

New intervention strategies against respiratory virus infections

Respiratory virus infections are among the primary causes of death in both humans and animals, causing considerable suffering and economic losses worldwide. Major causes of these infections are the influenza virus, the respiratory syncytial virus (RSV) and the recently discovered human metapneumovirus (hMPV). All of these viruses have counterparts in the animal world. The few intervention methods that are currently available for respiratory infections are only effective to a limited extent.

In 2004, fourteen research groups originating from four universities and three pharmaceutical companies formed a strategic collaboration: the VIRGO Consortium. Their main objective is to improve the rational design of vaccination and other intervention strategies against respiratory virus infections. The consortium brings together expertise in (molecular) virology, transcriptomics, proteomics, bioinformatics and molecular modelling. These genomics tools are implemented in experiments on three levels: the target cell, the animal model and the natural host.

These studies zoom in at the virus-host interaction, with a special focus on the mechanism of induction of innate and specific immune responses and their association with protection and disease. The studies are spread out over ten work packages:

- *In vitro* studies in target cells
- *In vivo* studies in mouse models
- *In vivo* studies in non-human primates
- *In vivo* studies in chickens
- *In vivo* studies in humans: natural infections, (patients that are hospitalised due to a respiratory infection)
- Vaccine research
- Transcriptomics
- Proteomics
- Data storage, data analysis and data mining
- Modelling immune gene-interacting networks

In these work packages, interpretation of the data and extraction of information is aimed at identifying 'key-genes' and regulatory pathways. Knowledge about the molecular mechanisms operational in the virus-host interaction is translated into leads for novel intervention strategies, including vaccines.

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VIRGO Consortium

Partners

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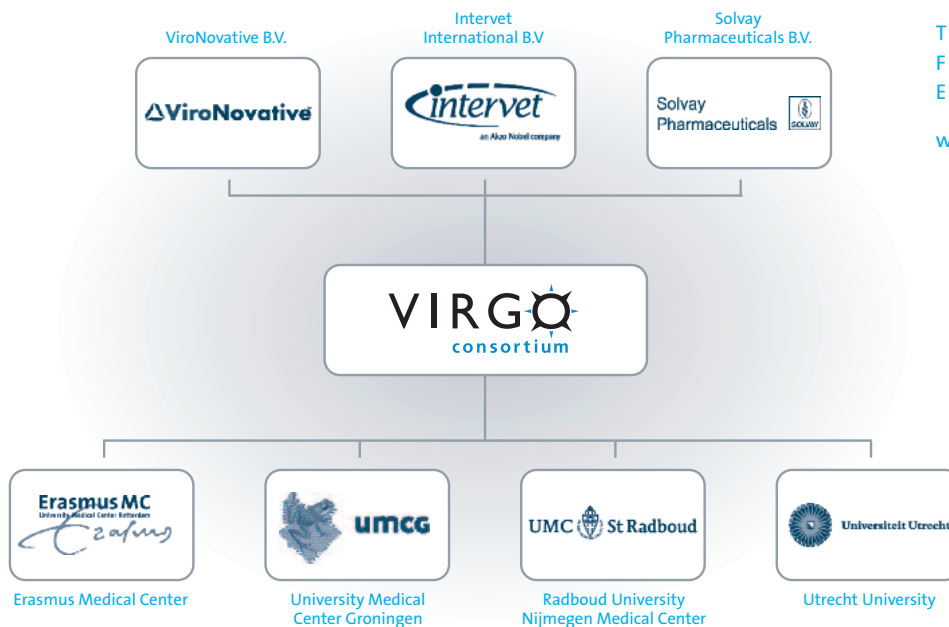
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