Professor Johan Neyts

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Johan Neyts was born in the Belgian coastal resort of Blankenberge in 1966. He obtained a PhD from Leuven University in 1993 where he studied under Professor Dr. E. De Clercq in the Laboratory of Virology and Experimental Chemotherapy. He is currently Professor of Virology of the Department of Microbiology and Immunology, Rega Institute, Faculty of Medicine, University of Leuven.

Professor Neyts is on the editorial board of Antiviral Research and Antiviral Chemistry & Chemotherapy; a reviewer of articles in nearly 30 academic journals and a member of eight scientific committees.

He has been honoured with a number of awards, such as the Dr. And Mrs Schamelhout-Koettlitz prize from the Royal Belgian Academy of Medicine, the William Prusoff Young Investigator Lecture Award from the International Society for Antiviral Research (ISAR) for excellence in the field and the Princess Josephine Charlotte prize from the Fund for Scientific Research in Belgium. He also holds four patents.

Regarding avian/human flu, Professor Neyts is currently working as a partner in the EU funded VIZIER and VIRGIL projects. Each project gives a different perspective on the battle against avian/human flu: VIZIER is looking at the replication machinery of the virus; VIRGIL is looking at ways to prevent the emergence of drug resistance.

The existing antiviral drugs Tamiflu and Relenza both act in the same way, by preventing the release of new progeny viruses, so Professor Neyts considers that it is important to identify drugs that act in a different way and which create a unique resistance profile.

The European Surveillance Network for Vigilance against Viral Resistance (VIRGIL) is a Network of Excellence that aims to integrate and coordinate the activities of doctors and scientists from institutions across Europe who are investigating viral resistance. The Professor's work at Leuven, in a joint effort with Prof. Dr. L. Naesens and Prof. Dr. J. Balzarini from the same institute, focuses on providing drugs with new novel mechanisms of action. Within the framework of the VIZIER integrated project, the team at the Rega Institute in Leuven is one of 24 institutions across Europe investigating the replicative machinery of the influenza viruses with a special emphasis on the discovery of selective inhibitors of these viral enzymes.

The larger team headed by Prof. E. De Clercq discovered earlier already four drugs that are currently being used for the treatment of infections with HIV, the hepatitis B virus and several herpesviruses. A current focus of the team is thus developing new strategies for the treatment of infections with influenza viruses.

VIZIER: Comparative structural genomics on viral enzymes involved in replication

This project aims to have a ground-breaking impact on the identification of potential new drug targets against RNA viruses by characterising their replicative machinery. RNA viruses can cause many life-treatening diseases such as hemorrhagic fevers, gastroenteritis, measles, influenza, dengue fever, encephalitis, and hepatitis.

The project team brings together leading authorities on RNA viruses in the EU and elsewhere. They are characterising the core enzymes/proteins of the replication machinery of a range of different RNA viruses. Understanding the sequence, structure and function of these enzymes is expected to greatly advance our understanding of how RNA viruses replicate.

The first successes have been recorded, with several crystal structures of drugable enzymes, and a number of molecules have been identified that inhibit the replication of a variety of RNA viruses.

Project Coordinator is Bruno Canard

VIRGIL: European vigilance network for the management of drug-resistant viruses.

VIRGIL is a Network of Excellence that aims to integrate and coordinate the research activities of doctors and scientists from institutions across Europe who are investigating viral resistance; in particular to influenza, and hepatitis B and C.

The network gives structure to Europe's previously fragmented research and unites experts in the field, offering coherence and coordination between more than 60 organisations from 14 European countries. In other words, VIRGIL acts like a 'virtual institute' on all aspects of antiviral drug resistance in Europe. It means that Europe can comprehensively address the problem of resistance at an early stage. Staying one step ahead of the virus means a greater chance of remaining in control.

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