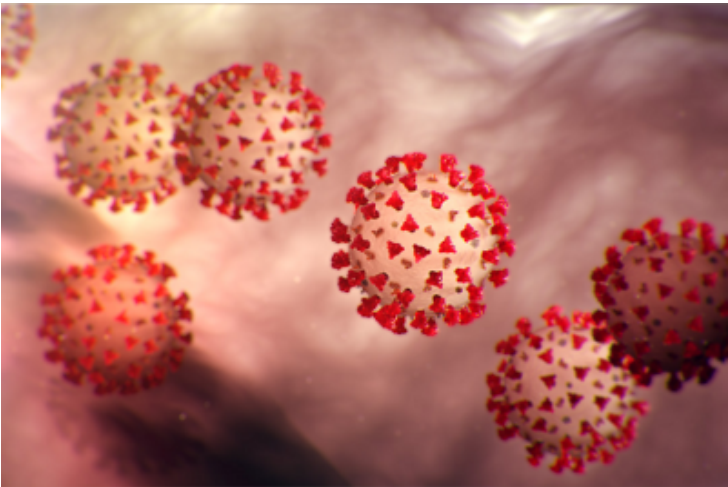


N-protein of coronavirus critical in viral transmission: IISER Bhopal study

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Actual infectivity levels may vary significantly based on the presence of other viral proteins like the nucleocapsid (N) protein



Researchers from the Indian Institute of Science Education and Research (IISER) Bhopal have shown that proteins from the COVID-19 virus other than the well-known ‘spike protein’ can play a critical role in the infectivity of the virus.

The SARS-CoV-2 virus has an RNA genome, surrounded by a sphere-shaped structure. This structure comprises various types of proteins, with one of them being the ‘spike protein’ that gives the virus its characteristic spiked look or ‘crown’. Since the virus is highly infectious, most studies do not use the live virus, but use a similar protein capsule made up of spike that has been filled with another viral core, in a process called ‘pseudotyping.’

Elaborating on his research, Dr. Ajit Chande, Assistant Professor, Department of Biological Sciences, IISER Bhopal said, “Current methods of retrovirus pseudotyping are focused on the spike protein of the virus. Our study picks off from this point.”

“We believe that the N-protein promotes the incorporation of the spike protein into viral particles, thereby increasing the chances for each viral particle to bind to the target cell. Our discovery opens up an exciting host of questions for related research in this area,” added Dr. Chande.

The researchers found that pseudovirus produced with the nucleocapsid (N) protein had higher infectivity than those containing other proteins.

The team plans to carry forward these results into related arenas by exploring potential impact of the N protein on spike across different cellular contexts and also including emerging variants of the SARS CoV-2 in related studies.

Furthermore, delineating the interactions between the spike and N protein would help expand our understanding of the spread of the COVID-19 virus and its effects on various people.