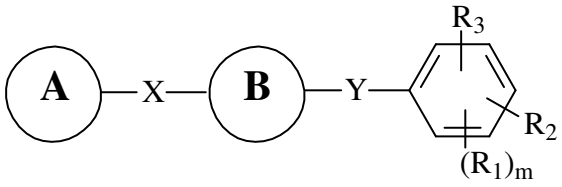
WHAT IS CLAIMED:

1. ~~A method of treating a coronavirus infection in a subject in need thereof by administering to the subject~~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 $(C_1\text{-}C_4)$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 or NH;

Y is -C=O; and

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

2. The ~~method~~ use according to claim 1, wherein **A** is phenyl or indolyl, 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, optionally substituted with at least one of $(C_1\text{-}C_4)$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 or NH;

Y is -C=O; and

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

3. The ~~method~~ 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 or NH;

Y is -C=O; and

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

4. The ~~method~~ 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 or NH;

Y is -C=O; and

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

5. The ~~method~~ use according to claim 1, wherein **A** is indolyl, 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, optionally substituted with at least one of $(C_1\text{-}C_4)$alkyl;

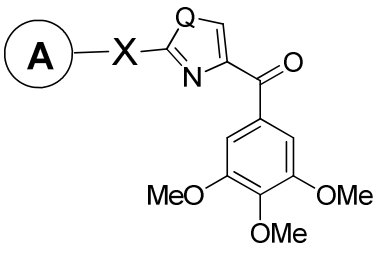
R_1, R_2 and **R_3** are independently at least one of hydrogen, $(C_1\text{-}C_4)$alkyl, halo$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$alkyl, O-$(C_1\text{-}C_4)$haloalkyl, $(C_1\text{-}C_4)$alkylamino, amino$(C_1\text{-}C_4)$alkyl, F, Cl, Br, I, CN, $-CH_2CN$, NH_2, hydroxyl, $OC(O)CF_3$, $-OCH_2Ph$, -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 isomer thereof.

6. ~~A method of treating a coronavirus infection in a subject in need thereof by administering to the subject~~Use of a formulation having a therapeutically effective amount of a compound of the Formula **VII**:



(**VII**)

wherein

X is a bond or NH;

Q is NH and

A is a phenyl, indolyl, or indazolyl ring 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,

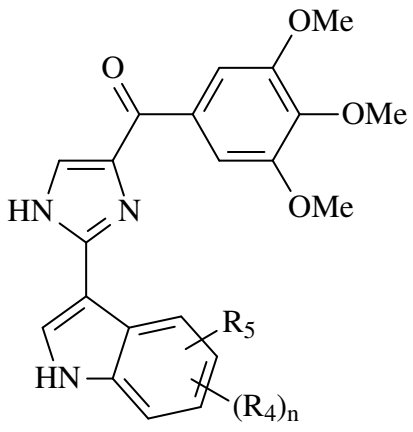
Br, I, CN, -CH_2CN, NH_2, hydroxyl, $OC(O)CF_3$, -OCH_2Ph, -NHCO-(C_1-C_4)alkyl, COOH, -C(O)Ph, C(O)O-(C_1-C_4)alkyl, C(O)H, -$C(O)NH_2$ or NO_2; or a pharmaceutically acceptable salt, hydrate, polymorph, or isomer thereof, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

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

8. The ~~method~~ use according to claim 6, wherein X is NH.

9. The ~~method~~ 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 isomer thereof.

10. ~~A method of treating a coronavirus infection in a subject in need thereof by administering to the subject~~Use of a formulation having a therapeutically effective amount of a compound of the Formula **VII(c)**:



VII(c)

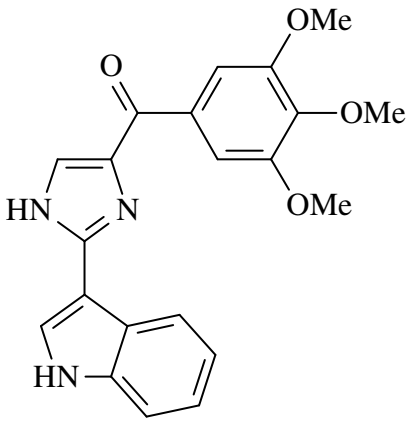
wherein

R_4 and **R_5** 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, in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

11. ~~A method of treating a coronavirus infection in a subject in need thereof by administering to the subject~~Use of a formulation having a therapeutically effective amount of a compound **17ya** represented:



(**17ya**), in the manufacture of a medicament for treating a coronavirus infection in a subject in need thereof.

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

13. The ~~method~~ use according to any one of claims 1-11, wherein the coronavirus infection is caused by SARS-CoV-2.

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

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

16. The ~~method~~ use according to claim 13 or 14, wherein the ~~method~~ medicament reduces morbidity as compared to a patient population treated with placebo.

17. The ~~method~~ use according to claim 16, wherein the ~~method~~ 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.

18. The ~~method~~ use according to claims 13 or 14, wherein the ~~method~~ medicament reduces mortality or respiratory failure in subjects >60 years of age as compared to a patient population treated with placebo.

19. The ~~method~~ use according to claim 13 or 14, wherein the ~~method~~ medicament reduces mortality or respiratory failure when dosed in combination with remdesivir and/or dexamethasone as compared to a patient population treated with placebo.

20. The ~~method~~ use according to any one of claims 13-14, ~~further comprising~~wherein the medicament is to be administered with a second therapy.

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

22. The ~~method~~ use according to claim 20, 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.

23. The ~~method~~ use according to claim 20, wherein the second therapy is an antibody therapy such as high titer COVID-19 convalescent plasma, IVIG, a monoclonal antibody therapy such as casirivimab plus imdevimab, bamlanivimab, or bamlanivimab plus etesevimab.

24. The ~~method~~ use according to claim 20, 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.

25. The ~~method~~ use according to claim 20, 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.

26. The ~~method~~ use according to claim 13 or 14, wherein the compound is to be administered in an amount of about 1 to about 100 mg.

27. The ~~method~~ use according to claim 13 or 14, wherein the compound is to be administered in an amount of about 4 mg to about 90 mg.

28. The ~~method~~ use according to claim 13 or 14, wherein the compound is to be administered in an amount of about 4 mg to about 45 mg.

29. The ~~method~~ use according to any one of claims 1-14, wherein the medicament further ~~comprising~~ comprises a pharmaceutically acceptable excipient.