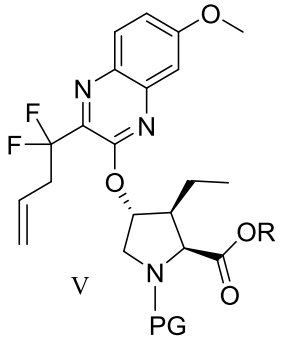
WHAT IS CLAIMED IS:

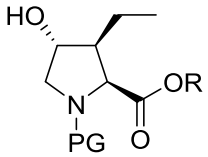
1. A process for preparation of a compound of formula V:



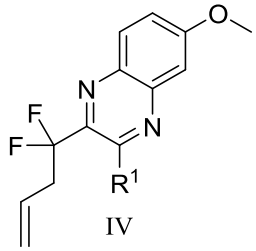
V

or a co-crystal, or a salt thereof;

comprising contacting a compound of formula III or a co-crystal, or a salt thereof, with a compound of formula IV:



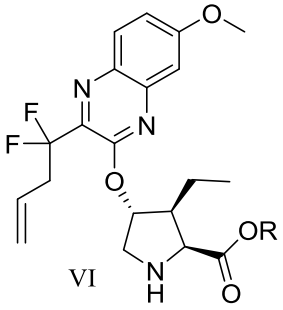
III



IV

under O-arylation conditions to provide the compound of formula V or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl, PG is a protective group, and R^1 is a leaving group.

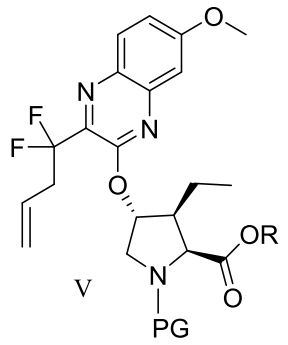
2. A process for preparation of a compound of formula VI:



VI

or a co-crystal, or a salt thereof;

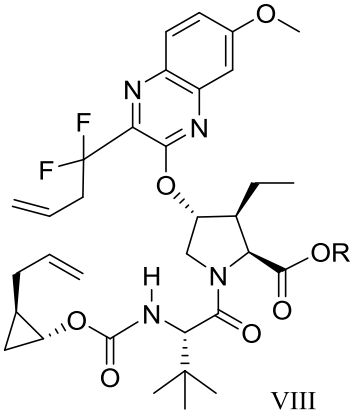
comprising subjecting a compound of formula V:



V

or a co-crystal, or a salt thereof, to N-deprotection conditions to provide the compound of formula VI or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

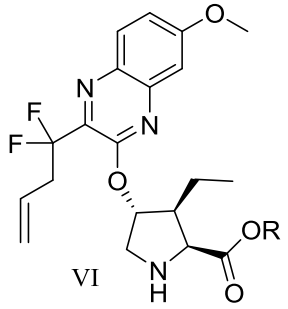
3. A process for preparation of a compound of formula VIII:



VIII

or a co-crystal, or a salt thereof;

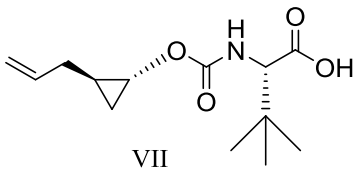
comprising contacting a compound of formula VI:



VI

or a co-crystal, or a salt thereof;

with a compound of formula VII:

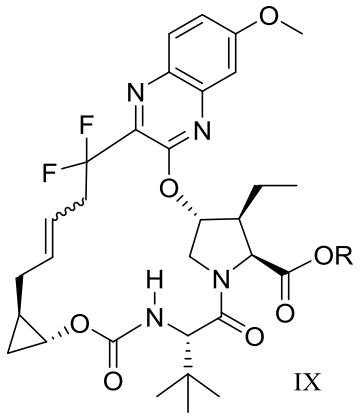


VII

or a co-crystal, or a salt thereof,

under amide coupling conditions to provide the compound of formula VIII or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

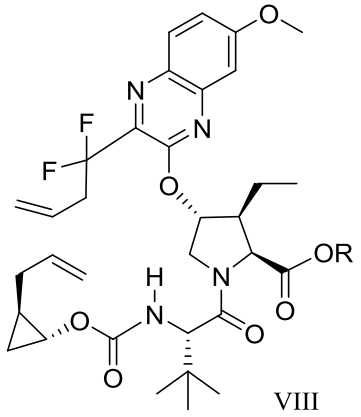
4. A process for preparation of a compound of formula IX:



IX

or a co-crystal, or a salt thereof;

comprising performing ring closing metathesis of a compound of formula VIII:

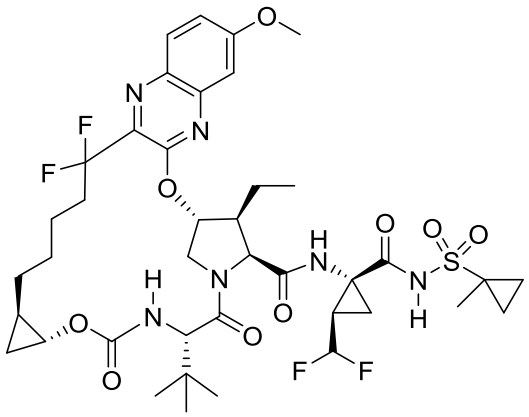


VIII

or a co-crystal, or a salt thereof;

to provide the compound of formula IX or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

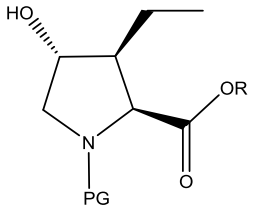
5. A process for preparation of a compound of formula I:



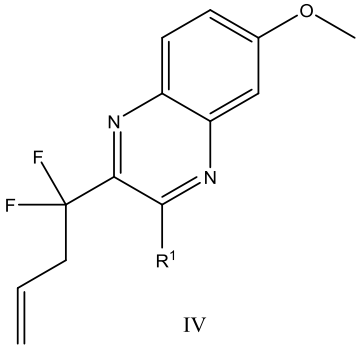
I

or a co-crystal, or a pharmaceutically acceptable salt thereof, comprising:

a) contacting a compound of formula III or a co-crystal, or a salt thereof, with a compound of formula IV:

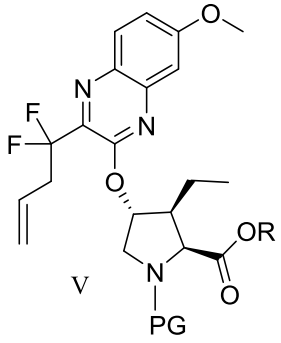


III



IV

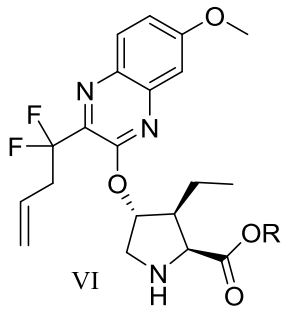
under O-arylation conditions to provide a compound of formula V:



V

or a co-crystal, or a salt thereof;

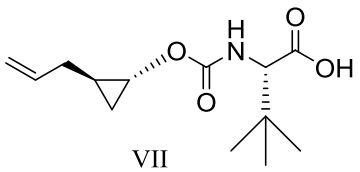
b) subjecting the compound of formula V or a co-crystal, or a salt thereof to N-deprotection conditions to provide a compound of formula VI:



VI

or a co-crystal, or a salt thereof;

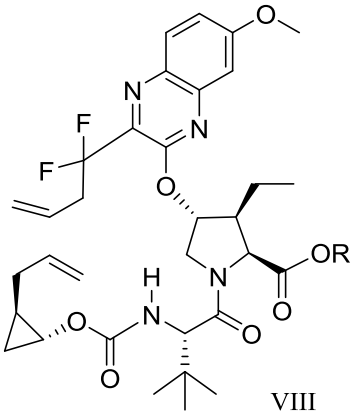
c) contacting the compound of formula VI or a co-crystal, or a salt thereof with a compound of formula VII:



VII

or a co-crystal, or a salt thereof,

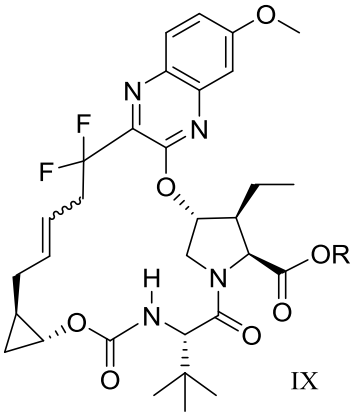
under amide coupling conditions to provide a compound of formula VIII:



VIII

or a co-crystal, or a salt thereof;

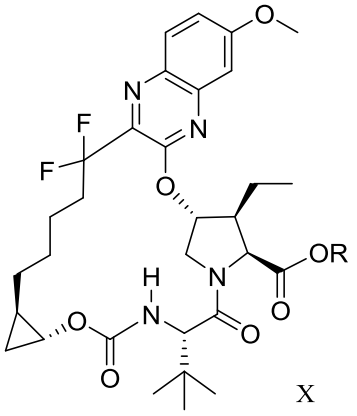
d) performing ring closing metathesis of the compound of formula VIII or a co-crystal, or a salt thereof to provide a compound of formula IX:



IX

or a co-crystal, or a salt thereof;

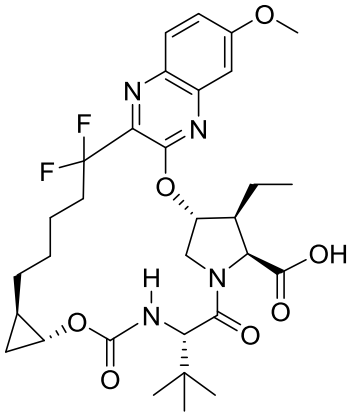
e) hydrogenating the compound of formula IX or a co-crystal, or a salt thereof in the presence of a catalyst to provide a compound of formula X:



X

or a co-crystal, or a salt thereof;

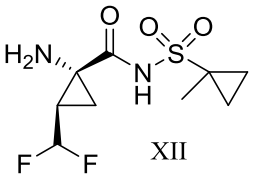
f) hydrolyzing the compound of formula X or a co-crystal, or a salt thereof to provide a compound of formula XI:



XI

or a co-crystal, or a salt thereof;

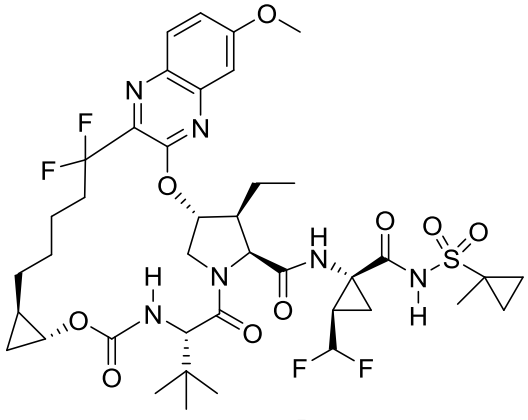
g) contacting the compound of formula XI or a co-crystal, or a salt thereof with a compound of formula XII:



XII

or a co-crystal, or a salt thereof;

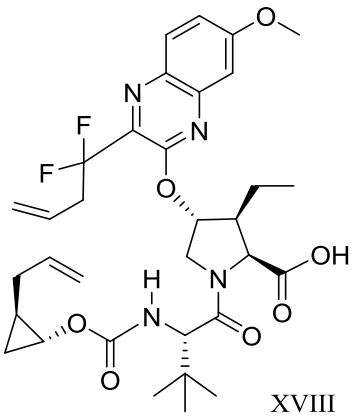
under amide coupling conditions to provide the compound formula I:



I

or a co-crystal, or a pharmaceutically acceptable salt thereof, wherein R is C_{1-6} alkyl, PG is a protective group, and R^1 is a leaving group.

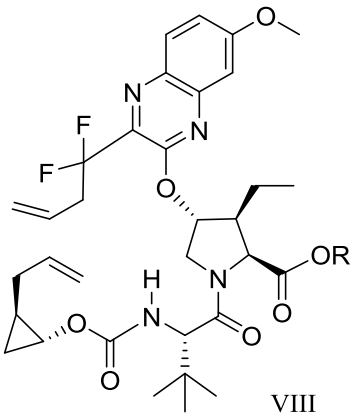
6. A process for preparation of a compound of formula XVIII:



XVIII

or a co-crystal, or a salt thereof;

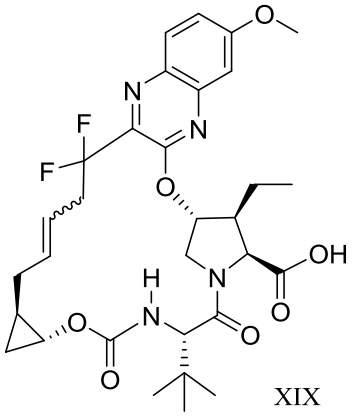
comprising hydrolyzing a compound of formula VIII:



VIII

or a co-crystal, or a salt thereof to provide the compound of formula XVIII or a co-crystal, or a salt thereof, wherein R is $C_{1\text{-}6}$ alkyl.

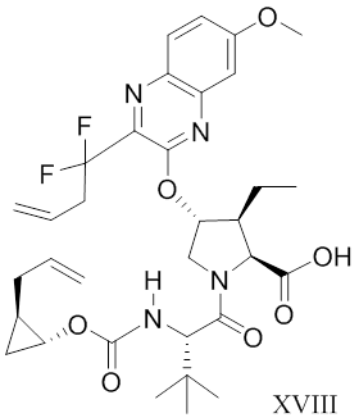
7. A process for preparation of a compound of formula XIX:



XIX

or a co-crystal, or a salt thereof;

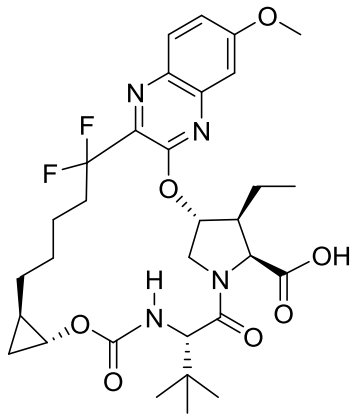
comprising performing ring closing metathesis of the compound of formula XVIII



XVIII

or a co-crystal, or a salt thereof in the presence of a catalyst to provide the compound of formula XIX.

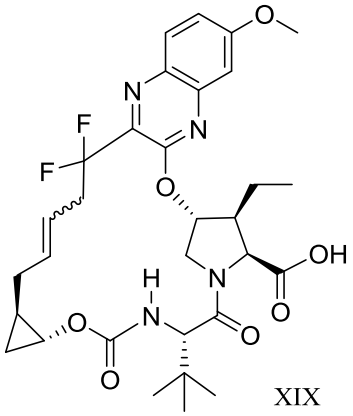
8. A process for preparation of a compound of formula XI:



XI

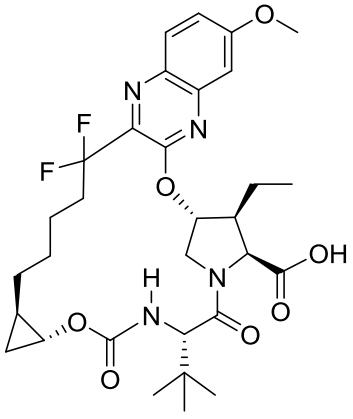
or a co-crystal, or a salt thereof,

comprising hydrogenating a compound of formula XIX:



XIX

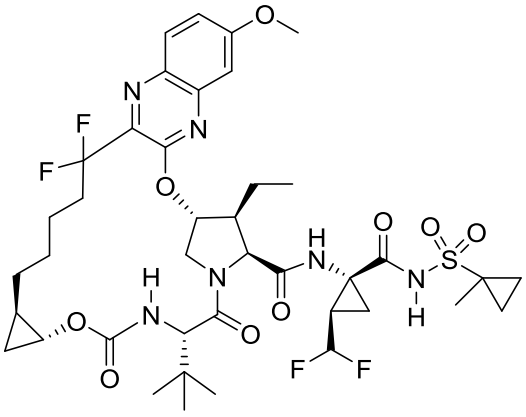
or a co-crystal, or a salt thereof in the presence of a catalyst to provide a compound of formula XI:



XI

or a co-crystal, or a salt thereof.

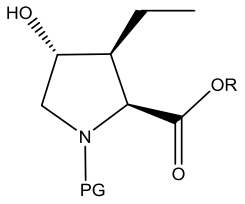
9. A process for preparation of a compound of formula I:



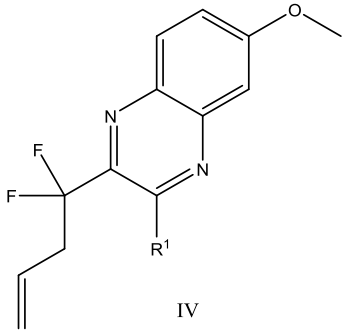
I

or a co-crystal, or a pharmaceutically acceptable salt thereof, comprising:

a) contacting a compound of formula III or a co-crystal, or a salt thereof, with a compound of formula IV:

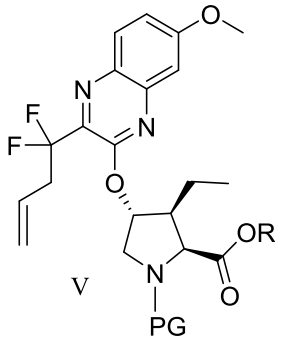


III



IV

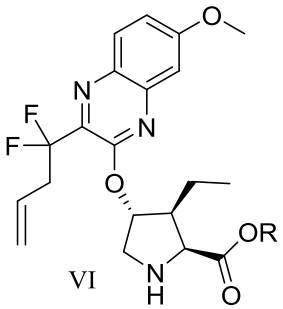
under O-arylation conditions to provide a compound of formula V:



V

or a co-crystal, or a salt thereof;

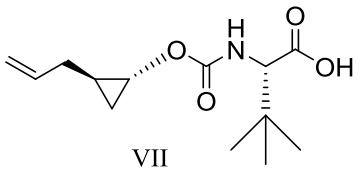
b) contacting the compound of formula V or a co-crystal, or a salt thereof with an acid under N-deprotection conditions to provide a compound of formula VI:



VI

or a co-crystal, or a salt thereof;

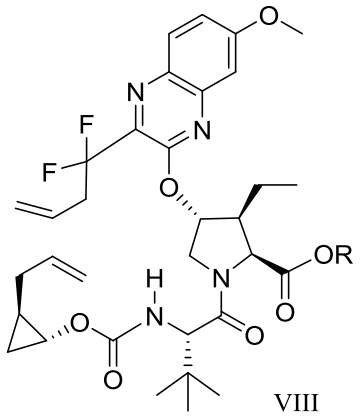
c) contacting the compound of formula VI or a co-crystal, or a salt thereof with a compound of formula VII:



VII

or a co-crystal, or a salt thereof,

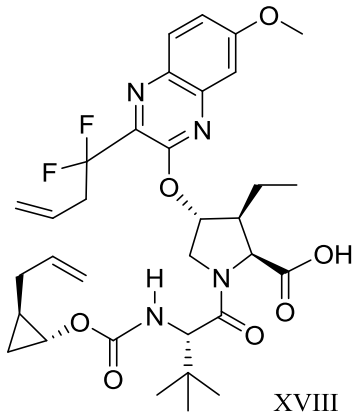
under amide coupling conditions to provide a compound of formula VIII:



VIII

or a co-crystal, or a salt thereof;

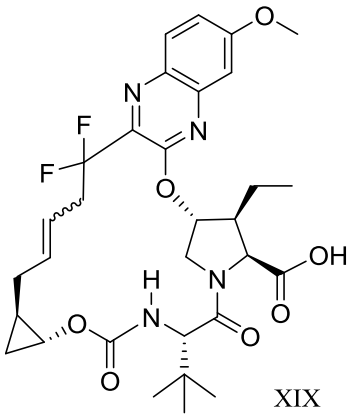
d) hydrolyzing the compound of formula VIII or a co-crystal, or a salt thereof to provide a compound of formula XVIII:



XVIII

or a co-crystal, or a salt thereof;

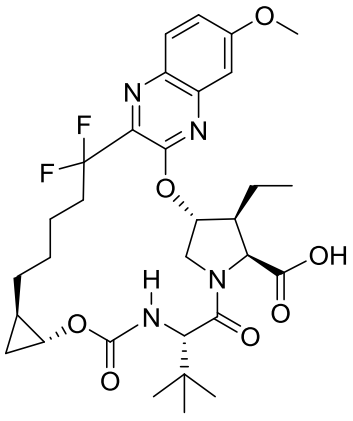
e) performing ring closing metathesis of the compound of formula XVIII or a co-crystal, or a salt thereof in the presence of a catalyst to provide a compound of formula XIX:



XIX

or a co-crystal, or a salt thereof;

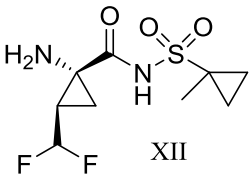
f) hydrogenating the compound of formula XIX in the presence of a catalyst to provide a compound of formula XI:



XI

or a co-crystal, or a salt thereof;

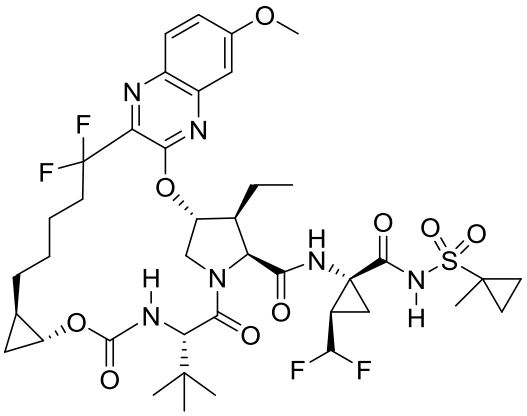
g) contacting the compound of formula XI or a co-crystal, or a salt thereof with a compound of formula XII:



XII

or a co-crystal, or a salt thereof;

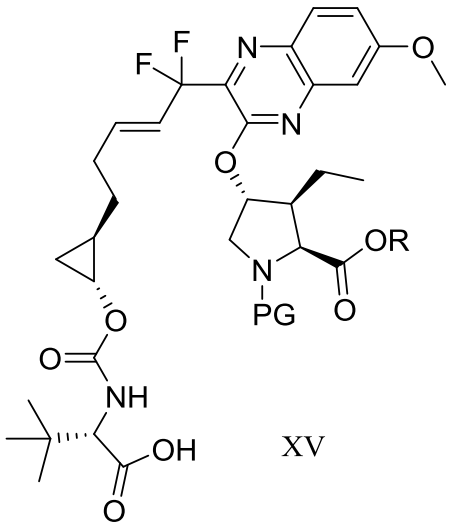
under amide coupling conditions to provide the compound formula I:



I

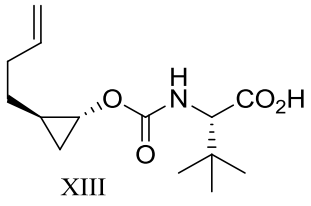
or a co-crystal, or a pharmaceutically acceptable salt thereof, wherein R is C_{1-6} alkyl, PG is a protective group, and R^1 is a leaving group.

10. A process for preparation of a compound of formula XV:



XV

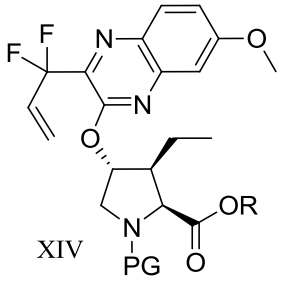
or a co-crystal, or a salt thereof, comprising contacting a compound of formula XIII:



XIII

or a co-crystal, or a salt thereof,

with a compound of formula XIV:

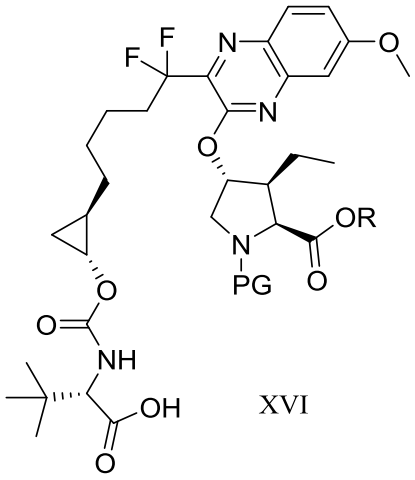


XIV

or a co-crystal, or a salt thereof,

under cross-metathesis conditions to provide the compound of formula XV or a co-crystal, or a salt thereof, wherein R is $C_{1\text{-}6}$ alkyl and PG is a protective group.

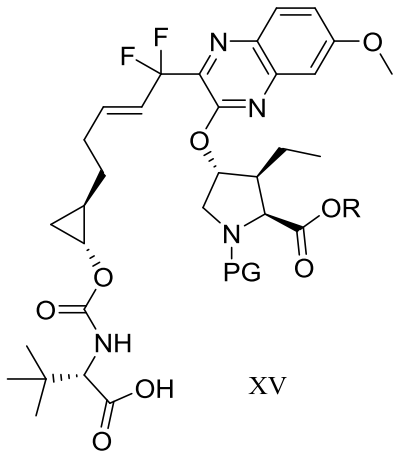
11. A process for preparation of a compound of formula XVI:



XVI

or a co-crystal, or a salt thereof;

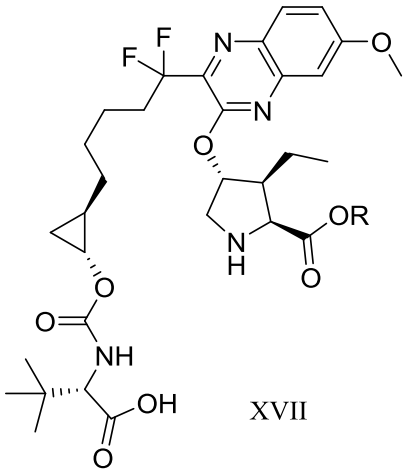
comprising hydrogenating the compound of formula XV:



XV

or a co-crystal, or a salt thereof in the presence of a catalyst to provide the compound of formula XVI or a co-crystal, or a salt thereof, wherein R is $C_{1\text{-}6}$ alkyl and PG is a protective group.

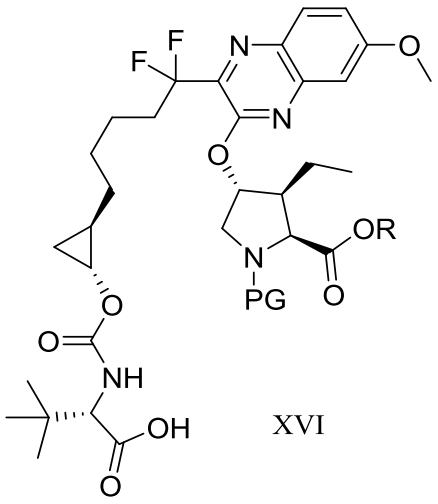
12. A process for preparation of a compound of formula XVII:



XVII

or a co-crystal, or a salt thereof;

comprising subjecting a compound of formula XVI:

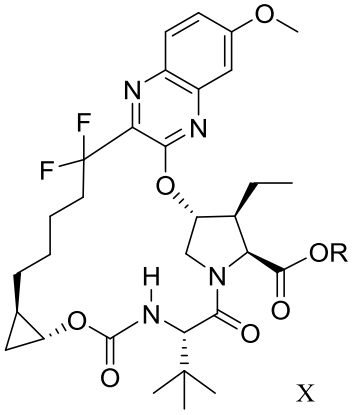


XVI

or a co-crystal, or a salt thereof;

to N-deprotection conditions to provide the compound of formula XVII or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

13. A process for preparation of a compound of formula X:

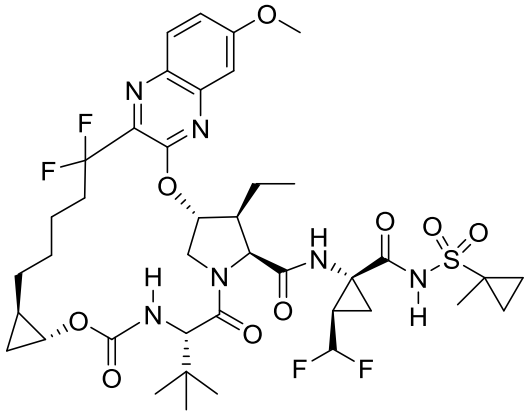


X

or a co-crystal, or a salt thereof;

comprising contacting the compound of formula XVII with an amide coupling agent under lactamization conditions to give the compound of formula X or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

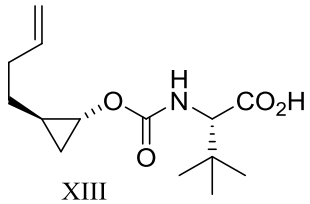
14. A process for preparation of a compound of formula I:



I

or a co-crystal, or a pharmaceutically acceptable salt thereof, comprising:

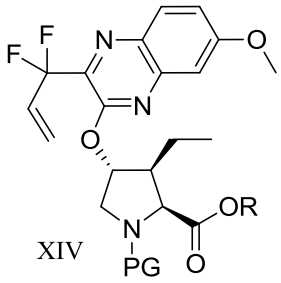
a) contacting a compound of formula XIII:



XIII

or a co-crystal, or a salt thereof,

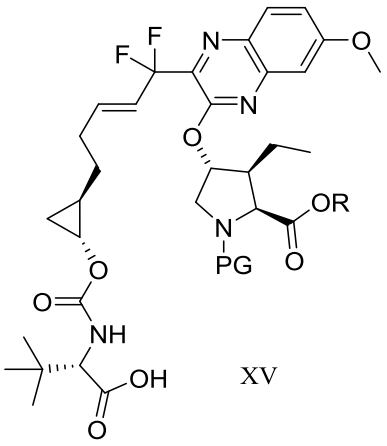
with a compound of formula XIV:



XIV

or a co-crystal, or a salt thereof,

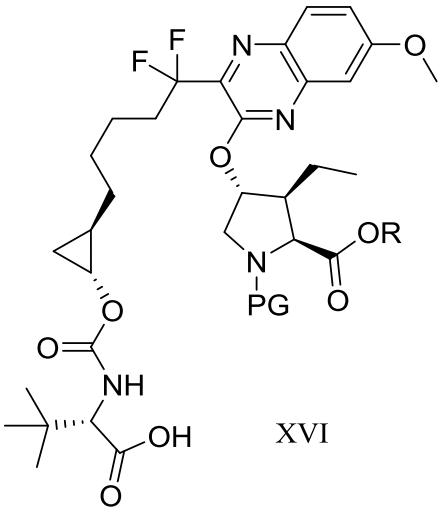
under cross-metathesis conditions to provide a compound of formula XV:



XV

or a co-crystal, or a salt thereof,

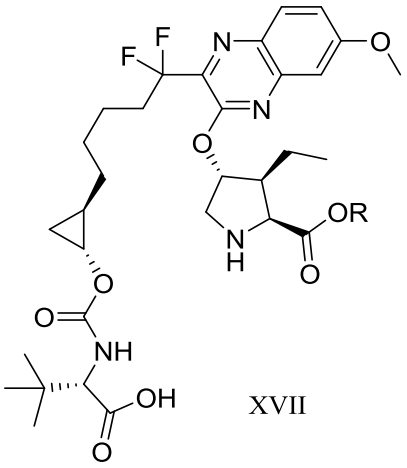
b) hydrogenating the compound of formula XV or a co-crystal, or a salt thereof in the presence of a catalyst to provide a compound of formula XVI:



XVI

or a co-crystal, or a salt thereof;

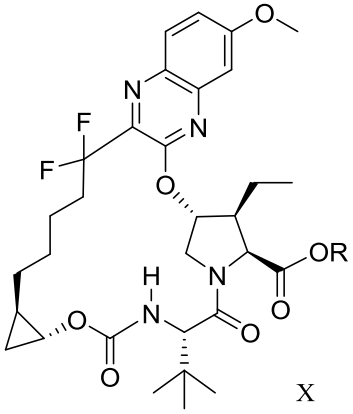
c) subjecting the compound of formula XVI or a co-crystal, or a salt thereof to N-deprotection conditions to provide a compound of formula XVII:



XVII

or a co-crystal, or a salt thereof;

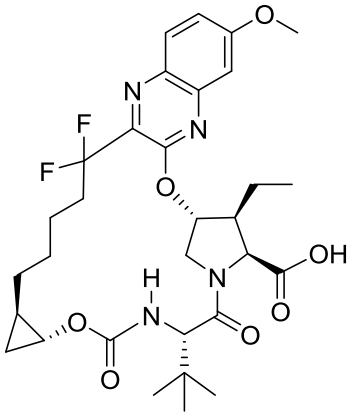
d) contacting the compound of formula XVII with an amide coupling agent under lactamization conditions to give a compound of formula X:



X

or a co-crystal, or a salt thereof;

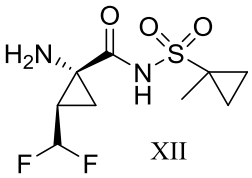
e) hydrolyzing the compound of formula X or a co-crystal, or a salt thereof to provide a compound of formula XI:



XI

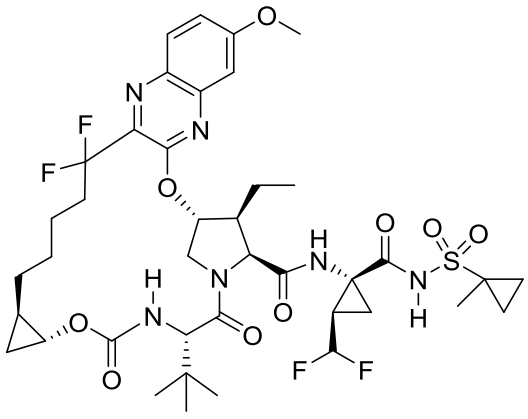
or a co-crystal, or a salt thereof; and

f) contacting the compound of formula XI or a co-crystal, or a salt thereof with a compound of formula XII:



XII

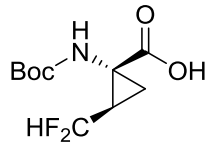
or a co-crystal, or a salt thereof under amide coupling conditions to provide the compound formula I:



I

or a co-crystal, or a thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

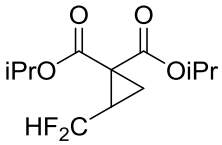
15. A process for preparation of a compound of formula V-v:



V-v

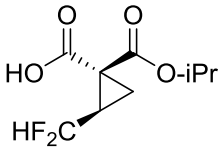
or a co-crystal, or a salt thereof, comprising:

a) hydrolyzing the compound of formula A-b:



A-b

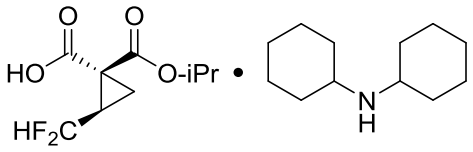
or a co-crystal, or a salt thereof to provide a compound of formula A-c:



A-c

or a co-crystal, or a salt thereof;

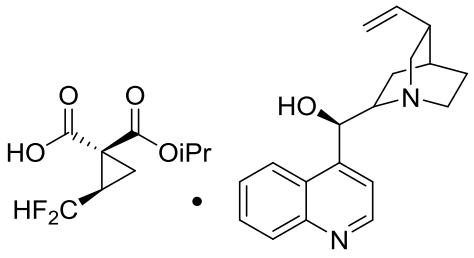
b) contacting the compound of formula A-c or a co-crystal, or a salt thereof with dicyclohexylamine to provide a compound of formula A-g:



A-g

or a co-crystal, or a salt thereof;

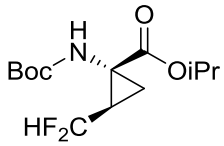
c) contacting A-g or a co-crystal, or a salt thereof with cinchonidine to provide a compound of formula A-h:



A-h

or a co-crystal, or a salt thereof;

d) subjecting A-h or a co-crystal, or a salt thereof to Curtius rearrangement in the presence of *tert*-butanol to provide a compound of formula A-i:

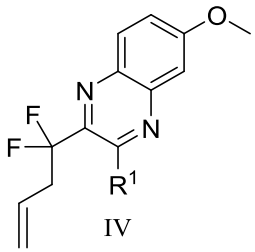


A-i

or a co-crystal, or a salt thereof; and

e) hydrolysis of A-i or a co-crystal, or a salt thereof to provide V-v or or a co-crystal, or a salt thereof.

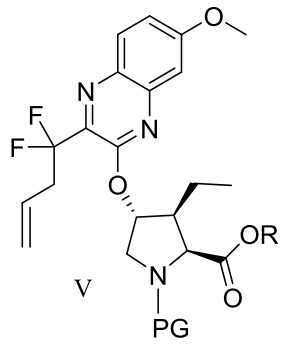
16. A compound of formula IV:



IV

or a co-crystal, or a salt thereof, wherein R^1 is a leaving group.

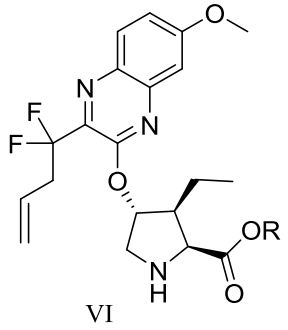
17. A compound of formula V:



V

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

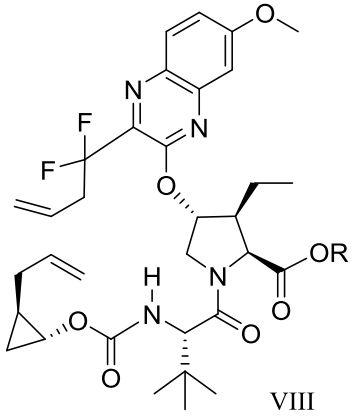
18. A compound of formula VI:



VI

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

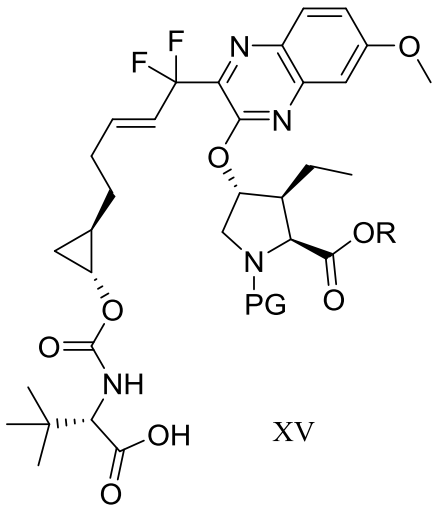
19. A compound of formula VIII:



VIII

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

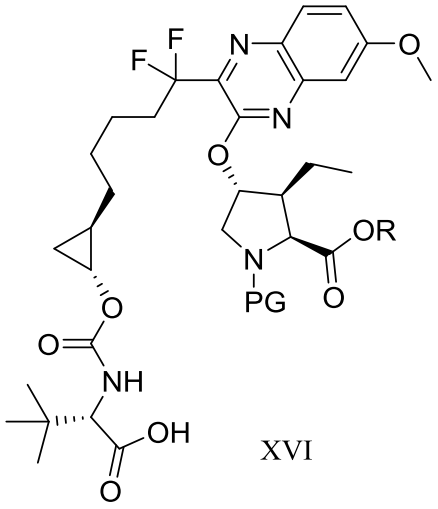
20. A compound of formula XV:



XV

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

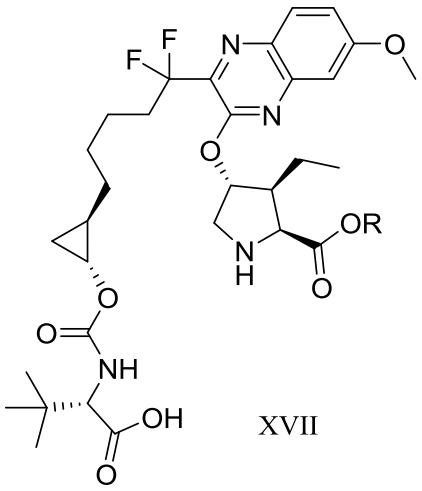
21. A compound of formula XVI:



XVI

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl and PG is a protective group.

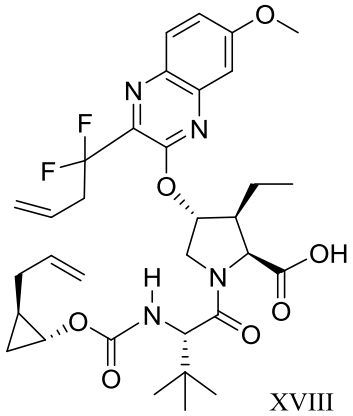
22. A compound of formula XVII:



XVII

or a co-crystal, or a salt thereof, wherein R is C_{1-6} alkyl.

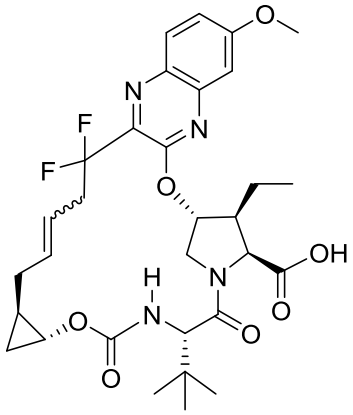
23. A compound of formula XVIII:



XVIII

or a co-crystal, or a salt thereof.

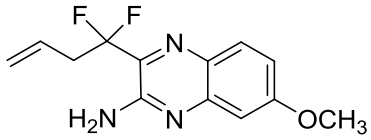
24. A compound of formula XIX:



XIX

or a co-crystal, or a salt thereof.

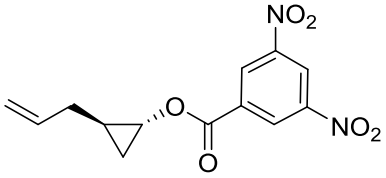
25. A compound of formula IV-d:



IV-d

or a co-crystal, or a salt thereof.

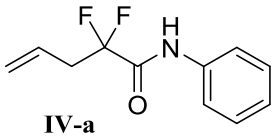
26. A compound of formula M3:



M3

or a co-crystal, or a salt thereof.

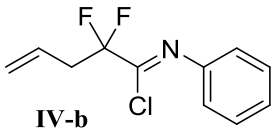
27. A compound of formula IV-a:



IV-a

or a co-crystal, or a salt thereof.

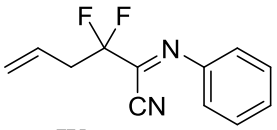
28. A compound of formula IV-b:



IV-b

or a co-crystal, or a salt thereof.

29. A compound of formula IV-c:



IV-c

or a co-crystal, or a salt thereof.