

TWO CSIR LABS START SEQUENCING NOVEL CORONAVIRUS

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

This image obtained March 16, 2020 courtesy of The National Institutes of Health (NIH)/NIAD-RML shows a 3D print of a spike protein of SARS-CoV-2 — also known as 2019-nCoV, the virus that causes COVID-19 — in front of a 3D print of a SARS-CoV-2 virus particle. The spike protein (foreground) enables the virus to enter and infect human cells. On the virus model, the virus surface (blue) is covered with spike proteins (red) that enable the virus to enter and infect human cells. | Photo Credit: [AFP](#)

As on April 7, India has shared nine whole genome sequences of the novel [coronavirus](#) (SARS-CoV-2) with the Global Initiative on Sharing All Influenza Data (GISAID) — a public platform started by the WHO in 2008 for countries to share genome sequences. All the sequences have been shared by the Pune-based National Institute of Virology. Till recently, the NIV had shared only two sequences. The first two were shared on March 5.

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So far, 3,086 sequences of the virus isolated from humans have been shared by 57 countries. With 621, the U.S. has shared the most number of sequences, followed by the U.K. (350), Belgium (253) and China (242).

Sequencing the genome of SARS-CoV-2 will help understand where the virus came from, if there are different strains circulating in India, and how the virus has spread.

On April 2, the Indian Council of Medical Research (ICMR) allowed all national research laboratories including those under the Council of Scientific and Industrial Research (CSIR) to conduct testing for the novel coronavirus. Since the CSIR labs will now have access to virus samples, they will be in a position to sequence the genome too.

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According to CSIR Director-General Dr. Shekhar C. Mande, both the Hyderabad-based Centre for Cellular and Molecular Biology (CSIR-CCMB) and the Institute of Genomics and Integrative Biology (CSIR-IGIB), Delhi have already started sequencing the virus.

Dr. Rakesh K. Mishra, Director of the CSIR-CCMB told *The Hindu* that they had begun sequencing the genome a few days ago. “We have sequenced the genome of five virus isolates. In three-four weeks, both CCMB and IGIB want to sequence about 200 isolates.”

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“Getting the virus in sufficient numbers in a sample is the challenge. If more isolates are available then we can sequence more numbers,” Dr. Mishra said. According to him, the CCMB is capable of sequencing around 40 isolates in three-four days.

“The genome of novel coronavirus is small. So sequencing and analysis are simple,” Dr. Mishra said. “We have sequenced the virus that we have tested. So these are from patients in and around Hyderabad. We should be sequencing the virus from across the country to get a picture

of the diversity of the virus, if there is any.”

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The CCMB has both biosafety level (BSL)-2 and BSL-3 labs. The virus is isolated and deactivated in BSL-3 facility and sequenced in BSL-2 facility. “Besides sequencing, we will also be culturing the virus. This will help us study the virus and will be useful while testing vaccines and drugs,” Dr. Mishra said.

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