A multi-disciplinary clinical and basic science symposium

GUEST FACULTY

Ian MacDonald, M.D., University of Alberta, Edmonton, Canada
Ocular gene therapy: The hype and the reality

Alfred Sommer, M.D., Johns Hopkins University, Baltimore, USA
Vitamin A and cataract: Contrasting tales of avoidable blindness

Frank Holz, M.D., University of Bonn, Bonn, Germany
Insights into the pathophysiology and treatment of age-related macular degeneration

Leopold Schmetterer, Ph.D., Medical University of Vienna, Vienna, Austria
New developments in optical coherence tomography

Przemyslaw (Mike) Sapieha, Ph.D., University of Montreal, Montreal, Canada
The immune system gets nervous in retinopathy

David Crabb, Ph.D., City University, London, UK
Glaucoma through the eyes of the patient

Stephen Macknik, Ph.D., State University of New York, Brooklyn, USA
Champions of illusion

Samuel Yiu, M.D., Ph.D., Johns Hopkins University, Baltimore, USA
Regenerative medicine and nano-medicine: New approaches to cornea transplantation

Department of Ophthalmology and Visual Sciences
Dear Colleague:

It gives me great pleasure to welcome you to the 6th Form and Function in Ocular Disease meeting at Dalhousie University.

The Research Committee has put together an excellent program with world-renowned experts in exceptionally diverse areas spanning the visual neurosciences and the eye in health and disease.

We are grateful to our sponsors, Allergan, Bayer, Heidelberg Engineering, Merck and Novartis for providing generous and unrestricted support for the meeting.

We are excited by the program and hope you find this meeting to be a memorable one.

Regards,

Balwantray C. Chauhan, Ph.D.
Research Director
Program

Friday, October 31, 2014

1:00 Registration
2:00 Welcoming Remarks

Moderators: Drs. William Baldridge and Balwantray Chauhan

2:05 Sommer: *Vitamin A and cataract: Contrasting tales of avoidable blindness*
2:50 Sapieha: *The immune system gets nervous in retinopathy*
3:35 Break
4:00 Danthurebandara: *Diagnostic accuracy of Bruch’s membrane opening derived neuroretinal rim parameters*
4:20 Schmetterer: *New developments in optical coherence tomography*
5:05 Adjourn

Saturday, November 1, 2014

Moderators: Drs. Charles Maxner and Melanie Kelly

8:30 Cairns: *A Novel CB ligand decreases retinal ganglion cell loss in a genetic model of ocular hypertension*
8:50 Macknik: *Champions of illusion*
9:35 Holz: *Insights into the pathophysiology and treatment of age-related macular degeneration*
10:20 Break
10:45 Yiu: *Regenerative medicine and nano-medicine: New approaches to cornea transplantation*
11:30 Watson: *Interaction of primary human trabecular meshwork cells with metal alloy candidates for microinvasive glaucoma surgery*
11:50 Lunch

Moderators: Drs. Marcelo Nicolela and Francois Tremblay

1:00 Crabb: *Glaucoma through the eyes of the patient*
1:45 Nuschke: *Evaluation of optic nerve head structure and function following transient elevated intraocular pressure*
2:05 MacDonald: *Ocular gene therapy: The hype and the reality*
4:15 Closing & Adjourn
Speakers

Ian MacDonald, MD (University of Alberta)

Ian M. MacDonald is Professor and Chair of the Department of Ophthalmology and Visual Sciences, University of Alberta. A McGill graduate in Medicine, Dr. MacDonald completed Clinical Genetics training at the University of Ottawa, Queen's University, Kingston and the Hospital for Sick Children, Toronto, followed by Ophthalmology residency training at the University of Ottawa. Dr. MacDonald leveraged his expertise in inherited ocular disorders and his research on choroideremia to form a CIHR Emerging Team for the application of gene therapy to a rare eye disorder, choroideremia. Building on this successful application, he, along with members of the team expanded the group to create an Alberta Innovates-Health Solutions CRIO Team with a research base of preclinical models, gene therapy research, and clinical translational research in ocular gene therapy.

Alfred Sommer, MD (Johns Hopkins University)

Alfred Sommer is a Gilman Scholar and University Distinguished Service Professor at Johns Hopkins University; Johns Hopkins Professor of Epidemiology, Ophthalmology, and International Health; and Dean Emeritus of the Johns Hopkins Bloomberg School of Public Health. He received his MD from Harvard Medical School and his Master of Health Science in Epidemiology from the Johns Hopkins School of Public Health. He has received numerous awards including the Albert Lasker Award for Clinical Research, the Warren Alpert Foundation Prize, and the Duke Elder International Gold Medal for Contributions to Ophthalmology. His named lectureships include the Jackson Memorial Lecture (American Academy of Ophthalmology), Duke Elder Oration (Royal College of Ophthalmologists), De Schweinitz Lecture (College of Physicians, Philadelphia) and the Doyne Lecture (Oxford Ophthalmologic Congress). He is a member of both the U.S. National Academy of Sciences and the Institute of Medicine. His current research interests include child survival and blindness prevention strategies, micronutrient interventions, and the interface between public health and clinical medicine. Dr. Sommer has received the Laureate Award of the American Academy of Ophthalmology, and was elected to the ASCRS “Ophthalmology Hall of Fame.”
Frank Holz, MD (University of Bonn)
Frank Holz is Professor and Chairman of the Department of Ophthalmology at the University of Bonn. His major clinical interest is surgical and medical retina. His scientific interests include the pathogenesis, prognostic factors, biomarkers and treatment macular and retinal diseases, and innovative retinal imaging technologies. He was trained at the University of Heidelberg, Germany, and undertook a fellowship at Moorfields Eye Hospital, London, under Professor Alan Bird. He is a Board Member of the of the German Ophthalmological Society (DOG) and EURETINA, Member of the European Academy of Ophthalmology, the Macula Society, the Club Jules Gonin, the Gass Club, Editor-in-Chief of Der Ophthalmologe. He has received numerous awards including the Leonhard-Klein Award for Ocular Surgery, the Alcon Research Institute (ARI) Award and the Senior Achievement Award of the AAO.

Leopold Schmetterer, PhD (Medical University of Vienna)
Leopold Schmetterer is Chair of Ophthalmic Pharmacology at the Department of Clinical Pharmacology at the Medical University of Vienna and affiliated with the Center of Medical Physics and Biomedical Engineering. He obtained his training from the Technical University of Vienna and at the Institute de Recherche en Ophthalmologie in Sion, Switzerland. His research interests include imaging, glaucoma, medical retina and dry eye syndrome. He was President of the European Association for Vision and Eye Research (EVER) and the Association of Ocular Circulation and president-elect of the EVER Foundation. He also chairs the scientific committee of the Austrian Ophthalmological Society. Dr. Schmetterer serves on several journal Editorial Boards including Progress in Retinal and Eye Research, Acta Ophthalmologica, Current Eye Research, Journal of Ocular Pharmacology and Therapeutics and Ophthalmic Research.
Mike (Przemyslaw) Sapieha, PhD (University of Montreal)
Mike (Przemyslaw) Sapieha is an assistant professor at the University of Montreal and has spent the last fourteen years studying mechanisms that lead to retinal degeneration and disease. He completed his undergraduate degree in biochemistry at McGill University and his PhD in Molecular Neuroscience and Cell Biology at the University of Montreal. He later pursued postdoctoral research at Harvard Medical School. In 2010, he was awarded a Canada Research Chair in Retinal Cell Biology to investigate the contribution of neuronal guidance cues in retinal vascular disease and investigate the role of metabolism in age-related macular degeneration. He has received several awards for his work including the Alcon New Investigator Award, the Canadian National Institute for the Blind New Researcher Award and the Foundation of Stars Award of Excellence in Pediatric Research.

David Crabb, PhD (City University, London)
David Crabb is Professor of Statistics and Vision Research at City University London. He obtained degrees in Mathematics and Statistics at Oxford and Sheffield before completing a PhD in Visual Science in 1996. Following a post-doctoral position at University College London and a lectureship in Nottingham, he took up his position at City in 2005. Professor Crabb is a fellow of the Royal Statistical Society, Honorary Consultant in Visual Science at Moorfields Eye Hospital and the leader of the Applied Vision Research Group at City University, London. His research laboratory contains a lively mixture of vision scientists, ophthalmologists, psychologists, mathematicians and computer scientists. The laboratory focuses on measurement in vision: visual fields, imaging, visual function, eye movements, quality of life measures, and medical statistics. One of the main themes of his work in glaucoma is relating the different stages in the disease process to patient’s visual disability.
Stephen Macknik, PhD (State University of New York, Brooklyn, USA)

Stephen L. Macknik received his PhD at Harvard University with Margaret Livingstone, and was a postdoctoral fellow with the Nobel Laureate David Hubel at Harvard Medical School. Stephen led his first laboratory at University College London, and is currently Director of Translational Neuroscience at SUNY Downstate Medical Center. He’s given over 200 public presentations about his work and published over 160 publications in journals including Nature, Nature Neuroscience, Neuron, Nature Reviews Neuroscience, Scientific American, and the Proceedings of the National Academy of Science. His research has won international scientific awards including The 2012 EyeTrack Prize and the 2013 Research Initiative Award from The American Epilepsy Society. He co-authors the “Illusions” column for Scientific American Mind, and his book, Sleights of Mind won the 2013 Prisma Prize for Best Science Book of the Year. Stephen is among the premier science communicators in the United States and has appeared in dozens of television and radio appearances and hundreds of media stories all around the globe.

Samuel Yiu (Johns Hopkins University)

Samuel Yiu is Associate Professor of Ophthalmology at the Wilmer Eye Institute. He specializes in cornea and external eye diseases, cataracts and refractive surgery, ocular surface disease and ocular surface reconstruction surgery. Dr. Yiu received his MSc and PhD from the University of Southern California and completed postdoctoral training in lacrimal physiology at Harvard University. He subsequently obtained his medical training at the University of Alberta and his ophthalmology training at Dalhousie University. He completed a fellowship in cornea, external disease and refractive surgery at the Doheny Eye Institute. After serving as the director of the Ocular Surface Center at Doheny, he joined the Wilmer faculty in 2011.
Presentations

Alfred Sommer, M.D.
Johns Hopkins University

Vitamin A and cataract: Contrasting tales of avoidable blindness

2:05 – 2:50 p.m. – October 31, 2014

Objectives

1) To provide the audience with an understanding of the etiology, magnitude and cause of vitamin A deficiency and xerophthamia

2) To demonstrate the importance of following early clues and good data in setting global policy and programs

3) To describe the magnitude and cause of cataract blindness around the globe, the importance of affordable access to cataract surgery for its cure, and the challenges to overcoming the problem in poor countries, especially in sub-Saharan Africa.

Notes:
Prezemyslaw (Mike) Sapieha, Ph.D.
University of Montreal

The immune system gets nervous in retinopathy

2:50 – 3:35 p.m. – October 31, 2014

Objectives

1) To introduce and elaborate on the pathogenesis of proliferative and ischemic retinopathies such as diabetic retinopathy and retinopathy of prematurity.

2) To discuss neurovascular interplay in health and disease and its implications in retinopathy. Therapeutic relevance will be addressed.

3) To discuss the role of neuroimmune communication in retinopathy and address the potential therapeutic applications.

Notes:
Leopold Schmetterer, Ph.D.
Medical University of Vienna

New developments in optical coherence tomography

4:20 – 5:05 p.m. – October 31, 2014

Objectives

1) To provide an overview of the current use of OCT in ophthalmology

2) To discuss new approaches focusing on functional extensions of OCT

3) To highlight potential future applications of functional OCT

Notes:
Stephen Macknik, PhD.
State University of New York

Champions of illusion

8:50 – 9:35 a.m. – November 1, 2014

Objectives

1) Examine the fundamental basis for illusion in the brain, as applied to everyday vision.

2) Examine the fallibility of their own perceptual systems in viewing the world.

3) Understand the inconsistencies that are found with perception… even when the observer has high confidence in their assessment of what happened.

4) Understand the fundamental pathways that the brain uses to represent reality, with a focus on why our perception does not necessarily match reality.

Notes:
Objectives

1) To review current understanding of pathogenetic factors for age-related macular degeneration

2) To evaluate state-of-the-art therapeutic approaches for various phenotypic manifestations of age-related macular degeneration

3) To discuss diagnostic measures for differentiating macular disease entities masquerading age-related macular degeneration
Samuel Yiu, M.D., Ph.D.
Johns Hopkins University

Regenerative medicine and nano-medicine: New approaches to cornea transplantation

10:45 – 11:30 a.m. – November 1, 2014

Objectives:

1) Know the different types of corneal transplant, their indications, and the role of femtosecond laser

2) Know how regenerative medicine will change the way we do corneal transplant

3) Know what nano-medicine can do to make corneal transplant a better procedure

Notes:
David Crabb, Ph.D.
City University

Glaucoma through the eyes of the patient

1:00 – 1:45 p.m. – November 1, 2014

Objectives

1) To emphasize that clinical management of glaucoma should equate to correct decisions about intensifying treatment when patients are at risk of developing ‘visual disability’

2) To showcase research illustrating the difficulties that patients with glaucoma have with reading, eye-hand coordination, driving, face recognition and searching for objects

3) To highlight the issue that ‘reconstructions’ of the visual symptoms of glaucoma, typically developed for patient information and disease awareness programs, are often incorrect

Notes:
Ocular gene therapy: The hype and the reality

2:05 – 2:50 p.m. – November 1, 2014

Objectives

1) Understand that gene therapy is an experimental approach to the prevention of vision loss

2) Understand the importance of counseling patients and families about the timeframe for introduction of a clinical trial of ocular gene therapy and the conduct of the trial

3) Recognize the status of current and planned trials of ocular gene therapy.

Notes:
Department of Ophthalmology & Visual Sciences

I, ________________________________ participated in the Department of Ophthalmology & Visual Sciences Form & Function in Ocular Disease Symposium, October 31st and November 1st, 2014

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification program of The Royal College of Physicians and Surgeons of Canada, approved by Dalhousie University Continuing Medical Education and is eligible for 8.5 credit hours.
This meeting was supported by generous and unrestricted grants from

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