Potential COVID-19 drugs and their Patents in major jurisdictions

Coronavirus has now become a pandemic. As per a situation report[1] released by WHO on April 15, 2020, around 1.91 million people are suffering from this disease along with 0.12 million deaths. The Sudden outbreak of the disease has caught a lot of countries napping with regards to their healthcare systems and has set the pharmaceutical and biotech companies around the world in a frenzy to bring about a cure for this rapidly spreading deadly disease.

Some prominent molecules have come up and are in different phases of the clinical trial.[2]

Certain Lead molecules which are potential candidates for the treatment of COVID-19 and are currently in different phases of clinical trials in various countries/jurisdictions are mentioned in the table below:

Patent Expired

Drug Name	Remdesivir (Gilead)	Hydroxychloroquine (Sanofi)	Lopinavir Ritonavir (Abbvie)
Jurisdiction			
USA	Patented case Expiry Date: 22-04-2029	Patented case Expiry Date: 21-02-2026	-
Europe	Patented case Expiry Date: 22-04-2029	Patent Expired	Patented case Expiry Date: 21-02-2026
India	Patented case Expiry Date: 22-04-2029	Patent Expired	Not Granted
China	Patented case Expiry Date: 22-04-2029	Patent Expired	Patented case Expiry Date: 21-02-2026
Japan	Patented case Expiry Date: 22-04-2029	Patent Expired	Patented case Expiry Date: 21-02-2026

Treatment for this health calamity is need for the hour and the global community is putting great hope on the lead molecules for possible treatment. However, there is another aspect that should also be kept in mind. Once a drug/molecule gets approved for the treatment of COVID-19, it will require bulk production of those molecules to meet the needs of the patients worldwide. An interesting catch in this is the boundation of these molecules by patents.

No country can manufacture patented molecules without the nod of the owner of the patent unless compulsory licensing is invoked by the designated country in times of health emergency. Herein, we will be discussing some lead molecules currently in trials for COVID-19 treatment, their patent protection status and possible scenario of compulsory licensing for these molecules with respect to certain jurisdictions such as USA, Europe, India, Japan, and China.

As of now, remdesivir, developed by Gilead sciences, is the leading candidate for the treatment of COVID-19. It is protected by patents in all the jurisdictions mentioned above with a tentative expiry in the year 2029. Although the company is expediting clinical trials of remdesivir, it needs to be seen what its pricing policy for remdesivir would be if the drug gets approval.[3] Currently, no country has invoked compulsory licensing for remdesivir.

Another drug candidate, hydroxychloroquine, has shown promising results in the treatment of novel coronavirus infection. Presently, preclinical trials are going on for this drug. Drug approval agency, FDA, has given its nod for the treatment of COVID-19 using hydroxychloroquine in case of emergency.[4] Hydroxychloroquine was approved way back in 1955 for malaria treatment and currently is a generic drug. So there would not be any problem in its bulk production once the drug gets approved.

There is a saying, *"Blessing in disguise".* This saying has proved to be true in times of global corona scare. Abbvie has decided to drop its patent rights for the antiviral drug, Kaletra which is currently in phase III clinical trials for COVID-19. This reportedly came after Israel and Chile issued a compulsory license for the manufacture and import of generic version of Kaltra.[5]

Kaletra is a combination of two drugs lopinavir and ritonavir for treating HIV-AIDS. Currently, it is in phase-3 of clinical trials for COVID-19. This drug is already protected by IP rights in the USA, Europe, China & Japan with tentative expiry in 2026. India, however, rejected its patent citing non-inventiveness.[6]

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