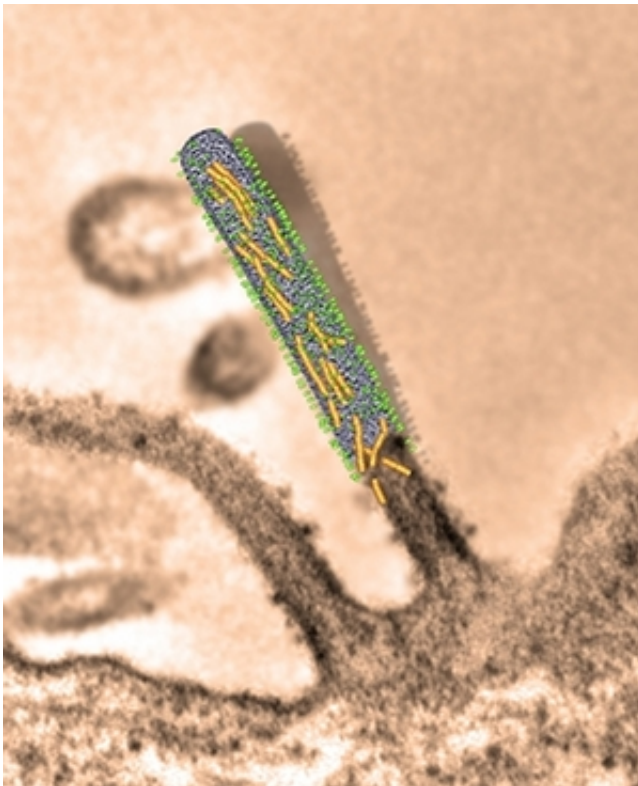


One step closer to vaccine for common respiratory disease

June 17 2013



The RS virus causes flu-like symptoms in healthy adults, but becomes life-threatening in young children and the elderly. The 3-D structure has been now solved by the Sarah Butcher Lab in the University of Helsinki. Credit: Sarah Butcher Lab, University of Helsinki

Young children and the elderly are especially susceptible to respiratory syncytial virus. The three-dimensional structure of respiratory syncytial

virus has been solved by an international team from Finland and Switzerland.

RSV is a common cause of respiratory infection, but there is no vaccine available. It causes flu-like symptoms in healthy adults, but becomes life-threatening in young children and the elderly. It is estimated to cause over 100 000 deaths yearly worldwide.

The teams of Research Director Sarah Butcher (Institute of Biotechnology, University of Helsinki) and Professor Ari Helenius (ETH Zurich) have now solved the three-dimensional structure of RSV.

"The structural model helps us to understand how [infectious viruses](#) are formed. This information can be useful in the intelligent design of vaccines" said the researcher Lassi Liljeroos.

RSV is related to measles and mumps viruses. All three viruses parasitize human cells, stealing parts of the cell membrane to use as their own. In RSV the resulting virus membranes look like tubes and spheres. We could show that the virus' [matrix protein](#) controls this shape.

"In addition, we observed that the fusion protein on the surface is in two different forms. The fusion protein is responsible for attaching the virus to human cells and invading them. This is an important finding because the fusion protein is the key molecule in developing [therapeutic antibodies](#) to the virus. "

More information: Architecture of respiratory syncytial virus revealed by electron cryotomography,
www.pnas.org/cgi/doi/10.1073/pnas.1309070110

Provided by University of Helsinki

Citation: One step closer to vaccine for common respiratory disease (2013, June 17) retrieved 3 May 2024 from <https://medicalxpress.com/news/2013-06-closer-vaccine-common-respiratory-disease.html>

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