

WITSIE AT THE CUTTING EDGE: Researcher Profile

Professor Janusz Paweska

**Head of the Centre for Zoonotic and Emerging Diseases
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Who are you and what is your academic/scientific training and background?

I am the head of the Centre for Emerging and Zoonotic Diseases at the National Institute for Communicable Diseases of the National Health Laboratory Service, (NICD-NHLS). I am also the Regional Director of the Global Virus Network and the Deputy Director of the Southern Centre for Infectious Diseases Surveillance.

I graduated as veterinarian in 1982 at the Faculty of Veterinary Medicine of the Wroclaw University of Environmental and Life Sciences in Poland where I also obtained Doctor of Veterinary Science and *Doctor habilitatus* degrees. From 1991-2001 I worked at the Onderstepoort Veterinary Institute, South Africa where from 1999 to 2001 I was the Assistant Director, the Head of the Department of Virology, and a designated expert of the World Organization for Animal Health for bluetongue and African horse sickness. In 2001 I moved to become a Head of the Special Pathogens Unit of the NICD-NHLS. From 2011 I was the Head of the Centre for Zoonotic and Emerging Diseases at NICD/NHLS. I was recently promoted to a Reader/Associate Professor at the School of Pathology, in the Faculty of Health Sciences, University of Witwatersrand. I am also an Extraordinary Professor at the University of Pretoria.

I am a NRF B2-rated scientist with 134 peer reviewed publications and several MSc, PhD and postdoctoral students currently under my supervision. I have worked as a technical consultant and I am a member of local and international committees, expert working groups and networks, including the Bioweapon Working Committee of the South African Council for Non-Proliferation, the WHO Global Outbreak & Alert Response Network, the WHO Emerging and Dangerous Pathogens Laboratory Network, WHO Independent Technical Group for orthopoxvirus/smallpox virus laboratory diagnostics, and the International Atomic Energy Agency. I am also a member of the International Committee for Taxonomy of Viruses (ICTV) *Filoviridae* Study Group, and a member of editorial boards, including the Open Vaccine Journal, the World Journal of Virology, the Journal of Biological Medicine, Journal of Advanced Veterinary Research, and Intervirology.

Explain the nature of the research that you are currently undertaking?

My special research interests lie in viral diagnostics with focus on the development and validation of novel techniques for rapid pathogen detection and discovery, epidemiology and ecology of arboviruses and viral haemorrhagic fevers, and virus-host interactions. I manage the only maximum security laboratory (BSL-4) on the African continent which is a strategic biocontainment infrastructure for diagnosis and investigations of outbreaks caused by the most deadly viruses known to humans and animals, as well as to characterize newly emerging dangerous pathogens. I have been a part of international research expeditions and international outbreak response missions, including the investigations, controlling and diagnosis of the 2002 Ebola outbreaks in Gabon, the 2005 Marburg disease outbreak in Angola, the 2006 Rift Valley fever outbreak in Kenya, the 2009 Ebola outbreak in the Democratic Republic of Congo, and the Ebola ecology study in 2010, 2011 in the Democratic Republic of Congo. During a highly fatal nosocomial outbreak of a viral haemorrhagic fever in Johannesburg in 2008 I led the discovery of a new

Old World Arenavirus, **he named Lujo virus**. My most recent research focuses on investigating the role of bats in harbouring dangerous viral zoonotic pathogens, and particularly their role as reservoir species for filoviruses (Marburg and Ebola viruses).

What do you think is the most pertinent/relevant/significant contribution you have made to research/science/your field?

My research work contributes to a better understanding of the epidemiology and ecology of emerging and re-emerging zoonotic diseases and strengthening our surveillance, detection and outbreak response capacity. I significantly contributed to improvement and development of research and diagnostic biocontainment laboratory infrastructure enabling the safe and rapid detection and identification of highly dangerous, notifiable viral agents, the development of new generation diagnostics tools, and the building of mobile laboratory capacity. My work on high-consequence emerging viral diseases, in particular Rift Valley fever, Crimean-Congo hemorrhagic fever and Marburg/Ebola hemorrhagic fever has had impact on national and international public health and thus society in general. My work on developing diagnostic tests for emerging/re-emerging pathogens has provided the industry with marketable technologies.

Did you have a particular mentor or supervisor who inspired you in research?

I was fortunate to meet and work and continuously interact with a number of experts in the field of virology, both nationally and internationally. The list of my mentors or supervisors is rather long, likewise the number of internationally recognized virological research and diagnostic facilities in Europe and the USA I visited. However, at least one name I would like to mention is Professor Robert Swanepoel who took me on the first Ebola ecology expedition to Gabon in 2002. Our work led to the identification of some fruit bat species as potential Ebola virus reservoirs and was published in Nature.

Tell us what you do when you're not busy at work and carrying out cutting-edge research.

Having some free time or switching off....well rather a good wish at the moment. There is so much still to be done....but I like gardening, reading and playing tennis.

[Read one of Janusz' papers:](#) Paweska, J.T., et al. (2012). Virological and serological findings in Rousettus aegyptiacus experimentally inoculated with Vero cells-adapted Hogan strain of Marburg virus. PLoS ONE, 7 (9): e45479.