

Laudatio for post-doctoral scientists

by Prof. Dr. Jörg Hacker

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As in previous years, the Robert Koch Foundation is again honouring outstanding young scientists with three postdoctoral awards this year. Each year for over 10 years, the German Societies for Immunology, Virology and Microbiology have been asked to nominate postdoctoral award candidates in their fields. They are called on to suggest suitable outstanding young scientists to be considered for the awards. Based on the shortlists submitted by the societies, the Foundation's Scientific Advisory Council and Board of Directors choose the award winners. Accordingly, the awards go to the best young scientists currently working in their fields in Germany or abroad.

The Robert Koch post-doctoral award for virology will this year be presented to Dr. Benedikt Bertold Kaufer. Mr Kaufer is interested in the extent to which certain viruses are involved in cancer processes. Here, he has focussed in particular on herpes viruses, which can develop a series of different oncological diseases. A great deal of importance is given to the process of integration of the virus genome in the genetic makeup of the host. Mr Kaufer has studied this process in detail. He has also been able to show that in the subsequent signal-specific processes, a protease is of importance which attacks a very specific protein. The role of "telomerases", i.e. enzymes that act at the end of chromosomes, has also been analysed by Mr Kaufer.

From 2002 to 2005, Mr Kaufer first studied biotechnology at the Technische Universität in Munich. He completed his doctoral thesis at Cornell University in Ithaca from 2005 to 2010. He then returned to Germany to join a working group headed by Professor Osterrieder at the Freie Universität in Berlin. He has held a junior professorship since 2011.

Mr Kaufer has written a comprehensive oeuvre with 21 publications, which have been published in the best journals on his subject, as well as in general journals such as the PNAS. Mr Kaufer has already received a series of awards, including the Young Investigator Award from the "Deutsche Veterinärmedizinische Gesellschaft", the German society for veterinary medicine, in 2014, to name just one. Mr Kaufer, my heartfelt congratulations on being presented with the Robert Koch post-doctoral award!

The post-doctoral award for immunology this year goes to Dr. Tim Lämmermann. Mr Lämmermann has dedicated his scientific work to studying how defence cells, in particular the “neutrophil granulocytes”, are activated. This is an important area of research, since in defending against infectious agents, the innate immune system and the acquired immunity interact. Mr Lämmermann has succeeded in showing that it is specific triggers that stimulate the leucocytes to move in the body of the infected person. He described the dynamics of this process with what is known as “two-photon intravital microscopy”. He was able to show, among other things, that a certain sequence of molecular processes facilitates the activation of neutrophil granulocytes. Here, signal molecules such as leukotriene B4 play an important role. Mr Lämmermann has also succeeded in determining the role of integrins in the concert of activation of neutrophils. With the aid of a mouse model, he was then able to demonstrate that in fact, even in a real infection, for example as a result of the *Pseudomonas aeruginosa* pathogen, the processes are similar to those in an *in vitro* model. The neutrophil “swarming” could thus be analysed up to a certain degree.

Mr Lämmermann studied mainly at the Max Planck Institute of Biochemistry in Martinsried, where from 2004 to 2009 he participated as a doctoral student in a working group headed by Professor Sixt. Before that, he studied in Lund and Erlangen from 1999 to 2004. Since 2010, he has been working at the National Institute of Health in Bethesda, and with the aid of an Emil Nöther grant, he has this year been able to return to Germany.

Mr Lämmermann has already been the recipient of a series of awards, including the Otto Westphal Thesis Prize from the German Society for Immunology in 2010. He has had twelve papers published, all of which have appeared in highly regarded journals, including “Immunity”, “Cell” and twice in “Nature”, with Mr Lämmermann as the lead author. I congratulate Mr Lämmermann on being chosen to receive the post-doctoral award from the Robert Koch Foundation.

This year, the post-doctoral award for microbiology goes to Dr. Kai Papenfort from Princeton. Mr Papenfort is interested in how pathogens communicate with each other and how they regulate their genes, which code for molecules that cause disease. Here, Mr Papenfort has focussed in particular on the role of small ribonucleic acid molecules, known as “small RNAs”. In the laboratory under Professor Vogel, he was able to show that sRNAs regulate a series of genes, so that they can be compiled in global regulons. Using the diarrhoea pathogen *Salmonella typhimurium* as an example, Mr Papenfort was able to analyse these “regulatory networks” in greater detail. He is also interested in the pathogenic effect of the

corresponding gene products and in the evolutionary processes that ultimately lead to the establishment of such molecular networks. On the basis of his work on salmonella, Mr Papenfort has recently now turned his attention to the *Vibrio* bacteria.

Mr Papenfort is the author of 30 publications, including publications as the lead author in the journal "Cell" and in the PNAS. Mr Papenfort first completed his doctoral thesis at the Max Planck Institute for Infection Biology in Berlin. He then participated as a postdoc in the working group headed by Professor Vogel, first in Berlin and then in Würzburg. Since 2012, he has been working in the laboratory of Bonnie Bassler in Princeton, with a grant from the Human Frontiers Science Program (HFSP). Mr Papenfort's work has already been singled out by a series of awards, including the PhD Thesis Award from VAAM, the FEMS Young Scientists Meeting Grant (YSMG) and other travel grants. I am sure that we will be hearing from Mr Papenfort again in the future, with more important contributions to the analysis of microbial disease processes. Congratulations on your post-doctoral award from the Robert Koch Foundation!

Ladies and gentlemen, I thank you for your attention.