
This Nanocoating Enables Masks to Capture AND Destroy Coronavirus

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Researchers at the University of Central Florida (UCF) are working to create a protective coating that would include a new nanomaterial to catch #COVID19 and kill it within seconds.

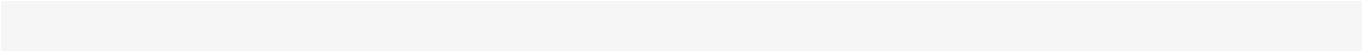
The masks that health care workers wear to protect them from the virus that causes COVID-19 block the virus before it reaches their faces, but do not destroy it. To further protect doctors, nurses, and others on the front lines of the pandemic, researchers at the University of Central Florida ([UCF](#)) are working to create a protective coating that would include a new nanomaterial to catch the virus and kill it within seconds.

Professor Sudipta Seal, an engineer specializing in material science and nanotechnology, has teamed up with professor Griffith Parks, a virologist who leads research efforts at UCF's College of Medicine, to develop the protective film made of nanostructures that could catch and kill the virus. Seal said, "I could come up with the nanoparticles, I was sure, but would the concept work with a virus? I called Dr. Parks, and yes, he thought it could work."

Seal will create nanostructures that will capture the virus and then trigger a chemical reaction using ultraviolet light to destroy it. The scientists said that if successful, the coating could be added to hospital masks, gloves, and gowns, which could keep health care providers safer as they diagnose and treat patients infected with the virus.

The nanostructures will be created at UCF's main campus and then shipped to Park's lab at the College of Medicine to test against a "dictionary of viruses" he has stored in a freezer. "I make the recipe and Dr. Parks checks against his dictionary of viruses," Seal said. "The viruses are similar in their RNA and DNA structure to the coronavirus, but not as contagious or lethal. If it works on these closely related viruses, then we go to the next step."

[**Nanotechnology in Battle Against Coronavirus ...**](#)



After Seal creates the materials, Parks will put them through a battery of tests to see which materials kill specific viruses and how fast. While one material might kill all viruses, Parks expects that some materials will work better on particular types of viruses — a finding that would allow them to tailor the materials in the future for a specific outbreak by a specific virus type. If Seal and Parks are successful, they hope to develop materials that can also kill disease-causing organisms such as bacteria.

Because Parks' lab is not Biohazard Safety 3 certified, he cannot test using the actual virus, which requires high-containment facilities. If a material Seal develops proves effective at killing viruses in the coronavirus family, the UCF scientists will send it to a certified outside lab. From there it would go through necessary testing before getting approval to be used in the field.

It could be months, but the approach could prove useful for other potential pandemics as well as the varied viruses and bacteria that health care providers face in caring for their patients. "This is a terrific example of two scientific experts — who see things in very different ways and have very different backgrounds — coming together to tackle an important problem. The fact that this interdisciplinary approach might help the world deal with this pandemic makes it even more rewarding," Parks said.

Read the [original article](#) on Photonics.