



Latest Updates

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## ICGEB ACTIVITIES IN THE COVID19 CRISIS – UPDATES AS AT 2 APRIL 2020 REPORTS FROM ICGEB NEW DELHI

Press Release

**Recent studies at ICGEB New Delhi in the battle against Covid19 are leading to further exploration of experimental validation and therapeutic possibilities and have been submitted for funding to BIRAC under a call to fight the pandemic**

**Neel Sarovar Bhavesh, Transcriptional Regulation, and Dinesh Gupta, Translational Bioinformatics** are driving specific leads in the battle against Covid19. **Anmol Chandele, Emory Vaccine Program**, is at an advanced stage of obtaining regulatory clearances in her team's repurposing drug trial and in identifying the source of samples.

There is extensive **interaction between ICGEB labs in New Delhi and Trieste** in screening for novel antiviral compounds, and assessing them in a variety of different assays.

One of these is exploring the potential repurposing of the approved drug **Valproic Acid against SARS-CoV2**. Neel Sarovar Bhavesh and his Group have carried out virtual screening of a library containing 1.2 million small molecules, and have found that Valproic Acid Coenzyme-A, a metabolite from the prodrug valproic acid, binds stably to the SARS-CoV2 RNA-dependent RNA polymerase (RdRp).

In our New Delhi labs we are also attempting to **identify human monoclonal antibodies with therapeutic potential** by screening patients who have successfully resolved the infection. This is particularly promising, **repurposing techniques** used successfully in our work on dengue. Anmol Chandele, Group Leader of the Emory Vaccine Program at ICGEB New Delhi is working towards making human monoclonal antibodies against the SARS-CoV2 strain isolated within India, in collaboration with the **Translational Health Science and Technology Institute, THSTI**, and the **Indian Council of Medical Research, ICMR**. Together with **Navin Khanna, Translational Health Group**, and the **Manipal Academy of Higher Education, MAHE**, a proposal for the development and evaluation of the SARS COV-2 virus **antibody ELISA** and **Point-of-care test (POCT)** has been submitted to the Government of India, Department of Biotechnology funding agency, **BIRAC**.

This team will **design, clone, express and purify a multi-epitope protein (MEP) of the SARS COV-2 virus and evaluate its performance using patient sera**. This test will be able to score SARS COV-2 seroconversion in a low resource setting.

Dinesh Gupta's Group is using a **bioinformatics approach to perform comparative analyses of SARS-CoV2 genomes from different geographical locations** with genomes of other coronaviruses **to monitor SARS-CoV2 transmission and its**

**sequence variations**, with a particular emphasis on looking for variants that may have different degrees of pathogenesis. Analysis so far has revealed a unique mutation in the Indian SARS-CoV2 strain. The Group has also shown that the potentially anti-viral human microRNA hsa-miR-27b has a target only in the human strain of the virus, and intends to continue further computational analyses involving more genomes as they become available.

A **team at ICGEB New Delhi** comprising Pawan Malhotra, Asif Mohammed and Dinesh Gupta is developing lead **molecules for the inhibition of SARS-Cov2** attachment, entry and infection, exploring known, and new, potentially druggable targets on the virus.

Another team comprising Arockiasamy Arulandu, Sujatha Sunil and Alessandro Marcello, ICGEB Italy, together with Ruhvenile Biomedical OPC Pvt. Ltd., India, propose to develop novel therapeutics against COVID-19, through the design and synthesis of small molecular inhibitors specifically targeting SARS-CoV-2 viral replication.

Sujatha Sunil, Vector Borne Diseases Group Leader, in collaboration with the Siddha Central Research Institute, Chennai, has proposed exploring the development of novel herbal formulations against SARS-CoV-2, using traditional medicinal knowledge and modern scientific methods.

The ICGEB COVID-19/SARS-CoV-2 Resource Page at <https://www.icgeb.org/covid19-resources/> offers Resources, Tools and Know-how to fight the SARS-CoV-2 virus that causes COVID-19, to its Member States, free of charge.

It offers positive control RNA, and information for isolating and working with the virus, and for sequencing for subsequent surveillance purposes. All of this is backed up by direct technical assistance with on-line video tutorials on the isolation and detection of Sars-CoV-2 RNA. Protocols and expertise in the production of Interferon alpha, which has been reported to have some beneficial effects in the treatment of Covid19 infections, is also being made freely available on the website, together with links to additional reading, and the possibility for in-house training in its production.

A platform for sharing links and information amongst ICGEB Member States has been set up on the ICGEB Web site at: <https://www.icgeb.org/updates-from-our-member-states-on-covid-19-sars-cov-2/>

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