

# Scientists join hands targeting to synthesize compounds to inhibit maturation & propagation of COVID 19 virus

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Scientists from India, Russia, Brazil, and South Africa will work together to repurpose, validate and synthesise lead compounds against main protease and RNA replicase, the [enzyme](#) that catalyzes the [replication](#) of [RNA](#), of SARS-CoV-2. The approach which could inhibit both maturation and propagation of viruses during the infection in the host cells can help produce new COVID-19 medicines with improved production methods.

The area of multistage targeted inhibitors of SARS-CoV-2 has emerged few months back after WHO announced Covid-19 as global emergency. The multistage process involves viral genome replication, transcription and maturation are the multistage processes, which are interlinked in the viral machinery and promote viral propagation. They are regulated by the enzymes protease and RNA replicase. Inhibiting these effects would be crucial to complete the dream of millions of people on this earth to develop/repurpose a drug molecule against COVID-19.

A consortium consisting of Dr. Dhruv Kumar, Professor from Amity Institute of Molecular Medicine and Stem Cell Research, Dr. Brijesh Rathi, Assistant Professor, Hansraj College, the University of Delhi from India, Dr. Lindomar José Pena, Virologia e Terapia Experimental (LAVITE) from Brazil Av. Professor Moraes Rego, s/n – Campus da UFPE – Cidade Universitária, Brasil), Russia (Dr. Vladimir Potemkin, South Ural State University, Russia) and Dr. Anil Chaturgoon, University of KwaZulu-Natal South Africa will identify and synthesize phytochemicals against main protease and RNA-dependent RNA polymerase of SARS-CoV-2. They will also conduct biochemical assays, including cytotoxicity lead compounds against main protease and RNA dependent RNA polymerase of SARS-CoV-2, and conduct target validation of lead compounds through molecular dynamics simulation and biochemical methods.

While efforts have been made to selectively inhibit a single target enzyme of SARS-CoV-2, but effective potential inhibitors against both replication and maturation machinery of SARS-CoV-2 is yet to be found.

The Department of Science and Technology will be supporting this research which brings multiple expertise from the several BRICS countries to bring a solution to the COVID-19 crisis that the world is combatting at present.

As drug discovery is a complex process, the collaborative effort involving experts from bioinformatics, organic chemistry, medicinal chemistry, drug screening, and parasitologists would be of great value for the search of new efficient drugs against COVID-19. The consolidation of efforts, knowledge, and experience of scientists and specialists from different areas will lead to the optimization of the health system and health care both in BRICS countries.

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