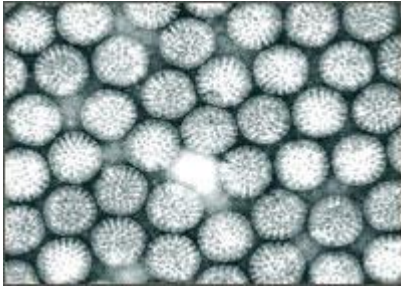


Influenza viruses can be traced in the air



Rotavirus in the electron microscope

Influenza is an invisible threat - yet. But with new medical technologies developed by researchers at LiU among other things, it may be possible to detect viruses and other particles in the air around us.

Just recently the participants in the research project Rapid pathogen Analyzer have received green light for continued funding from the Medical Technology program for better health (VR, SSF and VINNOVA). The project started in 2007 with a budget of 7.7 million. After evaluation of international observers they now receive additionally 5.2 million.

- We are the first in the world to use ionization technology to capture and analyze viruses, bacteria and other particles from the air. We made use of rotavirus as a model for our aerosol research and will now also try to experiment with flu virus", said Lennart Svensson, professor of molecular virology at LiU.

Lennart Svensson and project staff biologist Marie Hagbom, responsible for the analytical part of the project with ionisation, namely how to identify and quantify the microbes which are being collected. Other participants in this project are Professor Göran Stemme, Royal Polytech University (project manager) and the former president of the Karolinska Institute, Professor Hans Wigzell.

The first milestone was to collect viruses for the identification and quantification using a method that reveals the genome of the virus.

- Now, we have also demonstrated the viruses by electron microscopy and found that we capture intact virus particles. In parallel with this method is a biosensor developed by which we directly will be able to deduce which particles are captured", said Lennart Svensson.

The particulate trap is a small ionizer that when power is applied to generate negative ions which gives particles in the air a negative charge. These are attracted to positively charged collection plate at the ionizer. The experiments were performed in a clean-room where the air is free from particles. The researchers sprayed 100 million harmless rotaviruses into the air of the room. After 40 minutes one million were attracted by the collector plate.

The objective is to integrate all functions in one portable device that can quickly reveal what the indoor air contains, not only contamination microbes but also such as narcotic drugs and

toxins. The team also explores the feasibility of the method to capture DNA from the air. That is a forensic approach to the project which could provide a profile of people having been at a crime scene.

During fall of 2007 SVT showed the film "It is in the air" which Lennart Svensson and Rolf Nybom where they shocked viewers with some examples of what we are exposed to in each And every breath. Now they plan a new film.

Contact:

Lennart Svensson, Professor of Molecular Virology
+46-13-228803

2009-12-02