



Zika Task Force Members



SCOTT C. WEAVER, MS, Ph.D.

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Dr. Weaver is a virologist and vector biologist who advances our understanding of arthropod-borne viruses (arboviruses), their mosquito vectors, and develops vaccines to control the diseases that they cause. As a faculty member at the University of Texas Medical Branch (UTMB) since 1994, he has developed an internationally acclaimed research program encompassing the ecology and epidemiology of enzootic arbovirus transmission cycles, virus-mosquito interactions, and emergence mechanisms of epidemic strains. Dr. Weaver utilizes his broad training to develop innovative, interdisciplinary approaches that have had major impacts on our understanding of arboviral disease emergence. These include Venezuelan equine encephalitis virus, for which the international research groups he has led determined the ecological and evolutionary sources as well as mechanisms of epidemic strain emergence. Dr. Weaver's recent studies have focused on chikungunya virus (CHIKV), its history of emergence from wildlife African cycles, mosquito-adaptive evolution and its viral genetic constraints. His research on tropical arboviral diseases has included major field studies in Venezuela, Colombia, Peru, Mexico, Panama, Senegal and Kenya. Dr. Weaver has also developed promising new, patented vaccines for each of these arboviral diseases. The CHIKV vaccine developed in his laboratory, licensed to Takeda Pharmaceuticals and patented in 19 countries, is in late preclinical evaluation nearing clinical trials. Dr. Weaver's research has led to over 255 peer-reviewed publications in outstanding journals, and over 50 reviews and book chapters. He has mentored 18 PhD students as well as 23 postdoctoral fellows, and most have gone on into prominent, independent scientific positions in government, academia and industry.

Dr. Weaver's research and educational contributions have been recognized by many awards, both locally at UTMB and internationally. Most recently, he received the Walter Reed medal awarded every three years by the American Society of Tropical Medicine and Hygiene for distinguished career accomplishments in tropical medicine research. He has held leadership positions in many national and international organizations, including currently as councilor for the American Society for Virology and Chair of the Global Virus Network's Chikungunya Task Force. He also serves as an editor for several major tropical medicine and microbiology journals. At UTMB, Dr. Weaver serves as Director of the Institute for Human Infections and Immunity (IHII), which oversees infectious disease research as the administrative home of the Galveston National Laboratory (one of two NIH-funded national biocontainment facilities), the Sealy Center for Vaccine Development, the Center for Biodefense and Emerging Infectious Diseases and the Center for Tropical Diseases. He is also Scientific Director of the Galveston National Laboratory, and Interim Chair of the Department of Microbiology and Immunology.



Xavier Abad Morejón de Girón, Ph.D.

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His main research interest are persistence of animal and human viruses in the environment, with particular attention to water, fomites and foods, and the inactivation and the removal procedures for assuring the viral safety of blood derivatives, cosmetics and foods, and, also, biocontainment, biosafety and biosecurity issues in microbiological research laboratories, among others. He has written more than 40 papers in international journals and 6 book chapters. The spreading of his work has been, also, achieved through more than 50 oral or poster communications, mainly, in international congresses or symposia. In the last ten years he has become the person in charge on biosafety management in Centre de Recerca en Sanitat Animal (IRTA-CReSA), managing more than 900 m² laboratory area (in Biosafety level 2 and Biosafety level 3). In the last five years also acts as Biosafety Officer of the whole facility, dealing with all issues related to biosafety with arbovirus and vectors, irrespectively its corresponding risk group.



Sazaly Abu Bakar, Ph.D., FASc

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Professor Dr. Sazaly AbuBakar is the Director of Tropical Infectious Diseases Research and Education Center (TIDREC) and the WHO Collaborating Center for Arbovirus Research and Reference (Dengue and Severe Dengue) at University of Malaya, Malaysia. He received his training in virology from the University of Texas Medical Branch, USA. His research interest is in emerging infectious diseases focusing especially on arboviruses.



Núria Busquets-Martí, Ph.D.

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Dr. Núria Busquets Martí started to work at the Centre for Research in Animal Health (CReSA, Barcelona) in 2006 as responsible of diagnostics in the surveillance programs for avian flu and West Nile virus (WNV) in Catalonia, as a service for the Department of Agriculture of Catalonia. She is a member of their advisory technical committees. Moreover, she is a member of the European network for the diagnosis of "imported" diseases (European Network for Diagnostics of "Imported" Viral Diseases (ENIVD)) as part of a project of the European Centre for Disease Prevention and Control (European Centre for Disease Prevention and Control (ECDC)). Her research is included within the viral transboundary diseases subprogram, particularly those that are zoonotic and require Biosafety Level 3, mainly to study arthropod-borne viruses such as West Nile virus, Rift Valley Fever virus, Dengue, Chikungunya and Zika viruses. Her research focuses on the pathogenesis, molecular and serological diagnosis of these viruses, identification of new viral variants and arboviruses, molecular epidemiology and vector competence studies. She has participated in 9 R & D projects and has more than 30 articles in SCI journals.



Michael Diamond, M.D., Ph.D.

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Dr. Michael Diamond is a Professor in the Departments of Medicine, Molecular Microbiology, Pathology & Immunology and the Associate Director of the Center for Human Immunology and Immunotherapy Programs at Washington University School of Medicine. He received his MD and PhD degrees from Harvard Medical School and Harvard University. He completed his post-doctoral training at the University of California, Berkeley, and his internship, residency, and fellowship in infectious diseases at the University of California, San Francisco. He is an elected member of the Association of American Physicians, American Academy of Microbiology, and the American Society of Clinical Investigation. His current research focuses on the interface between viral pathogenesis and the host immune response. Many globally important human pathogens are studied including West Nile encephalitis, Zika, Dengue hemorrhagic fever, Venezuelan equine encephalitis, and Chikungunya viruses. The Diamond laboratory investigates mechanisms of pathogenesis of emerging viruses of global concern. Novel interdisciplinary approaches are used to explore the interface between the virus and host with particular interest in understanding cell- and tissue-specific antiviral immune responses, especially in the brain. Genetic screens, systems biology, and immunological methods are applied to define how viruses cause disease in different tissues and how the host limits this process or in some cases, contributes to pathogenesis. The Diamond laboratory tests hypotheses for physiological relevance in newly generated transgenic animal models and

conducts detailed analyses at the molecular, cellular, and organism level. They also explore how viruses evolve rapidly to evade host innate and adaptive immune responses yet maintain fitness. Finally, studies on the structural, molecular, and cellular basis of antibody neutralization of viruses have spurred vaccine and antibody-based therapeutic development. In summary, the Diamond laboratory focuses on both the virus and the host to define basic mechanisms of viral pathogenesis, host immunity, and cellular homeostasis, which can be utilized to mitigate disease.



Susan J. Fisher, Ph.D.

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Dr. Susan Fisher is a Professor in the Departments of Obstetrics, Gynecology and Reproductive Sciences, and Anatomy at the UCSF School of Medicine. She belongs to the Center for Reproductive Sciences and the Eli & Edythe Broad Center of Regeneration Medicine and Stem Cell Research. She directs the Human Embryonic Stem Cell Program and the Sandler-Moore Mass Spectrometry Core Facility. She received her PhD from the University of Kentucky where she also completed a postdoctoral fellowship. She and her group have developed approaches for studying the human placenta that have advanced our understanding of how this transient organ carries out its many remarkable functions during normal pregnancy. In turn, this work has enabled elucidation of the placental defects that are associated with common pregnancy complications, including preeclampsia and CMV infection. Her group also studies the earliest stages of human development. Their contributions include the discovery of a key step in implantation and new methods for deriving human embryonic stem cells. In parallel, they use mass spectrometry approaches to decipher elements of carbohydrate structures that bacteria use as receptors, and to compile proteomes in pursuit of disease biomarkers, including cancer and environmental exposures. She has published over 200 peer-reviewed publications. Dr. Fisher is a recipient of the UCSF Academic Senate Distinction in Teaching Award and the Graduate Association Outstanding Faculty Mentorship Award. She is an AAAS Fellow. Recent honors include the Pioneer Award in Reproductive Sciences and the Fundación IVI (Spain) Award for Research in Reproductive Medicine. She was the UCSF Basic Science Research Lecturer for 2015.



Robert Gallo, M.D.

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Dr. Robert Gallo is Co-Founder and Scientific Director of the Global Virus Network, formed in 2011. He is also Director of the Institute of Human Virology (IHV) at the University of Maryland School of Medicine (a

GVN Center of Excellence) and previously spent 30 years at the National Cancer Institute, as head of Tumor Cell Biology. Dr. Gallo is renowned for his research on HIV, most notably his co-discovery in 1984 that HIV (a retrovirus) was the cause of AIDS and his development of the HIV blood test. Previously, Dr. Gallo and his colleagues discovered the first human retrovirus, HTLV-1, a cause of adult T cell leukaemia. The discoveries of all human retroviruses (HTLV and HIV) were dependent on Dr. Gallo and his co-workers earlier discovery in 1976 of interleukin-2 (IL-2), a growth factor for human T cells, which enabled scientists to culture human T cells for virus isolations. IL-2 is now also used widely in cancer treatments. In 1986, he and his co-workers isolated human herpes virus 6 (HHV-6), the first new human herpes virus discovered in more than 25 years. Later, others showed HHV-6 caused Roseolla. In 1996, his discovery that some natural compounds known as chemokines can block HIV was hailed by Science magazine as that year's most important scientific breakthroughs. Dr. Gallo's current research at the IHV combines the disciplines of research, patient care, and prevention programs in a concerted effort to speed the pace of medical breakthroughs. He is a principal investigator for a HIV vaccine candidate that entered human trials last fall and continues to research viruses that cause cancer. Dr. Gallo has authored over 1,200 scientific publications as well as the book "Virus Hunting - AIDS, Cancer & the Human Retrovirus." Along with several other international major awards, he has been awarded 34 honorary doctorates and was twice recipient of the Albert Lasker Award in Medicine (1982 and 1986). He is a member of the National Academy of Sciences and the Institute of Medicine.



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Diane E. Griffin MD, PhD is University Distinguished Service Professor and former Chair of Molecular Microbiology and Immunology at the Johns Hopkins Bloomberg School of Public Health and Vice President of the US National Academy of Sciences. She earned her BA in Biology at Augustana College in Rock Island, IL and her MD and PhD at Stanford University School of Medicine. Her research interests are in the area of pathogenesis of viral diseases with a particular focus on measles and alphavirus encephalitis. These studies address issues related to virulence and the role of immune responses in protection from infection and in clearance of infection. She is past president of the American Society for Virology and the American Society for Microbiology. Among other honors, she has received the Rudolf Virchow Medal (2010), Wallace Sterling Lifetime Alumni Achievement Award from Stanford University (2011), the FASEB Excellence in Science Award (2015) and Maxwell Finland Award (2016).



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Dr. Andrew Haddow is currently a Research Entomologist based at the United States Army Medical Research Institute of Infectious Diseases. He earned an MSc in Environmental Sciences from Johns Hopkins University and completed postgraduate training at the London School of Hygiene & Tropical Medicine and the Natural History Museum in Vector Biology and Identification. Dr. Haddow then earned a PhD in Medical Entomology from The University of Tennessee for his dissertation research on the epidemiology of La Crosse virus in the Eastern United States. After completing his PhD, Dr. Haddow accepted a Postdoctoral Fellowship to study emerging and re-emerging arboviruses with Professor Scott Weaver at the University of Texas Medical Branch. During his fellowship, he studied the vector pathogenesis and the molecular epidemiology of several alphaviruses and flaviviruses, including Zika virus. While in Texas, Dr. Haddow was awarded the Robert E. Shope International Fellowship in Infectious Diseases from the American Society of Tropical Medicine & Hygiene. This fellowship provided him the opportunity to conduct field work on emerging infectious diseases in Senegal, Thailand, and Uganda. In 2013, Dr. Haddow accepted a contract position as a Research Entomologist at the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). His research program is focused on the characterization of emerging/re-emerging arboviruses and studying vector pathogenesis, including arthropod studies carried out at Biosafety Level-4. In addition, he is a lead investigator of several international field studies examining the ecology and epidemiology of vector-borne pathogens.



Giuseppe Ippolito, M.D.

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Giuseppe Ippolito is the Scientific Director of the National Institute for Infectious Diseases (INMI) “Lazzaro Spallanzani” in Rome and Director (since 2009) of the WHO Collaborating Center for clinical care, diagnosis, response and training on Highly Infectious Diseases at INMI. He graduated in Medicine (1978), he obtained his specialty degree in infectious diseases (1981) and in Dermatology (1984), a Masters Degree in Organization and Management of Health Institutions (1997). He served as member of several National bodies of the Italian Ministry of Health including Committee on: AIDS (1988-2015), Ebola and other Hemorrhagic fevers (1995-1996), risks related to the intentional use of biological, chemical and nuclear weapons (Co-coordinator 2001-2004); Committee on SARS (2003-2005); influenza A/H1N1 (2009-

2010), Hepatitis (2013-2015). He served on international committees with the WHO, the US-CDC, Health Canada, OECD, United Nations, NATO, G7+ Mexico -GHSAG, ILO, European Commission. In the last 10 years, he coordinated 8 EU-funded projects, in the field of Emerging and Reemerging infections, biosecurity, preparedness and response. He is, since 2005 coordinator of international activities funded by the Italian Ministry of Foreign Affairs in Tanzania to strengthen the diagnosis and treatment of HIV/AIDS, tuberculosis, malaria, and emerging pathogens. Over the years, Giuseppe Ippolito's research interests have been focused on: emerging and re-emerging infections; Health Care associated Infections; HIV/AIDS; viral hepatitis; tuberculosis; biosecurity and biosafety; alert, preparedness and response. He has published as main author: 415 papers indexed in the PubMed; 168 non indexed peer reviewed papers; 92 non indexed reviews peer reviewed; 26 books and 31 book chapters; 46 other publications (reports, other publications for a general audience).



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Esper G. Kallas, M.D., Ph.D., is an Infectious Diseases Specialist and a Professor of Medicine at the Division of Clinical Immunology and Allergy at the University of Sao Paulo, Brazil. He has been conducting clinical trials since 1993, including IND studies, registered at the FDA. He is a member of the HIV Vaccine Committee and the Therapy Committee for the HIV-AIDS program from the Brazilian Ministry of Health and is a member for the Retroviruses Committee at the Brazilian Society of Infectious Diseases. Dr. Kallas coordinates a Clinical Site that has conducted key clinical trials, such as the STEP and iPrEx trials. He is also conducting projects on Dengue fever pathogenesis, diagnosis, cellular immune responses, viral characterization, and vaccine development. The most recent study are the phases II and III trials on a novel tetravalent dengue vaccine. Dr. Kallas has also implemented the conditions to maintain the repository for several human studies, as well as conducting many assays to study the immune response in dengue cohorts. He has been working on clinical trials for more than two decades with large experience in writing, implementing, and conducting clinical trials to evaluate new drugs and vaccines for infectious diseases.



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Dr. Albert Icksang Ko, an infectious disease physician, is a Professor and Chair of the Department of Epidemiology of Microbial Diseases at Yale School of Public Health and Collaborating Researcher at the Oswaldo Cruz Foundation, Brazilian Ministry of Health. His research focuses on the health problems which have emerged as a consequence of rapid urbanization and social inequity. Dr. Ko coordinates a research and training program on urban slum health in Brazil, where his group is conducting prospective studies on urban health problems which include dengue, meningitis and respiratory infections and recently because of the on-going outbreak of microcephaly, Zika virus infection and congenital syndrome. His work is particularly interested in understanding the natural history of leptospirosis, which is as a model for an infectious disease which has emerged in slum settlements due to the interaction of climate, urban ecology and social marginalization. Current research combines multidisciplinary epidemiology, ecology and translational research-based approaches to identify prevention and control strategies which can be implemented in slum communities. Dr. Ko is also Program Director at Yale for the Fogarty Global Health Equity Scholars Program which provides research training opportunities for US and LMIC post and pre-doctoral fellows at collaborating international sites.



Alain Kohl, Ph.D.

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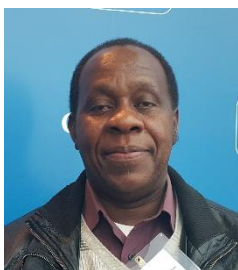
Alain Kohl is an expert in arbovirus biology, and has been working on these viruses since 1996. Following a Diploma in Microbiology at the Westfaelische Wilhelms Universitaet Muenster (Germany), he obtained a PhD in Microbiology from University Paris 7 in December 1999 for studies on Rift Valley fever virus carried out at Institut Pasteur, Paris (France). He started his postdoctoral career at the Institute of Virology of the University of Glasgow in 2000, and moved in 2005 to the University of St Andrews, and started his research group in 2006 at the University of Edinburgh with a Wellcome Trust fellowship. In 2001 he moved to the MRC-University of Glasgow Centre for Virus Research to take up a position as MRC Programme Leader. His main funding sources are BBSRC, MRC and in the past also the Wellcome Trust. He currently leads the EMIDA ERA RiftVectors consortium on Rift Valley fever virus. He also holds a MRC-CONFAP Newton Fund grant to study Zika virus, together with colleagues in Brazil. He has worked on all major arbovirus families, with a focus on virus replication and innate immune responses, especially those of vector arthropods. He is also a member of the Microbiological Society Virus Division, and Editor of the Journal of General Virology.



Marc LECUIT, M.D., Ph.D.

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Marc Lecuit, MD PhD, was born in Paris, France. He obtained his MD from the Paris Descartes University Medical School. He obtained an MSc and a PhD in Microbiology from the Paris Diderot University and Institut Pasteur. ML is head of the Biology of Infection Unit at Institut Pasteur and Inserm, Professor at the Paris Descartes University, and Deputy head of the Department of Infectious Diseases and Tropical Medicine at the Necker Enfants malades University Hospital, In Paris-F. As a scientist and a clinician, ML is interested in deciphering the molecular mechanisms underlying infectious diseases. He has made key contributions using *Listeria* as a model microorganism. He has discovered the species specificity of this deadly foodborne bacterium, and generated humanized mouse models permissive to orally acquired listeriosis. This led him to discover how *Listeria* crosses the intestinal and placental barriers. When an outbreak of febrile and incapacitating arbovirolosis called Chikungunya struck La Reunion Island, a French overseas department where one third of the population got infected, he got interested in this poorly characterized disease Chikungunya virus (CHIKV). This work led to the important contributions: (i) the development of an animal model of Chikungunya, (ii) the identification of the cell and tissue tropisms of CHIKV, (iii) the understanding of host responses to CHIKV, (iv) the demonstration of CHIKV species specificity, (v) the demonstration of CHIV vertical transmission and of its neurotropism in infected neonates , (vi) the development of the first therapeutic and preventive strategy on Chikungunya, (vii) the demonstration that CHIKV can be transmitted by grafts. ML is also interested in the putative infectious origin of disease of unknown origin. He has demonstrated that a rare type of lymphoma that exclusively arises in developing countries is associated with *Campylobacter*, an enteric pathogen, and recently participated in a study that identified Rubella vaccine strain persistence as a putative cause of chronic cutaneous granuloma in immunosuppressed patients.



Julius Lutwama, Ph.D.

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I am a Senior Principal Research Officer with the Ministry of Health at the Uganda Virus Research Institute, Entebbe. I originally trained as an Entomologist/insect pathology obtaining a PhD in 1991 and received further specialized training in molecular virology and entomology at the Centers for Diseases Control, Fort Collins, Colorado, USA. I head the Department of Arbovirology, Emerging and Re-Emerging Viral Infectious Diseases at the Uganda Virus Research Institute (UVRI). I also head the WHO Collaborating National Influenza Center and the Highly Infectious Diseases Diagnostic Laboratory at UVRI. I am an Honorary Associate Professor in the Department of Medical Microbiology at the Makerere University College of

Health Sciences. Over the last 31 years I have been involved in numerous studies on Arboviruses and their vectors. When I joined the Department of Arbovirology there was a vacuum on studies of other viral diseases other than HIV. We decided that we should include in our studies all emerging and re-emerging viral infections. We added to the Department the section of Emerging and Re-Emerging viral Diseases. We have since been involved with investigations of outbreaks of Ebola, Marburg, Influenza, Crimean Congo Hemorrhagic fever, Rift Valley fever, Yellow fever, O'nyonyonyong, Dengue, Bwamba, west Nile, Zika, etc. My research interest is in field and laboratory research and epidemic aid investigations of vector-borne viral infections and their arthropod vectors, and other emerging viral infections, defining disease etiologies, ecology, and pathogenesis for disease diagnosis, surveillance, prevention and control. I have been involved with following up Ebola and Marburg survivors for the last 15 years. I work closely with the Division of Epidemiology and Surveillance at the Ministry of Health in Uganda and coordinate a number of research and surveillance programs that contribute to the understanding of disease epidemiology in the country.



Professor John S Mackenzie, AO,

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John Mackenzie is a Research Associate and Professor of Tropical Infectious Diseases at Curtin University, Perth. He is currently an Associate Fellow at Chatham House, London; a Consultant on Viral Diseases at PathWest, Perth; an Honorary Professor in the School of Chemistry and Molecular Biosciences at the University of Queensland, Brisbane; and Honorary Senior Principal Fellow at the Burnet Institute, Melbourne. He was elected to the Australian Academy of Technological Sciences and Engineering (ATSE) in 2015, and received the award of Officer in the Order of Australia in 2002. He was also elected as Secretary-General of the International Union of Microbiological Societies (IUMS) from 1999-2005; as a Fellow of the American Academy of Microbiology; and has been Past President of the Australian Society for Microbiology. In 2005, he was the inaugural recipient of the Academy of Science Malaysia's Mahathir Science Award for Excellence in Tropical Research. He serves as a member of the steering committee of the Global Outbreak Alert and Response Network, as a member of the Technical Advisory Group of the WHO Asia-Pacific Strategy for Emerging Diseases, and as a member of the Roster of Experts of the International Health Regulations, serving as Chair of the WHO International Health Regulations Emergency Committee for the Pandemic H1N1 influenza. He is a member of various international committees including the Advisory Board of EcoHealth Alliance, New York; the Center for Infection and Immunity of the Mailman School of Public Health, Columbia University; and the Australian National Arbovirus and Malaria Advisory Committee. He is a founding member of the One Health Platform Foundation (2015), based in Belgium, and serves as Vice-Chair of the foundation, and as Co Editor-in-Chief of the journal, One Health. His recent research interests have been in mosquito-borne virus diseases and emerging zoonotic viruses, and he has published over 300 major papers and research chapters on these and other topics concerned with human and animal viral diseases. His metrics summary through Google scholar is 54 from 11,930 citations; and the 'i10' index was 173).



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Gene D. Morse, PharmD, FCCP, BCPS, is a State University of New York (SUNY) Distinguished Professor, director of the University at Buffalo, Center for Integrated Global Biomedical Sciences and co-director of the SUNY Global Health Institute. Dr. Morse directs the Translational Pharmacology Research Core at UB's Center of Excellence in Bioinformatics and Life Sciences and is principal investigator for the NIAID HIV Pharmacology Specialty Laboratory. Dr. Morse is an Honorary Professor at the University of the West Indies, Mona Campus and is co-chair of the SUNY-UWI Health Research Implementation Task Force. Professor Morse has been actively involved in HIV clinical pharmacology and therapeutics research since the introduction of antiretrovirals in 1986, with more recent emphasis on HCV infection, global drug development and cannabinoid sciences. Dr. Morse directs an NIH Fogarty International Center supported HIV Research Training program with the University of Zimbabwe.



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I am a Professor in the Department of Microbiology, Immunology and Pathology at Colorado State University (CSU, Fort Collins, CO) and a researcher at the Arthropod-borne and Infectious Diseases Laboratory (AIDL) at CSU. I have over 20 years of experience in arbovirology and vector biology. My research group was the first to design and generate dengue-2 virus refractory *Aedes aegypti* by genetic modification, we have extensively studied RNAi antiviral pathway responses in vectors, and we have a continuing interest in understanding arbovirus-vector and arbovirus-host interactions leading to arbovirus transmission and disease. I have published extensively (>100 publications) on these subjects and have presented my work at national and international meetings. My group is using NexGen (genomic and transcriptomic) sequencing approaches to identify virus-specific small RNAs generated in mosquitoes during arbovirus infections. My lab is highly competent in performing vector competence and transmission studies in/from mosquitoes and in developing/using small animal models for transmission studies. We have extensive insectary space associated with BSL2 and BSL3 labs. We routinely work with *Aedes aegypti*, *Aedes albopictus* and various *Culex* species of mosquitoes infected with BSL2 and BSL3 arboviruses. We have provided training for both US and foreign investigators in the use of arboviral

pathogens in the mosquito vector. My group is uniquely suited to address basic and applied Zika virus research in actual vectors of disease.



Jorge Osorio, Ph.D.

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Dr. Jorge Osorio is an Associate Professor in the Department of Pathobiological Sciences at the University of Wisconsin in Madison. He is also the Director of a Center to Study Tropical Infectious Diseases in Medellin, Colombia. The Center is a joint effort between the University of Wisconsin and many institutions in Colombia and has now field sites and collaborators in many parts of Colombia, including remote and urban areas. Dr. Osorio's research interests include contributing to the knowledge and understanding of the pathogenesis of important human and veterinary diseases and to develop novel methods for vaccination and prevention with an emphasis on viruses and zoonotic pathogens. Dr. Osorio and his colleagues are establishing at UW-Madison a state-of-the-art research group that uses molecular approaches to unravel host-pathogen interactions for emerging diseases (e.g dengue, chikungunya, Zika). Dr. Osorio's group is actively researching and developing novel human and animal vaccines for diseases including highly pathogenic avian influenza, dengue, chikungunya, Zika and plague. They are also committed to mentoring and guiding young bright students and to improving veterinary and human public health in developing countries, especially in Latin America.



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Professor Janusz T. Paweska is a head of the Center for Emerging and Zoonotic Diseases at the National Institute for Communicable Diseases of the National Health Laboratory Service (NICD-NHLS), Sandringham, South Africa. He is also the head of the WHO Collaborating Center for Reference and Research on Viral Haemorrhagic Fevers and Arboviruses, regional director of the Global Virus Network and the deputy director of the Southern Center for Infectious Diseases Surveillance. His special fields 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 hemorrhagic fevers, virus-host interactions, management of high and maximum biocontainment facilities. He published 147 articles in peer reviewed journals and 13 book chapters. Prof. Paweska has been a part of international research expeditions and outbreak responses, including 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 (DRC), and the Ebola ecology study in 2010, 2011 in the DRC. During a highly

fatal nosocomial outbreak in Johannesburg in 2008 he led the discovery of a new Old World Arenavirus, he named Lujo virus. In 2014 he established Ebola diagnostic mobile laboratory in Sierra Leone as a part of WHO-GOARN Ebola outbreak response in West Africa in 2014-2016. Prof. Paweska is a Lead of South African Global Health Security Agenda in Zoonotic Disease, and a member of a number advisory/expert working groups/committees, including Bioweapon Working Committee of the South African Council for Non-Proliferation, South African Ministry of Health Advisory Committee on Ebola, WHO Global Outbreak & Alert Response Network, WHO Emerging and Dangerous Pathogens Laboratory Network, WHO Technical Group for orthopoxvirus/smallpox virus laboratory diagnostics, WHO Ebola Virus Persistence Study Independent Data Monitoring Committee and the International Committee for Taxonomy of Viruses (ICTV) *Filoviridae* Study Group.



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Lisa Ng graduated with a degree in biochemistry from the University of Manchester Institute of Science and Technology (UMIST) in the United Kingdom in 1995. She obtained her PhD in Molecular Virology from the National University of Singapore (NUS) in 2002. She joined the Singapore Immunology Network (SIgN) in 2007 and she is currently a Principal Investigator there. Her research group focuses on the immune responses of arthritic arboviruses that are epidemic or highly endemic in tropical regions. The research group became a member of ICRES (Integrated Chikungunya REsearch), a European Union Framework Program 7-funded project in 2009 and has since published several studies in top-tier scientific journals. These studies provided key findings to move the human immunology field forward in controlling the rising number of CHIKV infections. In recognition of her meritorious research and development efforts on Asia's infectious diseases, she was conferred the highly prestigious ASEAN (Association of South-East Asian Nations) "International Young Scientist and Technologist Award" in 2008. Lisa also holds Adjunct Professorships with the Department of Biochemistry, Yong Loo Lin School of Medicine at the 'National University of Singapore' (NUS), and at the 'Duke-NUS' Graduate Medical School.



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Giovanni Rezza, M.D, specialized in hygiene and in infectious diseases, is the Director of the Department of Infectious Diseases at the Istituto Superiore di Sanità in Roma, Italy. He worked for WHO (Global Program on AIDS), the EU, and the Italian Cooperation. His main background is in infectious disease epidemiology, and the area of expertise includes emerging infectious diseases, with particular regard to arboviruses, and vaccination strategies. He investigated several outbreaks, including a chikungunya outbreak occurred in Italy in 2007. He is author of more than 400 articles indexed in PubMed, and 4 books, editor of the “infectious disease epidemiology” section of BMC Public Health, and reviewer for several international scientific journals. He is also a science writer for several Italian newspapers.



Amadou A Sall, Ph.D.

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Amadou A Sall is a virologist and has a PhD in Public health. He received his scientific education at Universities Paul Sabatier at Toulouse, Paris Orsay and Pierre et Marie Curie in France. He has also visited several laboratories for his training including Institut Pasteur in Paris (France), Institute of Virology and environmental medicine in Oxford (United Kingdom), Center for tropical disease at the University of Texas Medical Branch at Galveston (USA) or Albert Einstein College of Medicine of Yeshiva University at New York. From 2002-2004, Dr Sall has worked in Cambodia as the head of viral hepatitis B at Institut Pasteur Cambodia. In 2010-2011, he worked as a visiting research scientist at the Center for Infection and immunity at the Mailman School of Public health at Columbia University of New York on pathogen discovery. He is currently the head of the Arboviruses and viral hemorrhagic fever unit, director of the WHO collaborating center and scientific Director of Institut Pasteur de Dakar (IPD), which belongs to the Institut Pasteur International Network. His research focused primarily on diagnostics, ecology and evolution of arboviruses and viral hemorrhagic fever. Dr Sall is the lead scientist of the IPD’s team which deployed a mobile laboratory for the Ebola virus disease outbreak in Guinea in 2014-2016 and carried out field investigation for the outbreak control. He is the lead scientist of the IPD’s team that support laboratory and field operation in Sao Paulo, Brazil to support effort to investigate and control Zika virus outbreak and is a member of the International Health Regulations emergency committee for Zika advising the WHO Director general on the public health emergency of international concern. He has published

extensively in his field of expertise including in high impact journal (Nature, Lancet, New England Journal of Medicine...), book chapters, a book on viral diagnostics and gave more than 200 scientific communications in international meetings. Dr Sall is consultant and member of several expert committees for WHO (GOARN, TDR, SAGE...), OIE and currently the vice chair of the Global Outbreak Alert and Response Network steering committee. Dr Sall is the director and founder of the international course on “arboviruses and viral hemorrhagic fever diagnosis, prevention, control and outbreak management” organized by Institut Pasteur Dakar in partnership AMP, Ministry of health of Senegal and University Cheikh Anta Diop Dakar. He has taught at the University Cheikh Anta Diop Dakar, University of Columbia at New York, Institut Pasteur in Paris, Institute Pasteur Montevideo, University of Sao Paulo and Hong Kong University. Dr Sall is a member of the Senegal National Academy of Science and Technology and has been recipient of the Senegal Presidential Award for Science in 2011, the UNESCO Prize for Research in Life science in 2015.



Raymond F. Schinazi, Ph.D., Hon. D.Sc.

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Dr. Raymond F. Schinazi is the Frances Winship Walters Professor of Pediatrics and Director of the Laboratory of Biochemical Pharmacology at Emory University and Director of the HIV CURE Working Group for the NIH-sponsored Emory University Center for AIDS Research (CFAR). Dr. Schinazi has authored over 500 peer-reviewed papers and 7 books and holds 92 issued U.S. patents, which have resulted in 13 New Drug Applications (NDA). A world leader in nucleoside chemistry, Dr. Schinazi is best known for his pioneering work on HIV and HCV drugs d4T (stavudine), 3TC (lamivudine), FTC (emtricitabine/Emtriva), LdT (telbivudine), and most recently sofosbuvir (Sovaldi), which are now approved by the FDA. More than 94% of HIV-infected individuals in the US on combination therapy take at least one of the drugs he invented. Dr. Schinazi served on the Presidential Commission on AIDS and is the recipient of numerous awards including the 2015 William S. Middleton Award from the Department of Veterans Affairs. Dr. Schinazi is internationally recognized as one of the most influential persons in the life science sector.



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University of Melbourne Professor Cameron Simmons is an infectious disease scientist with expertise in tropical infectious diseases, such as dengue and Zika. He is recognised internationally for his work in dengue pathogenesis and in laboratory and clinical research of diagnostics, vaccines and therapeutics. Cameron consults to the World Health Organization and to private-sector vaccine and drug developers. Cameron's tropical infectious disease expertise and experience is founded upon 12 years spent in Vietnam at the Oxford University Clinical Research in Ho Chi Minh City.



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Edmund C. Tramont, M.D. MACP is the Associate Director for Special Projects, Division of Clinical Research, one of the five research divisions within the National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health (NIH). In this capacity, he is responsible for overseeing NIAID's collaborative relationships with sister US Government Organizations, including advanced development of the Vaccine Research Center vaccines. The NIAID annual budget is \$4.5B. Prior to this appointment, Dr. Tramont served Director of the Division of AIDS (DAIDS)/ NIAID, where he oversaw and managed a \$1 billion global HIV research portfolio ranging from Basic (Discovery) research to Translational and Clinical research, including clinical trials, with the aim of better understanding the biology of HIV/AIDS as the underpinning to prevent and treat HIV/AIDS. Before that he served as a Professor of Medicine at the University of Maryland Biotechnology Institute (UMBI), Director of the UMBI's Medical Biotechnology Center, and co-director of the Vaccine Division at the Institute of Human Virology. At UMBI, he forged collaborations between academic researchers and Maryland's growing biotechnology industry and was involved in the establishment of two biotech companies. Dr. Tramont began his medical career at the Cornell Medical Division of Bellevue Hospital before joining the US Army in 1968, where his first patient at the Walter Reed Medical Center was the former US President, General Dwight D. Eisenhower. During his 23 years on active duty in the US Army, Dr. Tramont established the Infectious Disease Fellowship training program at Walter Reed, the Infectious Disease program at the Uniformed Services University of the Health Sciences School of Medicine, the TriService HIV/AIDS care, treatment and research programs, The TriService Infectious Disease conference, the annual US Army American College of Physicians conference, served as the Infectious Disease consultant to the Surgeon

General for 20 years and the Medical Consultant for 21 months. His research was aimed at developing vaccines that would protect soldiers/sailors/marines and airmen from infectious diseases, in particular sexually transmitted diseases. Among his many accomplishments, he designed and implemented vaccine trials for gonorrhea, shigellosis and HIV, and was instrumental in creating the meningococcal vaccine that has been in general use since 1970. Through his tenure in the Army, he served as Associate Director at Walter Reed Army Institute of Research and Director of Military Medical (Tri-Service) Consortium for Applied Retroviral Research. For his service to the US Army, Dr. Tramont was awarded the General Louis Aspy Malogne Award for research, the Legion of Merit, the Army Service Medal and the Distinguished Civilian Award in 2012. Dr. Tramont has also served on the faculties of the University of Maryland, Uniform Service University of the Health Sciences and Georgetown Medical Schools and is presently on the faculty of George Washington Medical School. He received his B.S. from Rutgers University in 1962 and his M.D. from Boston University in 1966. He has authored or co-authored over 175 scientific articles, served on numerous US Government advisory committees, UNAIDS/WHO advisory committees and the Scientific Advisory Boards of 4 Biotech/Pharmaceutical companies. He has also remained active in his community and church.



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Dr. Maria Van Kerkhove is the Head of the Outbreak Investigation Task Force at Institut Pasteur's Center for Global Health. She is an infectious disease epidemiologist with strong field experience in infectious disease outbreaks and epidemiologic investigations. Her main research interests include zoonotic, respiratory and emerging/re-emerging viruses such as avian influenza, MERS-CoV, Ebola, Marburg, Dengue and Zika. Dr Van Kerkhove is currently coordinating Institut Pasteur's response to Zika. Dr Van Kerkhove is also a technical consultant for WHO as a member of the MERS-CoV task force. She has worked with WHO to routinely analyze available data from countries and conduct risk assessments, and regularly participates in Missions to affected member states. Dr Van Kerkhove was previously employed by Imperial College London in the MRC Center for Outbreak Analysis and Modelling where she worked closely with WHO on influenza, yellow fever, meningitis, MERS-CoV and Ebola Virus Disease.



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Nikos Vasilakis, Ph.D., is an Associate Professor at the Department of Pathology and Center of Biodefense and Emerging Infectious Diseases at the University of Texas Medical Branch in Galveston, Texas. Dr. Vasilakis earned his BA and MA degrees in biology from Hofstra University. He worked for a number of years at Wyeth Research, where he developed vaccine candidates for pediatric diseases based on alphavirus gene delivery systems. He returned to academia where he studies the evolution and pathogenesis of arthropod-borne viruses, virus–mosquito, and virus–host interactions using sylvatic dengue as a model, for which he developed with Malaysian collaborators a field study in Borneo. Additionally, in collaboration with Dr. Robert Tesh, curator of the World Reference Center for Emerging Viruses and Arboviruses (WRCEVA), he utilizes Next Generation Sequencing (NGS) to discover, characterize and annotate new and novel viruses that could lead to the development of successful countermeasures for a number of veterinary and human diseases. He serves as a member of the Rhabdoviridae, Nyamiviridae, Mesoniviridae and Mononegavirales study groups of the International Committee on Taxonomy of Viruses. He is currently the chair-elect of the Executive Committee Council, American Committee on Arthropod-borne Viruses (ACAV).



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David Watkins is a professor in the Department of Pathology at the University of Miami. He has spent most of his career understanding pathogenesis of the simian immunodeficiency virus (SIV) as an animal model for HIV. He has also been involved in vaccine development for SIV/HIV. More recently his interests have been focused on developing vaccines and neutralizing monoclonal antibody (nmAb) treatments for Dengue virus. Dr. Watkins has also been applying these approaches to Zika virus with his many Brazilian collaborators.



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Dr. Stephen Whitehead is currently a Senior Associate Scientist in the Laboratory of Infectious Diseases at NIH in Bethesda, MD. Following postdoctoral training at Rockefeller University in NY, he joined the NIH with a primary interest in the development of vaccines against respiratory syncytial virus. Currently in the same laboratory, Stephen has spent the 15 years focused on the development and evaluation of live vaccine candidates for dengue virus. Over the course of the project he has developed various live

attenuated vaccine candidates, with a lead tetravalent candidate currently undergoing Phase III clinical evaluation in humans. His clinical group has also recently implemented a dengue virus challenge model that has been used to assess vaccine-induced protection in humans. He is an inventor on numerous patents and the dengue virus vaccine technology has been licensed around the world to companies interested in controlling dengue disease. He currently supervises the pre-clinical development of vaccines for Zika and Japanese encephalitis virus.