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# IIT-B to develop nasal passage gel to prevent COVID-19

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**This solution is not only expected to protect the safety of health workers, but can also lead to reduction in community transmission of COVID-19**



Science and Engineering Research Board (SERB), a statutory body of the Department of Science and Technology (DST), is supporting a technology by the Department of Biosciences and Bioengineering (DBB), IIT Bombay for capturing and inactivation of novel corona virus, the causative agent of COVID-19.

The funding will help the team from the Department of Biosciences and Bioengineering, IIT Bombay develop a gel that can be applied to nasal passage, which is a major entry point of the corona virus. This solution is not only expected to protect the safety of health workers, but can also lead to reduction in community transmission of COVID-19, thereby helping disease management.

Given the contagious nature of COVID-19, health providers including doctors and nurses are at maximum risk while taking care of COVID-19 patients, particularly asymptomatic ones who cannot be detected and pose a greater risk in spreading the disease.

The team is planning a 2-pronged approach to limit transmission of the SARS-CoV-2 virus, the causative agent of COVID-19. Primarily, since viruses replicate within host cells of the lungs, the first component of the strategy will be to inhibit binding of viruses to host cells. While this is expected to reduce host cell infection, viruses will still remain active, therefore, raising the need to inactivate them.

Secondly, biological molecules would be incorporated, which would inactivate the trapped viruses in a manner similar to that of detergents. Upon completion, this approach will lead to development of gels that can be locally applied in the nasal cavity.

Prof Ashutosh Sharma, Secretary, DST said, "Our health care workers and others working in the front-line of fight against the virus deserve a fool-proof, 200% protection. The nasal gel being developed in conjunction with other protective measures, will provide a strong extra layer of defense",

Prof. Kiran Kondabagil, Prof. Rinti Banerjee, Prof. Ashutosh Kumar and Prof. Shamik Sen from the Dept. of Biosciences & Bioengineering at IIT Bombay will be part of this project. The team has expertise in the areas encompassing virology, structural biology, biophysics, biomaterials, and drug delivery and it is expected that the technology would be ready in about 9 months.