Great Lakes Vision Research Conference

Translational Research in Eye Disease

Saturday, September 22, 2012
Wolstein Research Building
Cleveland, Ohio
Welcome

On behalf of the Case Western Reserve University Visual Sciences Research Center and the University Hospitals Eye Institute, we are most pleased and proud to welcome you to the 2012 Great Lakes Vision Research Conference here at the Case Western Reserve University School of Medicine. This conference provides the opportunity for faculty, student, and postdoctoral attendees from the Great Lakes region to discuss the outcomes of recent cutting-edge research on understanding eye function and the mechanisms that underlie sight-threatening diseases of the eye. We hope this conference will enhance your knowledge in your field of interest in vision research and foster collaborations with our investigators and throughout the Great Lakes Region. With advances in new research tools and greater emphasis on the translational implications of our work we at CWRU, and I am sure all the attendees of this important meeting, support the continuing efforts to reduce or eliminate important eye diseases particularly in our aging population and to preserve the quality of their vision.

We hope you enjoy the meeting!

Jonathan H. Lass, M.D.
Charles I Thomas Professor and Chairman
Department of Ophthalmology & Visual Sciences
Case Western Reserve University
Director, University Hospitals Eye Institute

Eric Pearlman, Ph.D.
Silvia Page – William J. Reinhart, M.D.
Professor and Research Director
Department of Ophthalmology & Visual Sciences
Case Western Reserve University
The Visual Sciences Research Center

The Visual Sciences Research Center (VSRC) was founded at Case Western Reserve University in 1996. The VSRC now comprises a multidisciplinary and comprehensive research program in vision and ophthalmology, with NEI funded investigators based in the Departments of Ophthalmology and Pharmacology, and also in the Departments of Biomedical Engineering, Chemistry, Dermatology, Medicine, Molecular Biology, Neurology, Neurosciences, Otolaryngology, Pathology, Pediatric Endocrinology, Physiology and Biophysics, and Proteomics.

Basic and translational research programs involve more than 40 investigators over multiple disciplines, designating us as one of the top research funded institutions in the country by the National Eye Institute. Major areas of our research program include:

- Retinal function and age related and inherited retinal degenerations, including Age-Related Macular Degeneration (AMD), Stargardt’s Syndrome, Usher’s Syndrome, and Leber’s Congenital Amaurosis
- Angiogenesis and Diabetic Retinopathy
- Biochemistry of the aging lens
- Ocular Immunology and Infection, including Bacterial and Fungal Keratitis, and Ocular Toxoplasmosis

In addition to individual investigator awards, The VSRC is supported by:

- National Eye Institute (NEI) funded P30 Core Grant T32 Training Grant.
- Institutional support from CWRU School of Medicine and from University Hospitals Case Medical Center, which is the School of Medicine’s primary hospital affiliate
- The Research to Prevent Blindness Foundation
- The Ohio Lions Eye Research Foundation

Mission:

The mission of the VSRC is to promote the study of basic and clinical problems of the eye and visual system that may lead to improvements in the prevention and treatment of major blinding disorders in the United States and the world. Through a multidisciplinary and comprehensive research program in vision and ophthalmology involving both basic and clinical departments at Case Western Reserve University, the VSRC seeks to advance the visual sciences at the university and beyond and to promote its efforts to the scientific community and greater community at large.

How We Make It Happen:

The VSRC is supported by a National Eye Institute (NEI) funded P30 Core Grant, directed by Dr. Eric Pearlman, and an NEI T32 Training Grant, directed by Dr. Susann Brady-Kalnay. Links to the P30 Core Grant and NEI T32 Training Grant can be found on the Department of Ophthalmology’s website at: www.case.edu/med/ophthalmology
Keynote Speaker
Jason Ehrlich, M.D., Ph.D.

Dr. Ehrlich is the Medical Director of Ophthalmology in the Product Development - Clinical Group, at Genentech. Since 2009, Dr. Ehrlich has served as lead clinician on Genentech's studies in diabetic eye disease. These studies led directly to the recent FDA approval of Lucentis (Ranibizumab) for diabetic macular edema. Dr. Ehrlich completed his M.D. and Ph.D. degrees at Stanford University School of Medicine, as part of the Medical Scientist Training Program. He subsequently was an Ophthalmology resident at Stanford (2005-08), and completed an ITGR Clinical Trials fellowship at Genentech (2008-09).

Awards and Honors

- Josephine de Karman Undergraduate Fellowship, 1996
- Elected to Sigma Xi, Princeton University Chapter, 1997
- Heed Ophthalmic Foundation Residents Retreat, 2007
- Best Paper of Session, ASCRS 2009 Meeting, 2009
- Best Paper of Session, AAO 2009 Meeting, 2009
- Achievement Award, Genentech, Inc., 2009
- Achievement Award, Genentech, Inc., 2010
- Fellow, American Academy of Ophthalmology, 2010
- Key Contributor, Genentech, Inc, 2010
- Achievement Award, Genentech, Inc. (x3), 2011
- Key Contributor, Genentech, Inc, 2011
- Achievement Award, Genentech, Inc. (x3), 2012

Education

1997-2004 M.D. /Ph.D., Stanford University School of Medicine, Stanford, CA
- Ph.D. in Molecular & Cellular Physiology, June 2002
- M.D., June 2004
- Medical Scientist Training Program Fellowship
- Sigma Xi Grant in Aid of Research Recipient

1993-1997 A.B., Princeton University, Princeton, NJ
- summa cum laude in Molecular Biology
- Elected to Phi Beta Kappa
- Squibb Prize for Outstanding Senior Thesis in Molecular Biology

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Bela Anand-Apte, M.D., Ph.D., Cole Eye Institute
Director – Department of Ophthalmic Research
anandab@ccf.org (216) 445-9739

Education
1993 - Fellowship - Harvard University
Postdoc Fellow, Immunopathology
Cambridge, Massachusetts

1991 - Doctorate - Boston University
Microbiology
Boston, MA USA

1986 - Fellowship - K.E.M. Hospital
Immunology Research
Parcel, Mumbai India

1985 - Residency - K.E.M. Hospital
Internal Medicine
Parcel, Mumbai India

1984 - Medical School - University of Bombay, Seth G.S. Medical College
Bombay, India

Honors and Awards
Lew R Wasserman Merit Award, Research to Prevent Blindness, 2007
Tom and Sandy Trudell Research Award for the Study of Retinal Degenerative Diseases, 2004
Young Investigator Award, RD2002, Burkenstock, Switzerland, 2002
Karen Grunebaum Award for Research in Cancer, Grunebaum Foundation, 1990

Patrice Fort, Ph.D., M.S., University of Michigan
Assistant Professor – Department of Ophthalmology and Visual Sciences
patricef@umich.edu (734) 232-8225

Education
Postdoctoral
Pennsylvania State University

Doctorate
Living Sciences: Cellular and Molecular Aspects of Biology
Louis Pasteur University
Strasbourg, France

M.S.
Neuroscience
Louis Pasteur University
Strasbourg, France
Sujata Rao, Ph.D., University of Cincinnati
Research Associate – Richard Lang Lab
sujata.rao@cchmc.org (513) 803-2230

**Education**

2003 - Doctorate – Cornell University
Neurobiology & Behavior
Ithaca, New York

1997 – M.S. – Tata Institute of Fundamental Research
Biological Sciences
Bombay, India

1991 – B.S. – University of Bombay
Bombay, India

**Honors and Awards**

Travel Fellowship from Cold Spring Harbor laboratory, 2001
Cornell Fellowship, Cornell University, 2000-2001
Teaching Assistantship, Cornell University, 1996 – 2002
Jamsetji Tata Gift Scholarship, 1997
J. N. Tata Loan Scholarship, 1997
Junior Research Fellowship, Tata Institute of Fundamental Research, 1993 - 1997

Andy Fischer, Ph.D., Ohio State University
Associate Professor – Department of Neuroscience
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**Education**

Postdoctoral Training
University of Washington, Thomas Reh

Doctorate
University of Calgary
Calgary, Alberta, Canada

MSc
University of Calgary
Calgary, Alberta, Canada

BSc
University of Victoria
Victoria, British Columbia, Canada

**Honors and Awards**

ARVO Cogan Award and Lecture, 2011
Julia Busik, Ph.D., Michigan State University
Associate Professor – Department of Physiology
busik@msu.edu (517) 884-5118

Education
1995 - Doctorate – Graduate University for Advanced Studies
Physiology
Yokohama, Japan

1992 – M.S. – Novosibirsk State University
Physiology
Novosibirsk, Russia

1989 – B.S - Novosibirsk State University
Novosibirsk, Russia

Honors and Awards
Research Award, College of Human Medicine, Michigan State University, 1997
First Prize for Presentation at XXIX All-Union Students’ Conference, Novosibirsk, Russia, 1991
Novosibirsk State University Honorary Scholarship for Academic Achievements, 1986 – 1991
Novosibirsk State University Honorary Scholarship, 1985

John Crabb, Ph.D., Cole Eye Institute
Professor – Departments of Ophthalmic Research and Cell Biology
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Education
1982 - Senior Fellow – University of Washington
Ophthalmology – Biochemistry of Vision
Seattle, Washington

1980 - Postdoctoral Scholar – University of Michigan
Biological Chemistry – Protein Chemistry
Ann Arbor, Michigan

1978 – Doctorate – University of Kansas medical Center.
Microbiology
Kansas City, Kansas

1971 – B.S. – Lewis & Clark College
Biology and Chemistry
Portland, Oregon

Honors and Awards
Sandy and Tom Trudell Research Award, Foundation Fighting Blindness, 2003
Steinbach Award, Ruth and Milton Steinbach, 2006 – 2009
Senior Investigator Award, Research to Prevent Blindness, 2007
Krzysztof Palczewski, Ph.D., Case Western Reserve University  
John H. Hord Professor and Chair – Department of Pharmacology  
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### Education

Postgraduate Studies - University of Gainesville  
Gainesville, Florida

Ph.D. - University of Wroclaw  
Biochemistry  
Wroclaw, Poland

M.S. - University of Wroclaw  
Organic Chemistry  
Wroclaw, Poland

### Honors and Awards

Roger H. Johnson Award for Macular Degeneration Research - 2012  
Alcon Research Institute Award for the Year - 2001  
Humboldt Research Award for U.S. Scientists - 2000  
Cogan Award - 1996  
Polish Academy of Science in 1978 and again in 1985

Timothy Kern, Ph.D., Case Western Reserve University  
Professor – Department of Medicine  
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### Education

1982 - Post-graduate - University of Wisconsin  
Ophthalmology  
Madison, Wisconsin

1980 - Doctorate - University of Wisconsin  
Pathology  
Madison, Michigan

1973 - B.S. - University of Wisconsin  
Biochemistry and Zoology  
Madison, Wisconsin

### Honors and Awards

Gold Fellow, Association for Research in Vision & Ophthalmology - 2012  
Research Career Scientist, Louis Stokes Cleveland DVA Medical Center, Cleveland, Ohio - 2011  
Fellow of Association for Research in Vision & Ophthalmology – 2009  
Distinguished Visiting Scholar in Vision Research, McGee Eye Institute, University of Oklahoma - 2005  
Honored Visiting Scholar, Peking Union Medical College, Beijing, China – 2006-2009
Conference Schedule

Morning

8:00 a.m. Registration/Breakfast/Poster Setup

8:30 a.m. Welcome

Robert Miller
Case Western Reserve University VP of Research

8:45 a.m. “Insulin and retinal vascular leakage in diabetic retinopathy”
Bela Anand-Apte
Cleveland Clinic

9:15 a.m. “Alpha-crystallins and retinal neuroprotection: a new look on diabetic retinopathy”
Patrice Fort
University of Michigan

9:45 a.m. “Light regulated eye development”
Sujata Rao
University of Cincinnati

10:15 a.m. Break

10:30 a.m. “Glial interactions in the retina and the formation of Muller glia-derived progenitors”
Andrew Fischer
Ohio State University

11:00 a.m. “Sphingolipid metabolism and the development of diabetic retinopathy”
Julia Busik
Michigan State University

11:30 a.m. Poster Presentations
Conference Schedule

12:30 p.m.  Lunch
Afternoon  Mini Symposium
1:30 p.m.  Keynote Address
“From bench to bedside in diabetic eye disease”
Jason Ehrlich
Genentech
2:30 p.m.  “Oxidative protein modifications as predictors of AMD”
John Crabb
Cleveland Clinic
3:00 p.m.  Break
3:15 p.m.  “Chemistry of vision and inherited retinal diseases”
Krzysztof Palczewski
Case Western Reserve University
3:45 p.m.  “Inflammatory basis of diabetic retinopathy”
Timothy Kern
Case Western Reserve University
4:15 p.m.  Concluding remarks
Timothy Kern
Case Western Reserve University

Reception in the Wolstein Lobby
Poster Presentations

Set up available at 8:00 a.m. in Wolstein lobby

Shadi Alikhani
Northeast Ohio Medical University
“Combined tarsal conjunctival graft with bi-lobed midline forehead flap for large medial canthal, nasal, and lid defects”

David A. Antonetti
University of Michigan
“Novel atypical Protein kinase C inhibitors prevent vascular endothelial growth factor-induced blood-retinal barrier dysfunction”

Mark Bolinger
University of Michigan
“Effect of Occludin S471 phosphorylation on TJ permeability”

Xing-Jun Fan
Case Western Reserve University
“Age-related conversion of intra- to intermolecular disulfide crystalline crosslinking in the human lens is mimicked by glutathione depletion in the LEGSKO mouse lens”

Hideo Kohno
Case Western Reserve University
“Sub retinal microglia/macrophages contribute to retinal degeneration caused by all-trans-retinal”

Piyush Kothary
University of Michigan
“Oxidative stress causes activation of ERK signaling pathway in cultured retinal pigment epithelial cell”

Xuwen Liu
University of Michigan
“Occludin Ser490 phosphorylation regulates endothelial cell growth and angiogenesis”

Akiko Maeda
Case Western Reserve University
“Autophagy protects the retina from light-induced degeneration”
Poster Presentations

Tadao Maeda
Case Western Reserve University
“Dysfunction of retinal cells by all-trans-retinal and its condensation product A2E”

Sonia Merritt
Case Western Reserve University
“Tunable release of mitomycin C for reduction of scar tissue post-trabeculectomy surgery”

Kenneth Mitton
Oakland University
“Focal ERG with Live Digital Imaging of the Mouse Eye”

Arivalagan Muthusamy
University of Michigan
“Molecular mechanisms of blood-retinal barrier breakdown in ischemia-reperfusion injury”

Rooban Nahomi
Case Western Reserve University
“High glucose and inflammatory cytokines down regulate Hsp27 in human retinal capillary endothelial cells: Implications for diabetic retinopathy”

Laurence Occelli
Michigan State University
“ERG characterization of the CRXRdy cat: a model for Leber congenital amaurosis”

Carla Ramos
University of Michigan
“Elucidation of aPKC’s mechanism in regulating retinal vascular permeability associated with diabetic retinopathy”

Osamu Sawada
Case Western Reserve University
“Bax activation in retinal cell death”

Marianna Bacellar Teodoro da Silva
Michigan State University
“Gβ3 plays a major role in retinal ON-bipolar cell signaling”
Poster Presentations

Scott Taylor
University of Michigan
“The bHLH transcription factor NeuroD is a non-cell autonomous regulator of cell cycle withdrawal and photoreceptor regeneration in the zebrafish retina”

Jennifer Thomas
Wayne State University
“Characterization of Shh function in zebrafish retinal regeneration”

Cibin Thoppil Raghavan
Case Western Reserve University
“UVA photolysis of kynurenines and lens pigments promotes oxidation of ascorbate and formation of AGEs in lens proteins”

Ryan Thummel
Wayne State University
“The role of Vps11 in retinal development and RPE maintenance”

Alexander Veenstra
Case Western Reserve University
“Neutrophil inhibitory factor inhibits vascular complications of diabetic retinopathy”

Horst von Recum
Case Western Reserve University
“Retinoid delivery through affinity-based polymers”

Naohide Yamamoto
Cleveland State University
“What role does peripheral vision play in learning spatial layouts?”

Gi Sang Yoon
Wayne State University
“Transcriptional regulation of corneal innate immunity”

Minzhong Yu,
Cole Eye Institute
“A role for complement activation in preventing retinal degeneration”
Attendees

Steven Abcouwer
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Irina Pikuleva  
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Donald Puro  
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Thank you for attending the 2012 Great Lakes Vision Research Conference at Case Western Reserve University