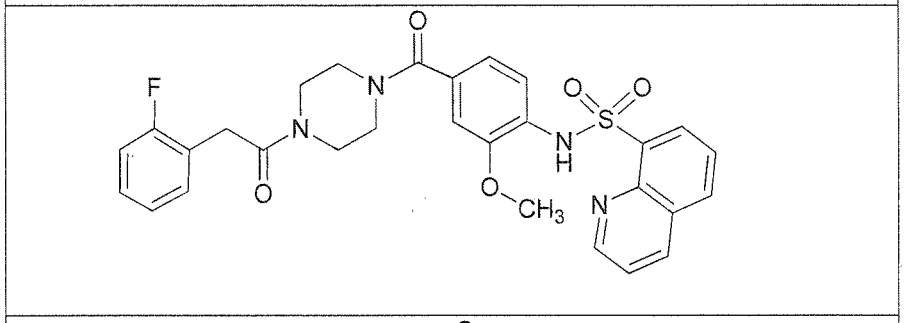


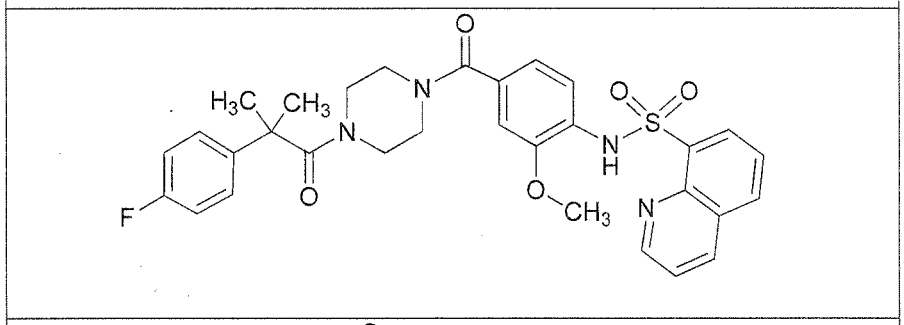


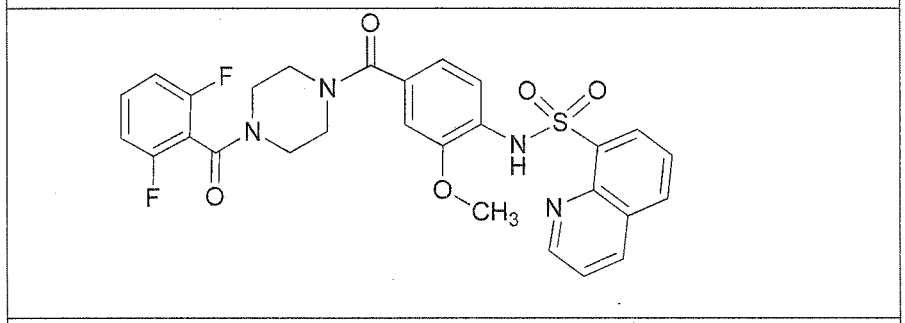


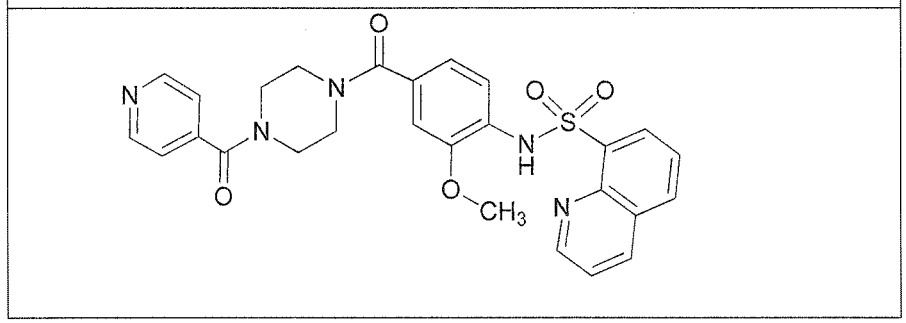


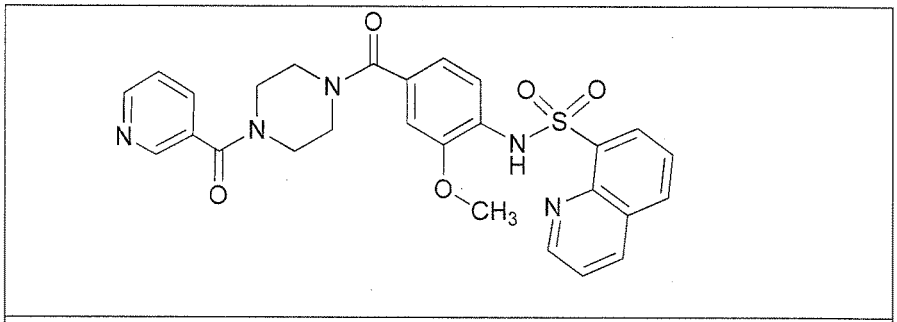


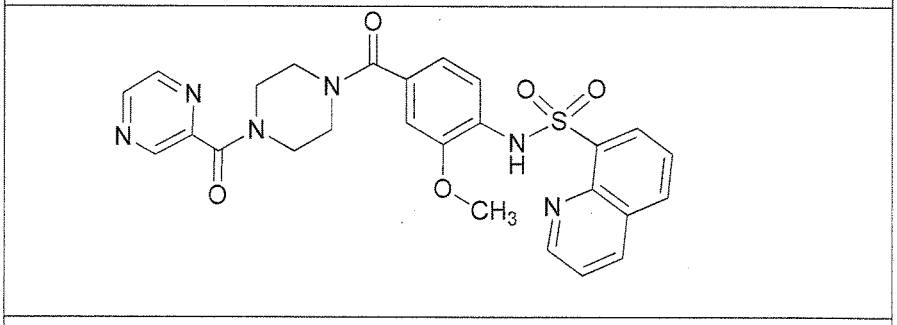


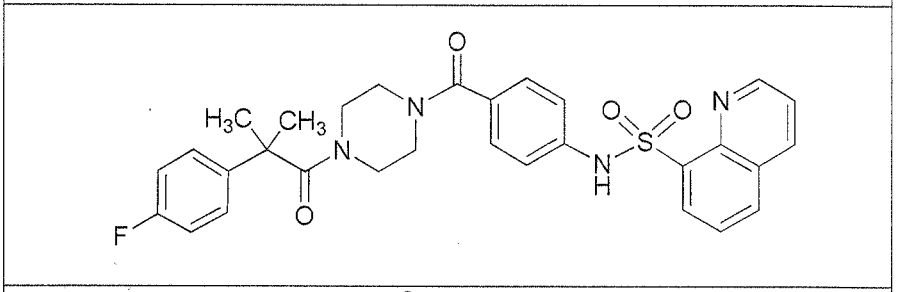


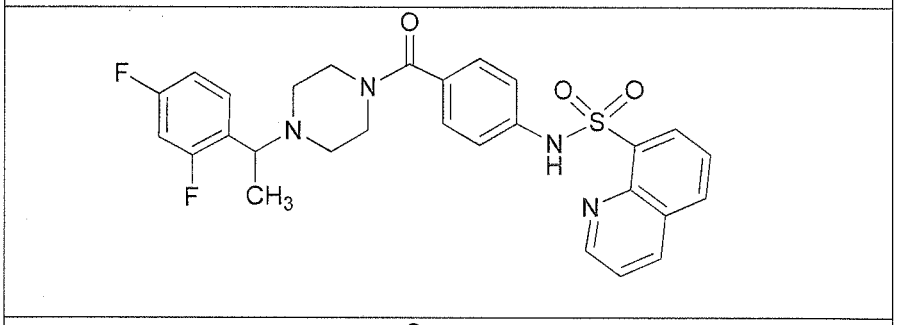


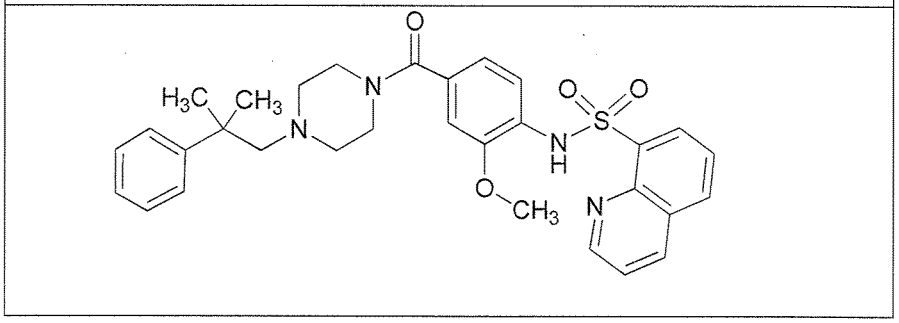


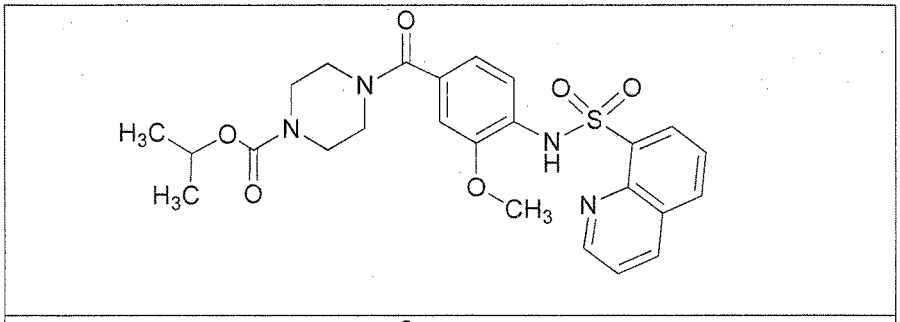


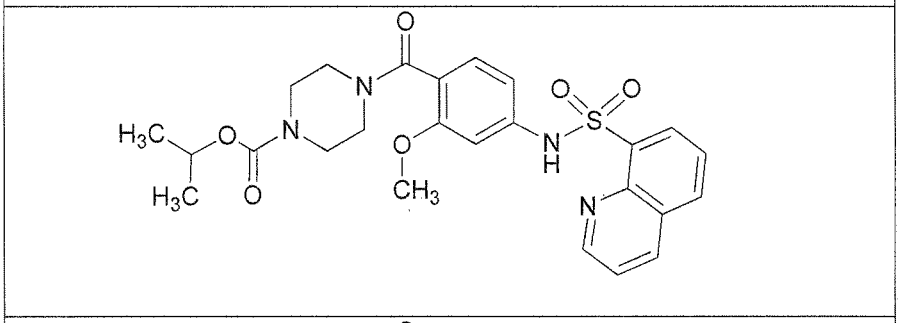


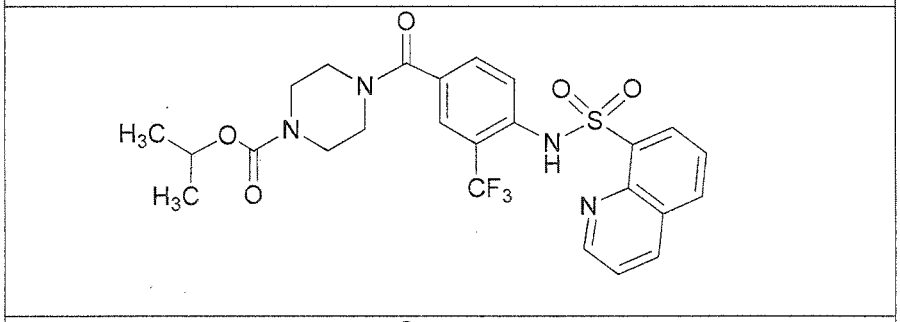


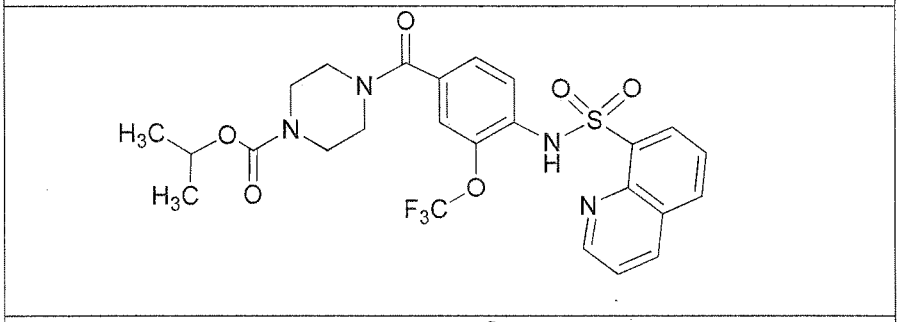


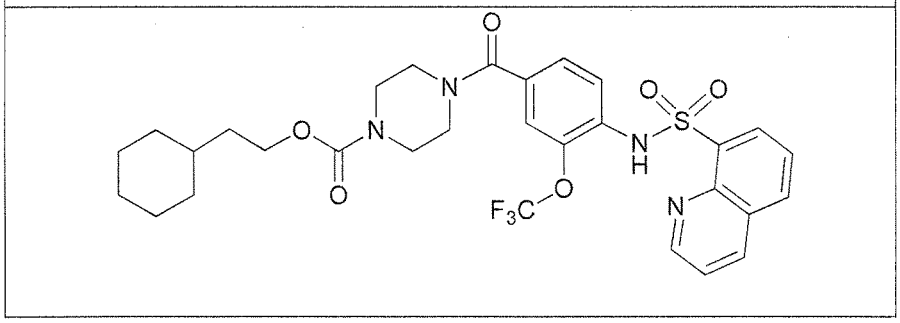


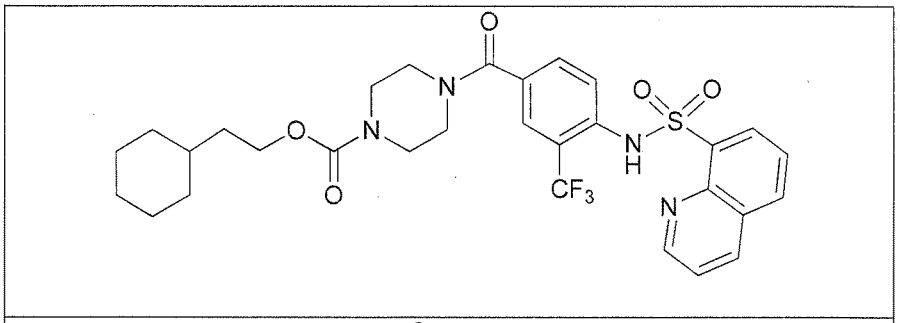


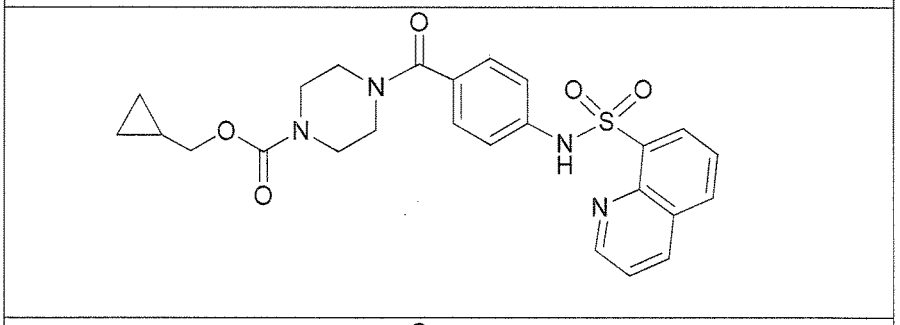


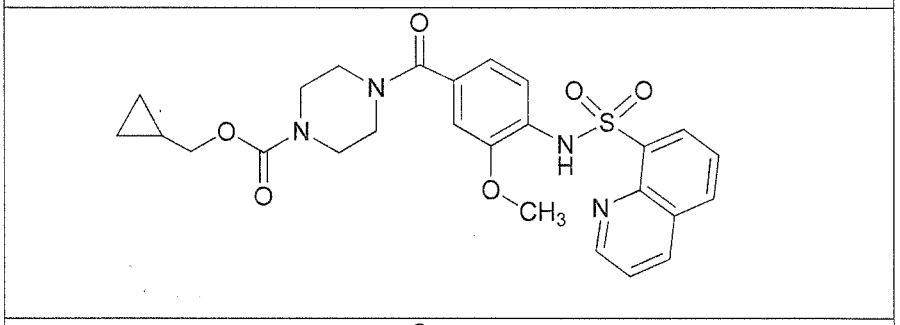


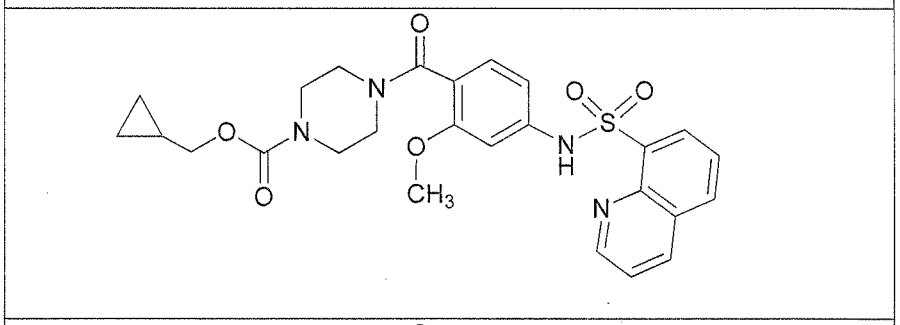


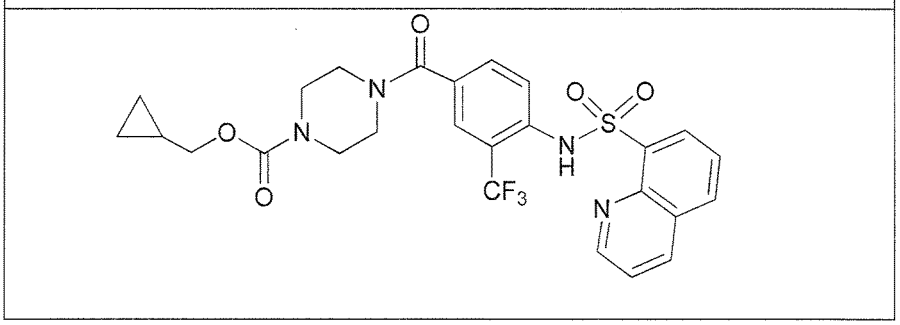


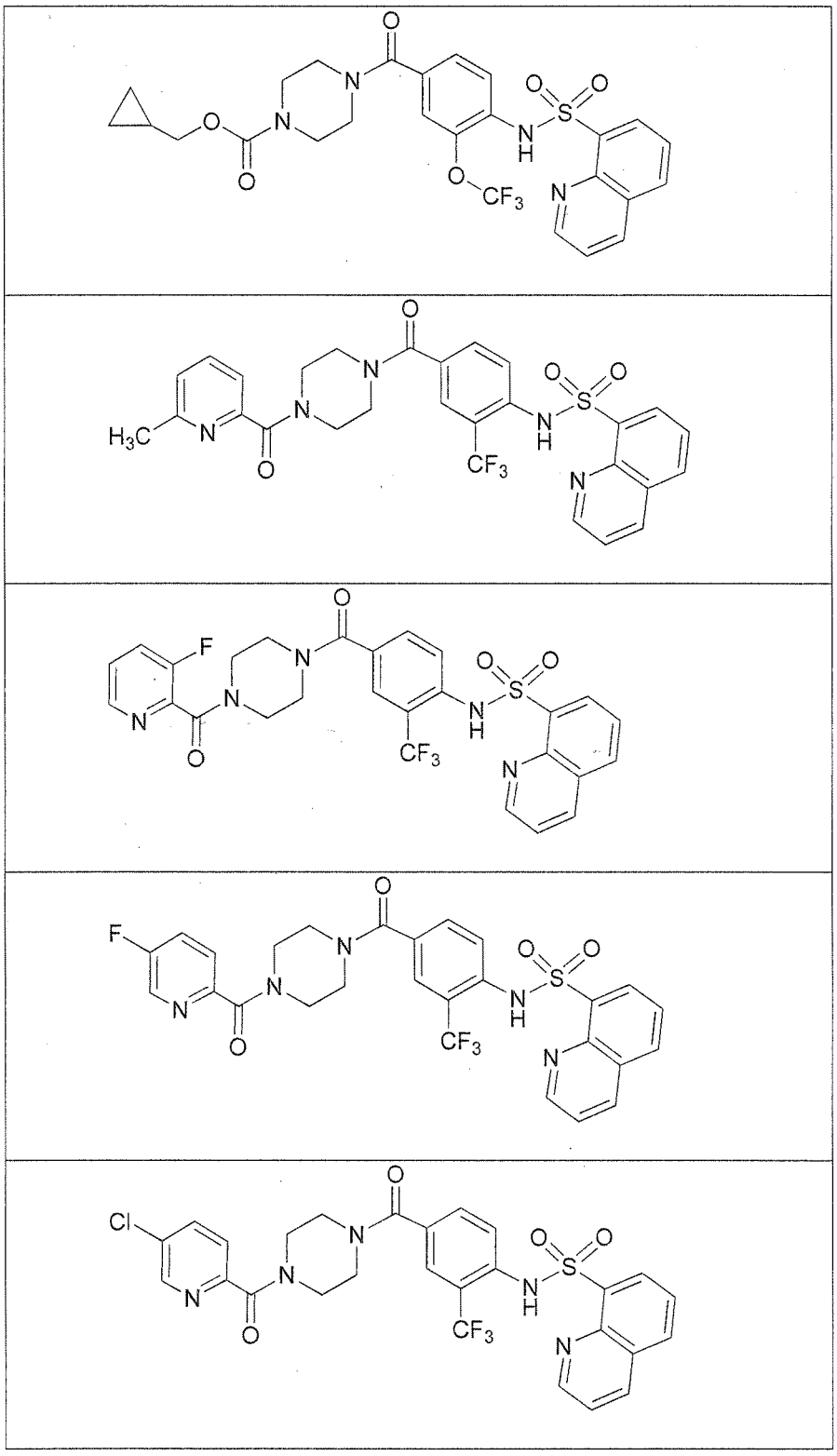


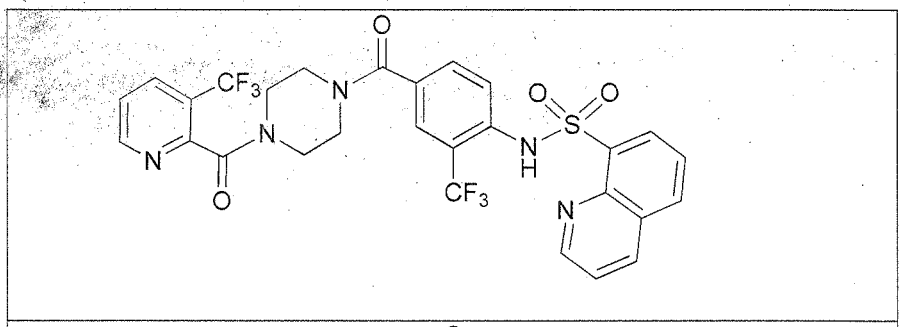


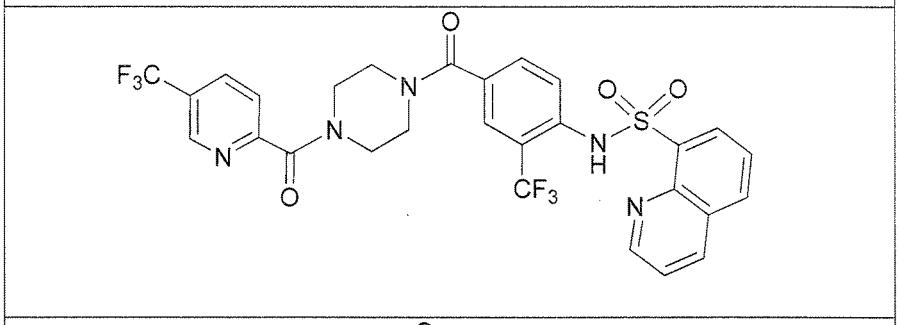


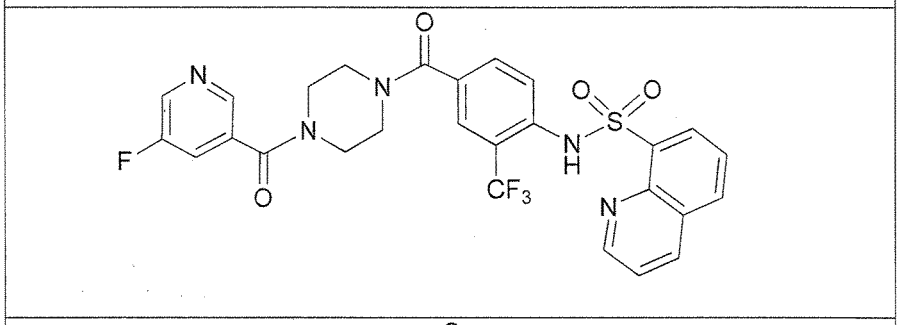


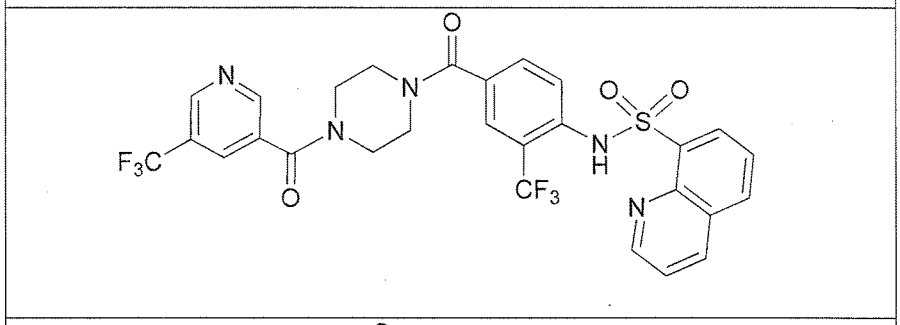


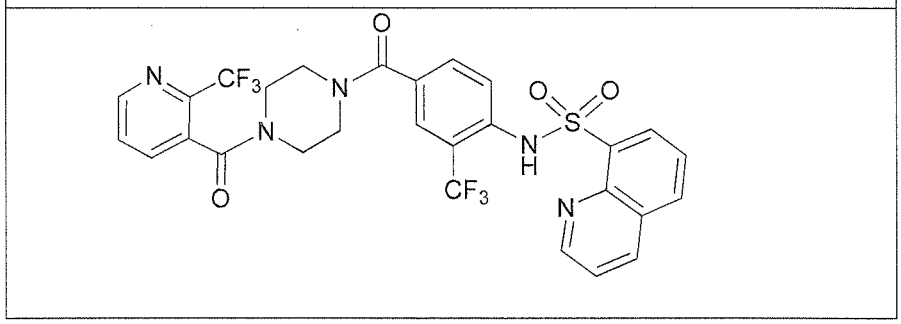


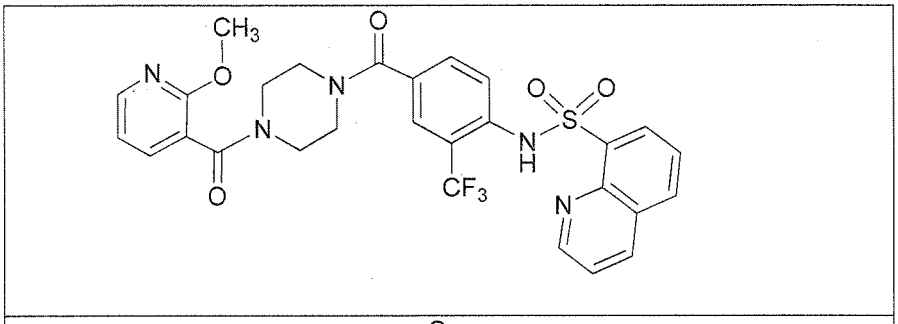


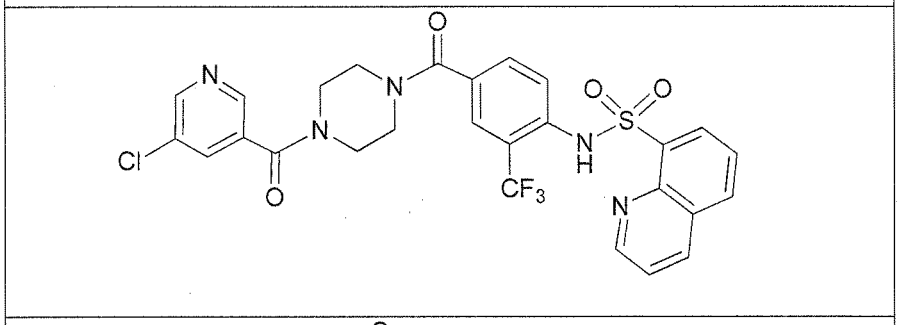


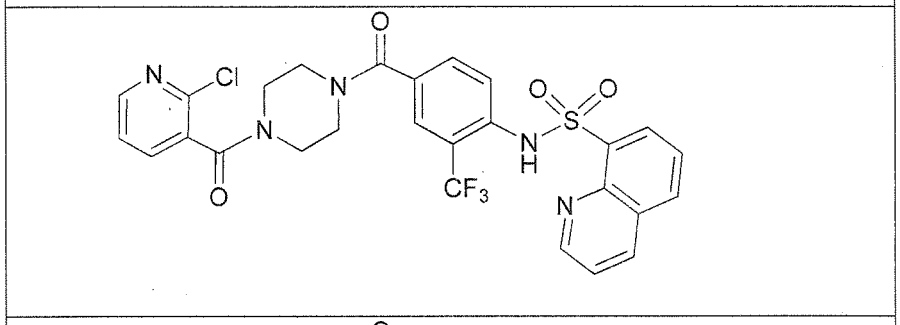


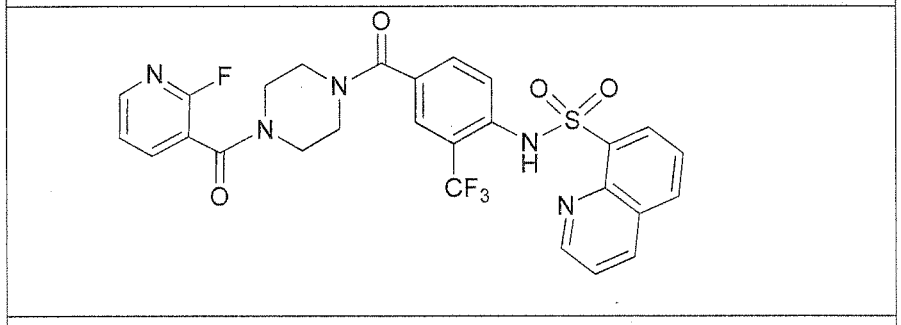


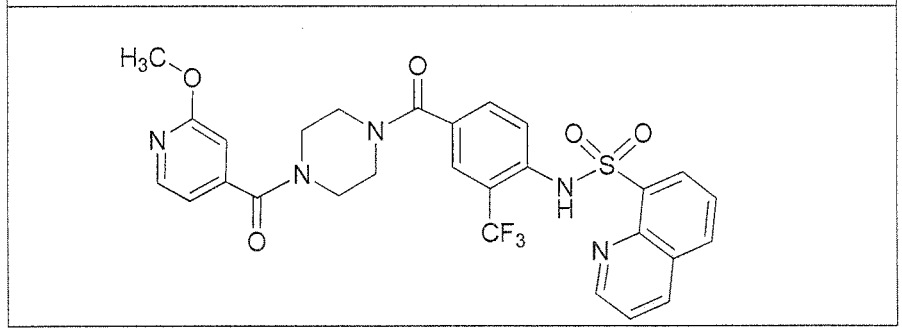


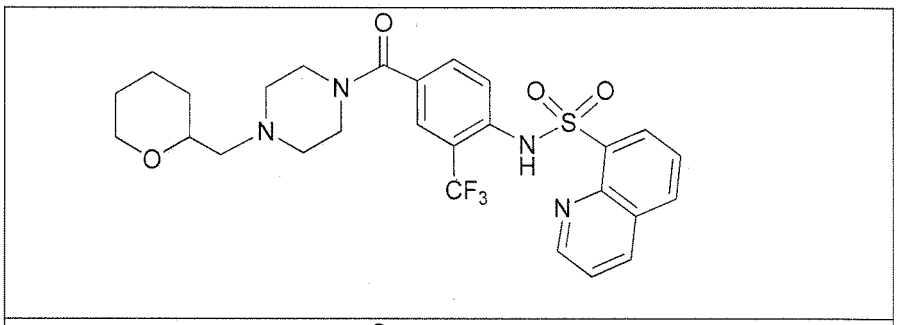


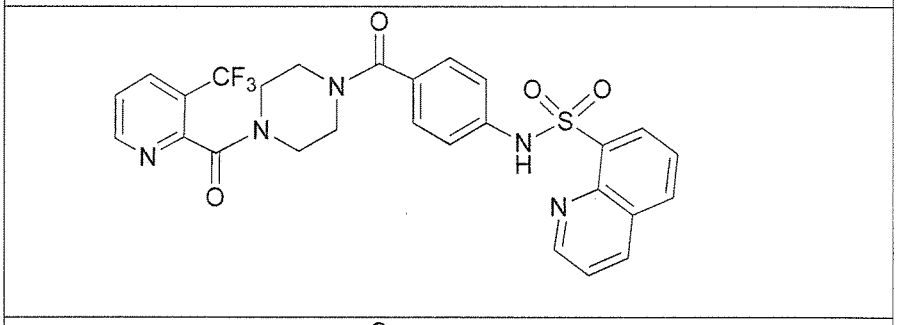


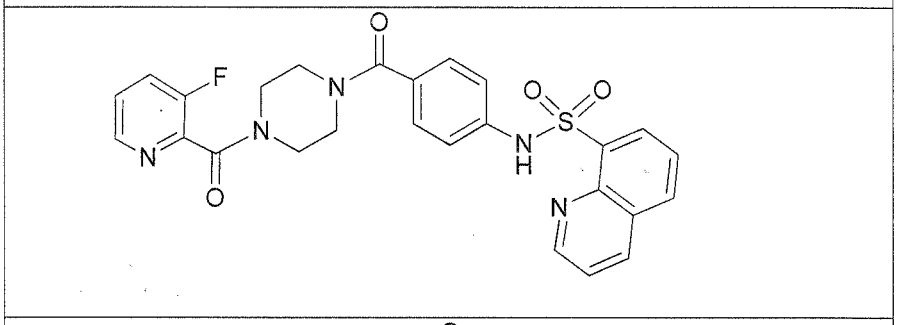


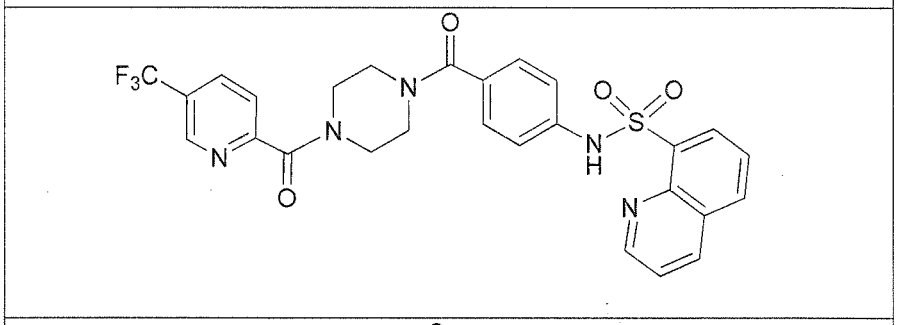


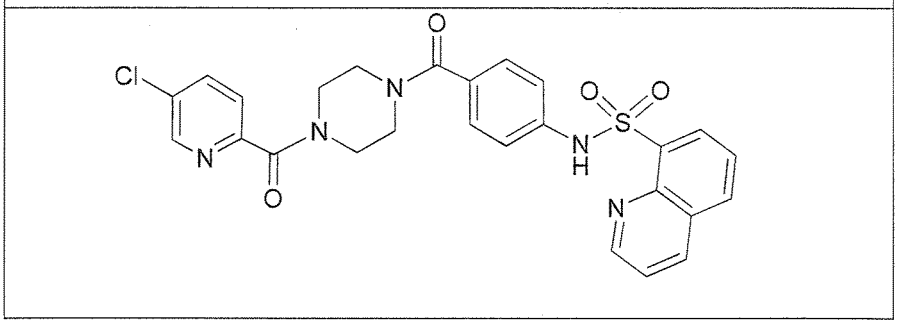


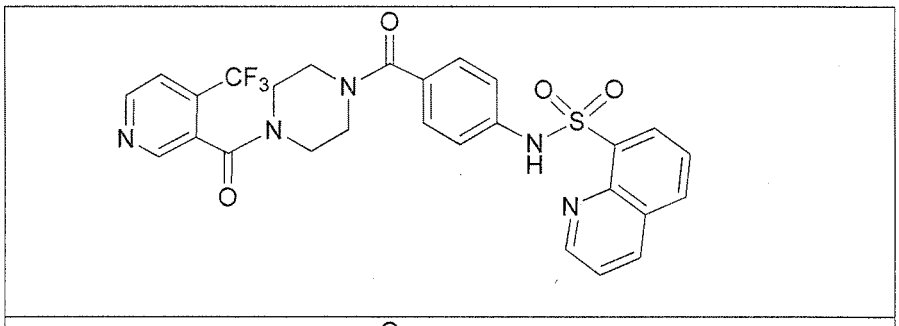


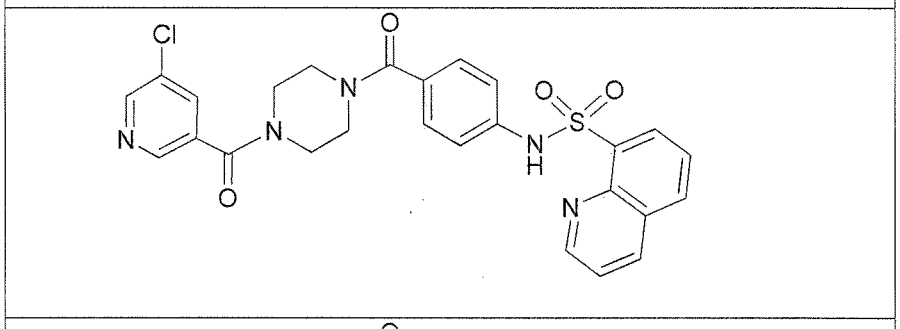


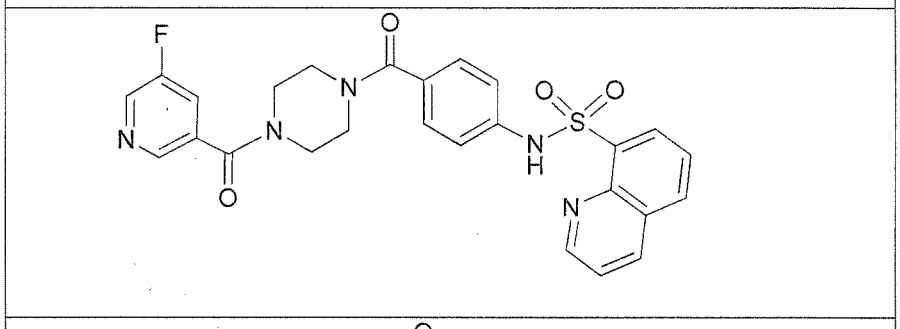


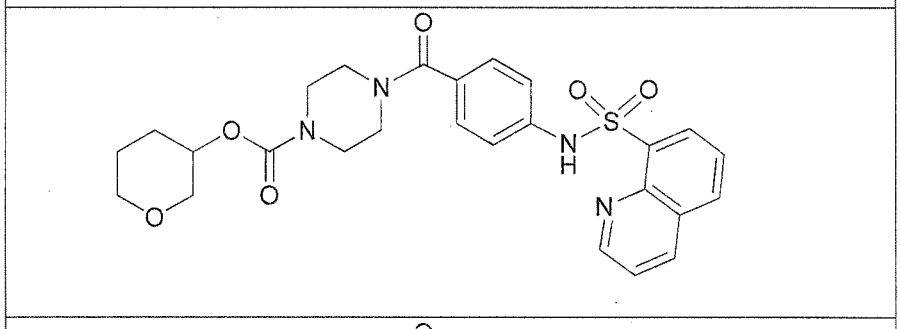


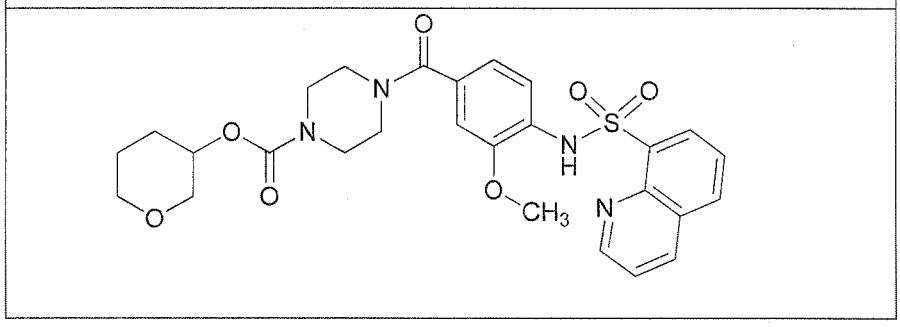


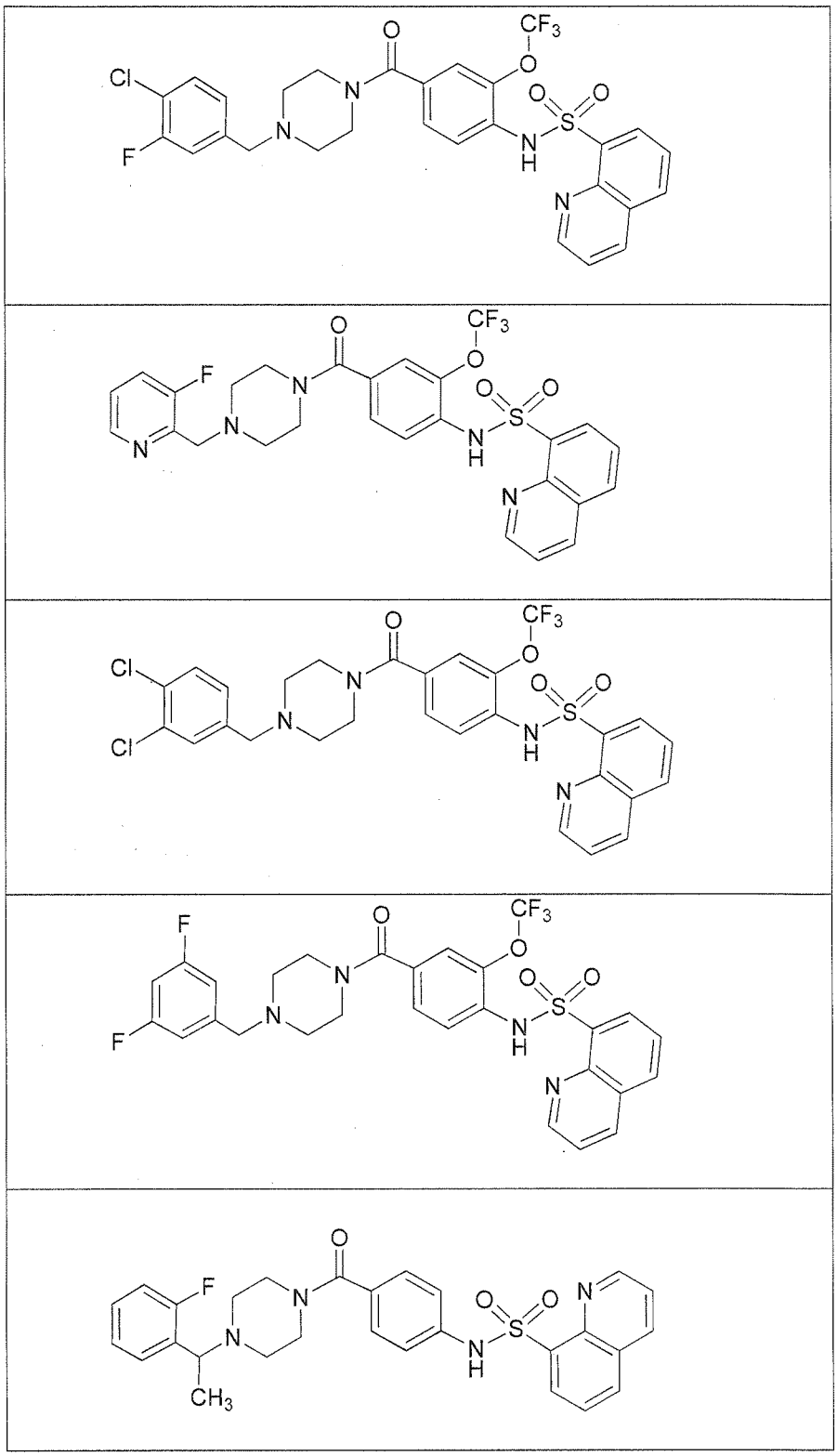


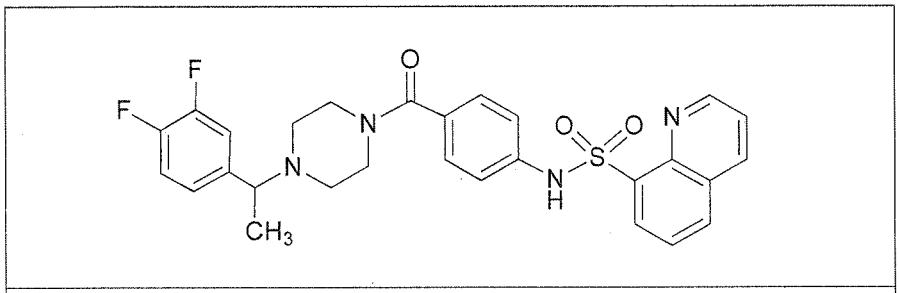


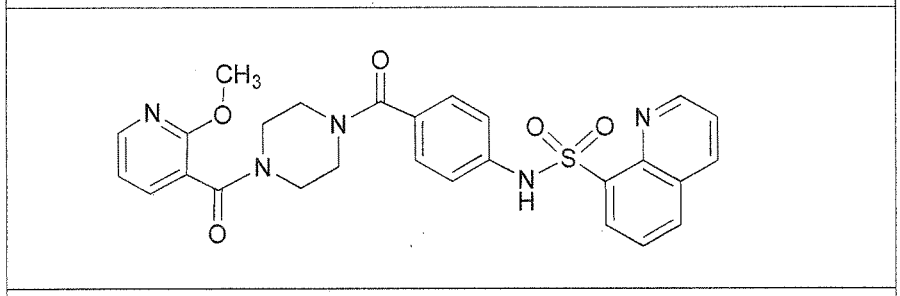


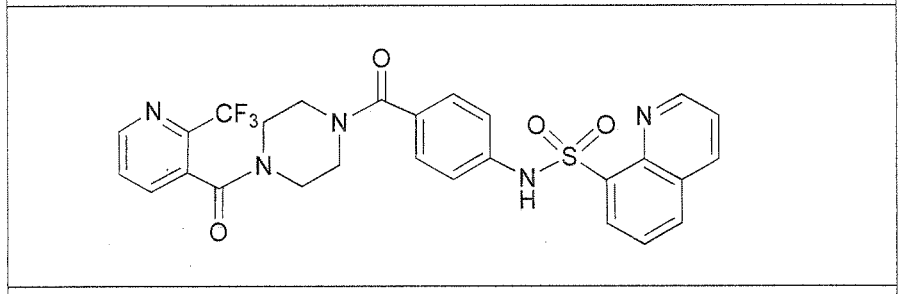


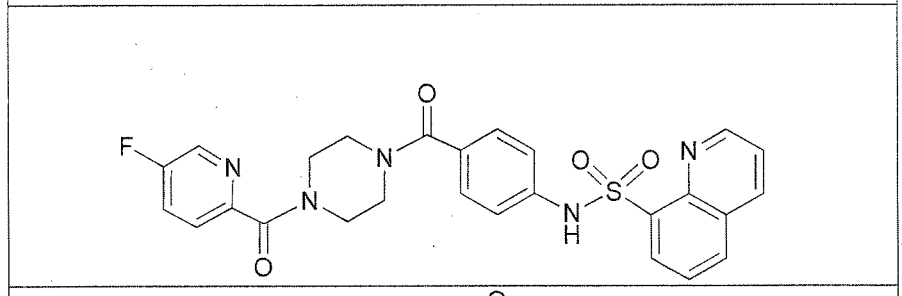


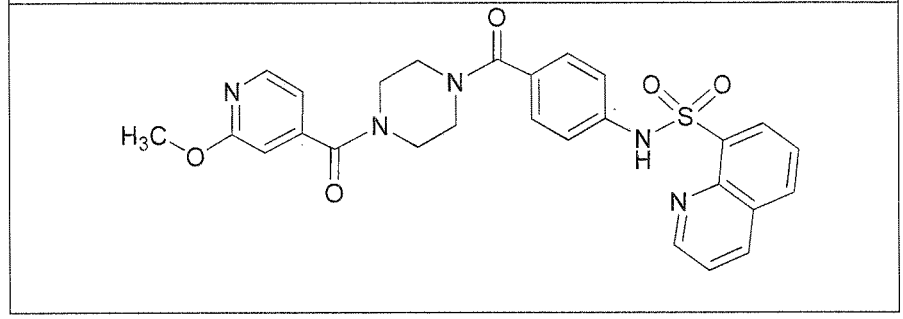


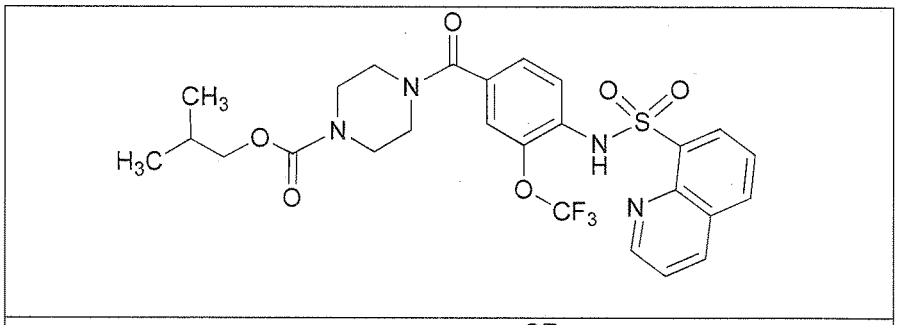


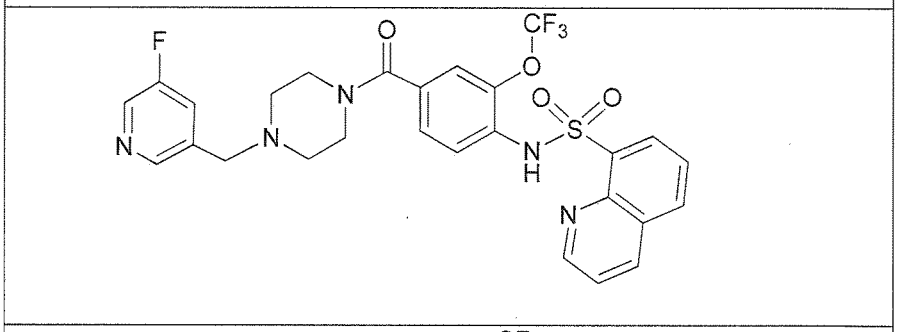


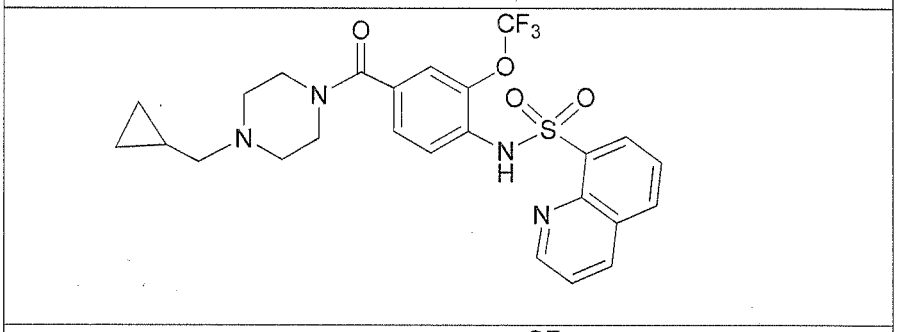


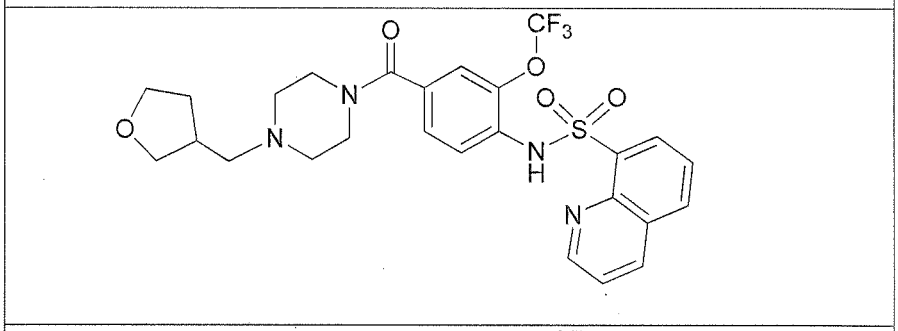


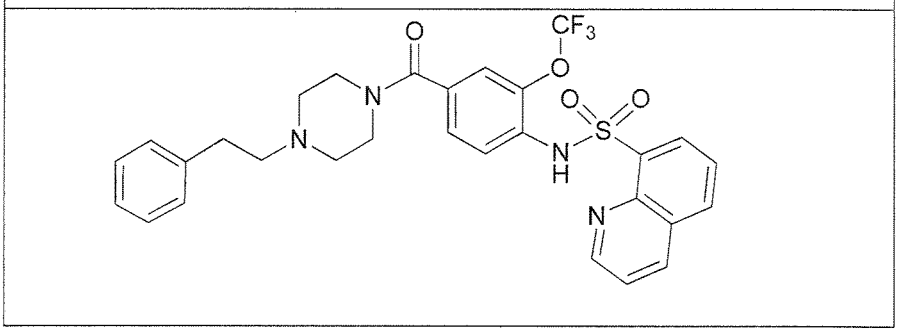


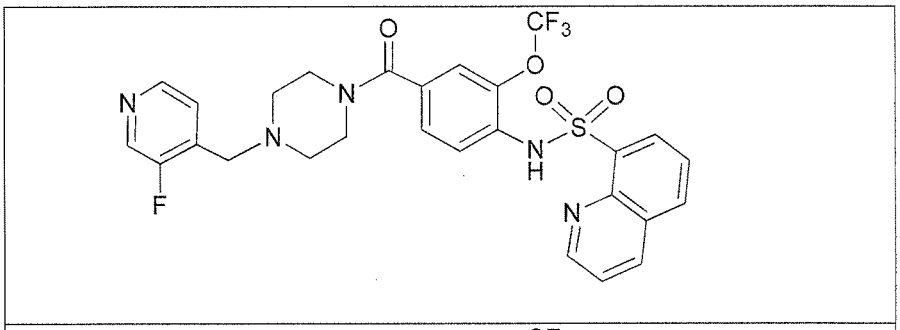


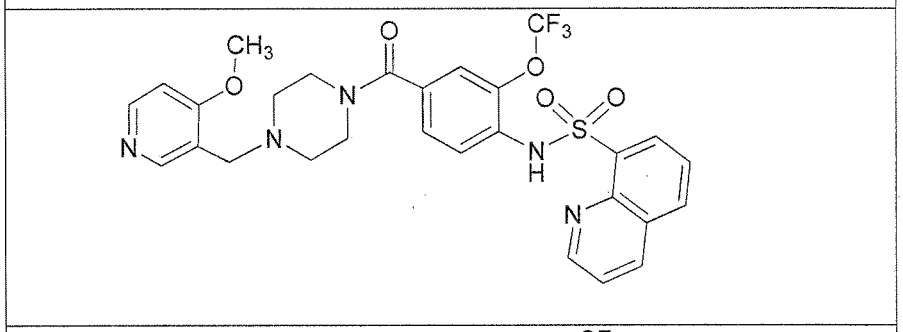


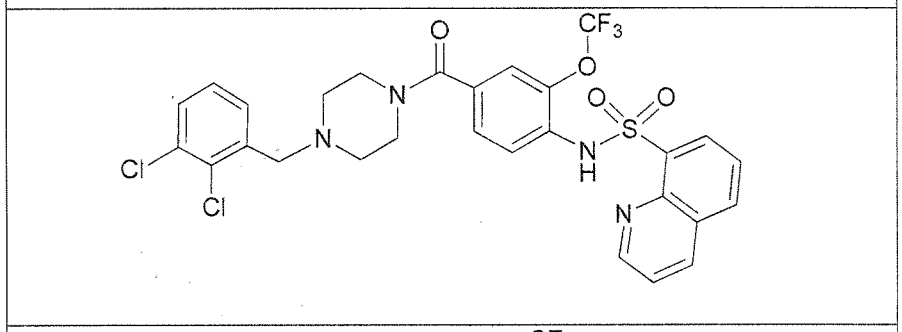


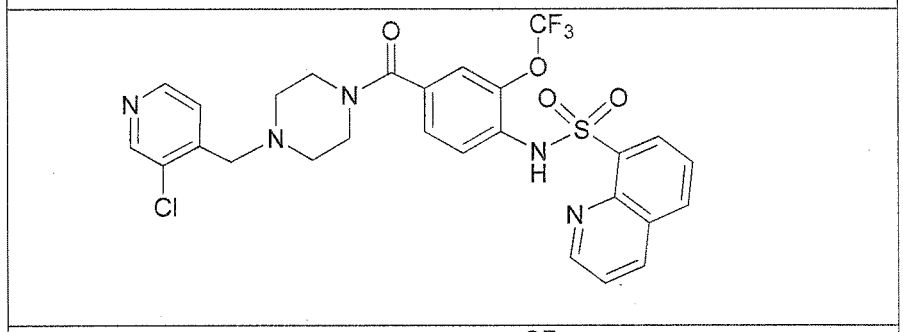


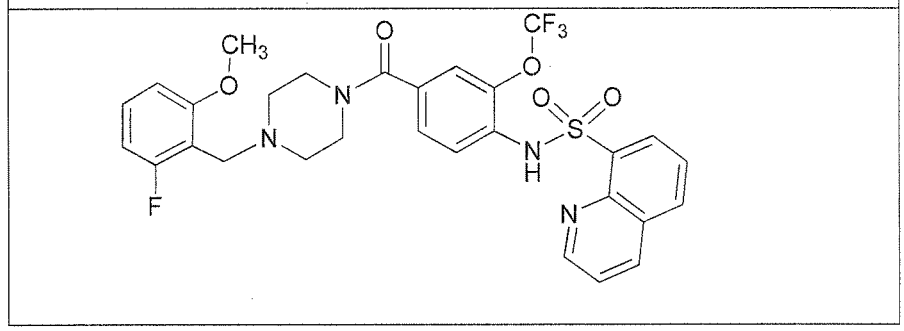


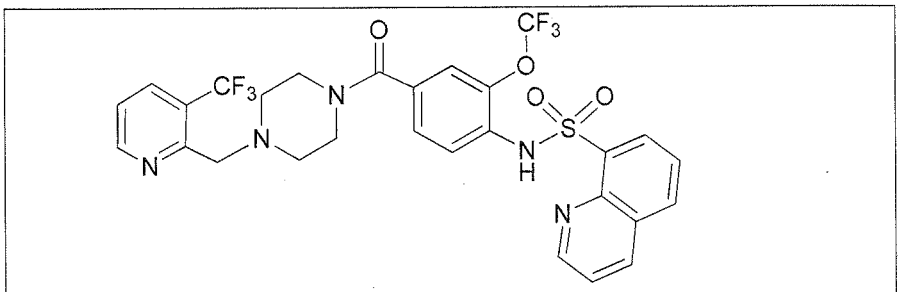


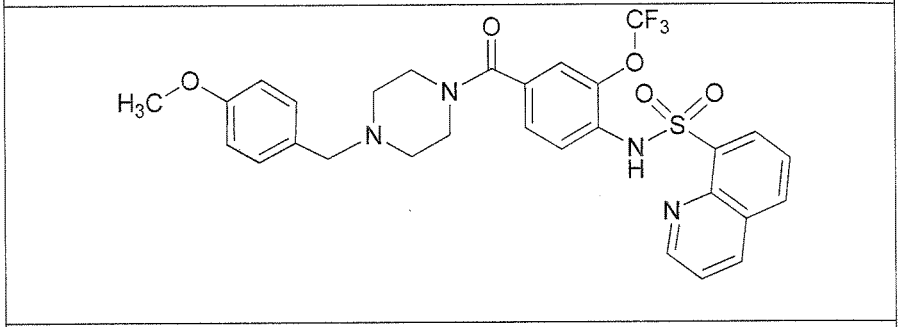


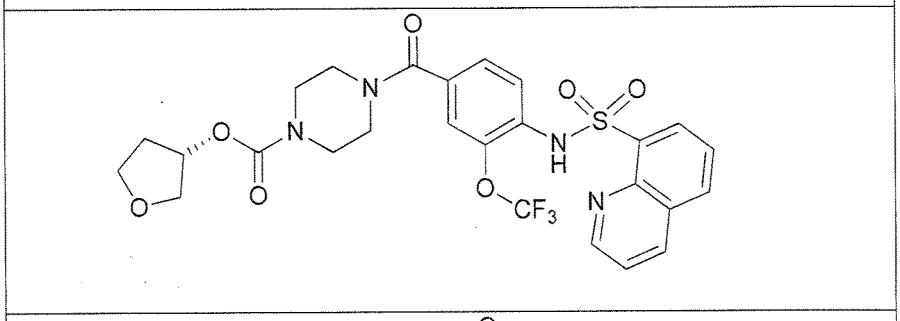


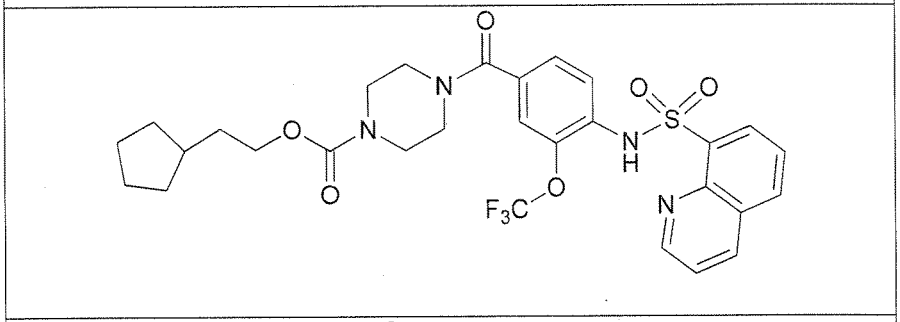


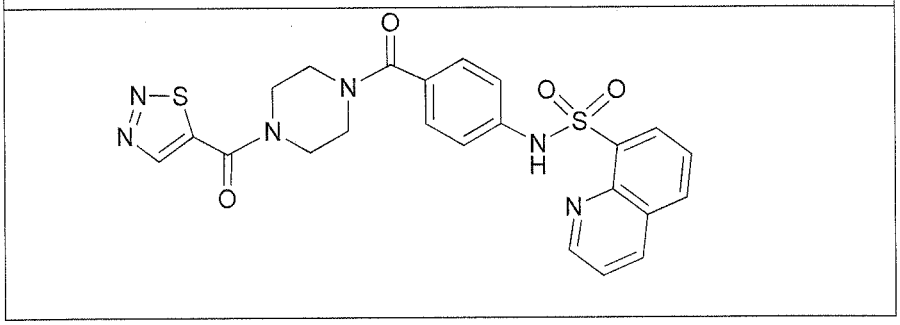


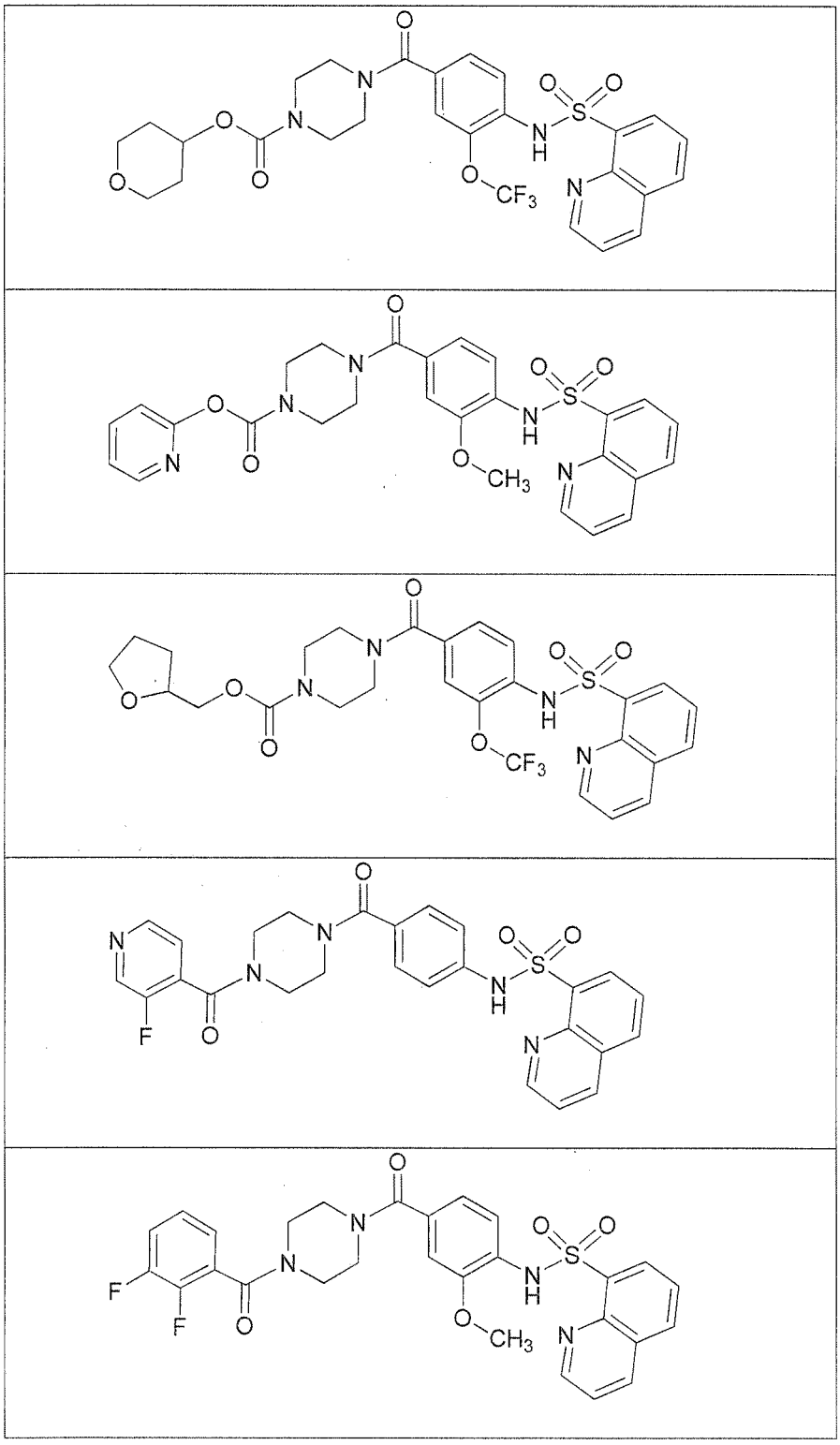


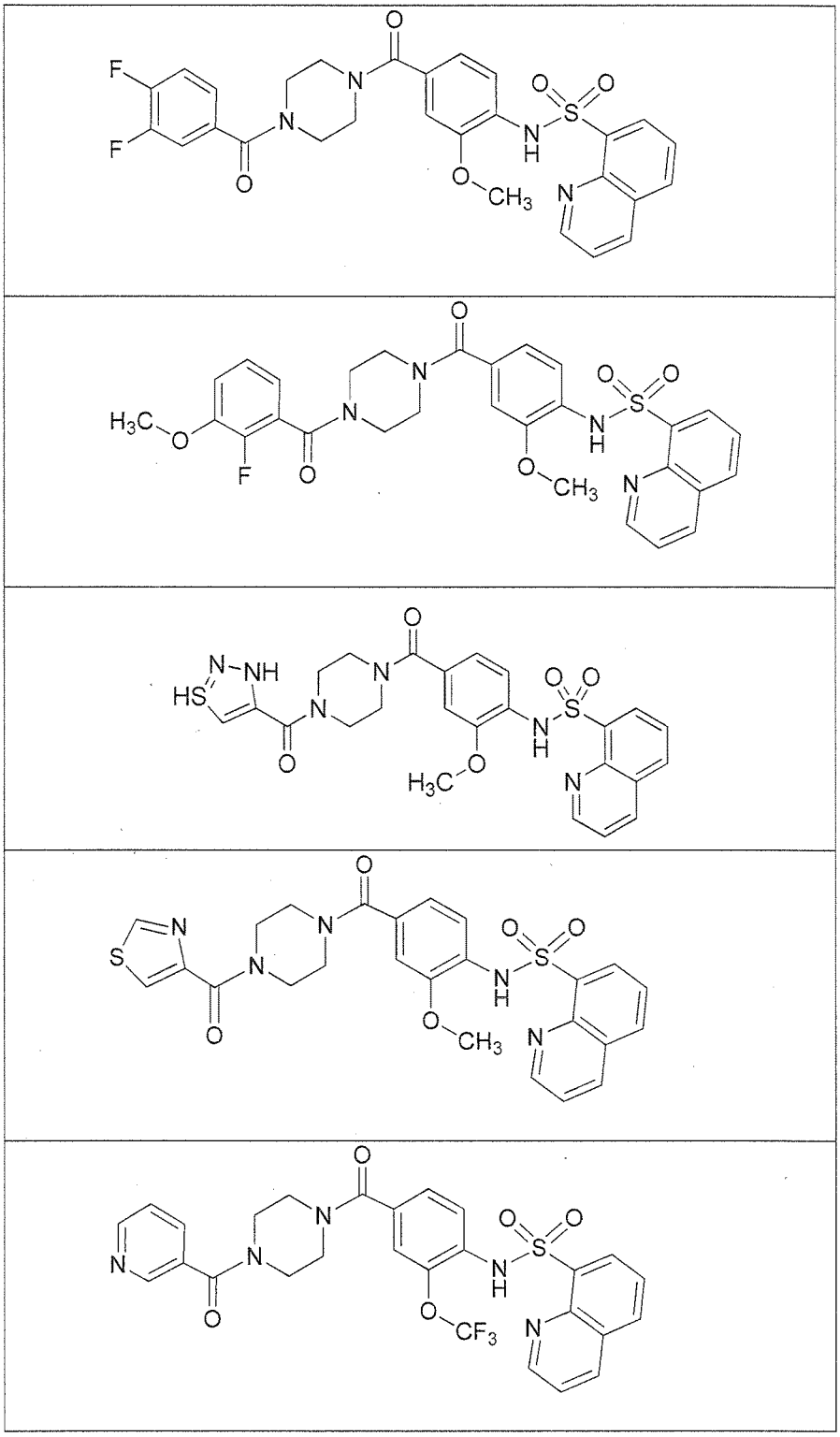


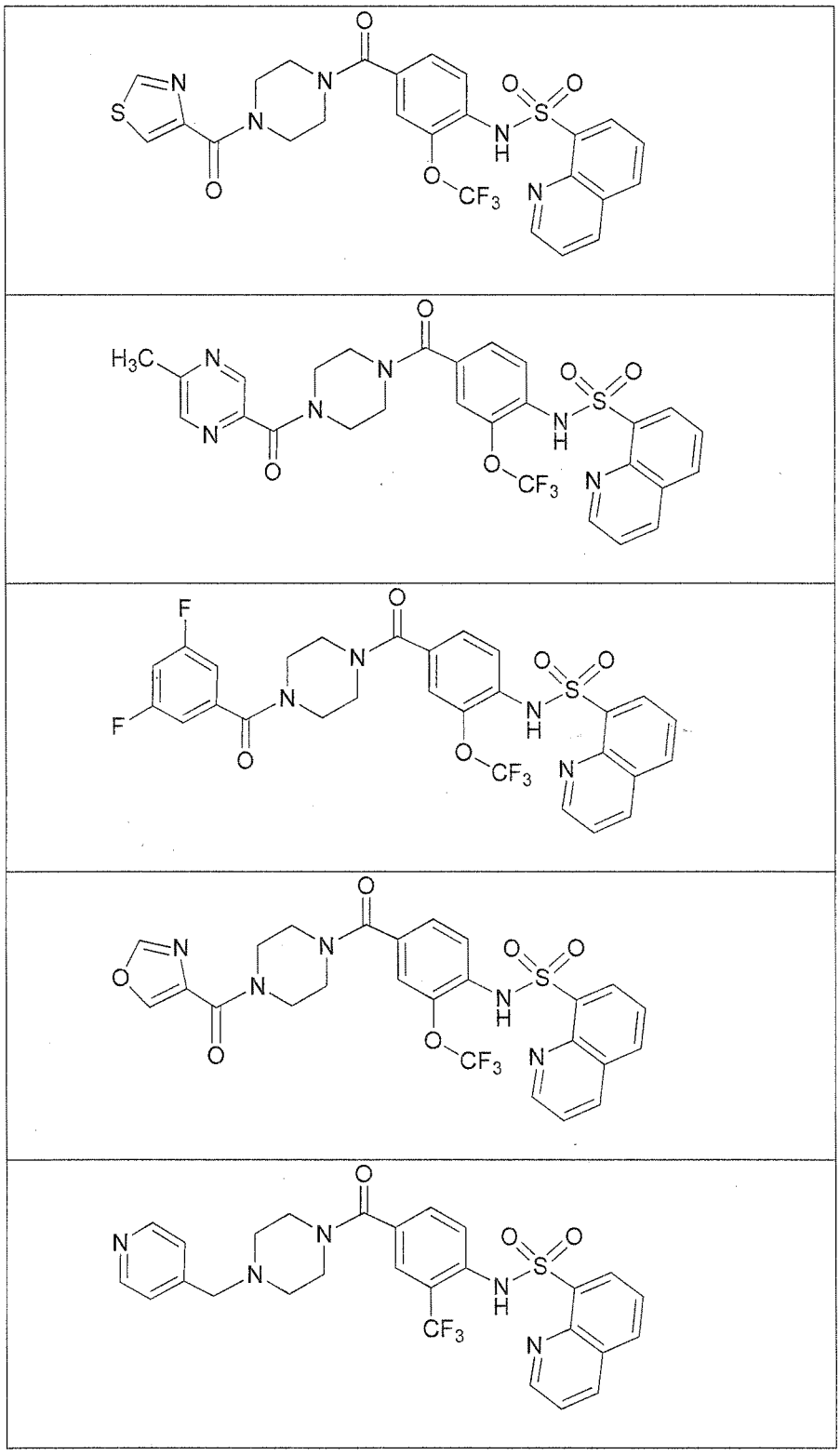


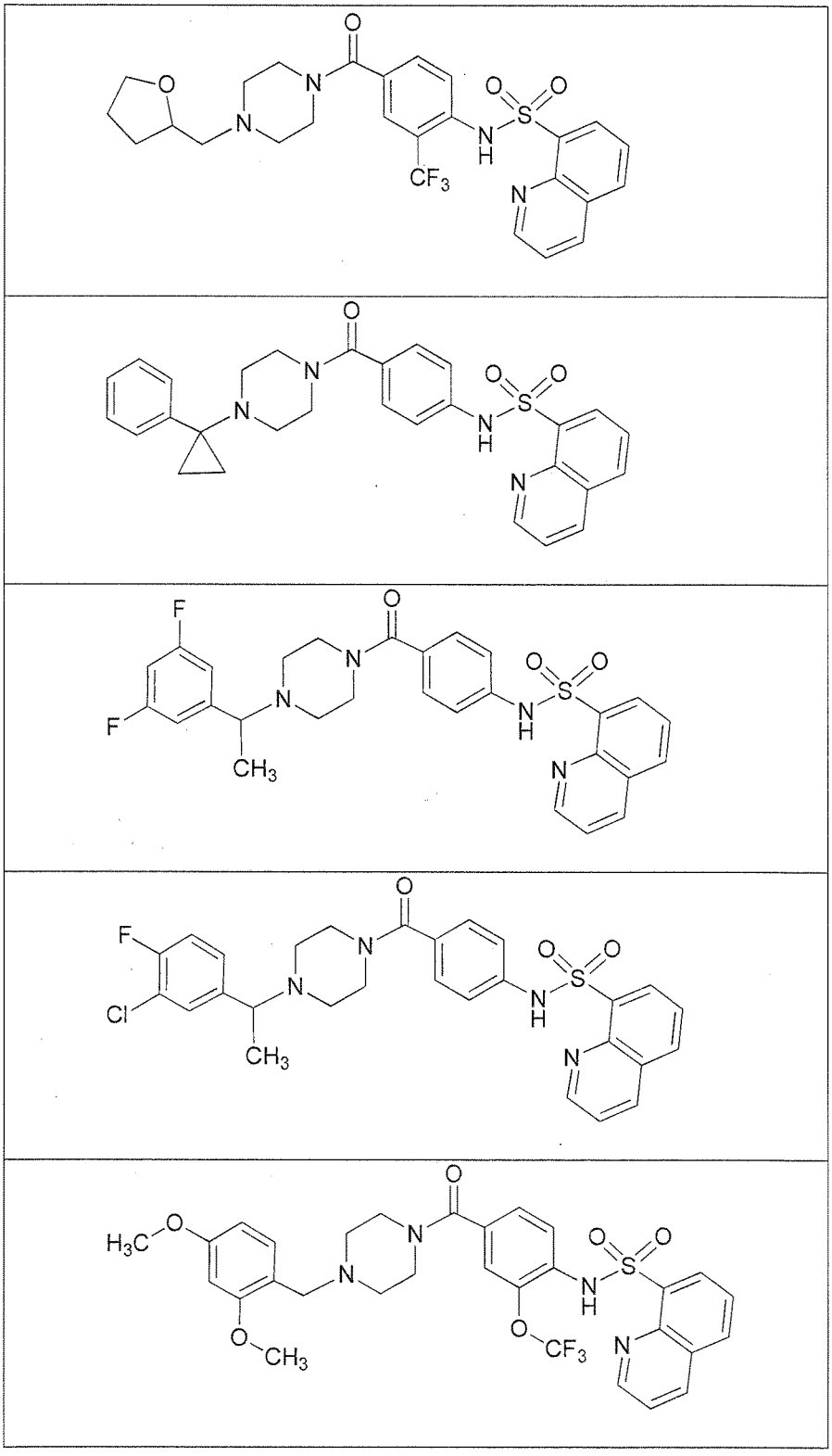


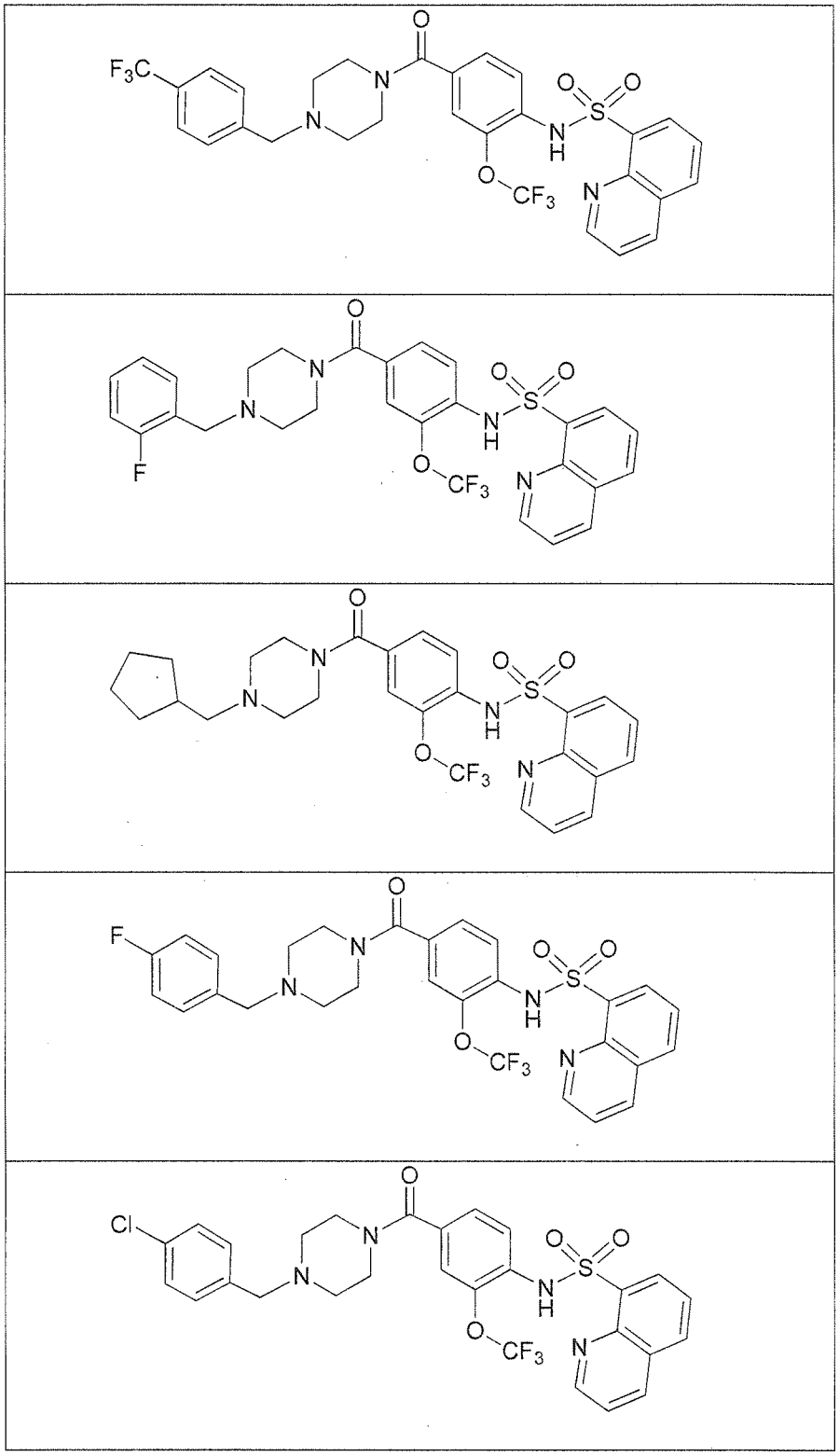


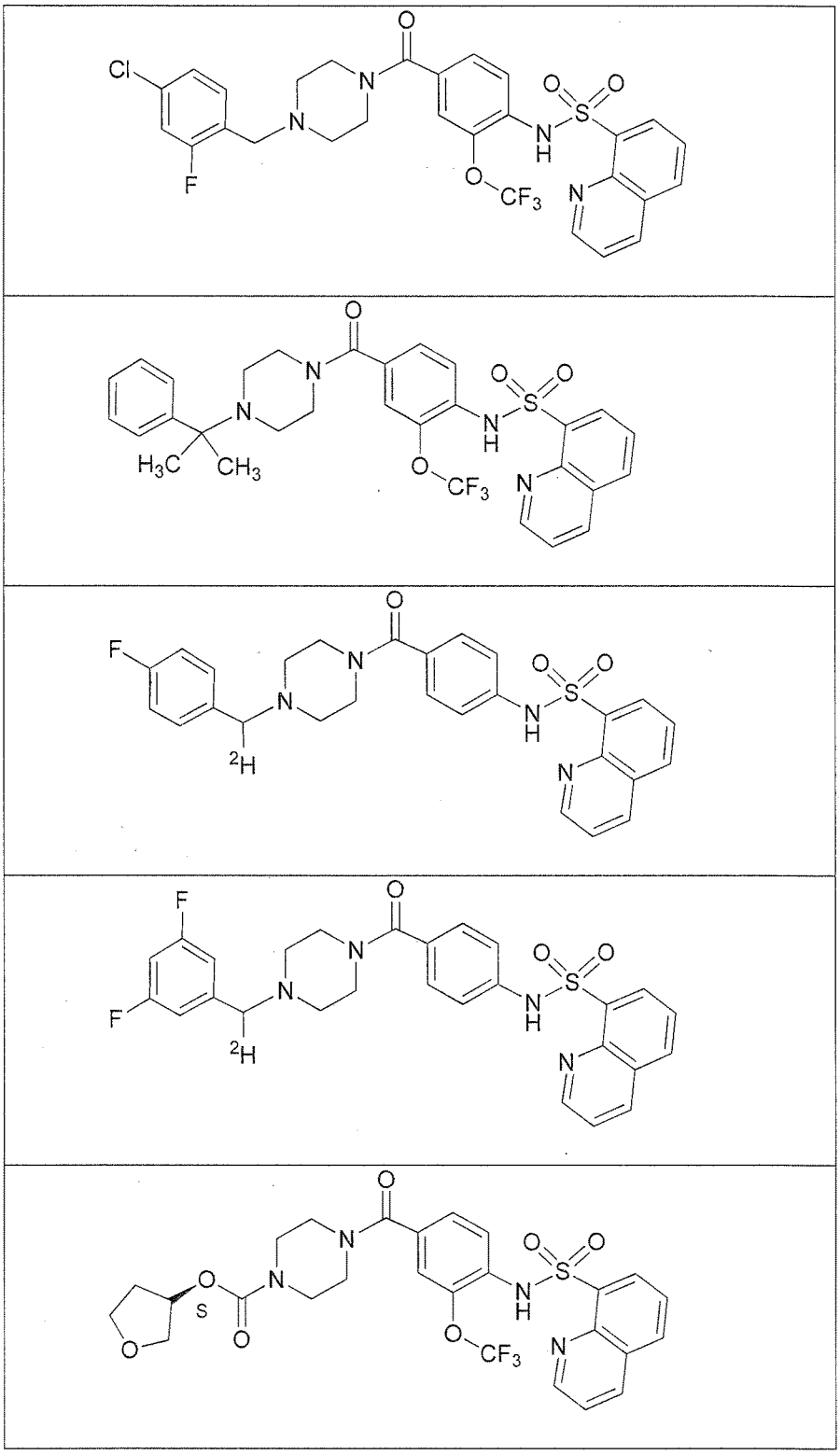


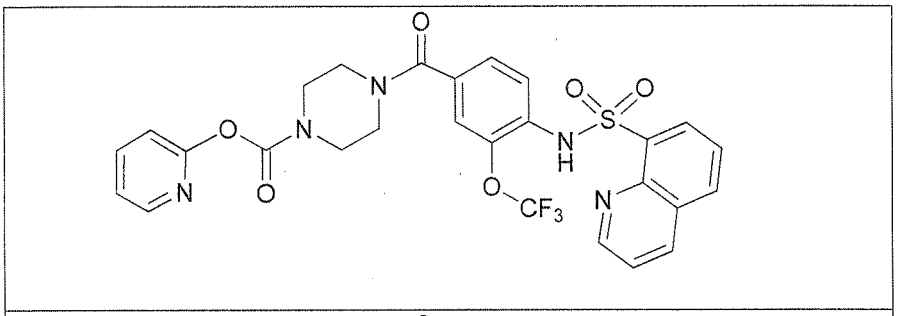


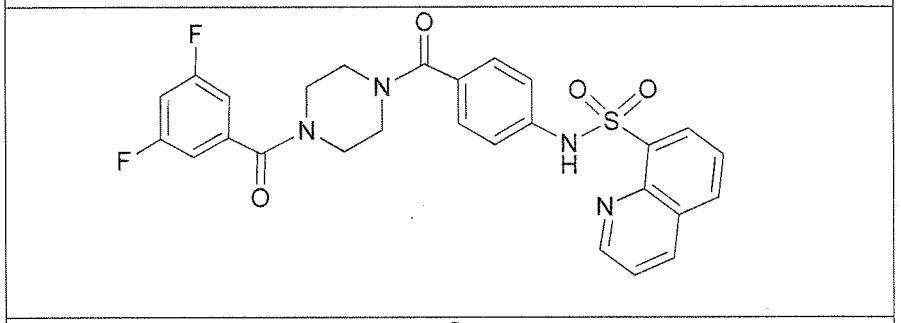


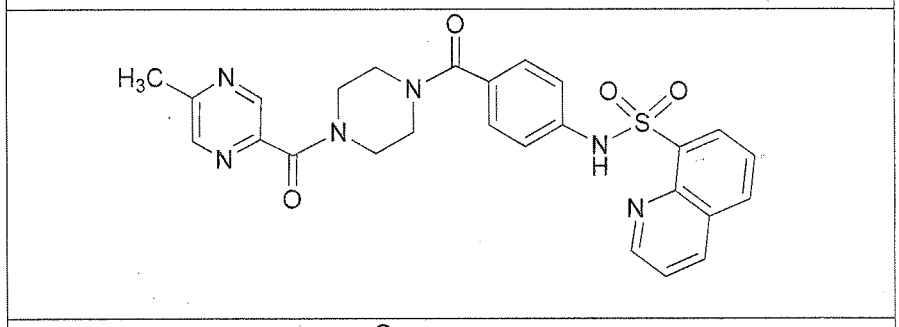


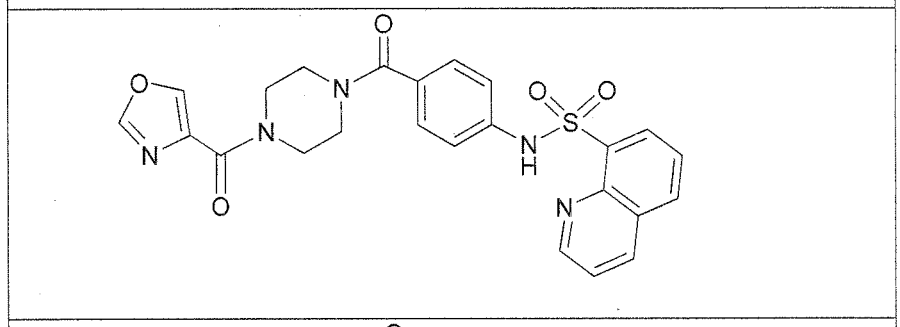


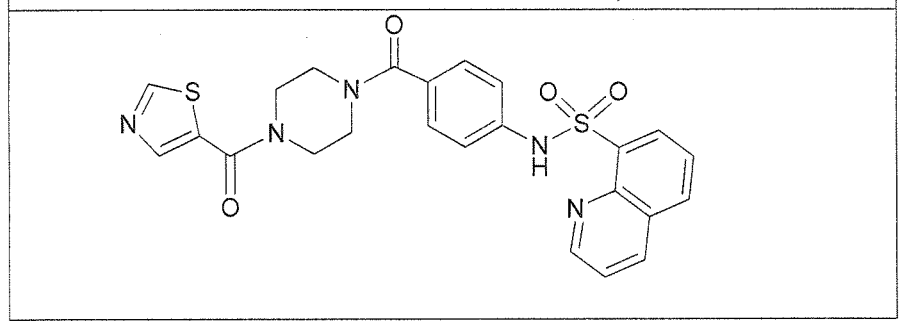


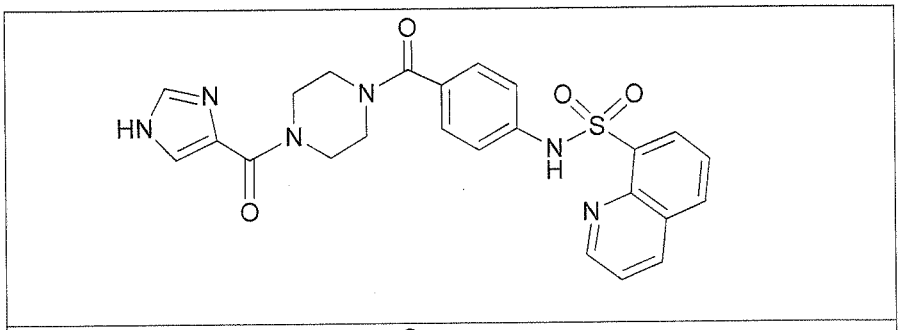


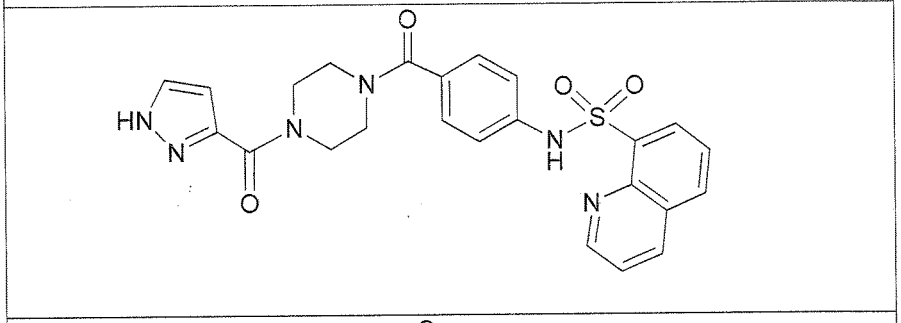


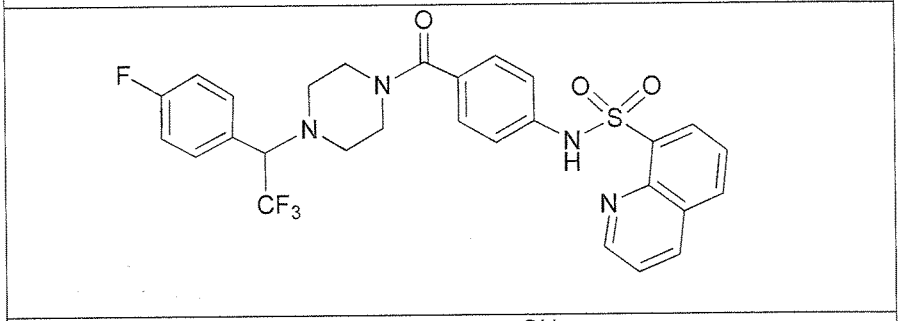


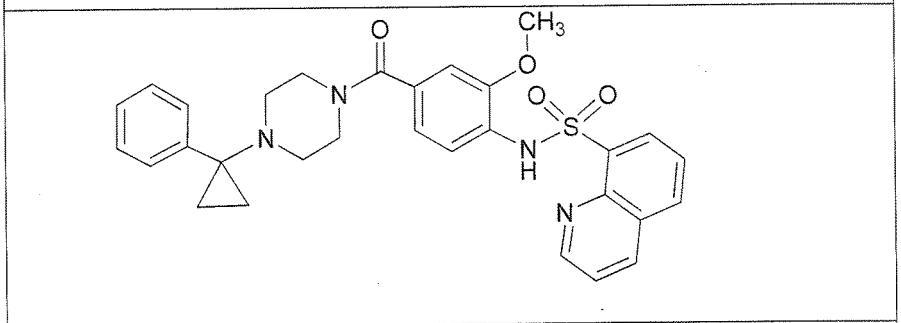


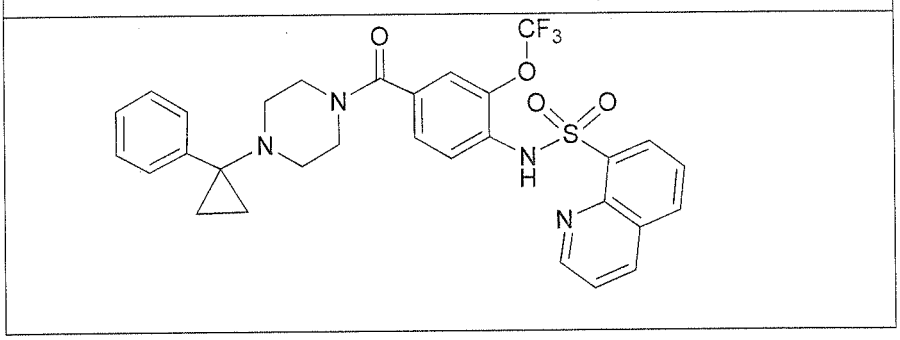


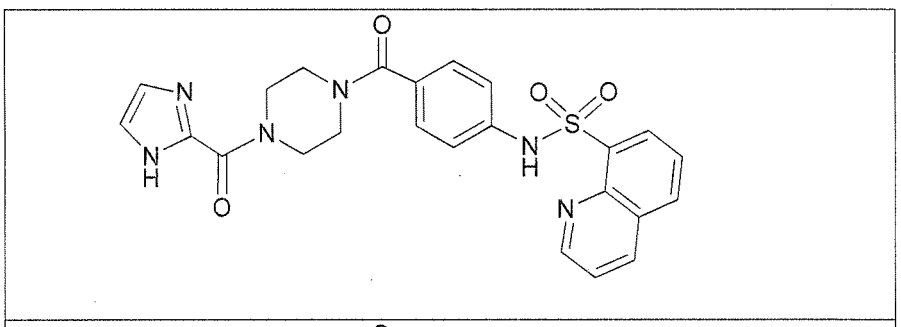


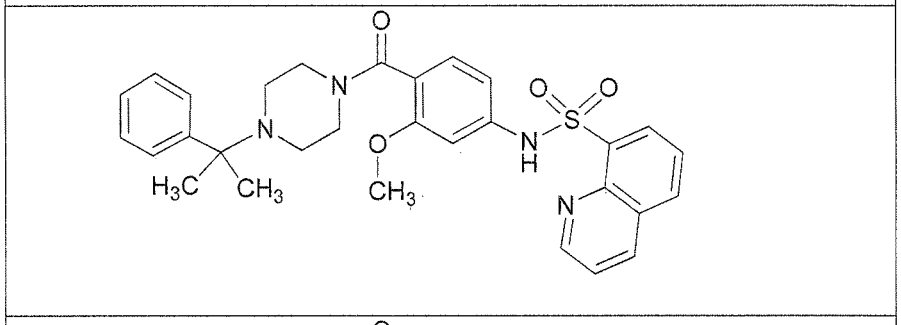


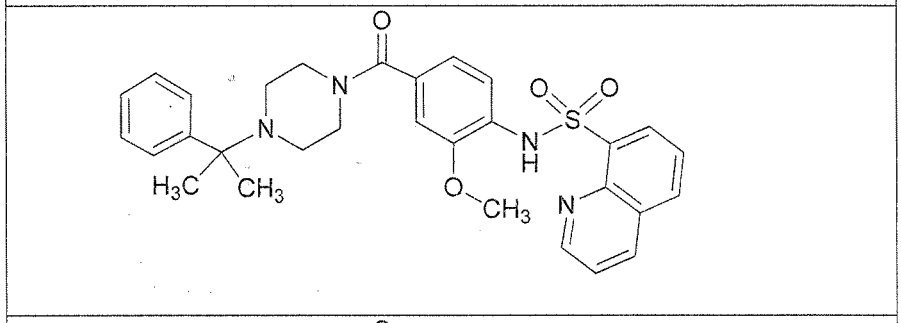


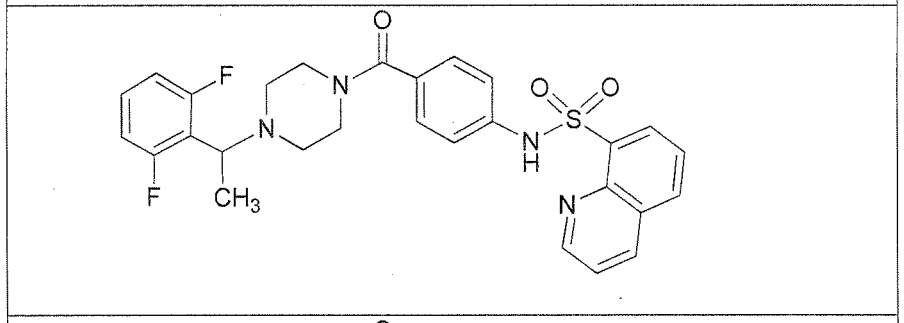


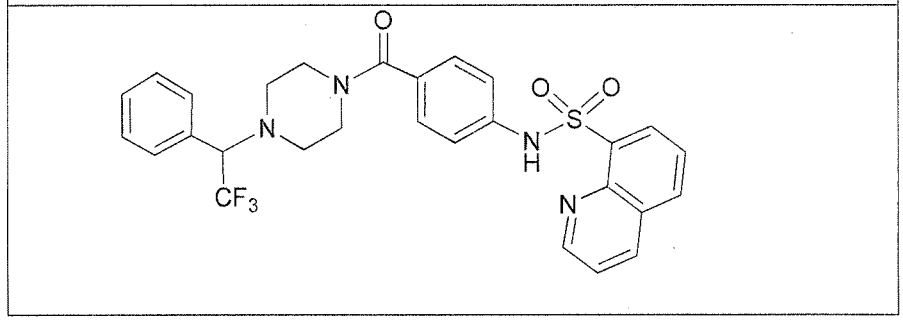


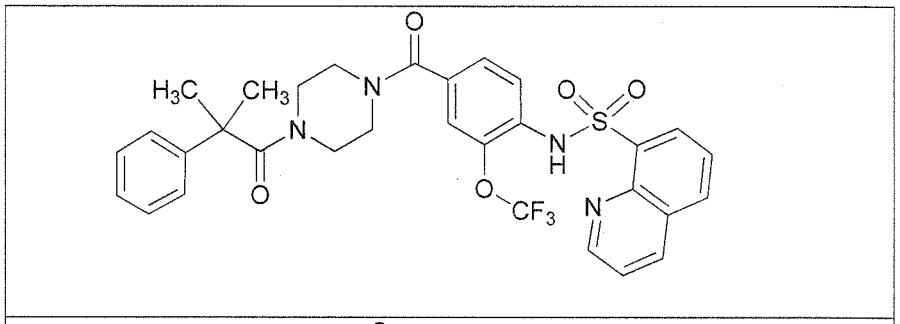


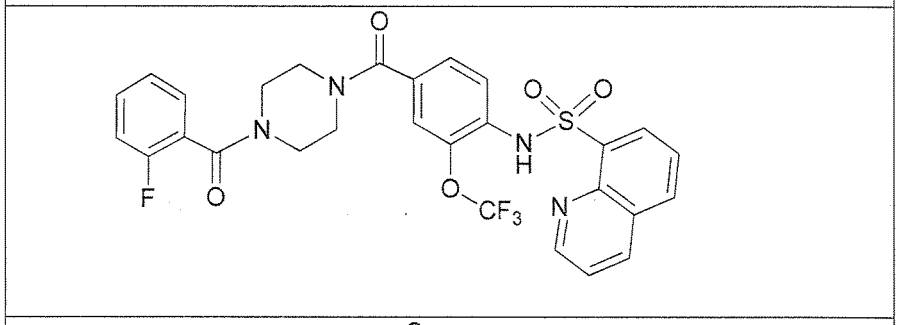


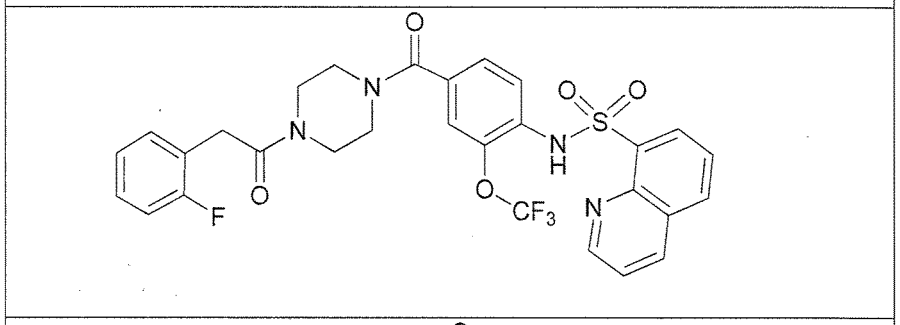


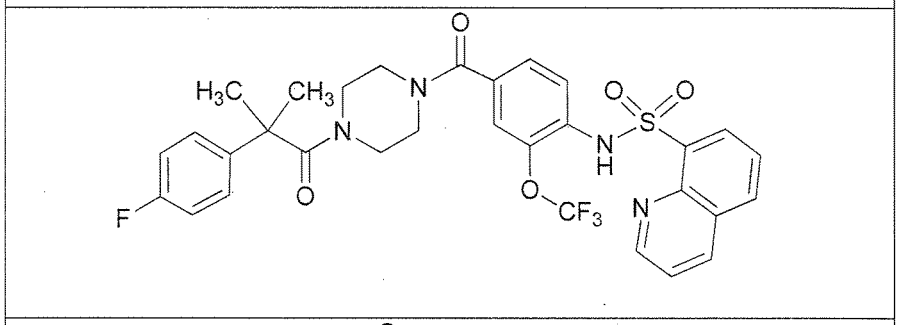


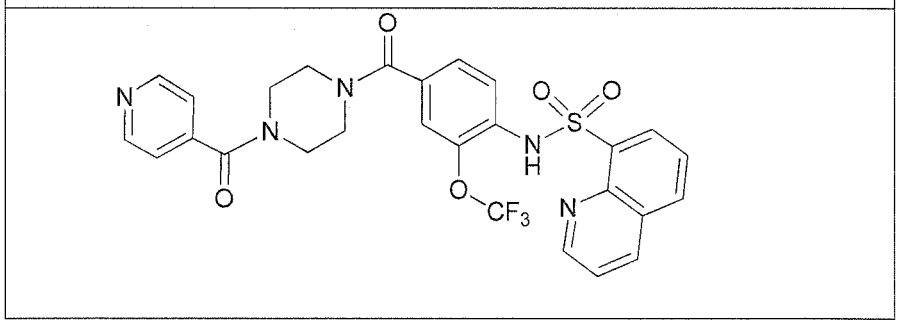


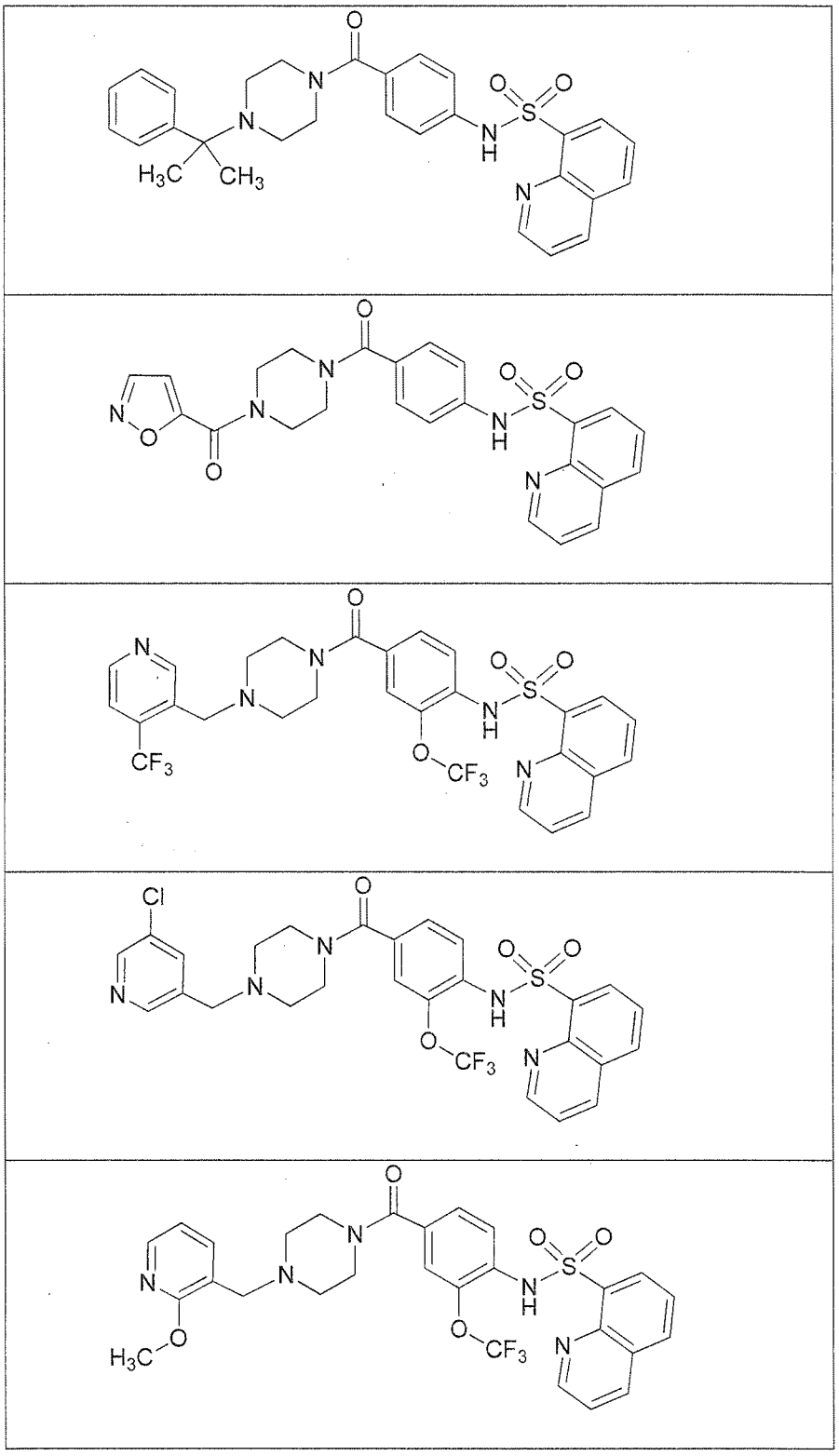


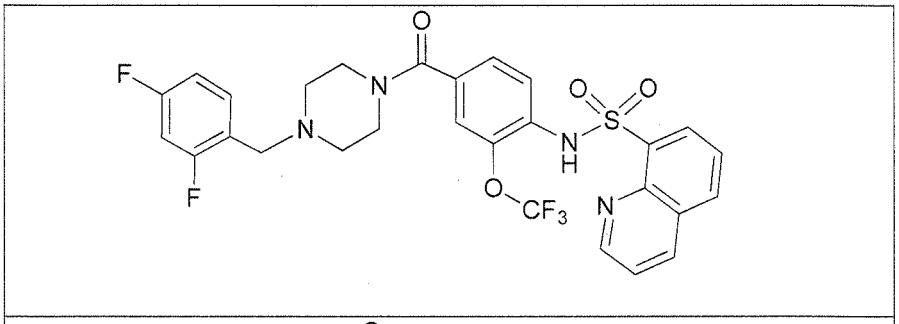


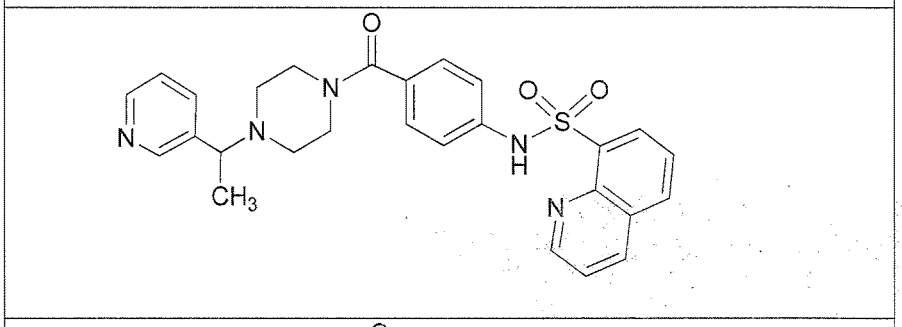


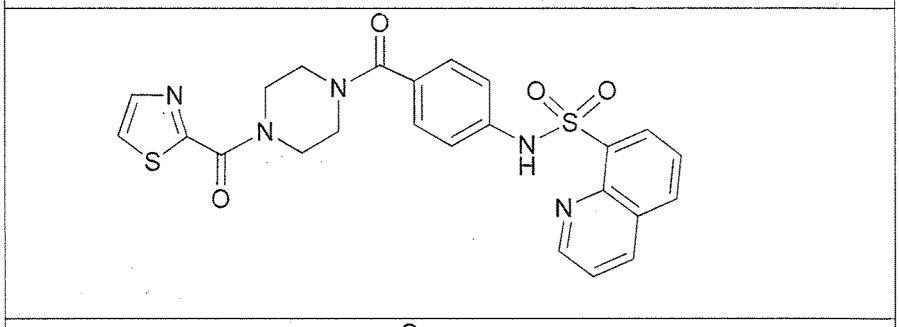


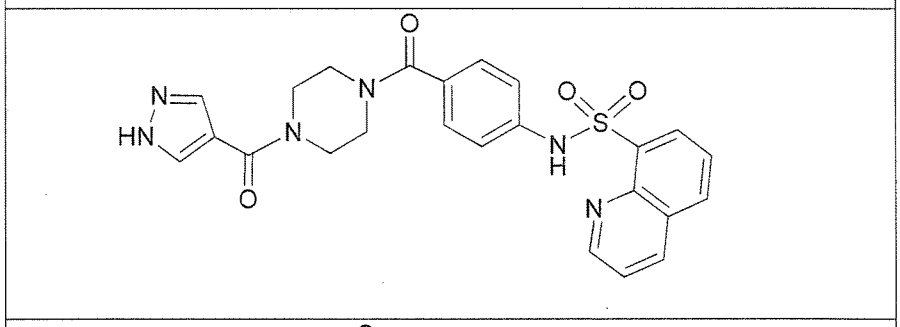


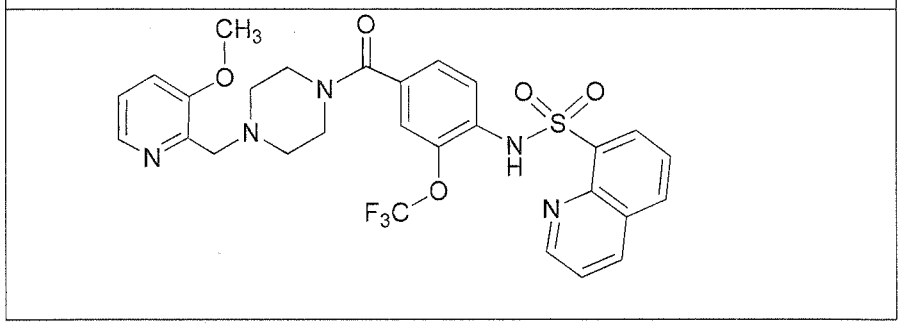


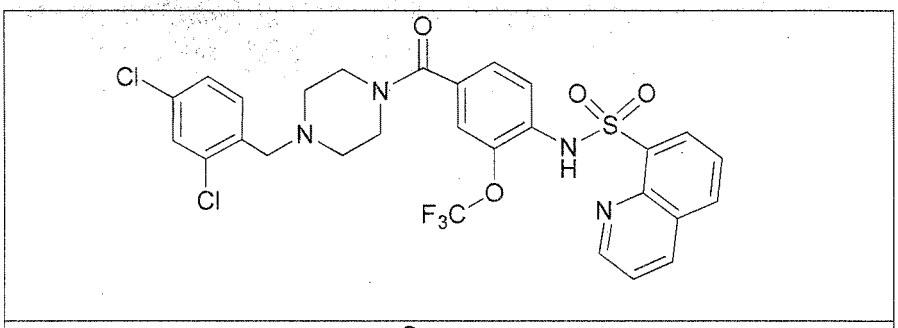


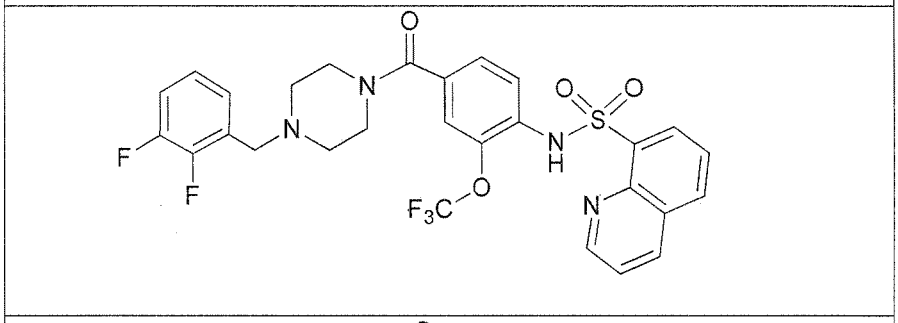


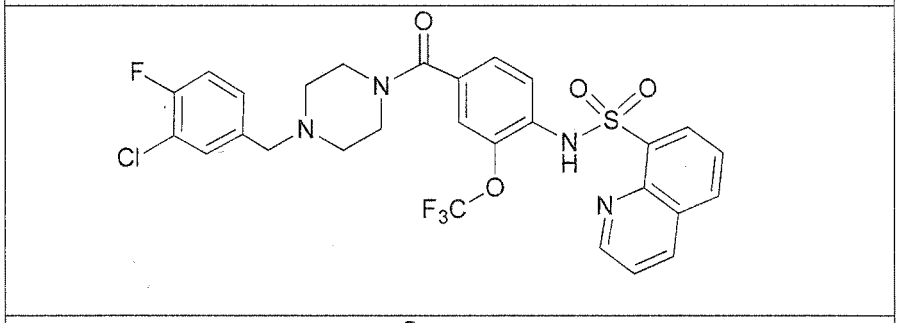


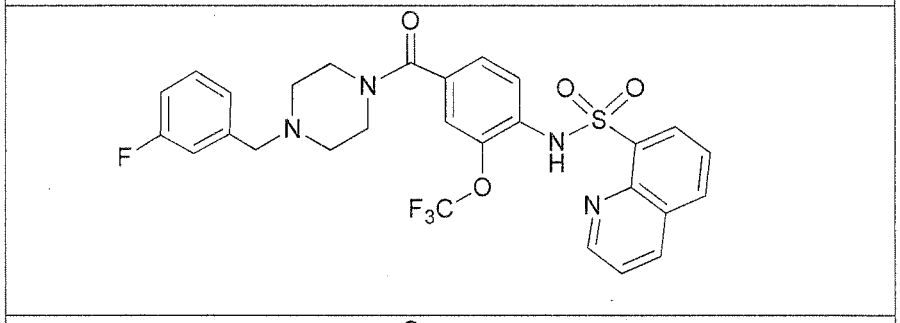


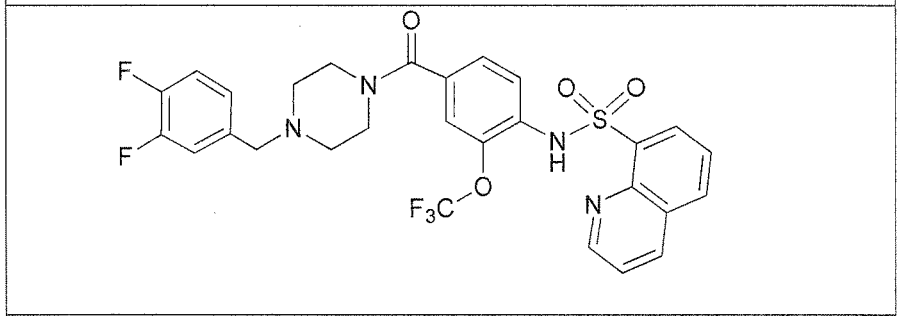


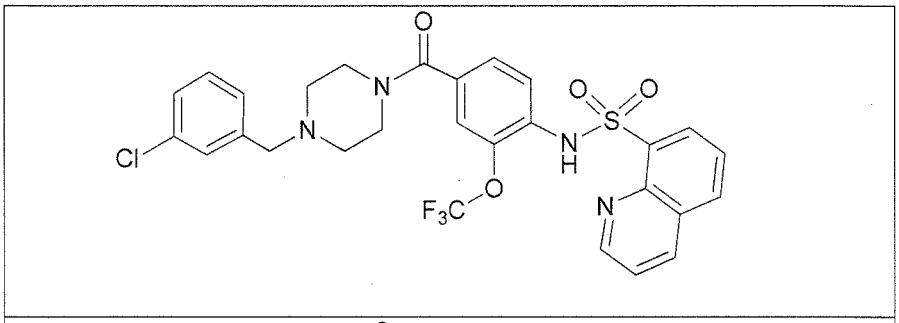


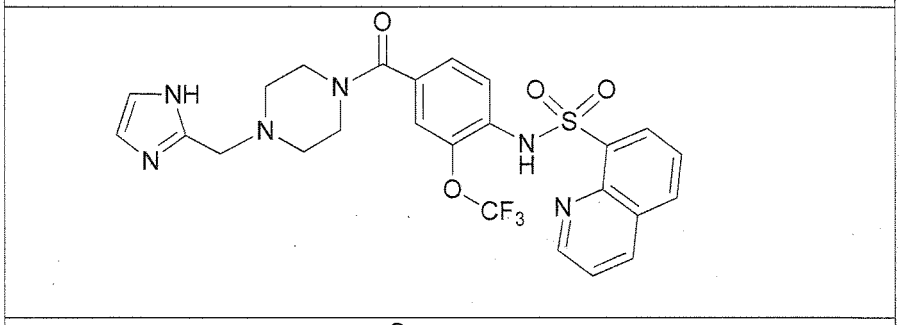


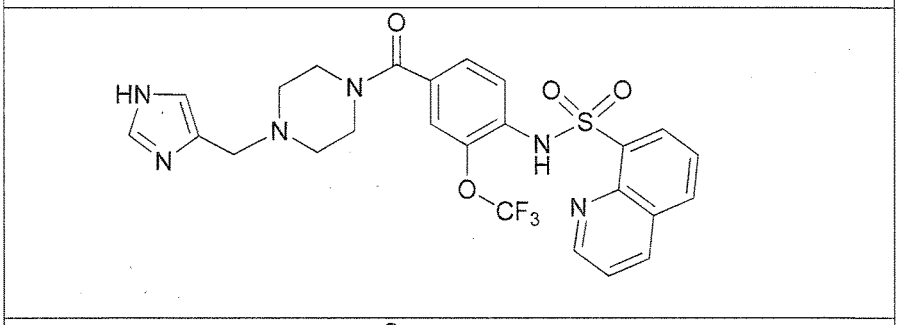


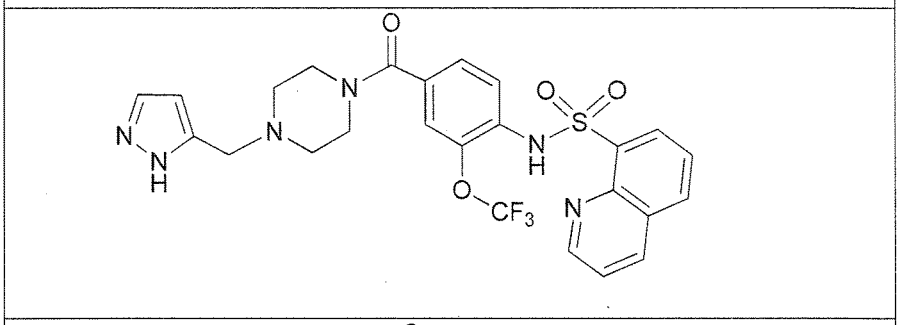


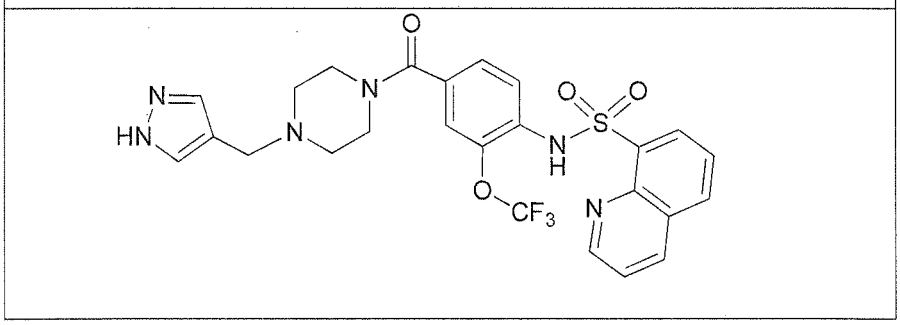


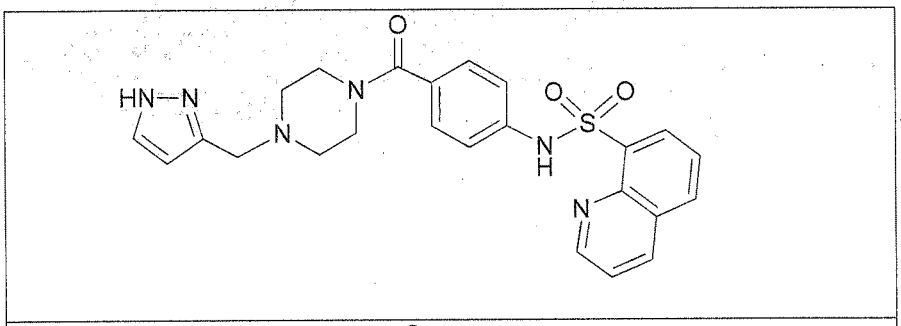


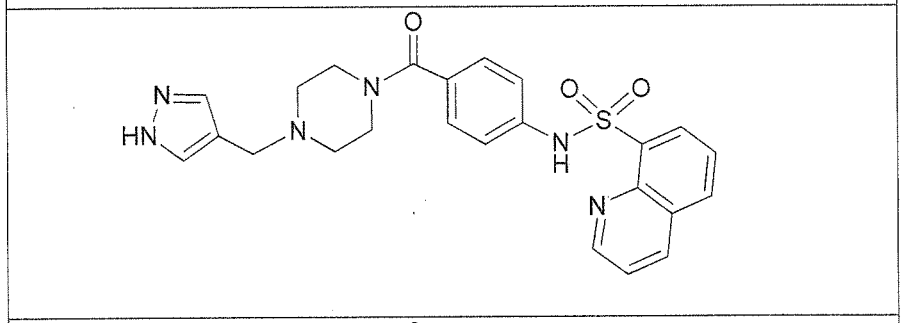


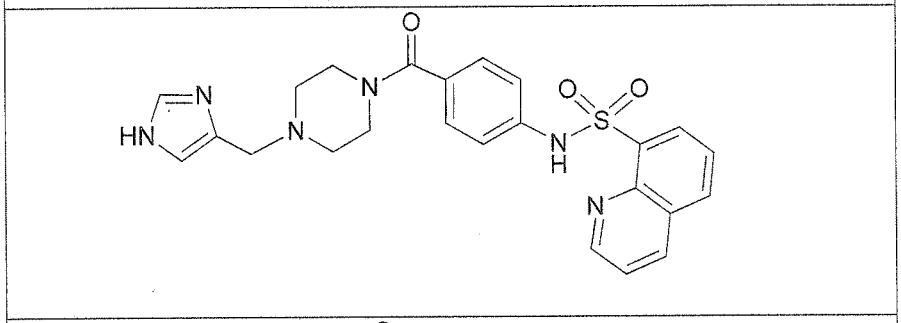


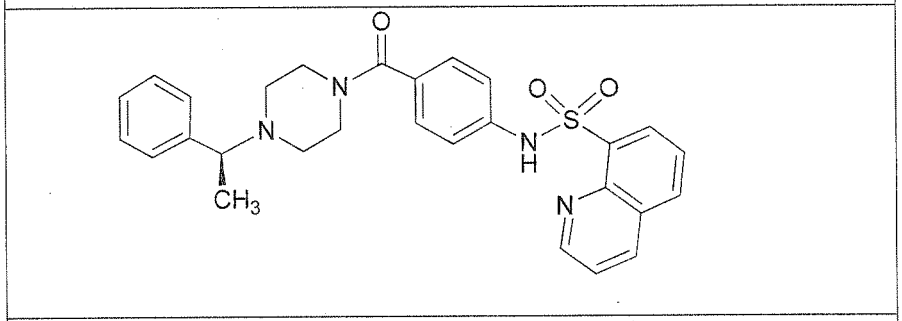


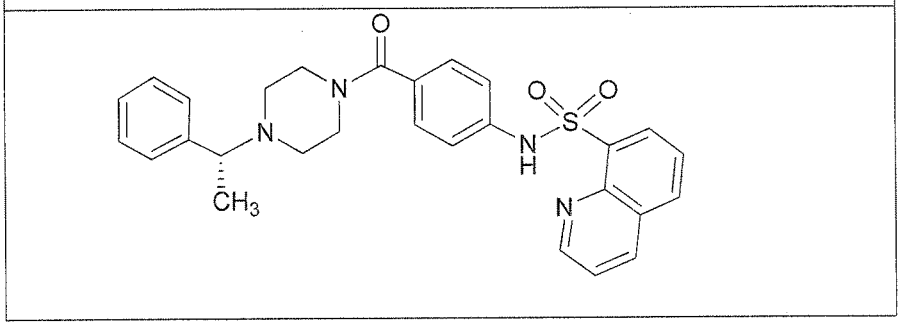


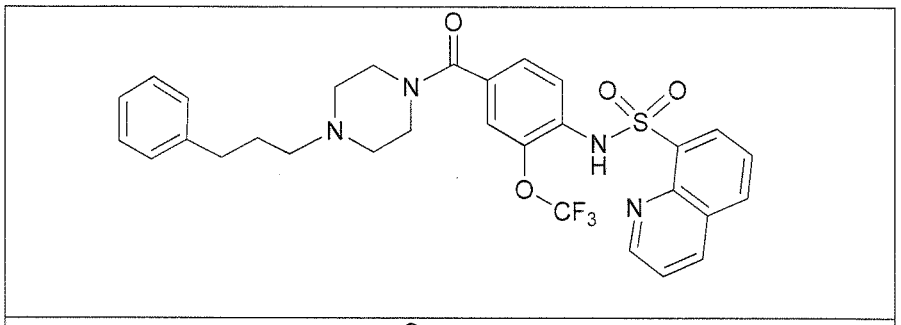


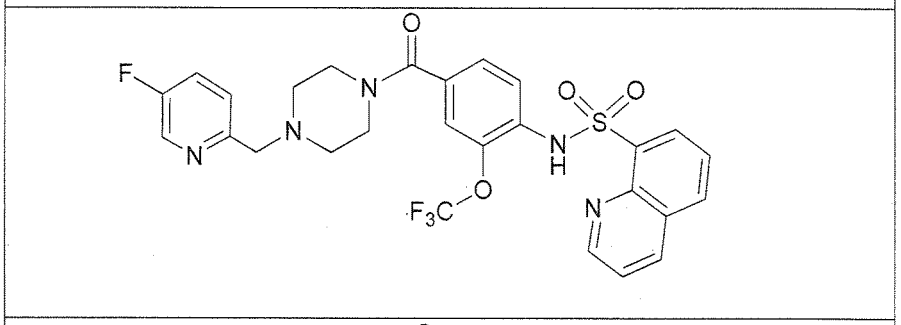


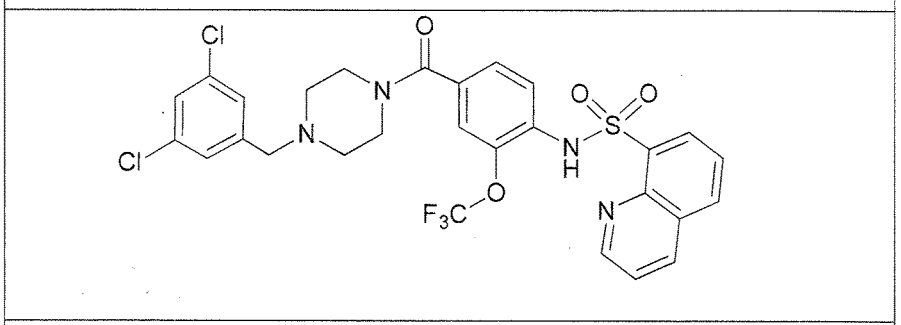


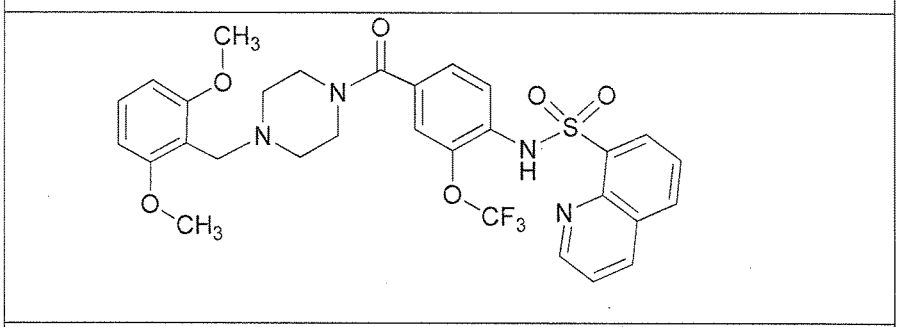


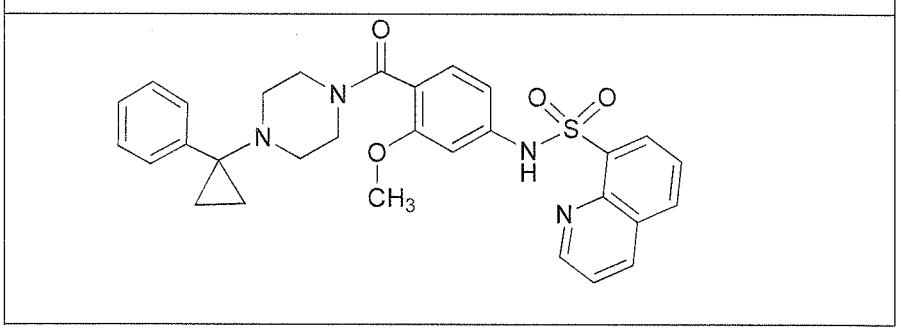


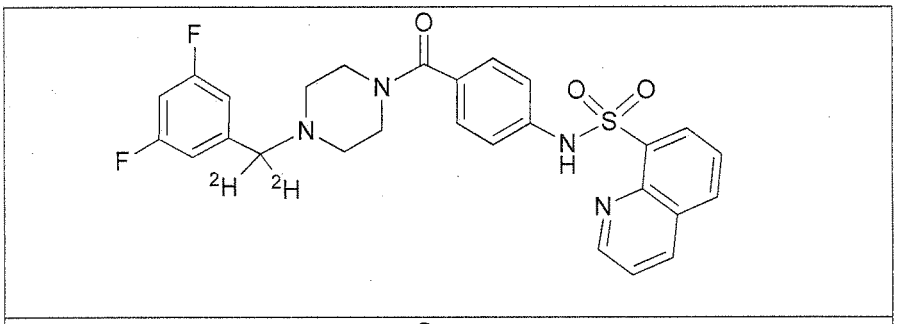


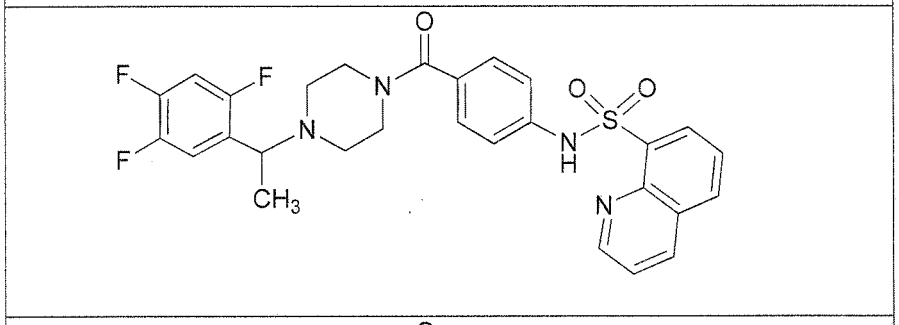


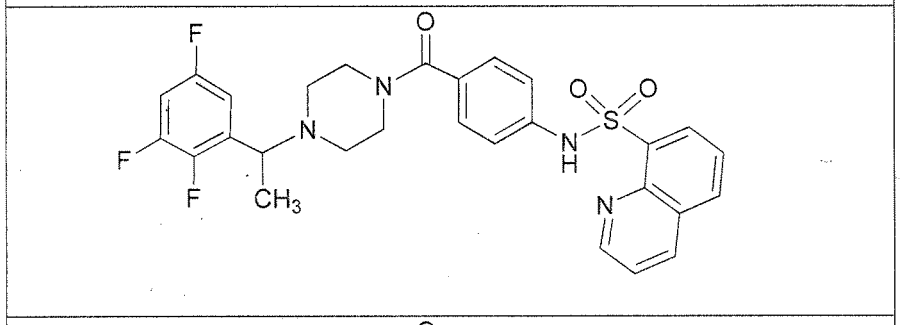


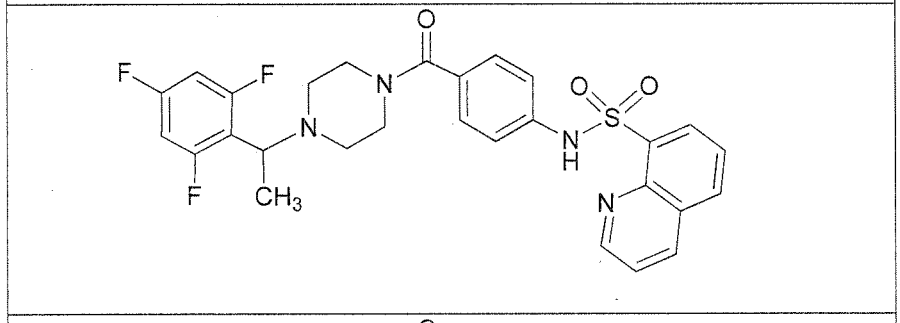


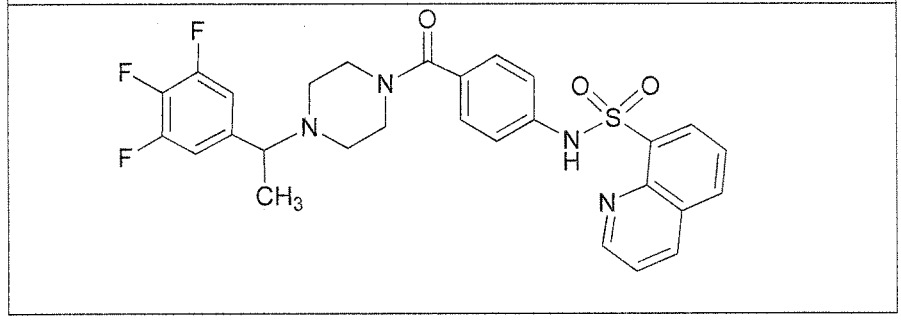


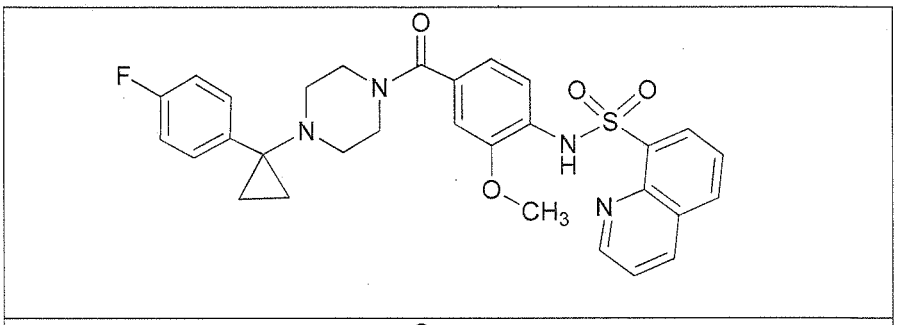


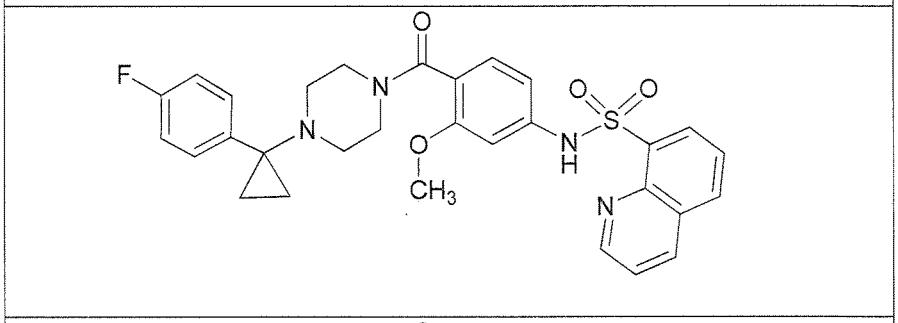


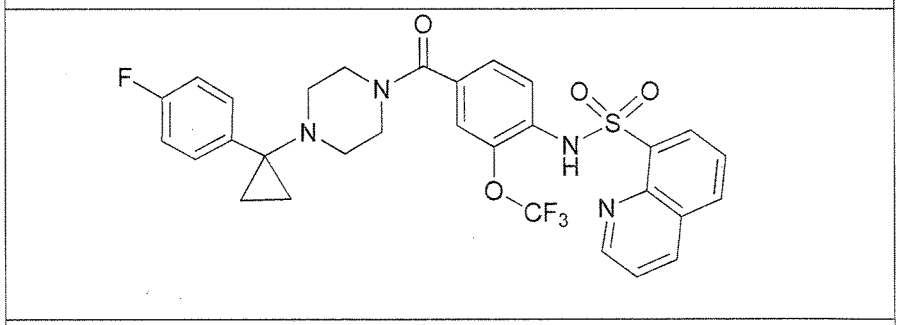


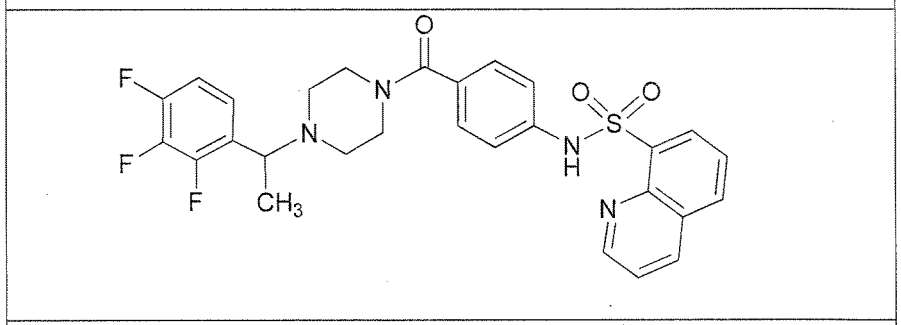


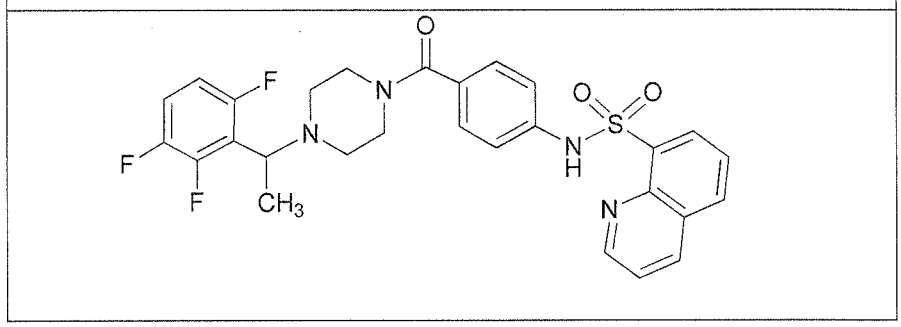


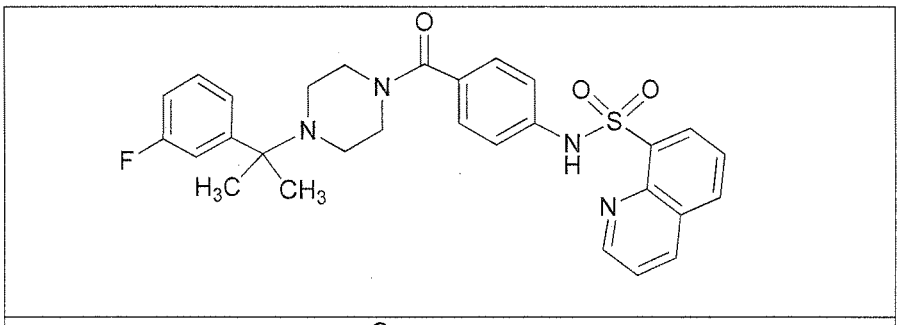


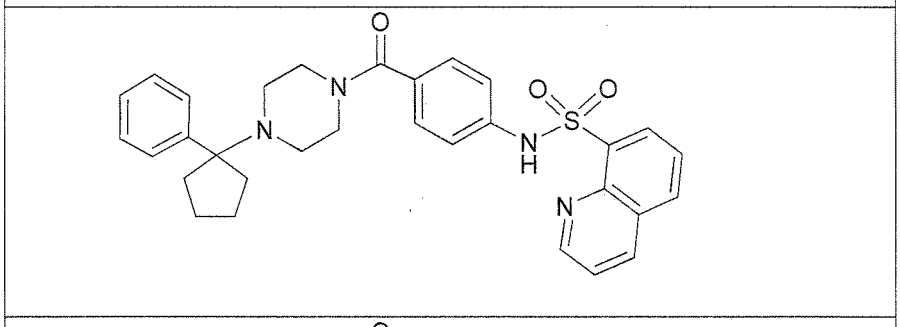


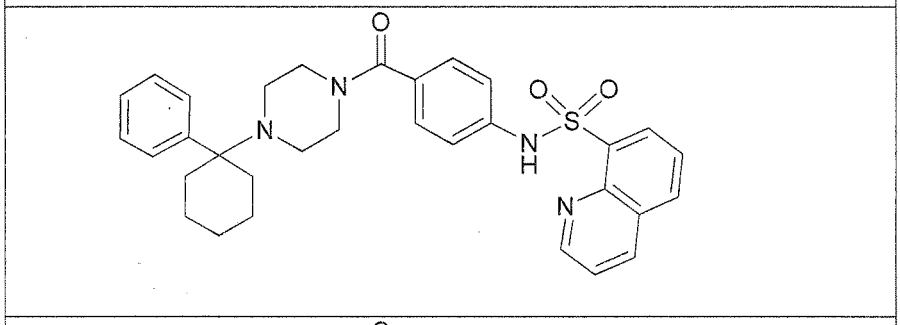


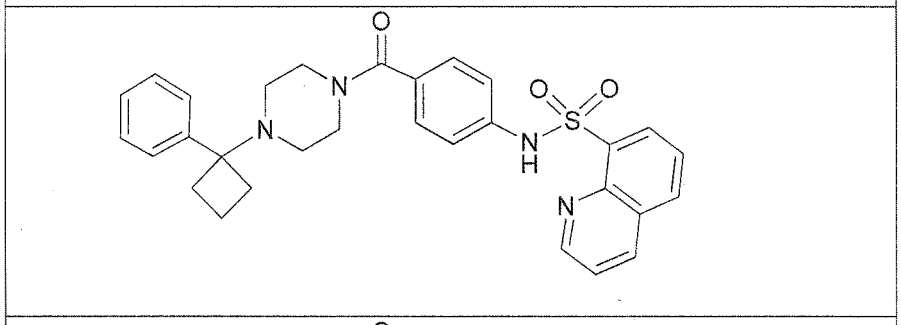


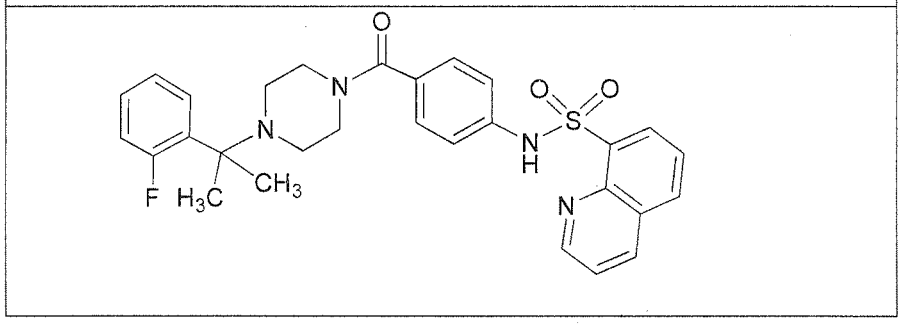


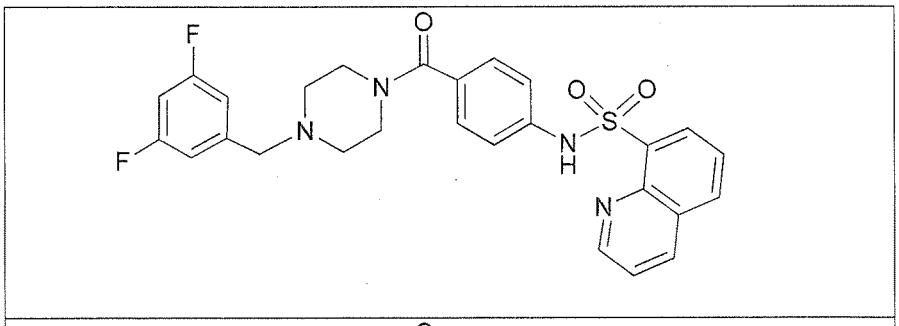


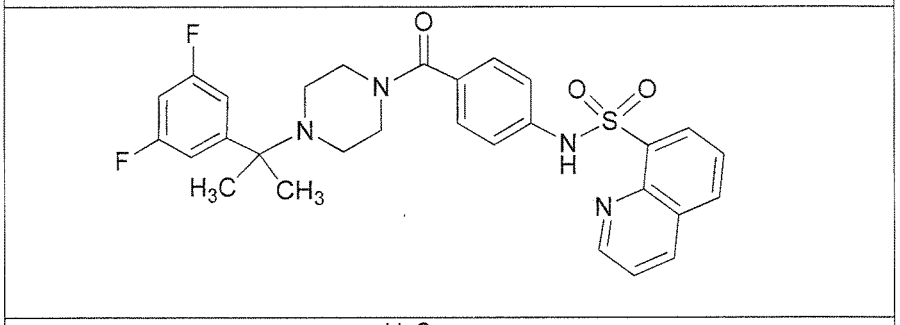


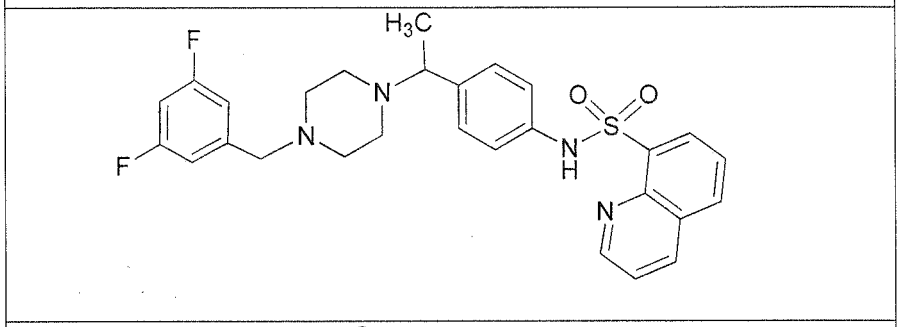


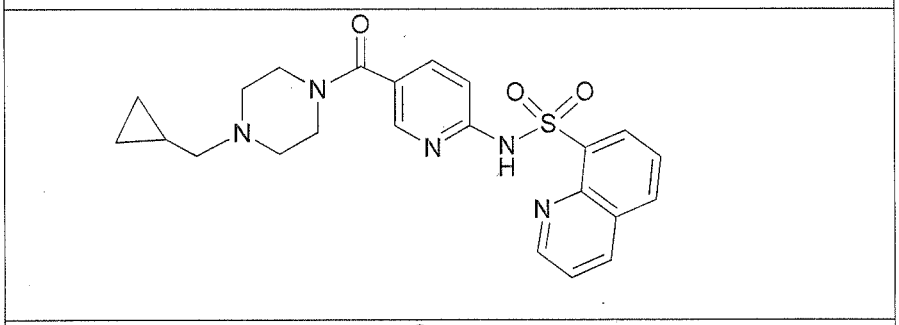


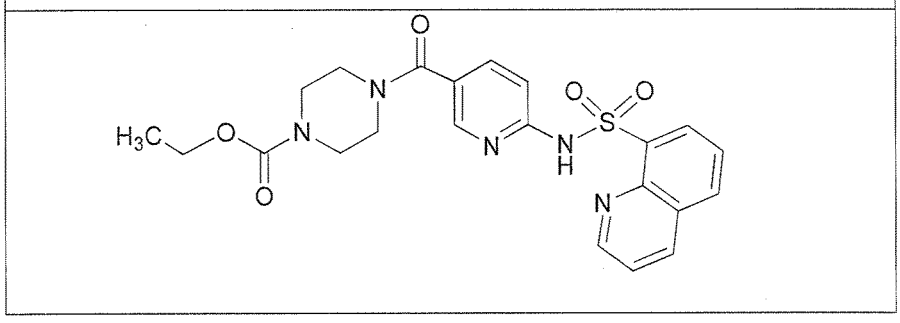


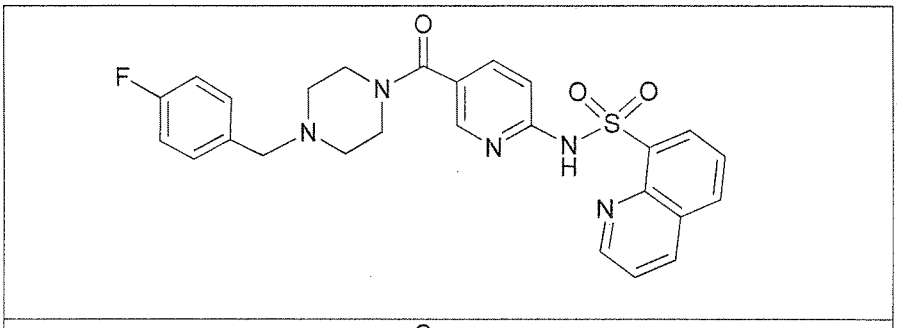


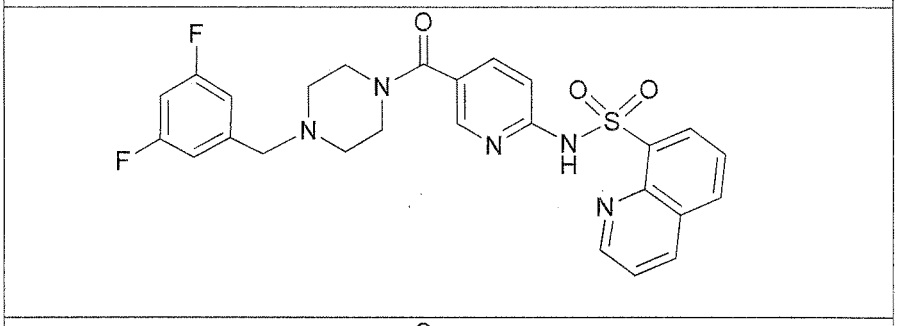


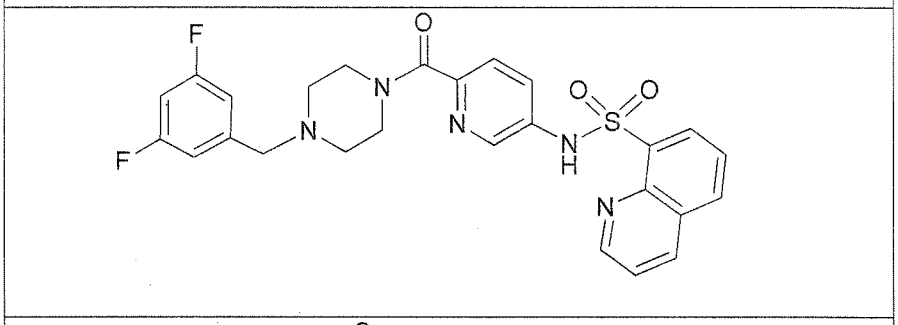


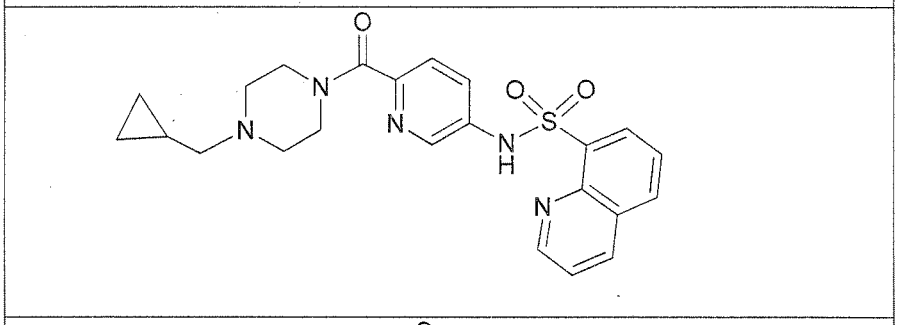


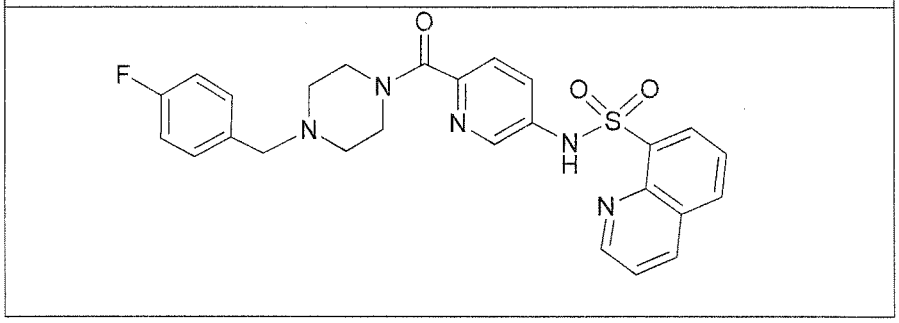


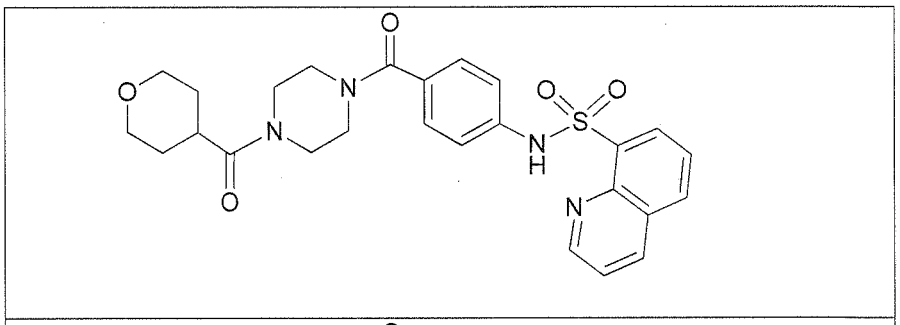


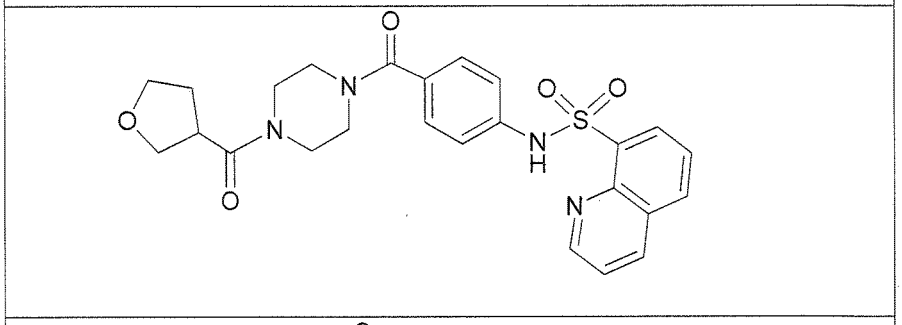


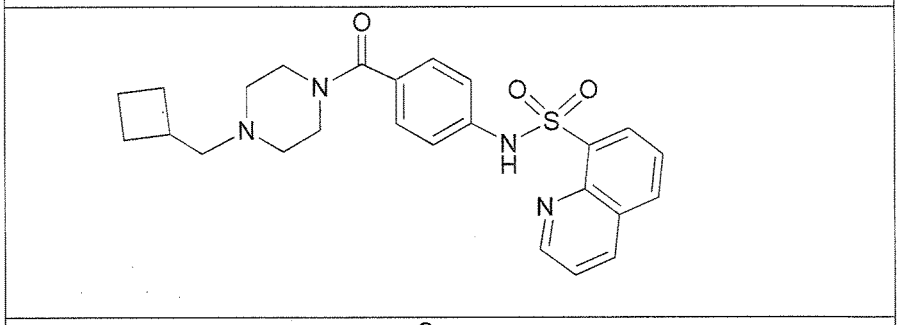


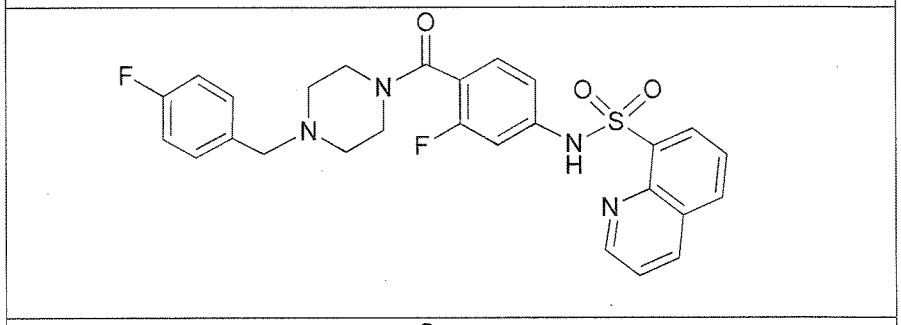


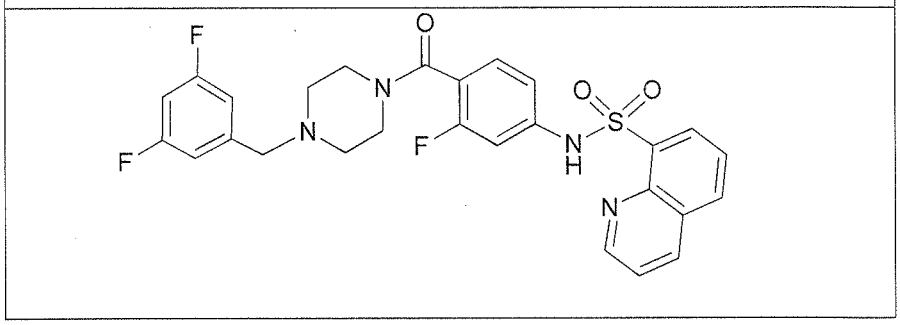


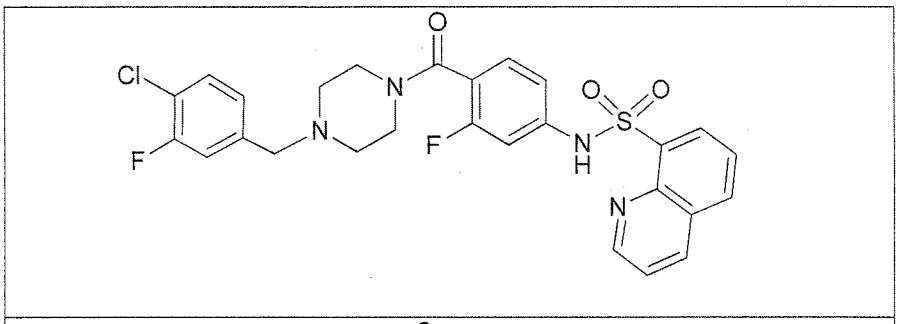


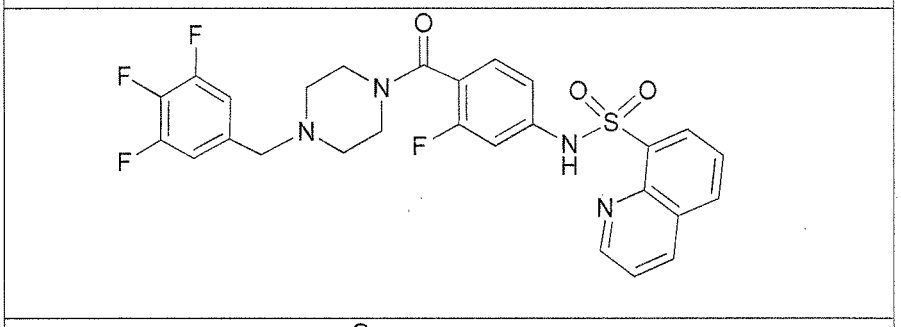


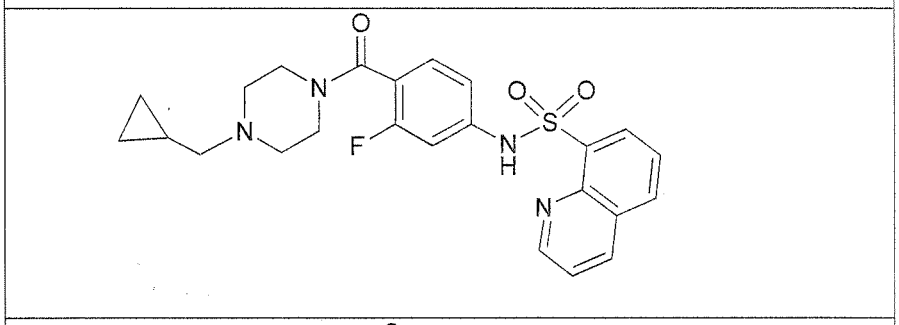


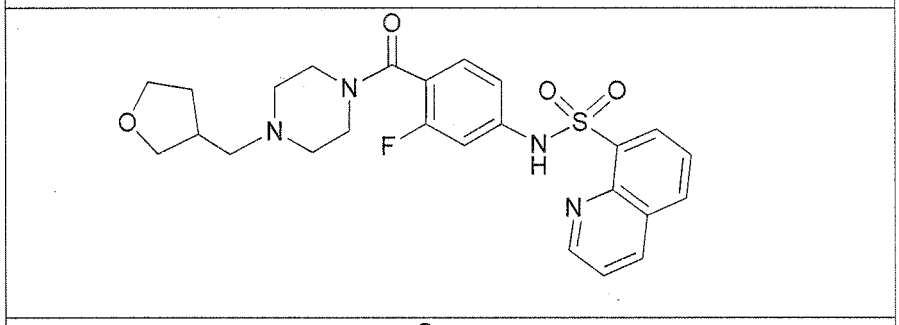


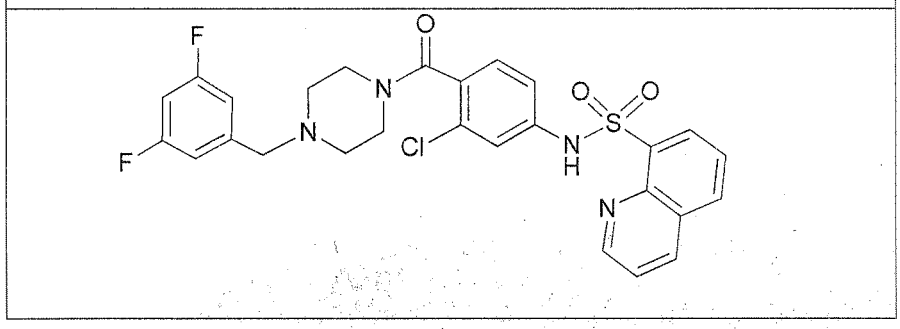


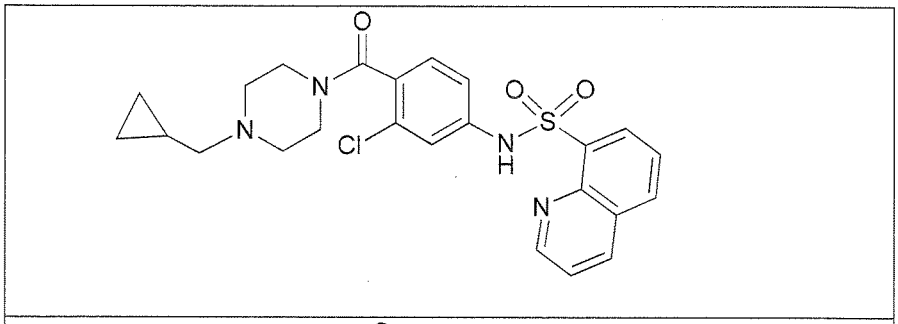


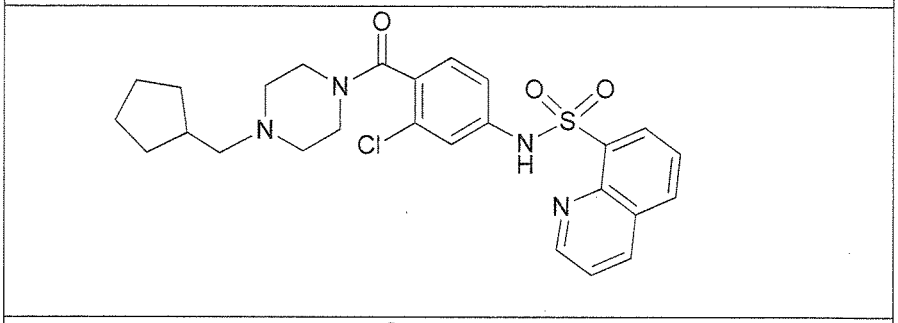


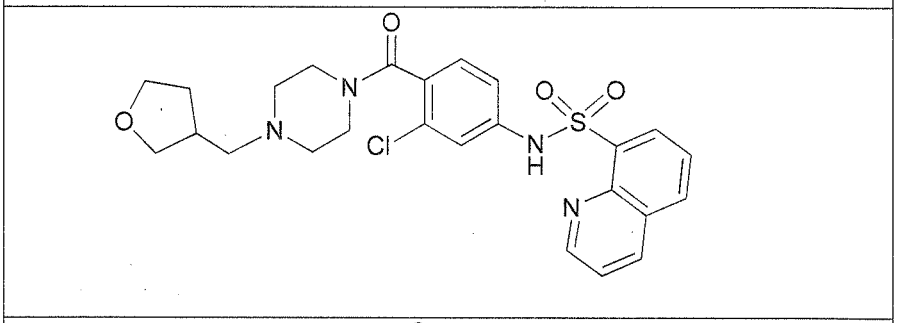


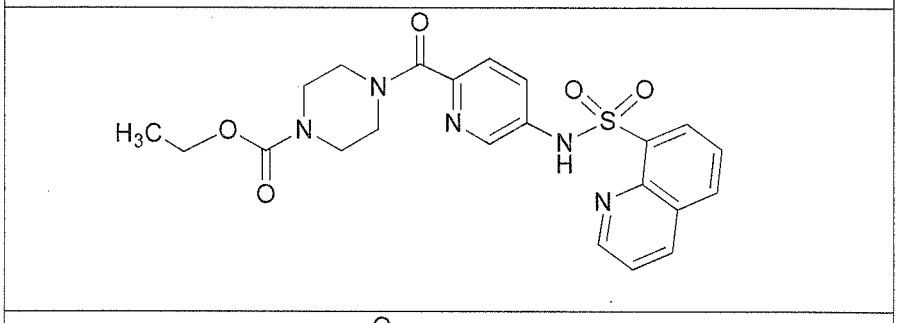


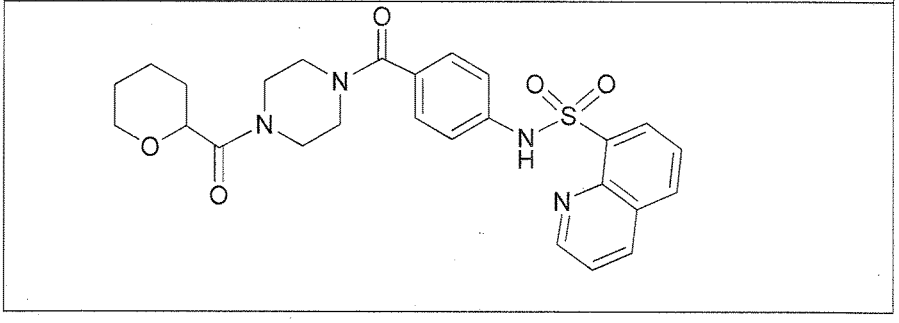


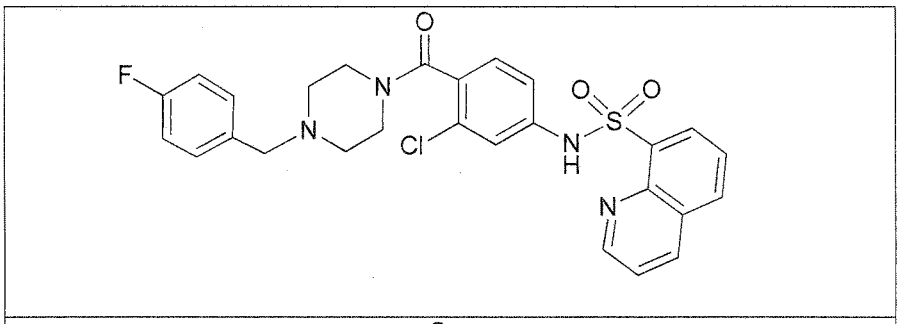


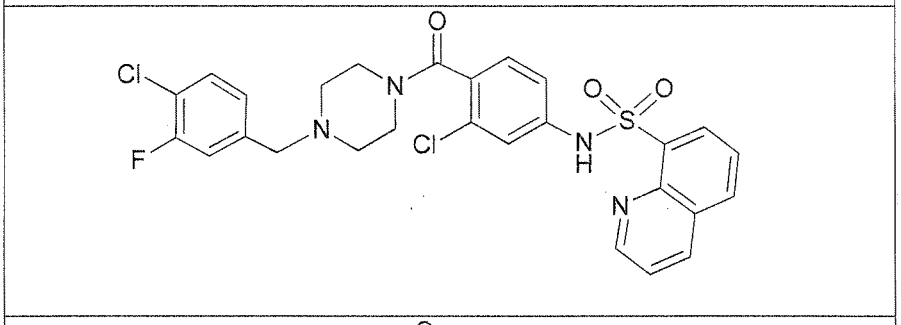


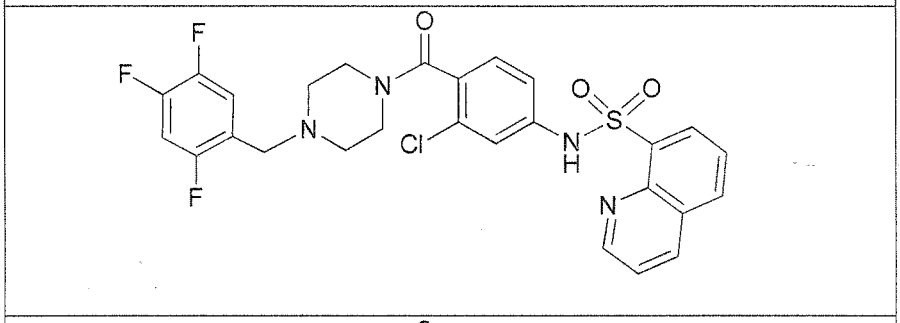


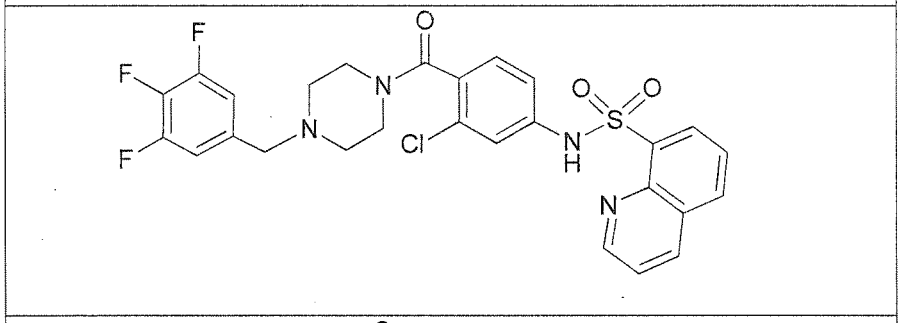


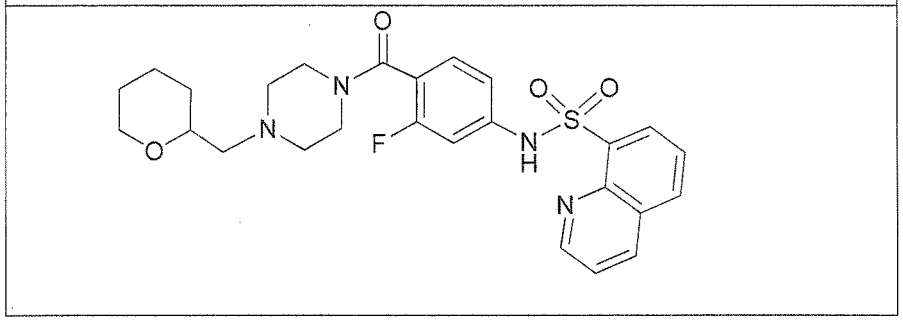


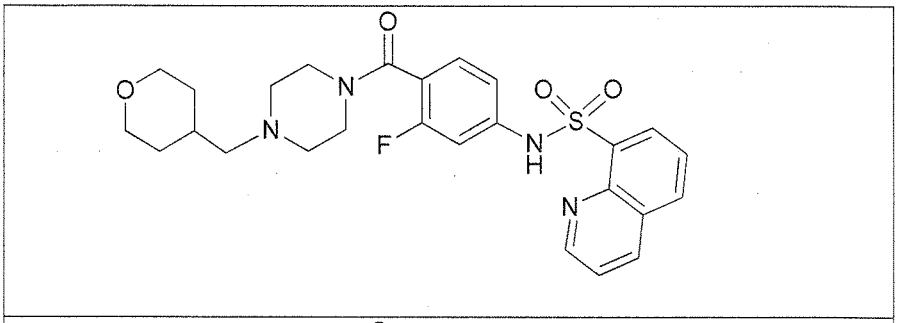


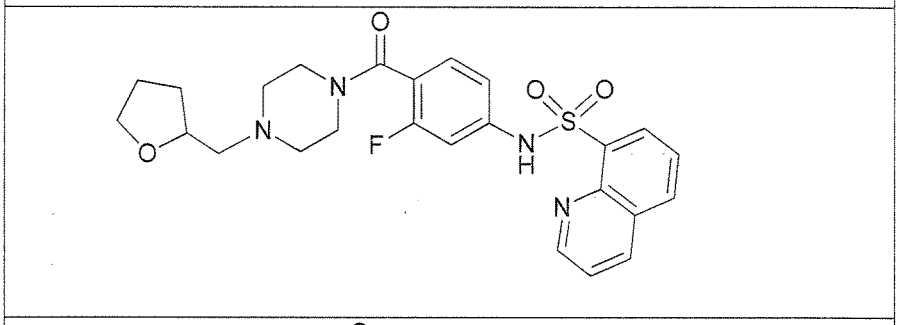


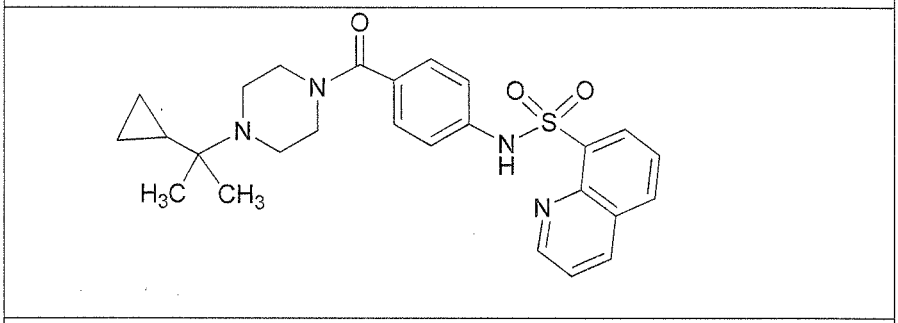


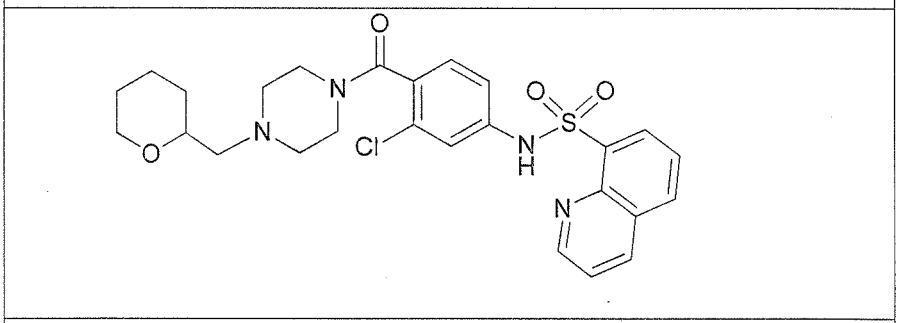


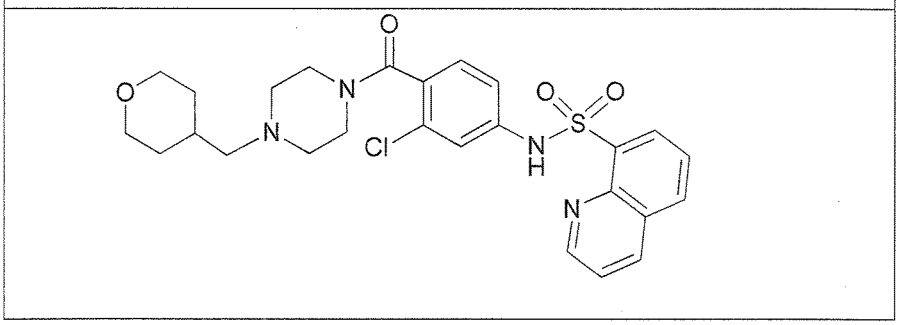


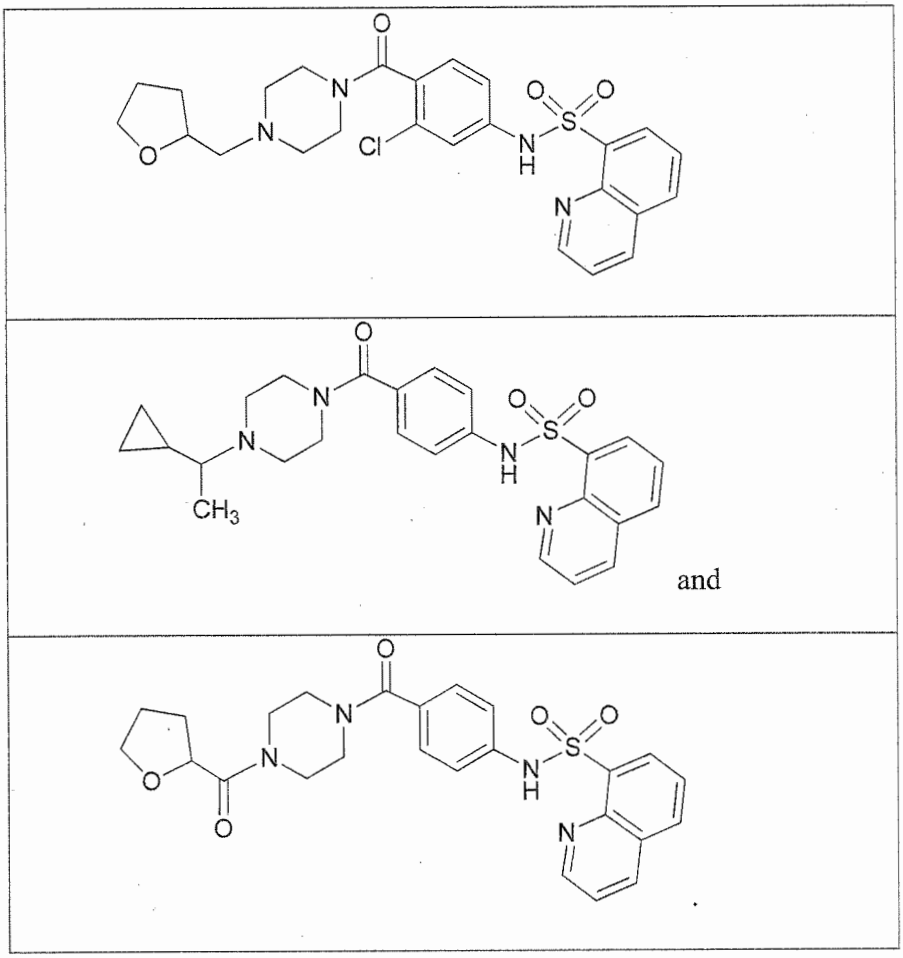






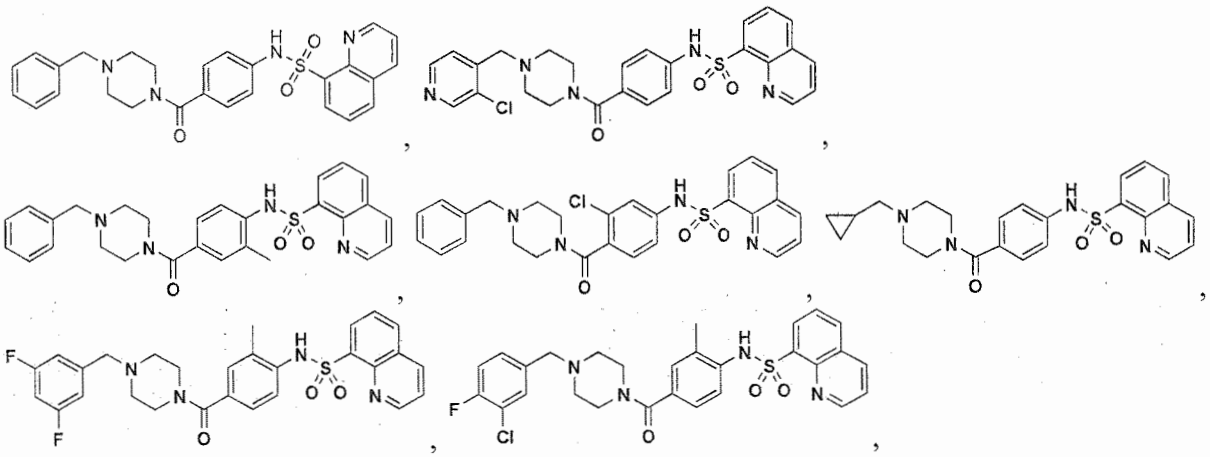


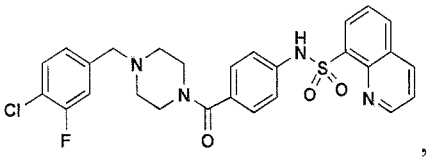
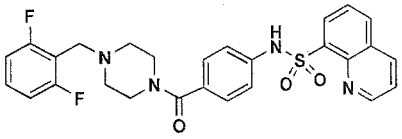
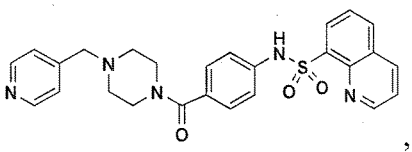
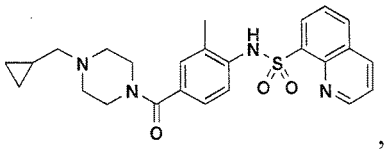
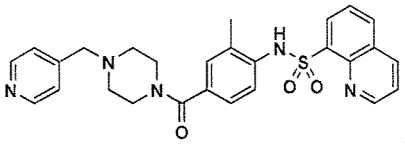
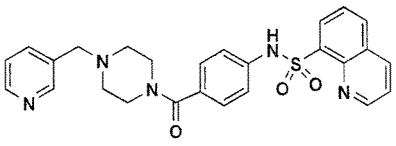
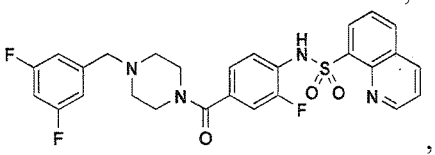
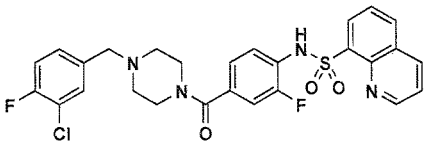
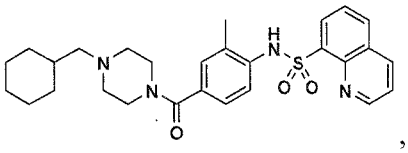
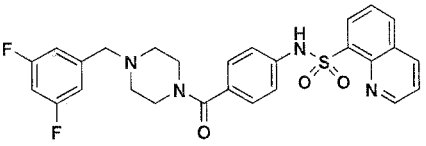
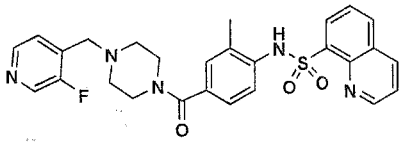
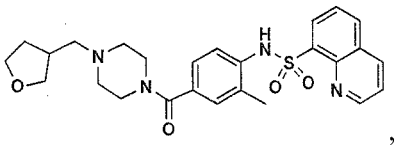
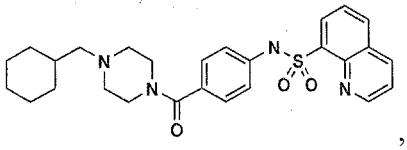
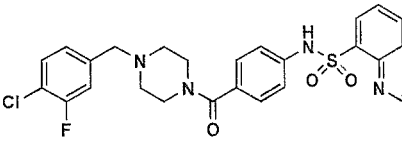
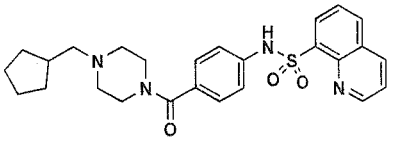
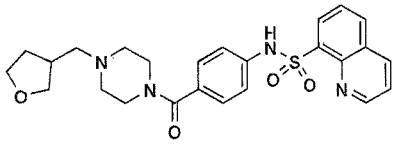




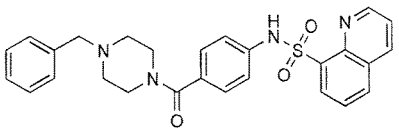
and

27. The use of any one of claims 1 to 4 or a pharmaceutically acceptable salt thereof, wherein the compound is selected from:

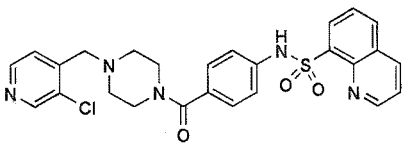



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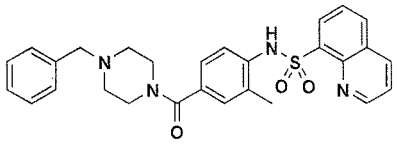
28. The use of any one of claims 1 to 4, wherein the compound is selected from:


.

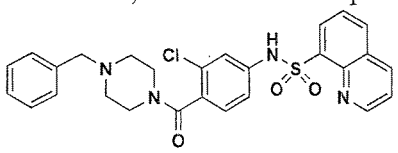
29. The use of any one of claims 1 to 4, wherein the compound is selected from:


.

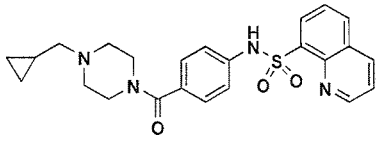
30. The use of any one of claims 1 to 4, wherein the compound is selected from:



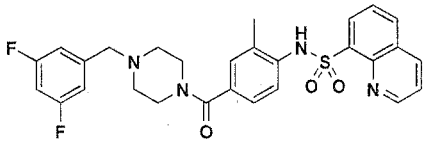
31. The use of any one of claims 1 to 4, wherein the compound is selected from:



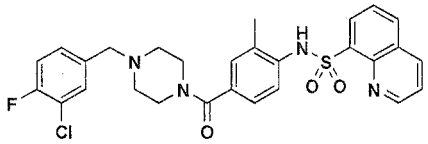
32. The use of any one of claims 1 to 4, wherein the compound is selected from:



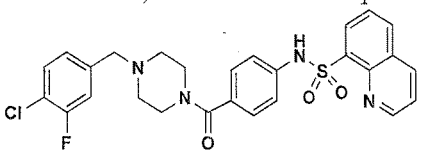
33. The use of any one of claims 1 to 4, wherein the compound is selected from:



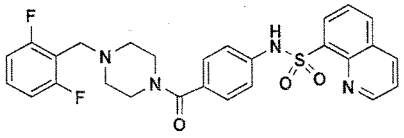
34. The use of any one of claims 1 to 4, wherein the compound is selected from:



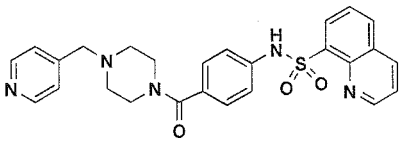
35. The use of any one of claims 1 to 4, wherein the compound is selected from:



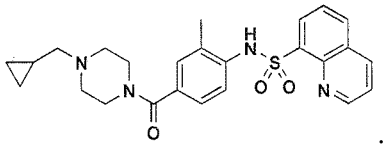
36. The use of any one of claims 1 to 4, wherein the compound is selected from:



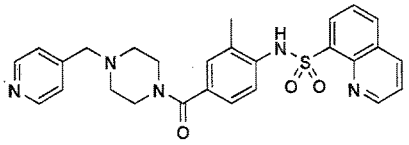
37. The use of any one of claims 1 to 4, wherein the compound is selected from:



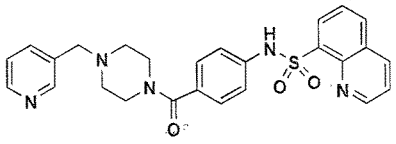
38. The use of any one of claims 1 to 4, wherein the compound is selected from:



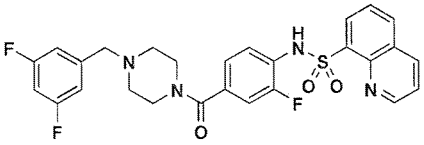
39. The use of any one of claims 1 to 4, wherein the compound is selected from:



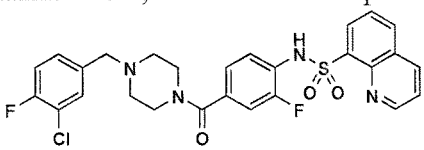
40. The use of any one of claims 1 to 4, wherein the compound is selected from:



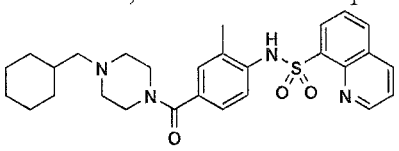
41. The use of any one of claims 1 to 4, wherein the compound is selected from:



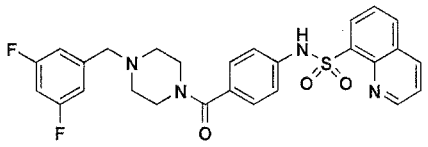
42. The use of any one of claims 1 to 4, wherein the compound is selected from:



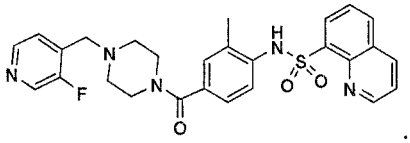
43. The use of any one of claims 1 to 4, wherein the compound is selected from:



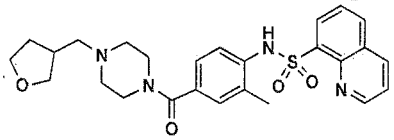
44. The use of any one of claims 1 to 4, wherein the compound is selected from:



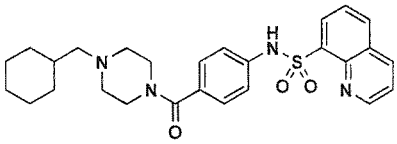
45. The use of any one of claims 1 to 4, wherein the compound is selected from:



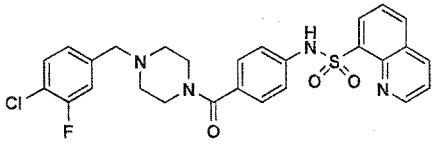
46. The use of any one of claims 1 to 4, wherein the compound is selected from:



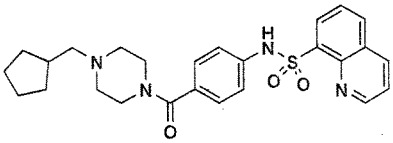
47. The use of any one of claims 1 to 4, wherein the compound is selected from:



48. The use of any one of claims 1 to 4, wherein the compound is selected from:



49. The use of any one of claims 1 to 4, wherein the compound is selected from:



50. The use of any one of claims 1 to 4, wherein the compound is selected from:

