

Prospects for Development of a Marker Vaccine and Companion Diagnostic Test for the Nipah Virus

Presenter: James A. Roth, Iowa State University

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The Nipah virus emerged in Malaysia in 1998 and caused encephalitis in humans and respiratory and central nervous system disease in swine and other animals. This virus and the related Hendra virus are paramyxoviruses which are distinct from any of the other established genera of paramyxoviruses and have been proposed to represent members of a new genus (Henipavirus). A collaborative effort of scientists at seven institutions has been initiated to develop a marker vaccine and companion diagnostic test for the Nipah virus. The ISU College of Veterinary Medicine, the Centers for Disease Control and Prevention, The USDA ARS Plum Island Animal Disease Center, the USDA National Veterinary Services Laboratories, the Veterinary Research Institute in Ipoh, Malaysia, the Canadian Food Inspection Agency in Winnipeg, Canada, and Merial Inc. The long-term objective of this project is to develop live canarypox recombinant viruses expressing the F and G proteins of the Nipah virus for use as a vaccine to control Nipah virus infection in man and animals. A second objective is to develop a serologic diagnostic assay for Nipah virus which can be performed under biosafety level 2 (BSL2) conditions, and can be used to detect vaccinated pigs which subsequently become exposed to virulent virus. A marker vaccine and companion diagnostic test would be very useful in future eradication programs by reducing infection in pigs, thereby reducing transmission to other pigs and humans and reducing the social, economic, and environmental impact of the disease.

Biography:

Dr. James A. Roth is a Distinguished Professor in the College of Veterinary Medicine, and a Diplomate of the American College of Veterinary Microbiologists. He is the Executive Director of the Institute for International Cooperation in Animal Biologics (IICAB), which is a World Organization for Animal Health OIE Collaborating Centre for the Diagnosis of Animal Diseases and Vaccine Evaluation in the Americas. Dr. Roth also is the Director of the Center for Food Security and Public Health (CFSPH). Dr. Roth received his DVM and a PhD in immunology from Iowa State University. He has served as the major or co-major professor for 38 MS and PhD students. He has authored or coauthored over 130 publications in refereed journals, 27 chapters, and has edited 8 monographs and two textbooks. Dr. Roth teaches immunology to veterinary students, has received 5 teaching awards, and numerous professional and scientific awards, including the American Veterinary Medicine Association's 12th International Veterinary Congress Prize (2001) and Public Service Award (2006). His research emphasis includes neutrophil, lymphocyte, and monocyte/macrophage function related to host-pathogen interactions and vaccine responses. Dr. Roth has responsibility for oversight of coordinating CFSPH personnel involved in the CFSPH website images, review of website modifications, and review of materials.
