

Advanced virology lab for COVID-19 testing

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The National Botanical Research Institute (NBRI), Lucknow, has established an Advanced Virology Lab for testing COVID-19. The facility has been developed based on the guidelines of the Indian Council Medical Research (ICMR), the World Health Organisation (WHO), and the Ministry of Health and Family Welfare.

Virology Lab

It is a **Biosafety Level (BSL) 3 level facility**. **Biosafety levels are assigned to a facility depending on the pathogen it deals with**. According to ICMR guidelines, BSL2 level facility is recommended for COVID-19 but this is an advanced version. This advanced version has a **negative pressure**, which means it has a suction facility that can suck any aerosol and pass it through filters. It can filter virus or bacteria to make it a safe COVID-19 testing facility. It reduces the possibilities of infections at culturing facilities.

The facility will add to the testing capacity of Uttar Pradesh (UP). At present, UP is testing about 20,000 samples per day.

What is Virology?

Virology is the **study of viruses and virus-like agents**, including (but not limited to) their taxonomy, disease-producing properties, cultivation and genetics. It is often considered a part of microbiology or pathology.

Viruses are small, subcellular agents that are **unable to multiply outside a host cell** (intracellular, obligate parasitism). The assembled virus (virion) is formed to include only one type of nucleic acid (RNA or DNA) and, in the

simplest viruses, a protective protein coat.

The **nucleic acid contains the genetic information** necessary to program the synthetic machinery of the host cell for viral replication. The protein coat serves two main functions: first, it protects the nucleic acid from extracellular environmental interferences such as nucleases; second, it permits attachment of the virion to the membrane of the host cell, the negative charge of which would repel a naked nucleic acid. Once the viral genome has penetrated and thereby infected the host cell, virus replication mainly depends on host cell machinery for energy and synthetic requirements.