

Gairdner International Vaccine Symposium: Common interface between animals and humans

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Dr. Howard Alper

Howard Alper is currently visiting executive at the International Development Research Centre (IDRC), and distinguished university professor at the University of Ottawa. The basic research Alper has been pursuing spans organic and inorganic chemistry, with potential applications in the pharmaceutical, petrochemical, and commodity chemical industries.

He has discovered new reactions using homogeneous, phase transfer, and heterogeneous catalysis (e.g. clays, dendrimers). He has also used chiral ligands in metal catalyzed cycloaddition and carbonylation reactions, and succeeded in preparing valuable products in pharmacologically active form. He has published 521 papers, has thirty-seven patents, and has edited several books.

Alper has received a number of prestigious Fellowships including the E.W.R. Steacie (Natural Sciences and Engineering Research Council, 1980-82), Guggenheim (1985-86), and Killam (1986-88) Fellowships. Major awards to Alper include the Alcan Award for Inorganic Chemistry (1986), Bader Award for Organic Chemistry (1990), Steacie Award for Chemistry (1993), all of the Canadian Society for Chemistry. The Chemical Institute of Canada

has presented Alper with the Catalysis Award (1984), the Montreal Medal (2003), and the CIC Medal (1997), its highest honour. He also received the Urgel-Archambault Prize (ACFAS) in physical sciences and engineering.

In 2000, the Governor General of Canada presented him with the first Gerhard Herzberg Canada Gold Medal in Science and Engineering. The following year, he was given the National Merit Award for contributions to the Life Sciences. In 2002, he received the Le Sueur Memorial Award of the Society of Chemical Industry (U.K.). In 2004, he was made an Honorary Fellow of the Chemical Research Society of India, and in 2006, Honorary Fellow of the Chemical Institute of Canada.

He has served on a number of NSERC committees (e.g. Committee on Research Grants), and as Chair of Boards and Committees including, amongst others, the Partnership Group for Science and Engineering (PAGSE), Council of Canadian Academies, Canadian Research Knowledge Network, and the Steacie Institute of Molecular Sciences.

Alper was appointed as a Titular Member of the European Academy of Arts, Sciences, and Humanities in 1996. He was appointed as an Officer of the Order of Canada in 1999, and in 2002 he received the award of Officer, National Order of Merit, by the President of the Republic of France. He was named president of the Royal Society of Canada for a two-year term commencing November 2001, and currently serves as its foreign secretary. In 2004, he was elected to a three-year term as co-chair of the InterAmerican Network of Academies of Science (IANAS). In December 2006, he was elected co-chair of the InterAcademy Panel: The Global Network of Science Academies, for a three-year term, and in January, 2010, was re-elected to a second three year term as co-chair. In 2010, he was also appointed for a three year term to the U.S. National Science Foundation Advisory Committee for International Science and Engineering, to the Science Advisory Committee of the World Economic Forum, and to the board of the Next Einstein Initiative. In 2007, he was appointed chair of the Government of Canada's Science, Technology and Innovation Council which provides advice to Cabinet and the Prime Minister on science, technology and innovation issues, and which also issues a State of the Nation reports every two years benchmarking Canada's performance on a global basis. The inaugural report was released in May, 2009.

He is passionate about Canada, research and chocolate.

Dr. Lorne Babiuk

Lorne Babiuk joined the University of Alberta as vice-president (research) on July 1, 2007. Prior to moving to the University of Alberta, he spent 34 years as a Professor at the University of Saskatchewan. The majority of his term at the University of Saskatchewan was associated with building a very successful research institution - Vaccine and Infectious Disease Organization (VIDO). Under Babiuk's leadership, VIDO became internationally recognized as a leader in novel vaccine development. In 2005, he completed a \$19.4 million expansion of VIDO and, just prior to his leaving VIDO, he successfully assembled the funding for the construction of a \$140-million level three biocontainment facility for work on infectious diseases (InterVac).

In addition to being the vice-president (research) and former director of VIDO, he served as a member on numerous industrial and governmental scientific advisory boards and committees, and acts as a consultant to numerous companies. He has mentored over 90 graduate students and postdoctoral fellows, and published over 500 peer-reviewed manuscripts, and 100 book chapters or reviews. Babiuk is the holder of 28 issued patents and 18 patents pending. He is a fellow of the Infectious Disease Society of America, a Fellow of the Royal Society of Canada and the European Academy of Sciences as well as an Officer of the Order of Canada. In September 2007, Babiuk was named an Honorary Fellow of the Royal College of Physicians and Surgeons of Canada. He is also the recipient of honorary Doctor of Science degrees from Colorado State University (2007) and University of Guelph (2008). In 2009 he received the McLaughlin Medal from the Royal Society of Canada, awarded for important research of sustained excellence in medical sciences.

Dr. David Butler-Jones

Dr. David Butler-Jones is Canada's first and current chief public health officer. A medical doctor, Dr. Butler-Jones has worked throughout Canada and consulted internationally in public health and clinical medicine. He is a professor in the Faculty of Medicine at the University of Manitoba and a clinical professor with the Department of Community Health and Epidemiology at the University of Saskatchewan. He is also a former chief medical health officer for Saskatchewan, and has served in a number of public health organizations, including as president of the Canadian Public Health Association and vice-president of the American Public Health Association. In 2007, in recognition of his years of service in public health, Dr. Butler-Jones received an honorary Doctor of Laws degree from York University's Faculty of Health. In 2010, Dr. Butler-Jones was the recipient of the Robert Davies Defries award, the highest honour presented by the Canadian Public Health Association, recognizing outstanding contributions in the field of public health.

Dr. Neil Cashman

Dr. Neil Cashman is a neurologist-neuroscientist working in neurodegeneration and neuroimmunology. His special areas of research include the motor neuron diseases, particularly amyotrophic lateral sclerosis, and the amyloid encephalopathies, such as the prion illnesses and Alzheimer's disease. He was raised in the Boston area, and trained at the University of Massachusetts Medical School and the University of Chicago. He joined the McGill neurology and immunology faculties in 1986, and accepted the Diener Professorship of Neurodegenerative Diseases at the University of Toronto Department of Medicine (Neurology) in 1998. In July 2005, he was appointed professor of medicine at the University of British Columbia, where he holds the Canada Research Chair in Neurodegeneration and Protein Misfolding Diseases. He has directed and served in ALS clinics since 1984, and is currently the director of the Vancouver ALS Centre at GF Strong Hospital. He is scientific director to PrioNet Canada, a Network of Centres of Excellence focused on basic and applied research in the transmissible spongiform encephalopathies. He has founded two publicly-listed biotechnology companies to commercialize his research on diagnostics and therapeutics of neurodegenerative diseases. He was awarded the Jonas Salk Prize for biomedical research in 2000 and became a Fellow of the Canadian Academy of Health Sciences in 2008.

Dr. Farshad Guirakhoo

Dr. Farshad Guirakhoo is senior director of external research and development at sanofi pasteur, France, the vaccine division of Sanofi Aventis Group. Dr. Guirakhoo is a world-renowned virologist with 28 years of experience in the application of genetics, gene expression, molecular virology, and recombinant antibodies for constructing and producing recombinant proteins, recombinant human antibodies and their small molecule derivatives, as well as attenuated viral vaccines as therapeutic and prophylactic agents to prevent or treat infectious diseases. Before joining sanofi pasteur in 2007, he conducted research at Acambis for 15 years where he co-invented the ChimeriVax-technology platform, in association with St. Louis university, which has been successfully applied in the development of vaccines that are either marketed (PreVenile™ for prevention of WN fever in horses), or are in the late stages of clinical phases (Japanese Encephalitis vaccine, IMOOJEV™, dengue, and WN human vaccine). Dr. Guirakhoo has published over 75 peer-reviewed publications including book chapters and holds multiple patents.

Dr. Guirakhoo received his PhD in virology at the University of Vienna, Austria, and holds a BSc in biology and an MSc in cell and molecular biology. He was awarded the National Research Council Post-Doctorate Award, and studied at the National Centers for Disease Control (CDC), Division of Vector-Borne Infectious Diseases (DVBID), Fort Collins, CO.

Dr. Willem Hanekom

Willem Hanekom trained in paediatric infectious diseases and immunology in South Africa and in the US. He is currently associate professor and co-director of the South African Tuberculosis Vaccine Initiative (SATVI) at the University of Cape Town. His research focuses on clinical testing of new TB vaccines, on delineating correlates of protection against TB disease, and on a better understanding of the host response to *Mycobacterium tuberculosis*. He is current president of the South African Immunological Society and of the Federation of African Immunological Societies, and serves on multiple international advisory committees in TB vaccine development and translational immunology.

Dr. Michael Houghton

Michael Houghton holds a Canada Excellence in Research Chair at the Li Ka Shing Institute of Virology at the University of Alberta in Edmonton. His laboratory at the Chiron Corporation in the USA identified the hepatitis C virus in 1989 and characterized the hepatitis D viral genome in 1986. After developing a series of blood tests and identifying new drug targets for hepatitis C, he and colleagues at Chiron developed vaccine formulations that were efficacious in non-human primates prior to initiating vaccine clinical trials.

Dr. Don McManus

Upon completion of his doctorate at the University of Wales in the UK, he joined Imperial College London, where he directed research on the molecular biology/immunology of parasitic worm infections. He moved to the Queensland Institute of Medical Research in Australia to become research coordinator/deputy director of a program in tropical health. He is currently a laboratory head researching schistosomiasis in all aspects from the bench to the field. He has published over 430 articles/books/book chapters, cited over 7000 times (H index, 47). He was co-author of a landmark paper describing the complete genomic sequence of *Schistosoma japonicum* (*Nature*, 2009, 460: 345-352). He is a Member of the South East Asian Regional Network on Schistosomiasis, a continuing Member of the WHO Expert Advisory Panel on Parasitic Diseases (Schistosomiasis) and member of the WHO Disease Reference Group on Zoonoses and Marginalized Infectious Diseases of Poverty. He provides advice to health authorities/Ministries of Health in Asia and the WHO on schistosomiasis control options. He is an editorial Board member of 12 journals. He has presented plenary/keynote addresses at over 50 national/international meetings in the past 10 years. He currently holds grants from Wellcome Trust (UK), the UBS Optimus Foundation, Switzerland, the Dana Foundation USA and project grants and a NHMRC program grant from the National Health and Medical Research Council of Australia.

Dr. Frederick Murphy

Frederick A. Murphy is professor, Department of Pathology, University of Texas Medical Branch, Galveston. He holds a BS and DVM from Cornell University and a PhD from the University of California, Davis. Formerly he was dean and distinguished professor, School of Veterinary Medicine, and distinguished professor, School of Medicine, University of California, Davis. Before that he served as director of the Division of Viral and Rickettsial Diseases and then director of the National Center for Infectious Diseases, Centers for Disease Control, Atlanta. He is a member of the Institute of Medicine of the U.S. National Academy of Sciences and is a member of the German National Academy of Sciences. His honors include an honorary Doctor of Medicine and Surgery, University of Turku, Turku, Finland; an honorary Doctor of Science, University of Guelph, Ontario, Canada; an honorary Doctor of Veterinary

Medicine, Royal Veterinary College, University of London; the Presidential Rank Award of the U.S. Government; the PennVet World Leadership Award from the University of Pennsylvania; and the Distinguished Microbiologist Award from the American College of Veterinary Microbiologists. His professional interests include the pathology and epidemiology of highly pathogenic viruses/viral diseases - especially rabies, arboviruses and hemorrhagic fever viruses. He has been a leader in advancing the concept of "new and emerging viral diseases," which has re-energized parts of the infectious disease research community. Recently his interests have included the threat posed by bioterrorism.

Dr. Albert Osterhaus

Professor Osterhaus is the head of the Department of Virology of the Erasmus MC Rotterdam with currently about 150 employees, including 14 post-docs, six MDs and 10 PhD students. He has a broad experience in leading research projects in the fields of vaccine development and immunopathogenesis of virus infections of man and animals.

He holds many editorial appointments for scientific journals, is the holder of several patents, has been the mentor of more than 50 PhD students and, from 1980 onwards, has held over 50 consultancies. Over the last 20 years, professor Osterhaus has identified more than a dozen "new" viral pathogens. He is author of more than 850 peer reviewed scientific papers.

He received his DVM (honours) at University of Utrecht, The Netherlands (1974); Ph.D. at University of Utrecht, The Netherlands (1978) and RVM at University of Utrecht, The Netherlands (1996). He has held the following positions:

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| 1978-1989 | Head of the Section Animal Viruses, National Institute of Public Health and Environmental Protection (RIVM), Bilthoven, The Netherlands; Deputy Head of the Unit Control Virus Vaccines, RIVM |
| 1980-1989 | Head of the Section Monoclonal Antibodies, RIVM |
| 1986-1988 | Head of the Section of Immunobiology, RIVM; Head Section Biochemical Vaccine Controls, RIVM |
| 1982-1989 | Establishment of Laboratory of Immunobiology, RIVM |
| 1988-1994 | Head of the Laboratory of Immunobiology, RIVM |
| 1990-present | Professor of Environmental Virology, State University Utrecht |
| 1993-present | Professor of Virology, Erasmus MC, Rotterdam; Head of the Department of Virology, Erasmus MC, Rotterdam; Director National Influenza Center (NIC), Rotterdam |
| 1995-2000 | Director WHO Global Reference Laboratory for Measles, Rotterdam |
| 2003-present | Head WHO National Reference Laboratory for Measles and Rubella with RIVM Bilthoven, Rotterdam |
| 1995-present | Director WHO Collaborating Centre for Arboviruses and Haemorrhagic Fever Reference and Research, Rotterdam |

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| 2007-present | Chairman of the Postgraduate School Molecular Medicine Erasmus MC |
| 2009-present | Member of the Graduate School Erasmus MC; CSO Viroclinics Biosciences B.V., a spin-out company of the Erasmus MC that performs (pre) clinical research services for industry |

Dr. Gregory A. Poland

Dr. Gregory Poland is the director of Mayo Clinic's Vaccine Research Group – a state-of-the-art research group and laboratory devoted to developing new vaccines important to public health and understanding the genetic basis for vaccine response. Dr. Poland is the Mary Lowell Leary professor of Medicine, Infectious Diseases, and Molecular Pharmacology and Experimental Therapeutics, director of the Mayo Clinic Immunization Clinic and director of the program in Translational Immunovirology and Biodefense. He also serves as the Editor-in-Chief for the journal "*Vaccine*."

Recently, Dr. Poland founded the Jenner Society, an academic society for vaccinologists, and a memorial to Dr. Edward Jenner. In June 2008, he was awarded the distinction of Master in the American College of Physicians; he was also awarded the Secretary of Defense Award for Excellence in December 2008, the Hsu prize in International Infectious Disease Epidemiology in 2007 by the University of Iowa, and the Charles Merieux Lifetime Achievement Award in Vaccinology from the National Foundation for Infectious Diseases in May 2006. In December 2006, Dr. Poland was elected as the president of the Defense Health Board, serving two terms. He was appointed as the Mary Lowell Leary Professor in Medicine (the highest academic distinction for a faculty member) by Mayo Clinic's Board of Trustees in 2004. In May 2003, he was awarded the Secretary of Defense Medal for Outstanding Public Service. Since 2004, Dr. Poland has also served on the Infectious Diseases Society of America (IDSA) Taskforce on Pandemic Influenza. In 1998, he received a joint award from the Centers for Disease Control and Prevention and the Health Care Financing Administration for his contribution to increasing adult immunization rates in the U.S. which was awarded by the surgeon general of the United States. In 1997, he was honoured as the Outstanding Clinical Investigator of the Year by the Mayo Clinic.

Dr. Poland participates on many national and academic review committees and actively peer-reviews journal articles for over 26 different publications such as *The Lancet*, *Annals of Internal Medicine* and the *New England Journal of Medicine*. A prolific writer, Dr. Poland has published over 350 peer-reviewed scientific articles and book chapters.

Dr. Poland received his medical degree from the Southern Illinois University School of Medicine in Springfield, Illinois, and completed his residency and advanced post-graduate work at the University of Minnesota/Abbott-Northwestern Hospital, Minneapolis, MN.

Dr. Calvin R. Stiller

Dr. Stiller was raised in Naicam, Saskatchewan and obtained his medical degree from the University of Saskatchewan in 1965 and his F.R.C.P. (C) in 1970 following seven years of post-graduate studies in London and Edmonton. He returned to the University of Western Ontario and University Hospital to become a professor at the Department of Medicine and Director of Immunology at the John P. Robarts Research Institute, London, Ontario.

Dr. Stiller established the Multi-Organ Transplant Service in London and served as the unit's chief from 1984 to 1996. During this period, he was principal investigator of the Canadian multi-centre study that established the importance of cyclosporine in transplantation and led to its worldwide use as first-line therapy for transplant rejection. He co-chaired a government task force on organ donation, co-founded the Multiple Organ Retrieval and Exchange Program, was elected to Council of the Transplantation Society and co-chaired the first International Congress on Ethics in Transplantation. Dr. Stiller also served on the Council and Executive of the Medical Research Council of Canada, 1987-1993, and on the founding boards of the Siebens-Drake Research Institute and the John P. Robarts Research Institute.

He served as president of the Canadian Society of Nephrology and on numerous professional and government committees. He co-founded the J. Allyn Taylor International Prize in Medicine, the Canadian Medical Hall of Fame, MaRS Centre in Toronto and the Ontario Institute for Cancer Research, and has been active in a number of charitable organizations.

He has published some 265 scientific and medical papers, co-edited five books, and authored the book *Lifegifts*.

Dr. Stiller is also a businessman and entrepreneur. He is chair of BioQuest Innovations Inc., LOM/BioQuest Life Sciences Corporation and Chelsey Corporation. He was chair and founder of Diversicare Corporation, Oracle Network Corporation, Medical Discovery Management Corporation and Canadian Medical Discoveries Fund Inc., and sits on the boards of several companies including Revera Inc. (TSX), Vasogen Inc (NASDAQ), and several public endeavours and foundations including director of MaRS (Medical and Related Sciences Discovery District), and chair of OICR (Ontario Institute for Cancer Research). Past chair of Genome Canada, Stiller has co-founded four venture capital funds: the Canadian Medical Discoveries Fund, Canadian Science and Technology Growth Fund, CMDF II, and Starting Start-ups Venture Fund. His business leadership has been recognized with the Ontario Entrepreneur of the Year (Supporter of Entrepreneurship) (1996) and the National Innovation Management Award (1998).

During his distinguished research career, Dr. Stiller has received numerous awards, including the MEDEC Award of Canada (1992); Distinguished Researcher Award for international medical contributions (University of Saskatchewan, 1993); President's Merit Award of the Medical Research Council of Canada (1995); Toronto Biotechnology Initiative Community Service Award and Distinguished Service Award of the Friends of Canadian Institutes of Health Research (2002); Life Time Achievement award from the Canadian Society of Transplantation (2003); and life membership in the Ontario Medical Association and The London & District Academy of Medicine (2006). He was named one of the *100 Graduates of Influence* from the 120,000 graduates in the first 100 years of the University of Saskatchewan (2007). Dr. Stiller has also received three Honorary Doctorates: McMaster University, Hamilton (2002); University of Western Ontario (2007); and the University of Saskatchewan (2007).

Other significant recognitions achieved by Dr. Stiller include the Novartis/Calvin Stiller Chair in Xenotransplantation at the University of Western Ontario announced in his honour (1999) and the naming of the Biotechnology Commercialization Center at the U.W.O. Research Park as The Stiller Center in his honour (2007). He is a Member of the Order of Canada (1995) and a Member of the Order of Ontario (2000), and was inducted into the Canadian Medical Hall of Fame (2010).

In 1998 Dr. Stiller was named by the Premier of the Province of Ontario as Chair of the Ontario Research and Development Challenge Fund and a Director of the Ontario Innovation Trust, which together, provided over 1.2 billion in support for research and development in Ontario universities, and in alliances between business and research institutions over ten years.

Dr. Dick Strugnell

Dick Strugnell is a microbiologist at the University of Melbourne who focuses on the host response to infection, and identification and expression of bacterial virulence determinants that allow pathogens to avoid innate and adaptive immune responses. He gained his PhD and early post-doctoral training at Monash University in Melbourne, and subsequently worked at the University of Birmingham and Wellcome Biotech in the UK in the period 1986-1989. He joined the University of Melbourne in 1991 and is currently professor of microbiology and pro vice-chancellor (graduate research) with teaching commitments in the BSc and BBiomedicine. With support from Dr. Odilia Wijburg and Dr. Anna Walduck, he runs a research group of eight to 12 researchers addressing infections caused by a range of pathogens including *Salmonella enterica* and *Klebsiella pneumoniae*. He is funded by Program and Project Grant support from the NHMRC of Australia and has been a member of a number of international consortia, including a Gates Foundation supported Grand Challenge in Global Health. He is a Fellow of the Australian Society for Microbiology.