



KNVM Virology News

Dear fellow virologist,

Last August it was [announced](#) that Kristina Lanko (ErasmusMC), Lisa Bauer, and Alvin Han have been awarded **VENI** grants for their virology-related research. Earlier, it was [announced](#) that Tessa Quax (Groningen University, [newsletter #16](#)) and Michiel van Gent (ErasmusMC) had been awarded **VIDI** grants for their virology research. During the ESWI meeting, the Prize for Best Body of Work was [awarded](#) to Carolien van de Sandt (University of Melbourne) for her outstanding work in the field of respiratory viruses. Last July, professor Rogier Sanders (AmsterdamUMC) received an honorary doctorate from the University of Southampton. **Congratulations and well done to all!**

Nominations for the **KNAW Beijerinck Premium 2024** are now [open](#). Deadline is 31 October 2023.

From 2-6 October 2023 the Viroscience department of ErasmusMC will again organize their **Course in Virology** including lectures from many (inter)national virologists. Registration is still [open](#).

The board of the Virology division of the KNVM

(Emmanuel Wiertz, Jolanda Smit, Ronald van Rij, Bart Haagmans, Katja Wolthers, Martijn Langereis, and Puck van Kasteren)

Virology events

Sep 19, 2023 Febrina Meutiawati
PhD defense | Nijmegen
van Rij, Varghese

Oct 11, 2023 Ikrame Aknouch
PhD defense | Amsterdam
Pajkrt, Wolthers, Stittelaar

Nov 27, 2023
Samara Rosendo Machado
PhD defense | Nijmegen
van Rij, Miesen

Dec 15, 2023 Bram ter Ellen
PhD defense | Groningen
Smit, Rodenhuis-Zybert

March 8, 2024 - DAVS
Amsterdam



Virology Double-Interview

Lisa Bauer

Postdoc

Viroscience department
ErasmusMC Rotterdam

Alvin Han

Assistant Professor

Med. Microbiology and Infection Prevention
AmsterdamUMC



What is your main research focus?

The neuropathogenesis of different viruses. I study neurotropic viruses but also viruses that were originally not known to affect the central nervous system that have been found to do so upon closer investigation such as seasonal influenza A viruses or SARS-CoV-2. By leveraging human pluripotent stem cell-derived neural cell models, I want to understand how viruses disrupt the neural homeostasis on a molecular level and how different CNS cells such as neurons, astrocytes and microglia cope with a virus infection.

What is your favorite virus?

I am fascinated by the small viruses that belong to the family Picornaviridae. Amongst them, poliovirus is by far my most favorite virus because it has such a rich history. It was first isolated by two of my favorite Austrian scientists Karl Landsteiner and Erwin Popper and since then a plethora of seminal scientific discoveries were made using poliovirus such as the first atomic structure of an animal virus, recombination in an RNA virus, genetic expression of polypeptides, a novel mechanism of translational control through an internal ribosomal entry site and many more. Recently, I even learned that because of a polio outbreak, a Danish hospital pioneered the intensive care unit. If you want to know more about the impact of polio on modern medicine I can highly recommend "The Autumn Ghost: How the Battle Against a Polio Epidemic Revolutionized Modern Medical Care" by Hannah Wunsch.

Of which accomplishment are you most proud?

During my PhD I was an early career researcher within the Marie Curie Network "Antivirals". This gave me the possibility to lead a small collaboration between different disciplines within the network consisting of molecular virologists, structural biologists and medicinal chemists. Together, we developed a family of small molecule inhibitors of enteroviruses even resulting in the first structural insight into the mode of action of one of them. Having a motivated team of like-minded people pulling all their expertise together was an amazing experience. Because we also had a great personal connection, we could overcome all experimental obstacles. This was a great example of having a blast working together, visiting each others research institutes in different countries and generating meaningful data for the future.

What is your main research focus?

My research centers around understanding how human behavior, social and spatial structures, as well as human mobility dynamics impact the spread of acute respiratory pathogens such as seasonal influenza viruses, SARS-CoV-2 and respiratory syncytial virus. I develop mathematical models to study how these pathogens spread through the human population, and in turn, generate the evidence-base to help inform and guide public health policies aimed at mitigating the burden of respiratory disease.

Why is your research important?

Recent outbreaks, including pandemic influenza, Zika, Ebola and COVID-19, have repeatedly demonstrated that human behavior and social factors such as demography and socioeconomic status are major forces driving disease dynamics and burden. The COVID-19 pandemic, in particular, has showed how infection waves were shaped by the public's response to non-pharmaceutical interventions. Furthermore, disease burden is often disproportionately distributed, with greater impacts on people of lower socioeconomic status and in marginalized communities. A better understanding on how disease, behavioral and social factors impact disease burden will yield valuable insights for designing more effective and equitable public health policies.

Of which accomplishment are you most proud?

I was the lead modeller in the World Health Organisation (WHO) and Foundation for Innovative New Diagnostics (FIND)'s Access to COVID-19 Tools Accelerator (ACT-A) diagnostics modelling team. The modelling team focused on providing policy guidance on the use of SARS-CoV-2 diagnostic tests in low- and middle-income countries (LMICs). One of the key projects I led was to estimate the impact of diagnostic testing on novel variant detection in SARS-CoV-2 genomic surveillance programs. For this study, I worked directly with the leadership from FIND and WHO, including Maria van Kerkhove (WHO COVID-19 Lead) and Sylvie Briand (WHO Associate Director General). This work was presented to the heads of WHO, Global Fund, Wellcome Trust, USAID, Unitaids, UNICEF and UN Member States, resulting in new disease modelling partnerships between Amsterdam UMC and many of these organisations. Through the direct involvement of WHO and FIND, the findings from this work resulted in the re-allocation of >US\$6 billion in aid to support the expansion of SARS-CoV-2 diagnostic programs in LMICs.

Recent publications

Bauer L, Benavides FFW, Veldhuis Kroeze EJB, de Wit E, van Riel D. The neuropathogenesis of highly pathogenic avian influenza H5Nx viruses in mammalian species including humans. Trends Neurosci. 2023. [doi: 10.1016/j.tins.2023.08.002](#).

Gressier E, Schulte-Schrepping J, Petrov I, Brumhard S, Stubbemann P, Hiller A, Obermayer B, Spitzer J, Kostevc T, Whitney PG, Bachem A, Odainic A, van de Sandt C, Nguyen THO, Ashurst T, Wilson K, Oates CVL, Gearing LJ, Meischel T, Hochheiser K, Greyer M, Clarke M, Kreutzenbeck M, Gabriel SS, Kastenmüller W, Kurts C, Londrigan SL, Kallies A, Kedzierska K, Hertzog PJ, Latz E, Chen YE, Radford KJ, Chopin M, Schroeder J, Kurth F, Gebhardt T, Sander LE, Sawitzki B, Schultze JL, Schmidt SV, Bedoui S. CD4+ T cell calibration of antigen-presenting cells optimizes antiviral CD8+ T cell immunity. Nat Immunol. 2023. [doi: 10.1038/s41590-023-01517-x](#).

Schwarzer S, Hackl T, Oksanen HM, Quax TEF. Archaeal Host Cell Recognition and Viral Binding of HFTV1 to Its Haloferax Host. mBio. 2023. [doi: 10.1128/mbio.01833-22](#).

