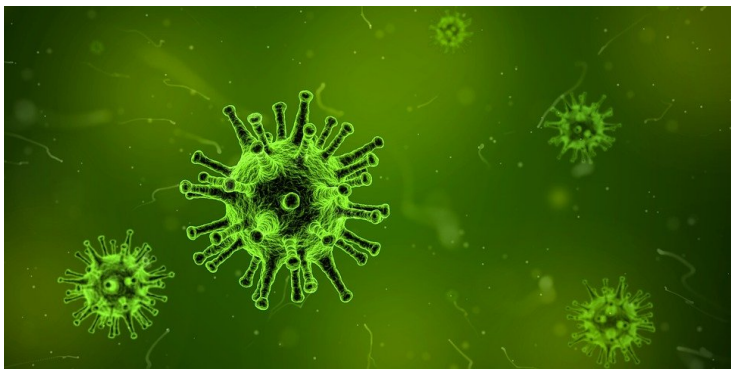
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A lightning-fast flu virus detector

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The researchers have developed a conducting polymer-based sensor that can recognize a specific virus, which makes it a good candidate for wearable monitoring and point-of-care testing.



Researchers have developed a new, rapid biosensor for the early detection of even tiny concentrations of the human influenza A (H1N1) virus. Such early-stage diagnosis is crucial for averting a potential pandemic outbreak, as antiviral medication must be administered in a timely fashion. Conventional tests for detecting the flu virus are often slow and expensive, and can miss early viral infections. In contrast, the new biosensor measures tiny changes in voltage in an electrically conductive polymer to quickly detect virus concentrations almost 100 times smaller than the limit of currently available kits. The work was done at the Tokyo Medical and Dental University (TMDU), in a collaboration between the Institute of Biomaterials and Bioengineering and the Department of Molecular Virology.

To construct the biosensor, the polymer film was placed between two electrodes. When a solution containing H1N1, which carries a tiny positive charge on its exterior shell, was added, some of the viruses stuck to the polymer and increased the voltage measured by the electrodes. This electrical method allows the sensor to detect the presence of miniscule amounts of the virus.

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