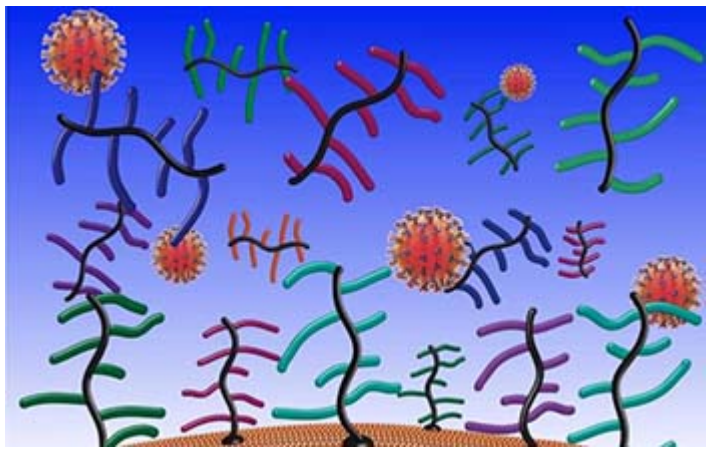
Research News

Mucus and the coronavirus: What is its role in spread of the virus?

Biomedical engineers studying how mucus affects COVID-19 transmission



In this graphic, coronaviruses interact with mucus proteins on a human cell surface.

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As the lethal COVID-19 coronavirus propagates around the globe, we know a sneeze, a cough or simply touching a surface carrying the virus can spread the infection.

What researchers don't know is what role different compositions of mucus, the slimy substances on human tissue, might play in the transmission of coronaviruses. Nor do they know why some people known as "super-spreaders" transmit the disease more than others.

Now University of Utah (/cgi-bin/good-bye?https://attheu.utah.edu/facultystaff/mucus-and-the-coronavirus/) biomedical engineer Jessica Kramer is researching how mucus plays a part in transferring coronaviruses from person to person. Kramer has received a Rapid Response Research (RAPID) grant from the National Science Foundation <https://www.nsf.gov/awardsearch/showAward?AWD_ID=2026965&HistoricalAwards=false> for the study.

"Not everyone spreads the disease equally," says Kramer. "The quality of their mucus may be part of the explanation. One person may sneeze and transmit it to another person, and another may not."

Understanding how different compositions of mucus proteins spread coronaviruses could help identify those who are "super-spreaders" as well as those who could be more vulnerable to becoming infected, says Kramer.

That identification could lead to faster collection of more accurate data on who will spread the virus and enable more effective quarantine measures for high-risk populations. Since the arrival of COVID-19, the nation's epidemiologists have said that accurate testing to know where the infection is growing is a key factor in containing its spread.

"This award is a great example of how fundamental materials research can address questions that make a major difference in the COVID-19 pandemic, and in future such situations," says Randy Duran, a program director in NSF's Division of Materials Research.

The team will create different forms of synthetic mucins, the proteins that make up mucus, and test them with non-hazardous versions of coronaviruses.

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