



UNIVERSITY
OF ALBERTA

4th Annual Dean Befus Lectureship & Dean Befus Symposium

Presented by the Division of Pulmonary Medicine
and the Alberta Respiratory Centre



Friday, September 27, 2024

Lectureship

8:00 a.m. - 9:00 a.m.

2-191 Clinical Sciences Building

Symposium

9:30 a.m. - 3:30 p.m.

Oborowsky Degner Seminar Hall

1-040 Li Ka Shing Centre



4th Annual Dean Befus Lectureship (Department of Medicine Grand Rounds) - 2-191 CSB

8:00 a.m. - 9:00 a.m.

Dr. Paul O'Byrne, Dean and Vice-President, Faculty of Health Sciences, McMaster University

- Allergen-Induced Asthma

Dean Befus Symposium - Oborowsky Degner Seminar Hall, 1-040 Li Ka Shing Centre

9:30 a.m. - 9:50 a.m.

- Introduction by the Chairs of the Symposium
- Greetings by: Dean of the College of Health Sciences, Chair of Medicine, Division Director - Pulmonary Division

First Session – Mechanisms of Allergic Inflammation (9:50 am - 12:10 pm)

9:50 a.m. - 10:10 a.m. : Judah Denburg, McMaster University

- Mast cells and progenitors: Science & friendship

10:10 a.m. - 10:30 a.m. : Lisa Cameron, Western University

- Gene-x-Environment Interactions in Allergic Disease

10:30 a.m. - 10:50 a.m. : Darryl Adamko, University of Saskatchewan

- Metabolomics of asthma and COPD: Lessons learned

Break & Networking

10:50 a.m. - 11:10 a.m.

First Session Continued

11:10 a.m. - 11:30 a.m. : Marianna Kulka, Quantum and Nanotechnologies Research Center

- From chloride channels to lipid nanoparticles – the places mast cells can take us

11:30 a.m. - 11:50 a.m. : Paul Forsythe, University of Alberta

- From mast cells to psychoneuroimmunology and back

11:50 a.m. - 12:10 p.m. : Shawna McGhan

- Expanding boundaries, innovations and partnerships in asthma education

Lunch & Networking

12:10 p.m.- 1:10 p.m.

Second Session: Inflammation of Mucosal Surfaces

1:10 p.m.-1:30 p.m. : Andy Schwingshackl, UCLA

- Potassium is the new Calcium: New ways to regulate lung inflammation

1:30 p.m.-1.50 p.m. : Marcelo Marcet Palacios, Northern Alberta Institute of Technology

- Novel chromatin arrangements and their potential impact on gene expression

1:50 p.m.-2.10 p.m. : Ramaswamy Kalyanasundaram

- Worms, lung & nerve: Lab to vaccine

Break & Networking

2:10 p.m.- 2:30 p.m.

Second Session Continued

2:30 p.m.-2: 50 p.m. : Derrick Gibbings, University of Ottawa

- Fusion of small extracellular vesicles with target cells enables therapeutic delivery

2:50 p.m.- 3:10 p.m. : Grant Stenton, AstraZeneca

- From worms to mast cells to cancer

Closing Remarks

3:10 p.m.- 3:30 p.m.



Get to know Dr. Dean Befus and the speakers!

Dean Befus, BSc, MSc, PhD, FCAHS

Dr. Befus grew up in Edmonton and graduated from the UofA and then continued his training in Toronto, Glasgow and Hamilton. He held faculty positions at McMaster (1978-1985), and U of Calgary (1985-1992), before moving to the U of Alberta in 1993. Dr. Befus held the AstraZeneca Canada Inc., Chair in Asthma Research (1993-2017) and was the founding Director of the Alberta Asthma Centre (1993-2016) which, under his leadership, has morphed into the Alberta Respiratory Centre (ARC); Dean was ARC co-Director until his retirement.

Dr. Befus over the years led many important Provincial and National Initiatives. He was Chair/Co-Chair of the provincial coalition Alberta Breathes, a member of the Respiratory Health Strategic Clinical Network (SCN), Alberta Health Services and the lead for the Asthma working group of the Respiratory Health SCN. Dean was also a co-leader in the national network for allergic diseases, AllerGen NCE Inc., and the Canadian Healthy Infant Longitudinal Development Study (CHILD) of asthma and allergies.

Dr. Befus in addition to his basic work in mast cell biology, inflammation and neuroimmunology has had broad interests in asthma management, epidemiology and impact; and development, implementation and evaluation of knowledge transfer programs for patients, their families and health care professionals. Dean is now a Professor Emeritus, University of Alberta since the summer of 2017, but he is still very active in research, teaching and mentorship. He has published over 300 scientific articles in these areas.

Darryl J Adamko, MD, FRCPC Professor, Pediatric Respiriology University of Saskatchewan

Dr. Darryl J. Adamko went on to become a Pediatric Pulmonary specialist with a strong bench research background after training in a Pediatric Pulmonary Fellowship at The Johns Hopkins University in Baltimore, Maryland. He was an Associate Professor of Pediatric Pulmonary Medicine at the University of Alberta from 2001-11. He moved back to Saskatoon at the University of Saskatchewan in 2011 in a similar position that is focused on clinical, teaching and research in aspects of pediatric pulmonary diseases. He was promoted to full Professor in 2015. Dr. Adamko's research focuses primarily on asthma. He has studied the mechanisms of virus-induced asthma attacks and those underlying the development of asthma from infancy, using in vitro and in vivo models in humans and animals. In recent years, he has been developing a novel urine-based diagnostic to detect and monitor asthma using mass spectrometry.



Lisa Cameron, PhD
Associate Professor, Department of Pathology and Laboratory Medicine
Western University

Dr. Lisa Cameron was recruited to the University of Alberta and appointed as an Assistant Professor within the Pulmonary Research Group in 2005. In 2008, she became an AHFMR Scholar and in 2011 she was awarded the GSK-CIHR Chair in Airway Inflammation. Within the outstanding research environment created by the PRG leadership and colleagues, Dr. Cameron forged a successful research program and developed key collaborations within the U of A group. In 2014, Dr. Cameron relocated to Western University, joining the Departments of Pathology and Laboratory Medicine/Microbiology and Immunology. Her research has focused on understanding how Th2 cells contribute to airways diseases, such as asthma, and how their phenotype and function may be influenced by factors such as genetics, biological sex, age and co-morbidities. While she continues to collaborate with U of A Respiratory colleagues, she has also initiated investigations into immune mechanisms and environmental factors that underlie various chronic immune conditions. Studies have been funded by AHFMR, SickKids, NSA, CAAIF, CIHR and NSERC.

Judah Denburg, MD, FRCP(C)
William J. Walsh Chair in Medicine, McMaster University

Dr. Judah Denburg's primary research interest is the developmental biology of eosinophils, basophils and mast cells, and immune regulation in allergic airways inflammation in rhinosinusitis, asthma and related respiratory and immune diseases, as well as in hematologic disorders such as mastocytosis and hypereosinophilic syndromes. His pioneering research on allergy as a systemic disease and the role of the bone marrow in allergic inflammation has resulted in a new generation of diagnostics and therapies. He created and led a globally renowned and interdisciplinary Canadian research network called AllerGen NCE, mobilizing Canada's leading experts to set standards in understanding and treating allergic diseases and reducing their devastating impact nationally and internationally.

Derrick Gibbings, PhD
Professor, Department of Cellular and Molecular Medicine, University of Ottawa

Derrick Gibbings completed his PhD with Dr. Dean Befus studying CD8 on monocytes. He went on to a post-doctoral fellowship with Olivier Voinnet studying microRNA and RNA silencing pathways with a focus on small extracellular vesicles. He is currently a Professor in the Department of Cellular and Molecular Medicine at the University of Ottawa. His lab studies topics at the nexus of endolysosomal biology, RNA biology and disease. In recent years the lab has focused on delivery of RNA and protein therapeutics with small extracellular vesicles. Research from his lab has been published in journals including Nature Biomedical Engineering, Nature Communications and Developmental Cell. He is also the founder of a biotechnology company, a co-developer of a diagnostic test with Alnylam Pharmaceuticals, and a consultant for Third Rock Ventures.

Paul Forsythe, PhD**AstraZeneca Canada Inc., Chair in Asthma and Obstructive Lung Disease, University of Alberta**

Dr. Paul Forsythe obtained his PhD in Immunopharmacology at Queen's University Belfast, UK. He then went on to pursue post-doctoral studies at the University of Alberta and McMaster University before becoming a faculty member in the Department of Medicine, McMaster University and Principal Investigator at the McMaster Brain-Body Institute. He joined the University of Alberta as the AstraZeneca Canada Inc., Chair in Asthma and Obstructive Lung Disease in 2021. His research interests are in the area of psychoneuroimmunology; utilizing inter-disciplinary approaches to investigate crosstalk between components of the nervous, immune, and endocrine systems. His work has provided key insights into how nervous system and immune system act together to drive gut microbiota induced changes in the brain. In his current research Dr Forsythe is investigating microbial and other environmental influences on neuro-immuno-endocrine interactions in the airways, the contribution of such interactions to lung disease and how this knowledge can be exploited to develop novel therapeutic strategies.

Marianna Kulka, PhD**Quantum and Nanotechnologies Research Centre****Adjunct Professor in the Department of Medical Microbiology and Immunology at the University of Alberta**

Dr. Marianna Kulka completed her PhD with Dr. Dean Befus in 2001 in which she examined the role of chloride channels in mast cell function. Dr. Kulka completed her post-doctoral studies at the NIH/NIAID in Bethesda, Maryland where she examined mast cell differentiation and innate immune responses in the Laboratory of Allergic Diseases under the mentorship of Dr. Dean Metcalfe. Dr. Kulka became an assistant professor at Northwestern University in Chicago in the Feinberg School of Medicine working closely with clinical colleagues on urticaria and skin inflammation. Dr. Kulka moved back to Canada to the NRC-Institute for Nutrisciences and Health where she established a program in the immune regulation of G protein coupled receptors and examined the role of neuropeptide effects on mast cells. In 2012, Dr. Kulka moved to the National Institute for Nanotechnology at the University of Alberta, which has now been renamed the Quantum and Nanotechnologies Research Centre where she has tested the effect of nanomaterials on allergic inflammation. She is currently an adjunct professor in the Department of Medical Microbiology and Immunology at the University of Alberta.

Marcelo Marcet, PhD**Assistant Adjunct Professor, Department of Medicine, University of Alberta
Professor, Lab Research and Biotech, NAIT**

Dr. Marcelo Marcet is a faculty member at the Northern Alberta Institute of Technology, where he has been teaching and conducting research in the Lab Research and Biotech program since 2011. Born in Cuba, he moved to England to attend University College London (UCL), earning a BSc in Biochemistry in 2000. Afterward, he relocated to Canada, where he completed a PhD under Dr. Dean Befus, followed by a postdoctoral fellowship with Dr. Chris Bleackley. His research interests span structural biology, immunology, and nanotechnology. Since 2017, Dr. Marcet has also served as an adjunct professor in the Department of Medicine at the University of Alberta, where he is a dedicated mentor to many graduate and undergraduate students at the Alberta Respiratory Centre. In addition to his academic pursuits, Marcelo is passionate about the outdoors and fitness, regularly participating in marathons and triathlons with friends and family.



**Shawna McGhan, RN MN
Project Manager, Health System Integration
Edmonton, AB**

Shawna McGhan was privileged to work closely with Dr. Dean Befus at the Alberta Asthma Centre for 20 years. Together with teams across Alberta, Canada and sometime internationally, they sought to enhance asthma and allergy self-management at various system levels through innovative initiatives and research. Shawna has work in provincial portfolios of Alberta Health Services in areas related to Chronic Disease Management, Primary Health Care, and Health System Integration. As a master's prepared Registered Nurse, she has been working with teams to enable stronger system integration and health equity, enabling people to be as healthy and independent as they can in their homes and community.

**Paul M O'Byrne, OC, FRCPI, FRCPC, FRCP(Edin), FRCP(Glas)
Dean and Vice-President, Faculty of Health Sciences, McMaster University**

Paul M. O'Byrne obtained his Medical Degree at University College, Dublin. He is currently the Dean and Vice President of the Faculty of Health Sciences at McMaster University. His research interests focus on the mechanisms and treatment of asthma. He has published more than 540 peer reviewed papers and has an h-index (Google Scholar) of 125. His accolades include the James H. Graham Award of Merit of the Royal College of Physicians and Surgeons of Canada; election to the Royal Society of Canada; the European Respiratory Society Congress Award and Medal; election to the Canadian Academy of Health Sciences; and, McMaster's top academic award, Distinguished University Professor. In 2017, the American College of Chest Physicians named him a Giant of Chest Medicine and more recently, he received an Honorary Life Achievement Award from the Ontario Thoracic Society, the Jack Hirsh Award for Outstanding Academic Achievement from McMaster University and Medical Graduate Distinguished Alumnus Award from University College, Dublin. He was appointed an Officer of the Order of Canada in 2023.

**Ramaswamy Kalyasundaram, PhD
Assistant Dean for Research and Head of the Department of Biomedical Sciences at the
University of Illinois College of Medicine, Rockford, IL**

Ramaswamy Kalyanasundaram, PhD, assistant dean for research and head of the Department of Biomedical Sciences at the University of Illinois College of Medicine Rockford, is the professor of microbiology and immunology and is the Michael L. and Susan M. Glasser Endowed Professor. Ramaswamy completed his veterinary medicine from India earned his PhD in parasite immunology from the University of Calgary under Dr. Dean Befus as a Commonwealth fellow and postdoctoral training in immunology from the Cornell University under Dr. Robin Bell. His laboratory developed two prophylactic vaccines (one for lymphatic filariasis, a disabling and disfiguring neglected tropical disease of human, and the other a vaccine for dog heartworm infections) that are undergoing clinical trials.



Andreas Schwingshackl, MD, PhD

Associate Professor of Pediatrics/Critical Care, Mattel Children's Hospital at UCLA, Los Angeles, CA

Dr. Schwingshackl is a tenured Associate Professor of Pediatrics and Division Chief for Pediatric Critical Care Medicine at UCLA Mattel Children's Hospital in Los Angeles. He obtained his MD degree from the University of Innsbruck in Austria, and then joined Dr. Marek Duszyk's and Dr Redwan Moqbel's labs at U of A for his graduate studies. Subsequently, he joined Dr. Dean Befus' lab for a postdoctoral fellowship, before embarking on his Residency and clinical Fellowship training. Founded on his academic training at U of A, his research focus remains on harvesting changes in the plasma membrane potential of lung resident and inflammatory cells as a new anti-inflammatory strategy.

Grant Stenton, PhD

Medical Science Liaison Manager, Oncology, AstraZeneca

Grant earned his undergrad honours degree in pharmacology from Glasgow University. After that he went to Hong Kong for his MSc and converted into the PhD program, studying the effects of common pharmaceuticals such as NSAIDs and calcium channel blockers on Mast Cell degranulation. From the Tropics of Hong Kong to the rather cooler climes of Edmonton (it snowed in Oct, the week after he arrived) the Mast Cell investigations continued with Allergies, Asthma and Worms for a post-Doc. Several collaborations on asthma (Hollenberg, U Calgary and Schreiber, University of Pennsylvania) led to a roller coaster career within three small Biotech companies in British Columbia. After that, crossing to the dark side (Pharma) spent 4 years in Pharma sales in derm-onc (Roche), followed by a much lighter side of Pharma - Medical Science Liaison/Manager in the Medical division at AZ. Currently leading a team of 6 MSLs nationally bringing Breast Cancer Clinical Trials and data updates to the Oncologists across the country (including CCI for Breast, Bladder, Prostate, BTC and Pancreatic). In his spare time, he has three kids, one finishing high school, one in their last year at U of A, and one teaching our next generation and Canada's future, so he enjoys a sibling rivalry problem solving, travelling and sleep!