

News & Comments

This Mask Captures and Deactivates Coronavirus

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Using a material developed by UK Professor [Dibakar Bhattacharyya](#), the COVID-19 spread can be stopped. On contact with the COVID spike protein, their antiviral face mask deactivates it. A small particle cannot pass through the virus, so it can also be used for filtering small spaces, as it is small enough. COVID-19 is filtered by a typical N95 mask, but this new material would deactivate the particles when they contact it. SARS-CoV-2 can be prevented from spreading through this innovation.

Researchers have developed a membrane-based respiratory mask that captures and deactivates SARS-CoV-2 spike proteins in the presence of the mask. As soon as the virus enters the body, its spike proteins allow it to enter the host cells.

According to tests, the new mask can filter out almost 99 percent of airborne particles, offering wearers a vital layer of protection from infection. Using immobilized SARS-CoV-2 spike proteins immobilized on synthetic particles, researchers tested the membrane developed by a manufacturer. After 30 seconds of contact, it was able to prevent Coronavirus-sized aerosols from getting through as well as destroy spike proteins. The membrane's thickness and porosity can be adjusted, leaving room for future improvements. A membrane can be carefully controlled in terms of the type of particles it filters out.

These masks can be worn for two hours a day without affecting breathability for several days, according to the team. Over time, fewer used masks will need to be disposed of since they won't need to be replaced as often.

This mask offers a higher protection factor than the N95 mask standard, which is certified to filter out 95 percent of particles. In addition to the fiber layer, the N95 mask also has a layer of the electrically charged filter. There's still room for improvement when it comes to the N95 mask, which is currently the most widely used in the healthcare industry. For particles with 100 nanometers (including those carrying SARS-CoV-2), the researchers achieved 98.9% with their new mask. Collaboration with other companies will be used in the future to develop these materials into a commercial product and get them on the market.

KEYWORDS

Engineering, Materials science, SARS COV 2, mask, pandemic, COVID-19, mask, respirator, N95, SARS-CoV-2, filter, spike protein

