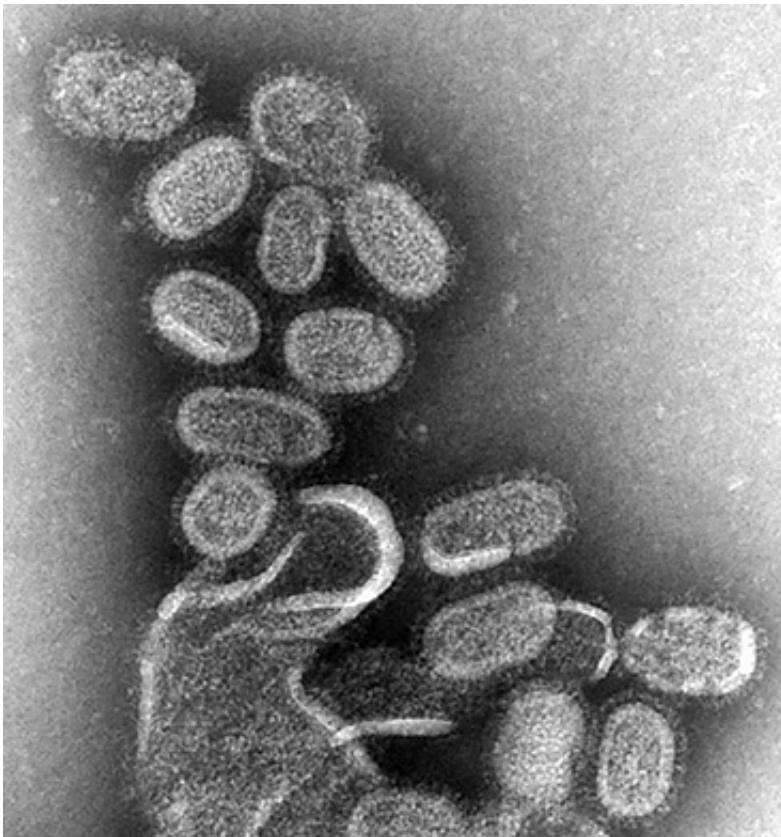


Research identifies the SIGN-R1 molecule responsible for influenza virus recognition

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Electron microscopy of influenza virus. Credit: CDC

A team of researchers from the Institute for Research in Biomedicine (IRB, affiliated to USI Università della Svizzera italiana, Switzerland) have discovered and identified a molecule—SIGN-R1—capable of recognizing the multiple variants of influenza and consequently

'directing' the immune response in individuals affected by the disease. The results of the research, which pave the way for the design of alternative therapies to vaccination, are published in the scientific journal *Nature Microbiology*.

Influenza is one of the most common diseases responsible of multiple hospitalizations worldwide, especially in elder and immunocompromised people. However, despite the development of effective influenza vaccines, the [virus](#) is able to mutate and escape the body defences. Therefore, to protect against influenza, an annual reformulation of the vaccine is required. In later years, the scientists have focused on studying alternative ways to neutralize completely the virus that would not require annual revaccination.

The research team at IRB in Bellinzona, Switzerland, led by Dr. Santiago González, has identified a molecule, expressed by the cells of the immune system responsible of detecting the virus and alerting the host defences. This molecule, named SIGN-R1, is able to recognize multiple variants of influenza virus. After recognition of the virus, SIGN-R1 directs the [immune response](#) to eliminate the virus. Interestingly, SIGN-R1 is also able to bind to other important respiratory pathogens such as *Streptococcus pneumoniae*.

The research results open the way to design alternative therapies to vaccination against respiratory pathogens, including [influenza](#) virus, based on the use of new [molecules](#) from the same family as SIGN-R1. The potential treatments based on this molecules might be used in all the clinical cases in which patients are already infected, in which vaccination is not efficient, or in those cases in which vaccines are not very effective (elderly and children) to improve the effect of the vaccine.

More information: Miguel Palomino-Segura et al. Protection against influenza infection requires early recognition by inflammatory dendritic

cells through C-type lectin receptor SIGN-R1, *Nature Microbiology* (2019). [DOI: 10.1038/s41564-019-0506-6](https://doi.org/10.1038/s41564-019-0506-6)

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