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## OHWS

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### ONE HEALTH WORKSHOP SERIES

### Herman Barkema, DVM, PhD, FCAHS

Dr. Herman Barkema completed his DVM degree at Utrecht Univ., The Netherlands, in 1988. He spent 2½ years as manager of a large dairy and beef herd in Costa Rica, then taught bovine herd health at Utrecht Univ. and worked as an epidemiologist for the Dutch Animal Health Service while completing his PhD. In 2001, Dr. Barkema moved to the Univ. of PEI. He subsequently moved to the Univ. of Calgary, where he founded UCVM's Dept. of Production Animal Health. He currently is Professor in Epidemiology of Infectious Diseases at UCVM and NSERC Industrial Research in Infectious Diseases of Dairy Cattle, with a joint appointment in the Dept. of Community Health Sciences of the Cumming School of Medicine. He is also a Guest Professor at Ghent Univ. (Belgium) and Foreign Expert at the China Agricultural Univ. in Beijing. Dr. Barkema's research program focuses on prevention and control of diseases in cattle herds, including antimicrobial resistance. He has published > 300 scientific manuscripts and has lectured all over the world. He leads the UCalgary Biostatistics Centre, the Environment research theme in the Canadian Bovine Mastitis Research Network, the Alberta Johnes's Disease Initiative, the Antimicrobial Resistance – One Health Consortium, and UCalgary's One Health Emerging Cross-cutting Research Theme.

### Jay Ingram

Jay Ingram has hosted two national science programs in Canada, Quirks and Quarks on CBC radio and Daily Planet on Discovery Channel Canada. His 19 books have been translated into 15 languages. Jay has six honorary degrees and is a member of the Order of Canada. From 2005-2015, he chaired the Science Communications Program at the Banff Centre, he is co-founder of the arts and engineering smashup in Calgary called Beakerhead, and he has criss-crossed Alberta giving talks on prions, thanks to APRI.

### Sabine Gilch, PhD

Sabine Gilch obtained her PhD in Molecular Biotechnology and Prion Biology at the Technical University of Munich, Germany. After postdoctoral studies at the Technical University of Munich and the University of Wyoming, USA, she joined the University of Calgary, Faculty of Veterinary Medicine as the faculty's first Canada Research Chair (CRC; 2013-2023) focusing on prion research. Currently, Sabine holds an associate professor position. Her core expertise is in using cell culture and mouse models of prion infection to study chronic wasting disease (CWD) prion strains, prion protein trafficking and prion-host cell interactions. In recognition of her contributions to CWD research, she was named a PEAK Scholar of Excellence in Entrepreneurship, Innovation and Knowledge Translation by the President of the University of Calgary. Over her career, she has published 65 papers and 4 book chapters, work which

received > 3,500 citations. As the lead PI or Co-PI she has attracted > \$5 million in funding from provincial and national funding agencies, including NSERC and CIHR. The long-term goals of her research program are to unravel the evolution and transmission profiles of CWD prion strains, which is key for assessing their potential impact on animal, environmental and public health, and to understand the impact of prion infection on neuronal metabolism in order to elucidate mechanisms of neurodegeneration and novel drug targets.

## Sylvie Benestad, PhD

Sylvie Benestad obtained her PhD in Neurophysiology in 1994 as a collaboration between the University of Marseille-Aix (France) and the University of Oslo (Norway). She is working at the Norwegian Veterinary Institute since end of 1997, working almost exclusively with TSE diagnostic and research, especially with characterization of prion strains. She is the leading the Norwegian Reference Laboratory for TSE in animals and one of the three OIE Reference Laboratories for CWD.

## Glenn Telling, PhD

Dr. Telling's involvement in prion disease research began as a trainee with Nobel Laureate Stanley Prusiner. He subsequently worked as an independent investigator at the UK Medical Research Council Prion Unit, and at the Sanders Brown Center on Aging at the University of Kentucky. Since late 2011, Dr. Telling has Directed the Prion Research Center (PRC) at Colorado State University where he is also a Professor in the Department of Microbiology, Immunology and Pathology. While the Telling lab is particularly recognized for transgenic mouse modeling of prion diseases, it is one of only a handful of research groups with the resources and expertise for studying prion diseases using whole animal, transgenic, cell biological, biochemical, and molecular genetic approaches. The overarching goal of Dr. Telling's research program is to study the mechanism of prion replication, prion species barriers and strain diversity, and the molecular basis of inherited human prion diseases.

## Debbie McKenzie, PhD

Dr. McKenzie is a Professor in the Department of Biological Sciences at the University of Alberta and an Intramural Faculty Member at the Centre for Prions and Protein Folding Diseases with a research interest in prion disease and the biology of aging. Her prion research is focussed primarily on the isolation and characterization of CWD strains, CWD host range, and the cellular mechanisms involved in establishing productive prion infections. She is lead on a Genome Canada LSARP "Systems Biology and Molecular Ecology of Chronic Wasting Disease". Prior to joining the University of Alberta in 2009, Dr. McKenzie was a senior research scientist at the University of Wisconsin, and a member of the Wisconsin Department of Natural Resources Interagency CWD Science Team for five years.

## Holger Wille, PhD

Holger Wille studied Biology at the Universität Hamburg in Germany. He conducted the experimental parts for his Master's and PhD theses at the Max-Planck Unit for Structural Molecular Biology studying the structure and aggregation of microtubule-associated proteins. Afterwards he joined the laboratory of Stanley Prusiner at the University of California in San Francisco (UCSF) as a postdoctoral fellow. At UCSF, Holger focused on the structure and aggregation of the infectious prion protein. At the end of his postdoctoral training, he became an adjunct faculty member of the Department of Neurology, continuing his studies on the infectious prion protein in the Prusiner laboratory. His investigations revealed that the infectious state of the prion protein is based on a four-rung beta-solenoid conformation.

In 2012, Holger joined the faculty of the Department of Biochemistry at the University of Alberta in Edmonton as an Associate Professor. Holger's laboratory is located in the Centre for Prions and Protein Folding Diseases and focuses on the structure of amyloids and other misfolded proteins. In particular, the structure of infectious prions and the structure-function relationship underlying their infectious nature is a major interest. Recently, Holger and his team used their insights into the structure of prions to develop rationally designed, structure-based vaccines. Proof-of-principle experiments in transgenic mouse models of familial prion diseases in humans demonstrated an extended prophylactic effect of the vaccine. In addition, the Wille laboratory is also developing vaccines targeting Alzheimer's and Parkinson's disease using the same structure-based approach.

## Judd Aiken, PhD

Dr. Aiken is a Professor in the Department of Agricultural, Food & Nutritional Science at the University of Alberta and an Intramural Faculty Member at the Centre for Prions and Protein Folding Diseases. His primary research interests are the role the environment plays in the spread of prion diseases, antemortem diagnosis of prion diseases and the molecular basis of aging processes. Dr. Aiken previously spent 20 years studying prion disease at the University of Wisconsin at Madison as a professor in the Department of Animal Health and Biomedical Sciences before being recruited to the Centre for Prions and Protein Folding Diseases at the University of Alberta. Elected to the Board of Directors of the American Aging Association in 1996, he served until 2004 and was elected President of the organization in 1997. In 2005, Dr. Aiken was awarded the prestigious Ellison Senior Scholar Award, a private foundation supporting biomedical research of aging and age-related diseases.

## Alba Marin-Moreno, PhD

Alba Marín Moreno recently obtained her a PhD at Universidad Autónoma de Madrid working at the Prion Group at Centro de Investigación en Sanidad Animal–Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria, Madrid, Spain. Her primary research interests are the characterization of prion strains, prion zoonotic potential, pathogenesis of prion diseases and their effects on animal and human health.

## Hermann Schaeztl, MD Dr.med./PhD

Hermann's work over the past 25 years focused on the cellular and molecular biology of prion diseases. His laboratory has consistently produced high-quality outcomes in the field of prion disease biology and used this for devising anti-prion strategies. Trained by S.B. Prusiner (Nobel Prize 1997), he has established his own laboratory at the University of Munich, Germany, in 1995. From 2002 to 2010, he was Head of the Clinical Virology Unit at the Technical University of Munich. In 2010, he was appointed Wyoming Endowed Excellence Chair in Prion Biology, and in 2013, joined the University of Calgary and set up the Calgary Prion Research Unit. Hermann was tenured professor at universities in Germany, U.S.A. and Canada, and trained >120 students and researchers in his laboratory, 9 of them having now faculty/junior faculty positions. He has published >120 research articles, >30 reviews and book chapters and 3 textbooks, and acquired >\$23,000,000 of external funding for his lab. His laboratory pioneered active immunization against prion disease, characterized the impact of autophagy in prion infection, and contributed new cell models for studying prion and prion-like propagation. Hermann participated in grant review activities worldwide and was co-host of Prion2019 in Edmonton. He was a founding member of the Canadian-German CWD macaque consortium that studies the zoonotic potential of CWD by inoculation into *Cynomolgus* macaques since 2008. His laboratory passaged macaque CWD into various rodent hosts, providing the first experimental evidence that CWD prions can propagate in old-world monkeys, a relevant non-human primate model.

## Jeana Schuurman, MA

Jeana Schuurman is the Managing Director for the Alberta Professional Outfitters Society (APOS). Raised in rural Alberta, Jeana attended Trinity Western University and completed her degree in 2010. She began her career with the Guide Outfitters Association of British Columbia (GOABC) shortly thereafter. After 4 years of working with the GOABC, Jeana moved back to Edmonton to take a job with the Government of Alberta. She worked in communications and dispute resolution at the Farmers' Advocate Office until starting with APOS in 2018.

## Bruce Friedel

Bruce Friedel is the Vice Chair and Animal Health Chair of the Alberta Elk Commission.

## Mike Beaver

Mike Beaver is from Bigstone Cree Nation in Wabasca, Alberta. He attended residential school from 1949-1958, however he is most proud of being educated in the traditional way, in the bush, and knowing how to live off the land. His father passed away when he was young, but his father and uncle instilled in him the importance of respecting the land. Mike has been a leader of his Nation and has taken many leadership roles in the past. Mike has been a AEMERA board member, worked out of the health and wellness office as an Elder, and is currently the president of the Treat 8 Trappers Association.

## Gordon Mitchell, DVM, PhD

Dr. Gordon Mitchell is Head of the Canadian National and OIE Reference Laboratory for CWD and Scrapie, located at the Canadian Food Inspection Agency Animal Health Laboratory in Ottawa, Ontario. He completed his doctorate of veterinary medicine at the Ontario Veterinary College in 2003. He then obtained a PhD in veterinary anatomic pathology from the Department of Pathobiology at the University of Guelph, Ontario, where he continues to serve as an Adjunct Professor. In 2007, Dr. Mitchell joined the CWD and Scrapie Reference Laboratory, as a veterinary diagnostician and scientist, actively involved in research addressing the diagnosis of prion diseases, their pathophysiology and their impact on agriculture, wildlife and public health. In 2015, Dr. Mitchell was appointed lead of the Canadian OIE Reference Laboratory for CWD and Scrapie.

## Margo Pybus, PhD

Dr. Margo Pybus spent the better part of a life-time learning from wildlife. She was schooled early in life among the fields, forests, and marshes of southern Ontario and later in the prairie, foothill, mountain, parkland, and boreal landscapes of Alberta and beyond.

Margo received a B.Sc. in Fish and Wildlife Biology and M.Sc. in Wildlife Parasitology, both from the University of Guelph. She holds a PhD in Wildlife Parasitology from the University of Alberta and is currently an adjunct professor in the Department of Biological Sciences, UofA. Margo is on staff with Alberta Fish and Wildlife as the first Provincial Wildlife Disease Specialist. She leads high profile provincial wildlife disease surveillance and management programs, including chronic wasting disease, West Nile virus, avian influenza, and rabies.

## Nick Haley, DVM, PhD

Dr. Haley graduated from Cornell University's College of Veterinary Medicine in 2004, and went on to pursue a microbiology residency and PhD at Colorado State University, ultimately landing in the lab of Dr. Edward Hoover. There, his PhD work focused on understanding CWD transmission and improving testing methods, which he continued working on while completing a post-doctorate at Kansas State University in the lab of Dr. Juergen Richt. He is now an assistant professor in the Department of Microbiology and Immunology at the newly developed College of Veterinary Medicine at Midwestern University in Phoenix, AZ, where he continues his work to improve prion diagnostic testing, among other pursuits.

## Evelyn Merrill, PhD

Dr. Evelyn Merrill is a Professor in the Department of Biological Sciences at the University of Alberta with a research focus on predator-prey and disease dynamics of large mammals. She currently is working on how landscape patterns influence the risk and spatial spread of chronic wasting disease in the prairie provinces of Canada. Dr. Merrill is a Fellow of The Wildlife Society, is the current Canadian Representative to The Wildlife Society, and has been the Editor-in-Chief of the *Journal of Wildlife Management*. She has been awarded the Dedicated Service and the William Rowan Distinguished Professional Award from the Alberta Chapter of The Wildlife Society and the Wildlife Conservation Award from the Rocky Mountain Elk Foundation.

## Susan Kutz, DVM, PhD

Susan Kutz is a Veterinarian and a Professor in the Department of Ecosystem and Public Health at the University of Calgary Faculty of Veterinary Medicine, Alberta, Canada. She has devoted over two decades of her life to wildlife health research in the Arctic and Subarctic. Her areas of expertise include wildlife parasitology, disease ecology, ecosystem health, arctic ecology, climate change, and community-based wildlife health surveillance with a focus on caribou and muskoxen. She works with local communities to monitor, understand, and predict the impacts of a warming Arctic on the health of muskox and caribou populations and the consequent effects on food security in the Arctic.

## Kevin Keough, PhD, FCAHS, ICD.D

Kevin Keough is Principal of Kevin Keough Consulting Incorporated, a company providing management advice on research and innovation to government, academia and industry. He is an Emeritus Professor of Biochemistry at Memorial University, and is a member of the Boards of Governors of NeuroPrion Association and the Asia-Pacific Society for Prion Research. Keough has been Executive Director of the Alberta Prion Research Agency, President and CEO of the Alberta Heritage Foundation for Medical Research, Chief Scientist at Health Canada, Vice-President (Research and International Relations), Head of Biochemistry, and Professor of Biochemistry and Pediatrics at Memorial University. He has made significant contributions to understanding of molecular organization and function of pulmonary surfactant and biological membranes. Other senior appointments include Deputy Chair of the Council of Science and Technology Advisors to the Federal Cabinet, Co-Chair of the Canada-European Union Science and Technology Agreement, Vice-President of MRC, Member of the Interim Governing Council and the Governing Council of CIHR, and the Boards of Directors of Genome Canada, Genome Alberta, Genome Atlantic, the Science Media Centre of Canada, the Canadian Academy of Health Sciences, the Newfoundland and Labrador Science Centre, the Telus World of Science Edmonton, the University Advisory Group to Industry Canada, the Advisory Group of the SRED program, and five R&D companies and agencies. He founded NovaLipids Incorporated and Timol Incorporated and is Past-President of three national professional organizations. He has chaired review panels for CFI, CIHR, NSERC, NSERC, NCE, CFREF and CERC, among others.

## Keith Lehman, DVM

Dr. Keith Lehman, originally from the Vegreville, Alberta area, graduated from the Western College of Veterinary Medicine at the University of Saskatchewan in 1999 and also holds a Bachelor of Science in Agriculture from the University of Alberta.

After working in private mixed animal practice in Barrhead, Alberta, he joined the Canadian Food Inspection Agency where he worked in various position prior to joining Alberta Agriculture and Forestry in June 2014. After two years with the Animal Health Section, he was appointed as Alberta's Chief Provincial Veterinarian in June 2016.

Dr. Lehman completed a two-year term as chair of the Council of Chief Veterinary Officers in December 2018 and currently serves as a Council of Chief Veterinary Officers representative on the National Farmed Animal Health and Welfare Council. He has also been involved with early development of the national Plant and Animal Health Strategy, CanSURV BSE, national and provincial antimicrobial resistance work, and serves as an ex-officio member on the Alberta Veterinary Medical Association Council.

## Alex McIsaac, DVM

Dr. Alex McIsaac (WCVN '80) operated a mixed animal veterinary practice in rural Saskatchewan for 23 years prior to joining the Canadian Food Inspection Agency (CFIA) as an Animal Health Veterinarian in 2003. While in private practice, Dr. McIsaac had clients who were involved with the fledgling cervid (mainly elk) industry, which is where he learned all facets of elk handling, management, and production. In 1987, Dr. McIsaac conducted a serological/hematological survey of captive elk to establish baseline values for Canadian elk. He also conducted field research for pharmaceutical companies on the use of anesthetics in elk and agents used to reverse anesthesia while in practice. Presently, Dr. McIsaac's work with the CFIA focuses on disease control, primarily dealing with federally reportable diseases, including prion diseases. Due to the enzootic nature of chronic wasting disease (CWD) in Saskatchewan, a large part of his workload over the past decade has been related to CWD disease response.