

Genome Sequencing of SARS-COV 2

August 3, 2020

The Ministry of Science & Technology has announced the successful completion of Pan-India 1000 Genome sequencing of SARS- CoV-2. Further, the largest network of five dedicated COVID-19 Biorepositories established by the Department of Biotechnology in record time was launched.

Genome Sequencing of SARS-COV 2

Indian researchers have **sequenced over 1,800 genomes of the Sars-CoV-2 virus** that causes the coronavirus disease (Covid-19), which will **help them monitor mutations of the virus and trace the spread of the infection**. So far, 1,886 genomes have been sequenced by various laboratories across the country. Of these, 833 are of very good quality and give a lot of data. What has been learnt so far is that **A2A is the dominant strain in India – the same as the globally prevalent strain – meaning that any drug or vaccine developed in other parts of the world should theoretically work in India**.

Given the importance of this information for public health response initiatives requiring investigation into the transmission of COVID-19, the sequence data will soon be released in the **Global Initiative on Sharing All Influenza Data (GISAID) for use by researchers across the globe**. The information in the database will improve the understanding on how the virus is spreading, ultimately **helping to interrupt the transmission chains, prevent new cases of infection, and provide impetus to research on intervention measures**. The data analysis, which is ongoing, may also bring out some interesting conclusions to help in the fight against COVID-19.

The Department of Biotechnology had launched a pan India 1000 SARS-CoV-2 RNA Genome Sequencing programme in May this year to

be **done by Autonomous Institutes of DBT, collaborating with national laboratories and clinical organizations.** The consortium coordinated by National Institute of Biomedical Genomics (NIBMG-Kalyani), West Bengal and five other National clusters, ILS-Bhubaneswar, Centre for DNA Fingerprinting and Diagnostics (CDFD)-Hyderabad, InStem- National Centre for Biological Sciences (NCBS)-IISc-Bangalore, and NCCS-Pune are actively participating in sequencing and analysis. The Consortium has achieved its initial goal of completing the sequencing of 1000 SARS-CoV-2 genomes from nasopharyngeal and oropharyngeal swabs collected from individuals testing positive for COVID19 by real time PCR. The samples were collected across 10 states covering different zones within India.

DBT is supporting COVID-19 bio repositories through a well strategized plan so that novel technological interventions can be developed in due course of time. **The main purpose of these biorepositories are archival of inactivated virus and clinical samples,** including naso-oropharyngeal swabs, stool, urine, saliva, serum, plasma, PBMC and Serum. The biorepositories are at the Translational Health Science and Technology Institute (THSTI) Faridabad, Institute of Life Science (ILS) Bhubaneswar, Institute of Liver and Biliary Sciences (ILBS) New Delhi, National Centre for Cell Science (NCCS) Pune and Institute for Stem Cell Science and Regenerative Medicine (InStem) Bangalore.

These **designated bio repositories will use the clinical samples for R&D purpose and are authorized to share the samples with academia, industry and commercial entities involved** in development of diagnostics, therapeutics, vaccines etc., after scrutinising the purpose of the request and ensuring benefit to the country. Standard Operating Procedures (SoPs) for sample collection, transportation, aliquoting, storage and sharing have been developed. As on date, 44452 clinical samples have been collected and stored in these five

centres. More than 5,000 samples have been shared.