

## Indian SARS-CoV-2 Genomics Consortium (INSACOG)

Indian SARS-CoV-2 Genomics Consortium (INSACOG) is a multi-lab agency set up by the Government with a view to sequencing and analysing the genome data with respect to the SARS-CoV-2 virus. In this article, you can learn all about the Indian SARS-CoV-2 Genomics Consortium (INSACOG) for the [IAS exam](#).

### What is INSACOG?

INSACOG is a national multi-agency consortium of Regional Genome Sequencing Laboratories (RGSLs) set up by the Indian Government in December 2020 to monitor the genomic variations in the covid-19 causing SARS-CoV-2 virus.

- Initially, there were ten laboratories in the consortium but now, the number has been expanded to include 28 laboratories.
- RGSLs are responsible for genome sequencing and identification of variants of concern/variants of interest, potential variants of interest, and other mutations. Read more on [coronavirus variants](#) in the link.
- The idea behind the establishment of the INSACOG is to expand the whole genome sequencing of the coronavirus to understand how it spreads and evolves.
- It is set up under the Ministry of Health and Family Welfare, GOI.
- INSACOG is a joint initiative of the Health Ministry, the Department of Biotechnology (DBT), [Council of Scientific and Industrial Research \(CSIR\)](#) and the Indian Council of Medical Research (ICMR).
- Genome sequencing is important because it helps to understand the role of certain mutations in increasing the virus's infectivity, immune escape, the ability of the virus to evade antibodies all of which have ramifications for vaccine efficacy.

INSACOG had started genome sequencing in 2020 with initial samples being taken from international passengers who arrived in India from Brazil, the UK or South Africa, or those who had transited through these countries since these countries showed a surge in the number of cases. The network also sequenced RTPCR positive samples from States reporting sudden surges in cases.

### INSACOG Objectives

The COVID-19 pandemic has had a tremendous impact on people's lives in India and across the world. In India, it has adversely impacted the health sector and also the economy. An in-depth sequencing and analysis of the genomic data of the virus is imperative to understand how the virus evolves, mutates and spreads. INSACOG was formed with this objective in mind. Any changes to the genetic code or mutations in the virus can be observed based on the analysis and sequencing of samples done in the laboratories under INSACOG.

The stated objectives of INCASOG are:

1. To ascertain the status of Variants of Interest (VoI) and Variants of Concern (VoC) in India.
2. To establish sentinel surveillance and surge surveillance mechanisms for early detection of genomic variants and assist in formulating effective public health response.

3. To determine the presence of genomic variants in samples collected during super-spreader events and in areas reporting increasing trend of cases/deaths, etc.

## How does INSACOG work?

Samples are collected and transported from districts/sentinel sites to the RGLs by the Integrated Disease Surveillance Programme (IDSP) machinery. The labs then conduct genome sequencing and identify variants of concern or variants of interests. This information is then passed on to the Central Surveillance Unit, IDSP for establishing clinico-epidemiological correlation in coordination with State Surveillance Officers.

The Scientific and Clinical Advisory Group (SCAG) was set up to assist the INSACOG in its work. The SCAG, after discussions, requests the Central Surveillance Unit for further investigation on the VOI if it is needed.

The genome sequencing analysis and clinico-epidemiological correlation established by IDSP is shared with the Health Ministry, CSIR, DBT, ICMR and the states/UTs for the formulation and implementation of the necessary public health measures.

The new mutations/variants of concern are cultured, and genomic studies are undertaken to see the impact on vaccine efficacy and immune escape properties.