

(I)

wherein

A is phenyl, indolyl, or indazolyl, optionally substituted with at least one of $(C_1\text{-}C_4)$alkyl, halo$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$haloalkyl, $(C_1\text{-}C_4)$alkylamino, amino$(C_1\text{-}C_4)$alkyl, F, Cl, Br, I, CN, $-CH_2CN$, NH_2, hydroxyl, $OC(O)CF_3$, $-OCH_2Ph$, -NHCO-$(C_1\text{-}C_4)$alkyl, COOH, -C(O)Ph, C(O)O-$(C_1\text{-}C_4)$alkyl, C(O)H, $-C(O)NH_2$ or NO_2;

B is an imidazole or benzimidazole, optionally substituted with at least one of $(C_1\text{-}C_4)$alkyl, halo$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$alkyl, O-halo$(C_1\text{-}C_4)$alkyl, F, Cl, Br, I, CN, $-CH_2CN$, hydroxyl, or NO_2;

R_1, R_2 and **R_3** are independently at least one of hydrogen, $(C_1\text{-}C_4)$alkyl, halo$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$haloalkyl, $(C_1\text{-}C_4)$alkylamino, amino$(C_1\text{-}C_4)$alkyl, F, Cl, Br, I, CN, $-CH_2CN$, NH_2, hydroxyl, $OC(O)CF_3$, $-OCH_2Ph$, -NHCO-$(C_1\text{-}C_4)$alkyl, COOH, -C(O)Ph, C(O)O-$(C_1\text{-}C_4)$alkyl, C(O)H, $-C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof. One example of the disclosure encompasses methods of treating a coronavirus infection in a subject in need thereof by administering to the subject a formulation having a therapeutically effective amount of a compound of Formula (I)

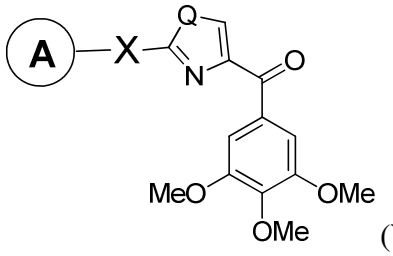
R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or isomer thereof.

[0028] In one aspect, the present disclosure provides use of a formulation having a therapeutically effective amount of a compound of the Formula **VII**:



(**VII**)

wherein

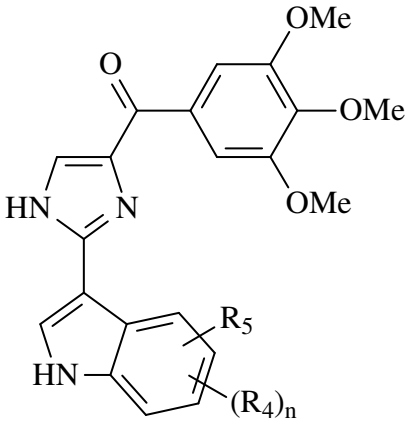
X is a bond;

Q is NH and

A is a phenyl, indolyl, or indazolyl ring optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof. Another example of the disclosure encompasses methods of treating a coronavirus infection in a subject in need thereof by administering to the subject a formulation having a therapeutically effective amount of a compound of the Formula **VII**:

R_4 and **R_5** are independently hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; and

n is 1-4; or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof. An example of the disclosure encompasses methods of treating a coronavirus infection in a subject in need thereof by administering to the subject a formulation having a therapeutically effective amount of a compound of the Formula **VII(c)**:

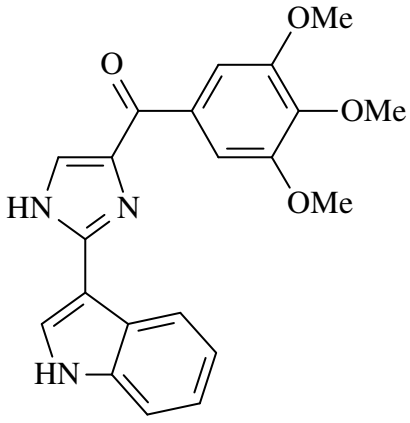


VII(c)

wherein

R_4 and **R_5** independently hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; and **n** is 1-4; or a pharmaceutically acceptable salt, hydrate, polymorph, or isomer thereof.

[0030] In one aspect, the present disclosure provides use of a formulation having a therapeutically effective amount of a compound **17ya**:

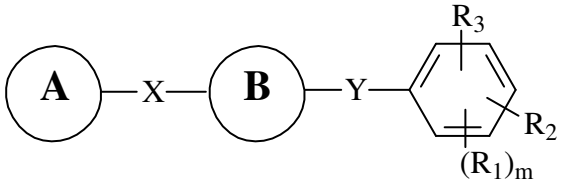


(**17ya**),

in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof. Another example of the disclosure, encompasses methods of treating a coronavirus infection in a subject in need thereof by administering to the subject a formulation having a therapeutically effective amount of a compound **17ya** represented:

WHAT IS CLAIMED:

1. Use of a formulation having a therapeutically effective amount of a compound of Formula (I):



(I)

wherein

A is phenyl, indolyl, or indazolyl, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

B is an imidazole or benzimidazole, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-halo(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, hydroxyl, or NO_2;

R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

2. The use according to claim 1, wherein **A** is phenyl or indolyl, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

B is an imidazole, optionally substituted with at least one of (C_1-C_4)alkyl;

R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, OC(O)CF_3, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof.

3. The use according to claim 1, wherein **A** is phenyl, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, OC(O)CF_3, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

B is an imidazole, optionally substituted with at least one of (C_1-C_4)alkyl;

R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, OC(O)CF_3, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof.

4. The use according to claim 1, wherein **A** is indolyl, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, OC(O)CF_3, -OCH_2Ph, -NHCO-alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

B is an imidazole, optionally substituted with at least one of (C_1-C_4)alkyl;

R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, OC(O)CF_3, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof.

5. The use according to claim 1, wherein **A** is indolyl, optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

B is an imidazole, optionally substituted with at least one of (C_1-C_4)alkyl;

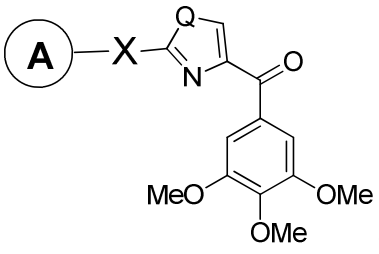
R_1, R_2 and **R_3** are independently at least one of hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2;

X is a bond;

Y is -C=O; and

m is 1-3, or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof.

6. Use of a formulation having a therapeutically effective amount of a compound of the Formula **VII**:



(**VII**)

wherein

X is a bond;

Q is NH and

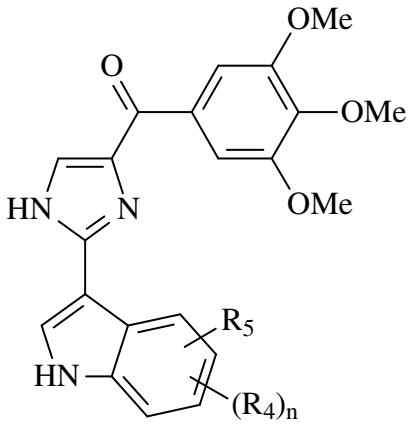
A is a phenyl, indolyl, or indazolyl ring optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; or a pharmaceutically acceptable salt, hydrate,

polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

7. The use according to claim 6, wherein X is a bond.

8. The use according to claim 6, wherein **X** is a bond; **Q** is NH; and **A** is an indolyl ring optionally substituted with at least one of (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof.

9. Use of a formulation having a therapeutically effective amount of a compound of the Formula **VII(c)**:



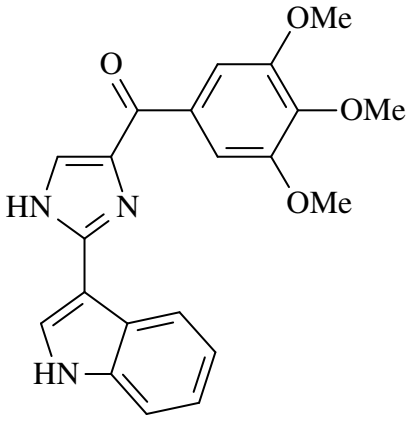
VII(c)

wherein

R_4 and **R_5** are independently hydrogen, (C_1-C_4)alkyl, halo(C_1-C_4)alkyl, O-(C_1-C_4)alkyl, O-(C_1-C_4)haloalkyl, (C_1-C_4)alkylamino, amino(C_1-C_4)alkyl, F, Cl, Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; and

n is 1-4; or a pharmaceutically acceptable salt, hydrate, polymorph, or stereoisomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

10. Use of a formulation having a therapeutically effective amount of a compound **17ya**:



(**17ya**),

in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

11. The use according to any one of claims 1-10, wherein the coronavirus infection is caused by SARS-CoV, MERS-CoV, or SARS-CoV-2.

12. The use according to any one of claims 1-10, wherein the coronavirus infection is caused by SARS-CoV-2.

13. The use according to claim 12, wherein the subject with SARS-CoV-2 infection is at high risk for acute respiratory distress syndrome (ARDS) or severe acute respiratory syndrome (SARS).

14. The use according to claim 12 or 13, wherein the medicament reduces mortality as compared to a patient population treated with placebo.

15. The use according to claim 12 or 13, wherein the medicament reduces morbidity as compared to a patient population treated with placebo.

16. The use according to claim 15, wherein the medicament reduces respiratory failure, days in ICU, days on mechanical ventilator, or improves WHO Ordinal Scale for Clinical Improvements as compared to a patient population treated with placebo.

17. The use according to claims 12 or 13, wherein the medicament reduces mortality or respiratory failure in subjects >60 years of age as compared to a patient population treated with placebo.

18. The use according to claim 12 or 13, wherein the medicament reduces mortality or respiratory failure when dosed in combination with remdesivir and/or dexamethasone as compared to a patient population treated with placebo.

19. The use according to any one of claims 12-13, wherein the medicament is to be administered with a second therapy.

20. The use according to claim 19, wherein the second therapy is remdesivir, dexamethasone or another corticosteroid, or remdesivir plus a corticosteroid.

21. The use according to claim 19, wherein the second therapy is a medication that modulates the immune system or host cell factors, such as dexamethasone or another corticosteroid, an IL-6 inhibitor such as tocilizumab, interferons, an IL-1 inhibitor, or a kinase inhibitor such as baricitinib.

22. The use according to claim 19, wherein the second therapy is an antibody such as high titer COVID-19 convalescent plasma, IVIG, a monoclonal antibody therapy such as casirivimab plus imdevimab, bamlanivimab, or bamlanivimab plus etesevimab.

23. The use according to claim 19, wherein the second therapy is a second antiviral therapy that is at least one of favipiravir, lopinavir, ritonavir, remdesivir, janus kinase inhibitors, hydroxychloroquine, azithromycin, a neuraminidase inhibitor, amantadine, rimantadine, a hemagglutinin inhibitor, ribavirin, idoxuridine, trifluridine, vidarabine, acyclovir, ganciclovir, foscarnet, zidovudine, didanosine, peramivir, zalcitabine, stavudine, famciclovir, oseltamivir, zanamivir, or valaciclovir.

24. The use according to claim 19, wherein the second therapy is at least one of vitamins C or D, zinc, famotidine, ivermectin, or angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor binding (ARB) agent.

25. The use according to claim 12 or 13, wherein the compound is to be administered in an amount of about 1 to about 100 mg.

26. The use according to claim 12 or 13, wherein the compound is to be administered in an amount of about 4 mg to about 90 mg.

27. The use according to claim 12 or 13, wherein the compound is to be administered in an amount of about 4 mg to about 45 mg.

28. The use according to any one of claims 1-13, wherein the medicament further comprises a pharmaceutically acceptable excipient.

29. The use according to any one of claims 1-10, wherein the subject has a WHO score of 5 or more.

30. The use according to any one of claims 1-10, wherein the subject is receiving standard care.

31. The use according to any one of claims 1-10, wherein the subjects are male.

32. The use according to any one of claims 1-10, wherein the subject is receiving a standard care prior to administration of the compound of formula (I).

33. The use according to claim 21, wherein the second therapy is dexamethasone or another corticosteroid, tocilizumab, or baricitinib.

34. The use according to claim 22, wherein the second therapy is high titer COVID-19 convalescent plasma, casirivimab plus imdevimab, bamlanivimab, or bamlanivimab plus etesevimab.