#2, February 2019

KNVM Virology News

Dear fellow virologist,

We are looking forward to the next DAVS, which will be held on Friday March 8 in Amsterdam. Once available, the program can be found on our website (knvm.org/virology). During the DAVS, the 2019 Beijerinck Prize will be awarded to professor Eva Harris for her outstanding work on arboviruses and her contribution to global public health. The two Beijerinck premiums will be awarded to Robert de Vries (Utrecht University) and Rory de Vries (Erasmus MC).

This second edition of the newsletter contains short interviews with two bright young virologists who are both defending their PhD thesis in February. One focusing on the therapeutic potential of oncolytic reovirus and the other on the immune response against Dengue virus.

Finally, we welcome your input for this newsletter. If you have anything (publications, PhD defenses, symposia) you would like to share, don't hesistate to let us know via KNVM.Virology@gmail.com.

We hope to see you at the DAVS!

The board of the Virology division of the KNVM

(Emmanuel Wiertz, Jeroen Kortekaas, Jolanda Smit, Hélène Verheije, Bart Haagmans, Katja Wolthers, and Puck van Kasteren)

Upcoming events

February 1, 2019
PhD defense Joris Sprokholt
Prof. Geijtenbeek | UvA

February 6, 2019
PhD defense Mariana Ruiz
Prof. Smit | Groningen

PhD defense Yingying Cong
Reggiori/Huckriede | Groningen

February 7, 2019
PhD defense Vera Kemp
Prof. Hoeben | Leiden

March 8, 2019
DAVS, Amsterdam

April 28 - May 1, 2019
ECV2019, Rotterdam

June 9-13, 2019
+RNA, Ireland

Virology Double-Interview

Vera Kemp
Postdoctoral researcher
Dept. of Pathobiology
Utrecht University

Joris Sprokholt
Postdoctoral researcher
Experimental Immunology
Amsterdam UMC (AMC)

What is your main research interest?

During my PhD at the LUMC (group of Rob Hoeben at the Cell and Chemical Biology department), I mainly worked with oncolytic reovirus. This virus preferentially targets transformed cells, leaving normal cells unharmed, and is therefore widely studied as an anti-cancer agent. Attempting to enhance its therapeutic potency, I studied what cellular factors/pathways are important for virus replication. Moreover, I generated and tested genetically modified reoviruses expressing potentially therapeutic transgenes.

I have recently switched to a post-doctoral research position at the faculty of Veterinary Sciences (UU), where I use my previous experience to study virus-host interactions in viruses of veterinary importance.

What is your favourite virus?

This is a tough one. My PhD focused on reovirus, so that would be a logical answer. Its preference to target cancer cells is fascinating, and I think it is amazing that we can use this natural property of a virus for our own benefit. However, with my recent switch to the veterinary field, I'm getting to know a lot more viruses so perhaps I would pick a different favourite virus if you would ask me the same question in the future.

How do you engage with the lay public?

I think it is very important to incorporate the input and interests of the lay public into research. Luckily, my friends and family are very curious about what I do, and I can regularly discuss my research with them. They often come up with very surprising but valuable questions and ideas.

What is your main research interest?

My research focuses on the two challenges in Dengue disease. Why does activation of the immune system by Dengue virus lead to septic shock and hemorrhages? How can we apply information about the immune response against Dengue virus to develop an effective vaccine?

Why is your research important?

Currently there are 400 million Dengue infections per year and there is no specific drug or vaccine to prevent this. With increasing urbanization, climate change and global population growth, the number of infections is expected to rise. Although the majority of infections are asymptomatic or have only mild symptoms, the people that die from infection are mostly children. It is therefore crucial to develop an effective vaccine. Our research has revealed a general mechanism by which antibodies are formed during viral infections that can be applied to develop a vaccine against Dengue virus, and possibly other viruses.

How do you engage with the lay public?

I think it is key to talk to non-specialist. To quote Albert Einstein: "If you can't explain it simply, you don't understand it well enough". Explaining your research to non-specialist is the best way to test if you understand your research and the literature completely.

I enjoy explaining my research to non-specialists very much and have given an interview on Amsterdam FM and made a mobile application for the Dutch Society of Immunology (NVVI) with daily stories about different scientific topics.

Recent publications

Laksono BM, de Vries RD, Verburgh RJ, Visser EG, de Jong A, Fraaij PLA, Ruijs WLM, Nieuwenhuijse DF, van den Ham HJ, Koopmans MPG, van Zelm MC, Osterhaus ADME, de Swart RL. 2018. Studies into the mechanism of measles-associated immune suppression during a measles outbreak in the Netherlands. Nat Commun. 9(1):4944. doi: 10.1038/s41467-018-07515-0.

Hulswit RJG, Lang Y, Bakkers MJG, Li W, Li Z, Schouten A, Ophorst B, van Kuppeveld FJM, Boons GJ, Bosch BJ, Huizinga EG, de Groot RJ. 2019. Human coronaviruses OC43 and HKU1 bind to 9-O-acetylated sialic acids via a conserved receptor-binding site in spike protein domain A. Proc Natl Acad Sci U S A. pii: 201809667. doi: 10.1073/pnas.1809667116.

Visser LJ, Medina GN, Rabouw HH, de Groot RJ, Langereis MA, de Los Santos T, van Kuppeveld FJM. 2019. Foot-and-Mouth Disease Virus Leader Protease Cleaves G3BP1 and G3BP2 and Inhibits Stress Granule Formation. J Virol. 93(2). pii: e00922-18. doi: 10.1128/JVI.00922-18.