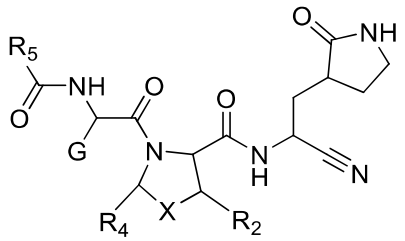
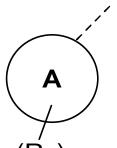
CLAIMS

1. A compound represented by formula (X) or a pharmaceutically acceptable salt thereof,



(X)

wherein,

G is selected from  and  ;

ring A is selected from C_{3-10} cycloalkyl, 3- to 10-membered heterocycloalkyl, C_{6-10} aryl and 5- to 10-membered heteroaryl;

R_1 is each independently selected from halogen, OR_{11}, CN, $CH_3S(O)_m$-, -$NH(R_{12})$, C_{1-3} alkyl and C_{1-3} haloalkyl;

R_{11} is selected from H, C_{1-3} alkyl, C_{1-3} haloalkyl, $CH_3(OCH_2CH_2)_p$- and $H(OCH_2CH_2)_q$-;

R_{12} is selected from C_{1-3} alkyl, C_{1-3} haloalkyl, CH_3CO- and CH_3SO_2-;

m is selected from 0, 1 and 2;

p and q are selected from 1, 2, 3, 4, 5 and 6;

n is selected from 0, 1, 2, 3 and 4;

X is selected from -$CH(R_3)$- and -CH_2CH_2-, and the -CH_2CH_2- is optionally substituted by 1, 2, 3 or 4 R;

R is each independently selected from halogen, OH, NH_2, CN, C_{1-3} alkyl and C_{1-3} haloalkyl;

R_3 is each independently selected from H, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkyl, C_{1-3} haloalkoxy, C_{6-10} aryl and 5- to 10-membered heteroaryl, and the C_{6-10} aryl and 5- to 10-membered heteroaryl are optionally substituted by 1, 2 or 3 R_{31};

R_2 and R_4 together with the atoms to which they are attached form C_{5-8} cycloalkyl, and the C_{5-8} cycloalkyl is optionally and independently substituted by 1 or 2 R_a;

R_a is each independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkoxy, C_{3-6} cycloalkyl, C_{6-10} aryl and 5- to 10-membered heteroaryl, and the C_{3-6} cycloalkyl, C_{6-10} aryl and 5- to 10-membered heteroaryl are optionally substituted by 1, 2 or 3 R_{41};

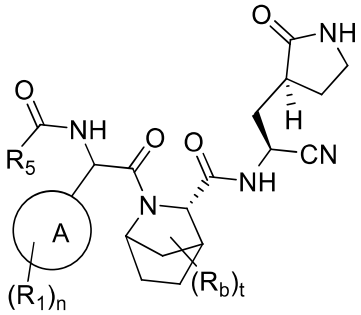
R_{31} and R_{41} are each independently selected from halogen, OH, NH_2, CN, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkyl and C_{1-3} haloalkoxy;

R_5 is selected from C_{1-3} alkyl, C_{1-3} haloalkyl, C_{1-3} alkoxy, C_{1-3} haloalkoxy, -CH_2-R_6 and -CH_2-O-R_6;

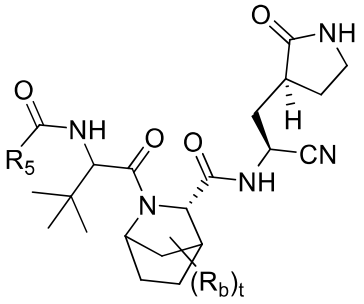
R_6 is selected from phenyl, and the phenyl is optionally substituted by 1, 2 or 3 R_{61};

R_{61} is selected from halogen, C_{1-3} alkyl, C_{1-3} haloalkyl, C_{1-3} alkoxy and C_{1-3} haloalkoxy.

2. The compound or the pharmaceutically acceptable salt thereof according to claim 1, wherein the compound is selected from structures represented by formulas (X-1) and (X-2),



(X-1)



(X-2)

wherein,

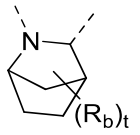
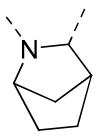
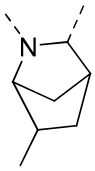
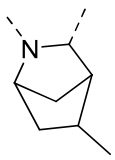
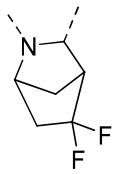
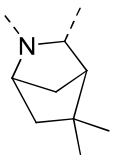
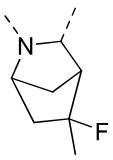
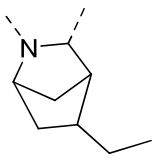
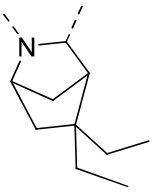
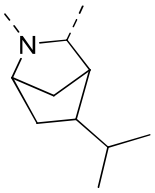
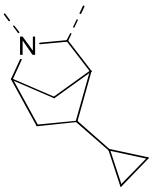
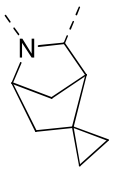
R_b is each independently selected from H, halogen, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkoxy and C_{3-6} cycloalkyl;

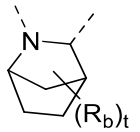
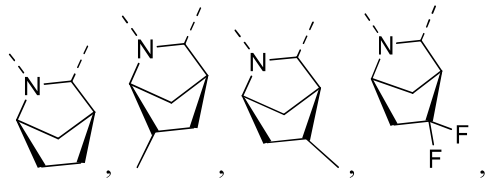
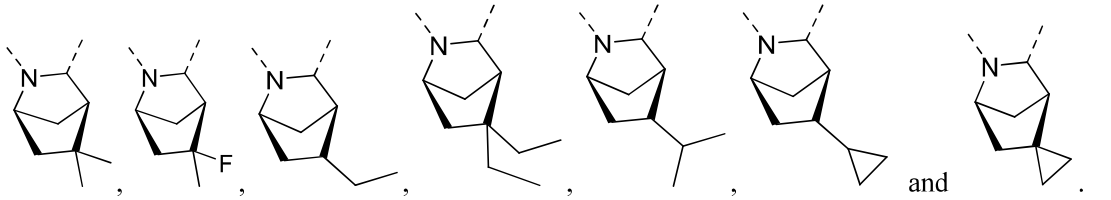
or, two R_b on adjacent carbon atoms or the same carbon atom together with the atoms to which they are attached form cyclopropyl;

t is selected from 1 and 2;

R_1, R_5, n and ring A are as defined in claim 1.

3. The compound or the pharmaceutically acceptable salt thereof according to claim 2, wherein, R_b is each independently selected from H, F, methyl, ethyl, isopropyl and cyclopropyl.

4. The compound or the pharmaceutically acceptable salt thereof according to claim 2, wherein, the structural moiety  is selected from  ,  ,  ,  ,  ,  ,  ,  ,  ,  , and  .

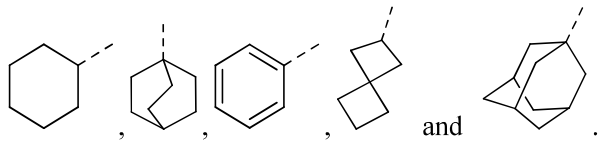
5. The compound or the pharmaceutically acceptable salt thereof according to claim 4, wherein, the structural moiety  is selected from  ,  and .

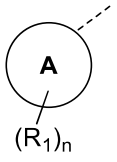
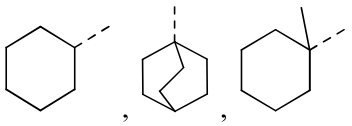
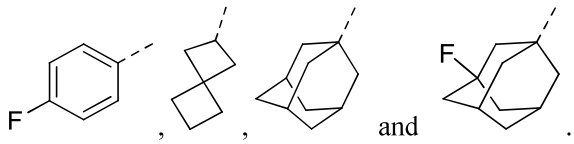
6. The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, R_1 is each independently selected from halogen, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkyl and C_{1-3} haloalkoxy.

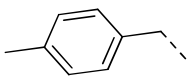
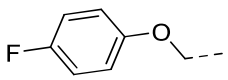
7. The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, R_1 is each independently selected from F, Cl and methyl.

8. The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, ring A is selected from C_{5-10} cycloalkyl and phenyl.

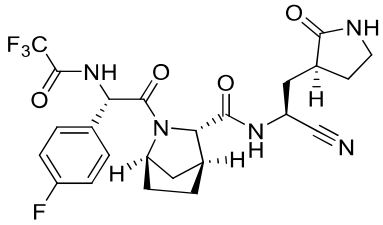
9. The compound or the pharmaceutically acceptable salt thereof according to claim 8, wherein, ring A is selected from cyclohexyl, spiro[3.3]heptyl, bicyclo[2.2.2]octyl, adamantyl and phenyl.

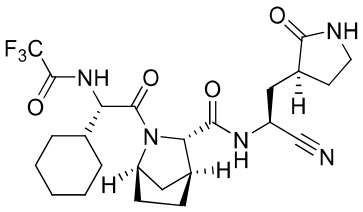
10. The compound or the pharmaceutically acceptable salt thereof according to claim 9, wherein, ring A is selected from  and .

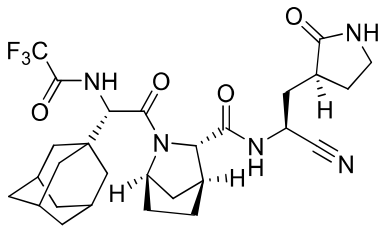
11. The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, the structural moiety  is selected from  ,  and .

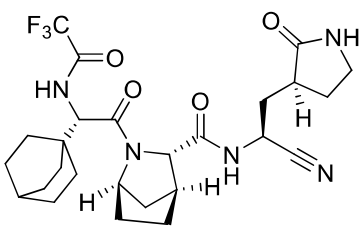
12. The compound or the pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein, R_5 is selected from $-CF_3$, $-OCH_3$,  and  .

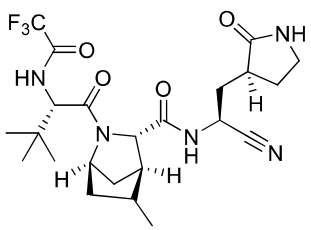
13. A compound represented by the following formula or a pharmaceutically acceptable salt thereof,

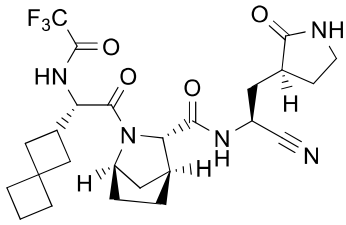


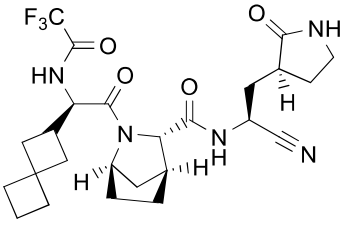


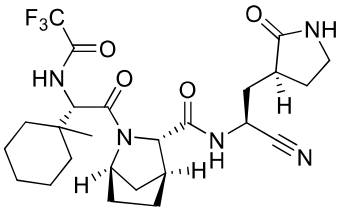


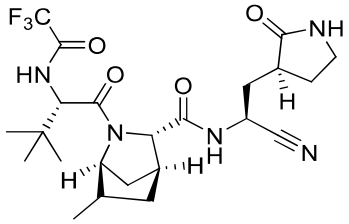


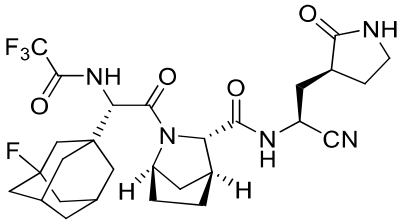


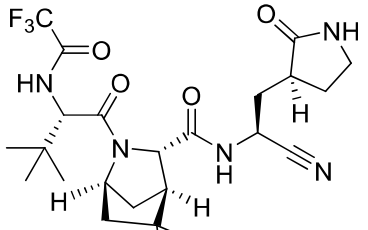


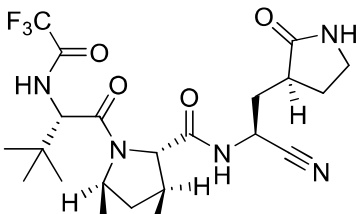


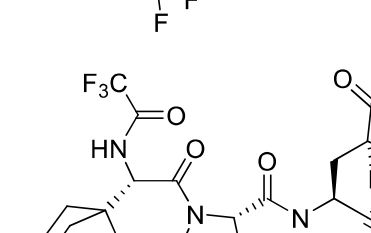


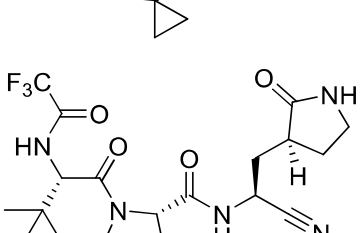


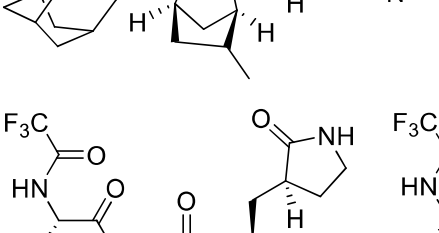


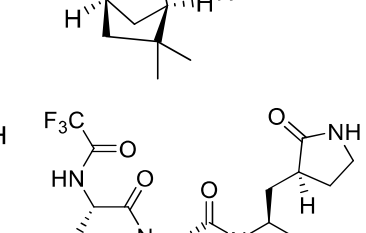


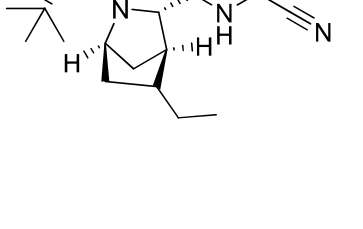


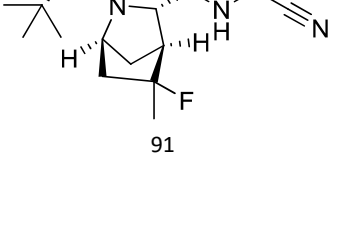


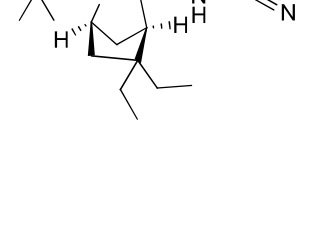


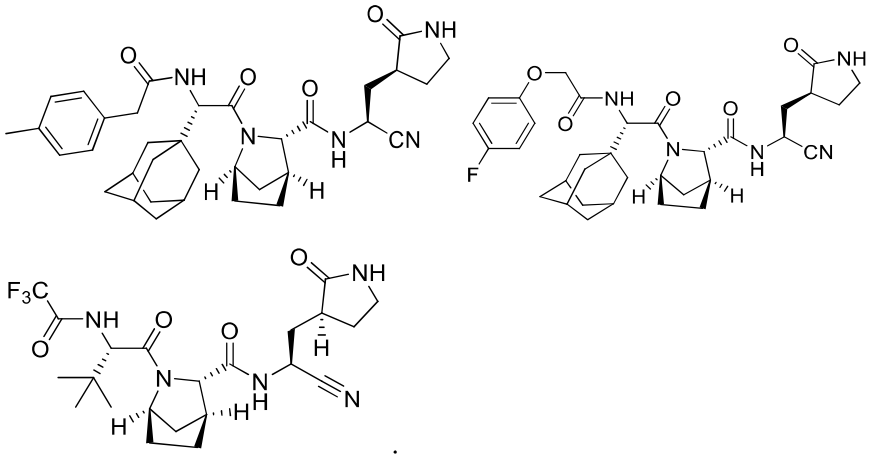












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14. A pharmaceutical composition, comprising the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 13.

15. The pharmaceutical composition according to claim 14, wherein, the pharmaceutical composition comprises a pharmaceutically acceptable excipient.

16. A use of the compound or the pharmaceutically acceptable salt thereof according to any one of claims 1 to 13 or the pharmaceutical composition according to claim 14 or 15 in the manufacture of a medicament for the treatment of coronavirus infection.

17. The use according to claim 16, wherein the coronavirus infection is infection with COVID-19.