Scientific Programme

Monday, 10 September 2018

Session: Ocular Immunology
08:00 - 10:00
Hall 1A

IMM1, Cross-talk of innate immunity in the retina: Mononuclear phagocytes and RPE control retinal inflammation

Chairs:
Thomas Langmann, Köln, Germany
Florian Sennlaub, France

Microglia-RPE Interactions and Immunotherapies for Retinal Degenerations 08:00
Thomas Langmann, Köln, Germany

How AMD Genetic Risk Factors Affect RPE-mediated Mononuclear Phagocyte Elimination 08:24
Florian Sennlaub, France

NLRP3 Inflammasome as Therapeutic Target in Age-related Macular Degeneration 08:48
Tim Krohne, Bonn, Germany

Complement Regulation at the Retina-choroidal Interface 09:12
Heping Xu, Belfast, United Kingdom

The Role Of Akt2/IFNλ/LCN-2 Pathway in Neutrophil Regulation during Age-related Macular Degeneration (AMD) 09:36
Sayan Ghosh, Pittsburgh, Pennsylvania, United States

Session: RPE-Choroid
08:00 - 10:00
Hall 1B

RPE1, Non-VEGF mechanisms in angiogenesis

Chairs:
Mary Elizabeth Hartnett, United States

IQGAP1 Regulates VEGF-induced Choroidal Endothelial Cell Migration through Rac1 08:00
Mary Elizabeth Hartnett, United States

Negative Regulators of Angiogenesis and Exudative AMD 08:27
Nader Sheibani

Non-canonical Tyrosine Kinase Receptor Signaling Pathways 08:54
Michael E. Boulton

Endothelial-specific targeting for anti-angiogenesis: a role for the glyocalyx 09:21
Patricia A. D'Amore, Boston, United States
Scientific Programme

MicroRNA-145 Regulates Endothelial Cell Function and Pathologic Angiogenesis by Suppression of Tmod3 in a Mouse Model of Proliferative Retinopathy
Chi-Hsiu Liu, Boston, Massachusetts, United States

Session: Ocular Imaging & Psychophysics
08:00 - 10:00
Hall 2A

IMA1, High resolution retinal imaging technologies and imaging of inherited retinal degenerations

Chairs:
Joseph Carroll, United States

Measuring Human Cone Function with 1.6 MHz Adaptive Optics Optical Coherence Tomography
Ravi Jonnal, Sacramento, CA, United States

Assessing Retinal Structure in Patients with X-linked Cone Opsin Mutations Using Adaptive Optics Scanning Light Ophthalmoscopy
Emily Patterson, Milwaukee, Wisconsin, United States

OCT Angiography and Cone Photoreceptor Imaging in Geographic Atrophy
Jacque Duncan, San Francisco, California, United States

Understanding Retinal Directionality in Imaging and vision - Seeing beyond Waveguiding
Brian Vohnsen, Dublin, Ireland

Cone Photoreceptor Structure in RPE65-Associated Leber Congenital Amaurosis
Angelos Kalitzeos, London, United Kingdom

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
08:00 - 10:00
Hall 2B

OPT1, Emerging therapies for ocular malignancies

Chairs:
Sarah Coupland, Liverpool, United Kingdom

Genetics and Molecular Pathways in Conjunctival Melanoma
Alexandre Moulin, Lausanne, Switzerland

Emerging New Therapies in Ocular Melanoma
Sarah Coupland, Liverpool, United Kingdom

Emerging Insights on Ocular Adnexal Lymphoma
Timothy Sullivan, Australia

Elucidating the Role of Oncogenic Cysteinyl Leukotriene Receptor 2 in Uveal Melanoma Using CRISPR/Cas9 Genome Editing
Kayleigh Slater, Dublin, Ireland
Scientific Programme

Session: Epidemiology of Eye Disease & Global Eye Health
08:00 - 10:00  Meeting Room 3B

**EED1, The importance of metrics in global eye health and making this data ‘actionable’**

Chairs:
Rupert Bourne, United Kingdom

- **Rapid Assessment of Avoidable Blindness (RAAB) studies - their evolution and their contribution**
  Hans Limburg, Grootebroek, Netherlands  08:00

- **The Global Vision Database and what it tells us about vision impairment now and into the future**
  Rupert Bourne, United Kingdom  08:24

- **Novel technologies to expand diagnostic capacity in surveys**
  Pete Jones  08:48

- **Data driven visible eye health systems- the inclusion of innovative techniques to expand the diagnostic capacities of RAAB**
  Nigel Bolster  09:12

- **Making these data actionable - the view of the CEO of the International Agency for Prevention of Blindness**
  Peter Holland  09:36

Session: Cross-Discipline
08:00 - 10:00  Meeting Room 1A

**IND1, ER Stress and UPR in ocular health and disease**

Chairs:
Jonathan Lin, San Diego, United States

- **The Role of Cell Stress Responses in Retinal Degeneration**
  Michael Cheetham, London, United Kingdom  08:00

- **Integrated Stress Response, Protein Synthesis and New Therapeutic Strategies for Treatments of Retinal Degenerative Disorders**
  Marina Gorbatyuk, Birmingham, Alabama, United States  08:20

- **Stem Cell Modeling of ATF6 Cone Photoreceptor Diseases**
  Jonathan Lin, San Diego, United States  08:40

- **Consequences of Blood Retinal Barrier Breakdown**
  Timothy Lyons, Charleston, South Carolina, United States  09:00

- **A Unified Mechanism for Multiple Forms of Cone Photoreceptor Degeneration**
  Yingbin Fu, Houston, TX, United States  09:20

- **Implication of Various Oxidative Stress Pathways in the Phenotype of Prpf31-Mutant Mice**
  Abdallah Hamieh, Paris, France  09:40
Session: Cornea and Ocular Surface
08:00 - 10:00

COS1, Advances in biomaterial technology and cell based therapies for corneal regeneration

Chairs:
Mark Ahearne, Dublin, Ireland
Neil Lagali, Linköping, Sweden

Bioengineering the Corneal Stroma for Therapeutic Keratoplasty
Neil Lagali, Linköping, Sweden

08:00

Making Corneas from Corneas
Mark Ahearne, Dublin, Ireland

08:27

Initial Experience with Acellular Porcine Corneal APC Deep Anterior Lamellar Keratoplasty
Miltos Balidis, Thessaloniki, Greece

08:54

The Role of Substrate Curvature on Corneal Stromal Cell Behavior
Ricardo Gouveia, Newcastle, United Kingdom

09:21

Mesenchymal Stem Cells for Corneal Epithelial Regeneration: Source Dependent Variations and Status of Transdifferentiation
Sachin Shukla, Boston, United States

09:48

Session: Retinal Cell Biology
08:00 - 10:00

RCB1, Dynamic cellular processes in the photoreceptor inner / outer segment

Chairs:
Vadim Y. Arshavsky, United States
David S. Williams, United States

Mitochondrial Ca2+ and Photoreceptor Function
Susan Brockerhoff, United States

08:00

Photoreceptor Dysfunction Associated with Rhodopsin Mislocalization
Yoshikazu Imanishi, Cleveland, United States

08:24

New Insights into the Mechanism of Photoreceptor Disc Morphogenesis
Vadim Y. Arshavsky, United States

08:48

Opsin’s Route to the Cilium
Abhishek Chadha, Los Angeles, CA, United States

09:12

The Intrinsic Peripheral Membrane Protein Compartmentalization Code of Photoreceptor Neurons
Peter Calvert, Syracuse, NY, United States

09:36
Session: Glaucoma
08:00 - 10:00
Meeting Room 2B

GLA1, Schlemm’s canal and beyond, novel targets for glaucoma

Chairs:
William Dan Stamer, Durham, United States

- **Revisiting the Role of Fibronectin for Trabecular Aqueous Humor Outflow**
  Ernst R. Tamm, Regensburg, Germany
  08:00

- **Probing the Stiffness of Human Inner Wall Endothelium of the Schlemm’s Canal and its Substrate in-Situ**
  Amir Vahabikashi, Evanston, IL, United States
  08:20

- **The Mechanobiology of the Inner Wall, Where Flow Shapes Function**
  Darryl R. Overby, United States
  08:40

- **Role of Endothelial Caveolin-1 in the Conventional Outflow Pathway**
  Michael Elliott, United States
  09:00

- **Neuronal Control of Intraocular Pressure through Innervation of the Schlemm’s Canal**
  Krishnakumar Kizhatil, Bar Harbor, Maine, United States
  09:20

- **Structure and Function of the Porcine Distal Outflow Tract**
  Nils Loewen, Pittsburgh, United States
  09:40

Session: Retinal Cell Biology
08:00 - 10:00
Meeting Room 3A

RCB2, Epigenetic orchestra in diabetic retinopathy

- **Long Non-coding RNAs in Diabetic Retinopathy - New Kids on the Block**
  Subrata Chakrabarti, London, Canada
  08:00

- **MicroRNAs in diabetic retinopathy: modulators of oxidative stress and inflammation beyond gene expression**
  Manuela Bartoli, Augusta, Georgia, United States
  08:24

- **Developing a molecular signature for vascular complications in Diabetes**
  Anand Hardikar
  08:48

- **Epigenomic Profiling of Retinal Progenitor Cells Unveils Developmentally Regulated Reliance of Open Chromatin on the Transcription Factor Lhx2**
  Cristina Zibetti, Baltimore, MD, United States
  09:12

Opening Ceremony, Plenary Lecture
10:30 - 12:00
Hall 1A

Opening Ceremony & The Retina Research Foundation’s Paul Kayser International Award in Retina Research & Plenary Lecture
Scientific Programme

Introduction  
Michael Cheetham, London, United Kingdom  
10:30

Chemistry and Biology of Vision  
Krzysztof Palczewski  
10:40

Award Ceremony  
11:25

RPE-Choroid  
Session: RPE-Choroid  
13:00 - 15:00  
Hall 1A

RPE2, RPE-Choroid pathological immune processes: Molecules  
Chairs:  
Robert Mullins, United States  
13:00

The Membrane Attack Complex (MAC): A Smoking Gun in Age-related Macular Degeneration  
Robert Mullins, United States  
13:00

Aryl Hydrocarbon Receptor Activity Regulates RPE and Choroidal Cell Health  
Goldis Malek, United States  
13:27

The Role of Factor H and its Transcripts in AMD  
Simon Clark, United Kingdom  
13:54

Aberrant BMAL1 Dependent Claudin-5 Cycling Induces Geographic Atrophy  
Natalie Hudson, Dublin, Ireland  
14:21

Cornea and Ocular Surface  
Session: Cornea and Ocular Surface  
13:00 - 15:00  
Hall 1B

COS2, Corneal transplantation and immunomodulation  
Chairs:  
Thomas Ritter, Galway, Ireland  
13:00

The Taming of the Shrew? Modulation of the Immune Response in Penetrating Keratoplasty. From the Past to the Future  
Uwe Pleyer, Berlin, Germany  
13:00

Plasmacytoid dendritic cells mediate alloantigen-specific immune tolerance in corneal transplantation  
Pedram Hamrah, Boston, Massachusetts, United States  
13:27

Mesenchymal Stem Cell Therapy to Promote Corneal Allograft Survival - From Bench to Bedside  
Thomas Ritter, Galway, Ireland  
13:54

Gene therapy to modulate corneal graft survival  
Thomas A. Fuchsluger, Erlangen, Germany  
14:21
Session: Glaucoma
13:00 - 15:00
Hall 2A

GLA2, Neuroprotection and neuroregeneration for glaucoma treatment

Chairs:
Keith Martin
Jonathan Crowston

Gene Therapy for Neuroprotection in Glaucoma
Keith Martin

Muscle LIM Protein is expressed in the injured adult CNS and promotes Axon Regeneration
Dietmar Fischer, Germany

Neurorecovery in Glaucoma
Jonathan Crowston

AKT-dependent and Independent Pathways Mediate PTEN Deletion-induced CNS Axon Regeneration
Yang Hu, Palo Alto, California, United States

Treatment with P38 Inhibitor Birb 796 is Neuroprotective in Models of Glaucoma
Wendi Lambert, Nashville, TN, United States

Cholesterol Metabolism is Impaired in Glaucoma
Sanjoy K. Bhattacharya, Miami, United States

Session: Retinal Cell Biology
13:00 - 15:00
Hall 2B

RCB3, Cell fate specification in the retina: From development to regeneration

Chairs:
Michel Cayouette, Canada

Investigating Donor-host Photoreceptor Interactions
Valerie Wallace, Canada

Retinal Repair through Photoreceptor Transplantation
Robin Ali, London, United Kingdom

Comprehensive analysis of retinal development at the single cell level identifies novel regulators of temporal patterning and proliferative quiescence.
Seth Blackshaw, Baltimore, Maryland, United States
XXIII Biennial Meeting of the International Society for Eye Research,
September 9 - 13, 2018,
Belfast, Northern Ireland, UK

Scientific Programme

**Growth of Mammalian Retina by mTORC1-induced RPC Proliferation and Retinal Neurogenesis**
Jin Woo Kim, Daejeon, Korea, Republic of

**Impacts of Neurogenic Factors on Retinal Ganglion Cell Development in the Avian Retina and in Human ES Cell-derived Retinal Organoids**
Xian-Jie Yang, United States

Session: Cross-Discipline
13:00 - 15:00

**IND2, Lymphatics and Glymphatics in and around the eye**

**Chairs:**
Tailoi Chan-Ling, Sydney, Australia
Carol Toris, Cleveland, OH, United States
Paul Kaufman, Madison, United States

**The Ocular Glymphatic Clearance System**
Xiaowei Wang, Copenhagen, Denmark

**Near-Infrared Imaging of Lymphatic Function and Cerebrospinal Fluid Outflow**
Steven Proulx, Zurich, Switzerland

**Active Lymphatic Drainage from the Eye Measured by Noninvasive Photoacoustic Imaging of Near-infrared Nanoparticles**
Yeni Yucel, Canada

**Evidence for lymphatics and glymphatics in posterior eye and their draining lymph nodes**
Tailoi Chan-Ling, Sydney, Australia

**Determining Mechanisms of Aqueous Humor Drainage Using Mice**
Simon John, United States

Session: Cross-Discipline
13:00 - 15:00

**IND3, Dementia in the Eye**

**Chairs:**
Imre Lengyel, United Kingdom

**Neuropathological Hallmarks of Alzheimer’s Disease in Post Mortem AD Retinas**
Jurre den Haan

**Alzheimer’s Disease β-Amyloid (Aβ) Pathology in the Lens of the Eye: Pathway to Early Diagnosis and Effective Treatment**
Lee Goldstein
XXIII Biennial Meeting of the International Society for Eye Research, September 9 - 13, 2018, Belfast, Northern Ireland, UK

Scientific Programme

**Is the Retina a Reliable Window to Look into the Brain in Alzheimer's Disease? Lessons from an Animal Model**
António Francisco Ambrósio, Coimbra, Portugal

13:44

**Update on Ultrasensitive Methods to Detect Molecular Changes in Neurodegenerative Dementias**
Henrik Zetterberg

14:06

**Investigating Tau Pathology through the Eye: A Preclinical and Clinical Study of Frontotemporal Dementia**
Ian Harrison

14:28

Session: Retinal Cell Biology
13:00 - 15:00
Meeting Room 1B

**RCB4, Epigenetic, miRNA and transcriptional modulators of retinal disease**

**Chairs:**
Neena B. Haider, Boston, United States
Margaret DeAngelis, United States

- **Modulating the Normal and Degenerating Retina Through Transcriptional Regulation**
  Neena B. Haider, Boston, United States
  13:00

- **Elucidating AMD pathophysiology through allelic specific expression in donor eyes**
  Margaret DeAngelis, United States
  13:27

- **Comparative transcriptomic analyses of Muller glia reprogramming**
  John Ash, United States
  13:54

- **Using gene editing to obtain systems-level insights into AMD**
  Sudha Iyengar, Cleveland, United States
  14:21

- **Her9/HES4 Is a Notch-independent Regulator of Vertebrate Photoreceptor Differentiation**
  Ann Morris, Lexington, Kentucky, United States
  14:48

Session: Lens
13:00 - 15:00
Meeting Room 2A

**LEN1, Redox Biology of the Eye Lens**

**Chairs:**
Marc Kantorow, United States

- **Characterisation of a GSH Export Pathway in Human Lenses: Implications for the Lens in Maintaining Redox Balance in the Ocular Humors**
  Julie Lim, New Zealand
  13:00

- **Lens Epithelial Cells Adaptation and Transformation under Oxidative Stress**
  Xingjun Fan, Cleveland, OH, United States
  13:20
XXIII Biennial Meeting of the International Society for Eye Research, September 9 - 13, 2018, Belfast, Northern Ireland, UK

Scientific Programme

Hypoxia Regulation of Lens Structure and Function  
Lisa Brennan, United States  
13:40

TGFβ-induced Lens EMT Leading to Cataract Requires Nox4 Activity  
Shannon Das, Australia  
14:00

Sulforaphane Reactivates Cellular Antioxidant Defense  
Eri Kubo, Japan  
14:20

Peptide-induced Formation of Protein Aggregates and Amyloid Fibrils in Recombinant Human and Guinea Pig αA-crystallins: A Possible Role for Crystallin Disulfide-crosslinking  
Frank Giblin, United States  
14:40

Session: Epidemiology of Eye Disease & Global Eye Health  
13:00 - 15:00  
Meeting Room 2B

EED2, Global perspectives on AMD and diabetic retinopathy

Chairs:  
Tunde Peto, United Kingdom

Global Perspectives on AMD and Diabetic Retinopathy  
Tunde Peto, United Kingdom  
13:00

Dietary Patterns and Risk of Age Related Macular Degeneration  
Jayne Woodside, United Kingdom  
13:30

Obesity, metabolic syndrome and diabetic retinopathy: Beyond hyperglycemia  
Islam Mohamed, Elk Grove, United States  
14:00

Testing functional deficits in AMD and DR - what matters to the patient  
Ruth Hogg, United Kingdom  
14:30

Session: Cross-Discipline  
13:00 - 15:00  
Meeting Room 3A

IND4, Retinoids in development, maturation, and aging

Chairs:  
John M. Nickerson, Atlanta, Georgia, United States

Thyroid Hormone Regulates Long-wavelength Vision via Two Molecularly Distinct Mechanisms  
Joseph Corbo, St. Louis, United States  
13:00

Functional Role of RPE65 Palmitoylation  
T. Michael Redmond, Bethesda, United States  
13:35

The role of IRBP in eye size determination  
John Nickerson, Atlanta, United States  
14:10
Scientific Programme

Role of retbindin in retinal flavin homeostasis
Muayyad Al-Ubaidi, United States

Session: Retinal Cell Biology
15:30 - 17:30
Hall 1A

RCB5, Diabetic retinopathy - Where do we stand?

Chairs:
Renu Kowluru, United States

Dyslipidemia and diabetic retinopathy
Julia V. Busik, Michigan, United States

Molecular Mechanisms of Diabetic Retinopathy-Arginase as a Therapeutic Target
Ruth B. Caldwell, Augusta, GA, United States

DRGen Study: Novel Genetic Variants in Extreme and Advanced Phenotypes of Diabetic Retinopathy
Arup Das, New Mexico, United States

Neuronal Dysfunction in Diabetic Retinopathy
Machelle T. Pardue, Decatur, Georgia, United States

Rac1-Nox2 Signaling Axis in the Pathogenesis of Diabetic Retinopathy: Complexity of Simplicity
Anjan Kowluru, United States

A Diabetic Milieu Induces Premature Senescence in Retinal Endothelial Cells
Pietro Maria Bertelli, Belfast, Northern Ireland, United Kingdom

Session: RPE-Choroid
15:30 - 17:30
Hall 2A

RPE3, RPE and choroid: Stem cells for disease modeling and transplantation

Chairs:
Budd Tucker, United States

Generating and Regenerating Cone Photoreceptors
Michel Cayouette, Canada

Surgical strategies for RPE cell delivery in animal models
Boris Stanzel, Germany

Subretinal Implantation of a Bioengineered Embryonic Stem Cell-Derived Retinal Pigment Epithelium Monolayer in Dry Age Related Macular Degeneration
Dennis O. Clegg, Santa Barbara, California, United States
Scientific Programme

**Autologous iPSC Derived CECs for Evaluating Pathophysiology and Treatment of AMD**
Budd Tucker, United States

**Endothelial Colony Forming Cell Modulation of Choroidal Angiogenesis**
Stuart McKeown, Belfast, United Kingdom

Session: Cornea and Ocular Surface
15:30 - 17:30
Hall 2B

**COS3, Inflammation / Infection of the cornea and ocular surface**

Chairs:
Susmit Suvas, United States

- **Mast Cells: Beyond Allergic Eye Disease**
  Sunil Chauhan, Boston, United States
  15:30

- **It Gets Nerves to Control Ocular Surface Inflammation**
  Giulio Ferrari, Milan, Italy
  15:57

- **Sub-anticoagulant Dose Heparin Is a Potential Therapy for Inflammation and Ocular Surface Disease in Dry Eye and oGVHD**
  Sandeep Jain, Chicago, Illinois, United States
  16:24

- **Novel Approaches to Control Immunopathogenesis Associated with Herpes Stromal Keratitis (HSK)**
  Susmit Suvas, United States
  16:51

- **KLF4 and TGF-β Superfamily Crosstalk in Corneal Epithelial Homeostasis**
  Shivalingappa Kottur Swamynathan, Pittsburgh, PA, United States
  17:18

Session: Cross-Discipline
15:30 - 17:30
Meeting Room 3B

**IND5, Early development of the lens and retina**

Chairs:
Lena Gunhaga, Sweden
Stephen Wilson, London, United Kingdom

- **Eye Morphogenesis in the Blind Mexican cavefish**
  Sylvie Retaux, France
  15:30

- **Mechanisms Underlying Lens Transdifferentiation in Neural Retina Cells and Pituitary Precursors**
  Hisato Kondoh, Japan
  15:56

- **Specification of the Retina Pigment Epithelium and its Implication in Vertebrate Optic Cup Morphogenesis**
  Paolo Bovolenta, Spain
  16:22
Scientific Programme

Using zebrafish to provide genetic models of human congenital eye abnormalities
Stephen Wilson, London, United Kingdom

Temporal Requirement of Mab21l2 during Eye Development in Chick Reveals Stage Dependent Functions for Retinogenesis
Soufien Sghari, Umeå, Sweden

Session: Ophthalmic Genetics/Genomics
15:30 - 17:30
Meeting Room 1A

OGM1, Advances in genetics of childhood glaucoma

Chairs:
Francesca Pasutto

Angiopoietin Receptor TEK-associated Primary Congenital Glaucoma: Three New Variants and Expansion of the Phenotype
Terri Young, Madison, United States

ANGPT1 Variants Contribute to Early and Late-onset Glaucoma
Janey Wiggs, United States

Biallelic CPAMD8 Variants Associated with Congenital Glaucoma and Anterior Segment Dysgenesis
Emmanuelle Souzeau, Bedford Park, SA, Australia

Strain Dependent Differences Modulating Ocular Phenotypes in Lmx1b Mutant Mice
Nicholas Tolman, Bar Harbor, United States

Session: Glaucoma
15:30 - 17:30
Meeting Room 1B

GLA3, New drugs / Delivery systems for glaucoma

Chairs:
Najam Sharif, United States
Augusto Azuara-Blanco

Omidenepeg Isopropyl (DE-117): The Next Generation Drug to Treat Glaucoma
Najam Sharif, United States

Pros and Cons of Extraocular, Intracameral, Supraciliary and Intravitreal Sustained Release Drug Delivery Systems for Glaucoma Therapy
Uday Kompella, United States

The Discovery and SAR of Rhopressa, the First FDA-approved ROCK Inhibitor for the Treatment of Glaucoma, Containing the NCE Netarsudil
Mitchell deLong, Durham, North Carolina, United States
## Scientific Programme

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<th>Session</th>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tr>
<td></td>
<td>16:30</td>
<td>Hydrogen Sulfide-releasing Compounds: Potential Role in Glaucoma Pharmacotherapy</td>
<td>Sunny Ohia, Houston, United States</td>
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<td></td>
<td>16:50</td>
<td>Latanoprostene Bunod: A Nitric Oxide-donating Prostaglandin Analog with a Dual Mechanism of Action for Intraocular Pressure Lowering</td>
<td>Megan Cavet, Rochester, United States</td>
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<td>17:10</td>
<td>The Science Behind the Design and Material Comprising the InnFocus MicroShunt®</td>
<td>Leonard Pinchuk, Miami, United States</td>
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</tbody>
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### Session: Retinal Cell Biology
15:30 - 17:30
Meeting Room 2A

**RCB6, Animal models of cone health and disorder**

**Chairs:**
Ben Sajdak, United States

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<tr>
<th>Time</th>
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<tr>
<td>15:30</td>
<td>Cellular-scale two-Photon Excited Fluorescence Imaging of Retina in the Living Macaque</td>
<td>Jennifer Hunter, Rochester, New York, United States</td>
</tr>
<tr>
<td>15:57</td>
<td>Cone-rich Rodents as Useful Animal Models of Human Visual Physiology and Pathology</td>
<td>David Hicks, France</td>
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<tr>
<td>16:24</td>
<td>Assessing the Roles of Irbp and Irbp-like in the Zebrafish Eye</td>
<td>Ross Collery, United States</td>
</tr>
<tr>
<td>16:51</td>
<td>High Resolution Imaging and Correlative Histology in Cone-dominant Mammals</td>
<td>Ben Sajdak, United States</td>
</tr>
<tr>
<td>17:18</td>
<td>In vivo Electoretinographic Differentiation of Rod, Short-wavelength and Long/Medium-wavelength Cone Responses in Dogs Using Silent Substitution Stimuli</td>
<td>Freya Mowat, Raleigh, United States</td>
</tr>
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### Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30
Meeting Room 2B

**OPT2, Genetics and inflammation in ocular melanoma**

**Chairs:**
Emine Kilic, Rotterdamm, Netherlands
Martine Jager, Leiden, Netherlands

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<td>15:30</td>
<td>Update on the Genomics of Uveal Melanoma</td>
<td>Emine Kilic, Rotterdamm, Netherlands</td>
</tr>
<tr>
<td>15:57</td>
<td>Analyzing the Function of BAP1 in Uveal Melanoma</td>
<td>Joni Turunen, Finland</td>
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</table>
Scientific Programme

**The Immune Microenvironment in Ocular Melanoma**
Martine Jager, Leiden, Netherlands
16:24

**Toll-like Receptors, Melanocytes and Ocular Melanoma**
Michele Madigan, Sydney, Australia
16:51

**Arginase 1 Promotes Retinal Neurovascular Protection from Ischemia through Suppression of Macrophage Inflammatory Responses**
R. William Caldwell, Augusta, Georgia, United States
17:18

Session: Ocular Immunology
15:30 - 17:30
Meeting Room 3A

**IMM2, Microbiota & Eye diseases**

**Chairs:**
Lai Wei, China

**Gut Microbiota and the Gut-retina Axis Influence Pathological Choroidal Neovascularization**
Elisabeth Andriessen, Montreal, Canada
15:30

**Infectious Etiology of Age-related Macular Degeneration**
Lai Wei, China
15:57

**The Use of Predatory Prokaryotes to Control Human Ocular Pathogens**
Robert Shanks, Pittsburgh, PA, United States
16:09

Poster Session
17:30 - 19:00
Poster Area

**Cornea and Ocular Surface**

**The Association between Smartphone Addiction and Dry Eye Disease: A Cross Sectional Study**
Yara Alqahtani, Jeddah, Saudi Arabia

**Expression of IQGAP-1 in Pterygium Body and the Association with Clinical Grading**
Tzu-Ting Lai, New Taipei City, Taiwan, Province of China

**4D Tissue Engineering: Shaping the Corneal Stroma Using Localised, Time-dependant, Cell-mediated Contraction**
Martina Miotto, Newcastle upon Tyne, United Kingdom

**Gene Expression Analysis of Conjunctival Epithelium of Stevens-Johnson Syndrome Patients in the Chronic Stage**
Mayumi Ueta, Kyoto, Japan

**Mega-dose Dietary Riboflavin and Direct Sunlight UV Exposure in the Treatment of Keratoconus and Post-refractive Surgery Ectasia**
John Jarstad, Columbia, Missouri, United States

**Optimal Cryopreservation Conditions for Limbal Stem Cells**
Charlie Osei-Bempong, Newcastle Upon Tyne, Tyne and Wear, United Kingdom
Scientific Programme

**Cell Alive System (CAS) as a New Freezing Storage System for Donor Cornea**  
Tetsuya Kawakita, Tokyo, Japan

**A Nonlinear Viscoelastic Model of Corneal and Whole-eye Motion under Air-puff Loading by a Dynamic Scheimpflug Analyzer**  
B. Audrey Nguyen, Columbus, Ohio, United States

**Asymmetrical Endothelial Cell Migration from in vitro Quarter-DMEK Grafts**  
Alina Miron, Rotterdam, Zuid Holland, Netherlands

**Effect of Extraction Method and Location on in vitro Stromal Cell Behavior**  
Thomas Volatier, Gateshead, Tyne And Wear, United Kingdom

**A Mesenchymal Stem Cells Patch for Corneal Wound Healing**  
Olla Al-Jaibaji, Newcastle Upon Tyne, United Kingdom

Poster Session  
17:30 - 19:00

**Epidemiology of Eye Disease & Global Eye Health**

**Safety of Wearing Contact Lenses for Patients Using Selective Serotonin Reuptake Inhibitors (SSRIS)**  
Yi-Pei Liu, Taipei City, Taiwan, Province of China

**Acute Ophthalmoplegia in Herpes Zoster Ophthalmicus: Clinical Features and Radiographic Findings**  
Wenting Zhou, Singapore, singapore, Singapore

**Ocular Axial Length and its Associations in Russia: The Ural Eye and Medical Study**  
Gyulli Kazakbaeva, Ufa, Russian Federation

Poster Session  
17:30 - 19:00

**Glaucoma**

**Three Techniques to Adjust IOP Immediately Following Femtosecond Laser-Assisted (FLACS) & Micro Incision Cataract Surgery (MICS) to Avoid IOP Spikes (the #1 Post-Operative Complication in Cataract Surgery)**  
Jella Angela An, Columbia, Missouri, United States

**Targeting of CD44 by Hyaluronan Coated-nanoparticles in Outflow Tissues - A New Therapeutic Approach for Glaucoma**  
Franziska Froemel, Regensburg, Germany

**Early Deficits in Visual and Retinal Function in the Rat Microbead Model of Glaucoma**  
Bailey G. Hannon, Atlanta, Georgia(GA), United States

**The in vivo Effect of Netarsudil on Mouse Outflow Facility Using iPerfusion**  
Joseph M Sherwood, London, Other, United Kingdom
Genetic Suppression of Mechanosensitive Piezo Channel Reduces Intraocular Pressure by Promoting Aqueous Humor Outflow in Mice
Wei Zhu, Qingdao, China

Neuroprotection of Retinal Ganglion Cells with Metallothionein-2 in FLOREC Retinal Explants Culture
Marita Pietrucha-Dutczak, Katowice, Poland

Functional Analysis of MANF in Retinal Ganglion Cells by Oxidative Stress
Ji-Ae Ko, Hiroshima, Japan

Novel Low Molecular Weight Compound OBP-801 Ameliorates Detrimental Scar Formation Accompanied in Glaucoma Filtration Surgery
Yuji Yamamoto, Kyoto, Japan

Assessing Shear Stress in Schlemm’s Canal Using Shear Stress-Responsive Reporter Adenoviruses
Fiona McDonnell, Durham, NC, United States

Systemic Vascular Risk Factors for Multiple Retinal Nerve Fiber Layer Defects
Chan Kee Park, Seoul, Korea, Republic of

Analyzing the Role of Cav-1 in Mediating Acute IOP Induced Inner Retinal Deficits
Mojdeh Abbasi, Sydney, NSW, Australia

Endosomal Function and Glaucoma
Brian S. McKay, Tucson, Arizona, United States

Is Protein Acetylation Crucial for Retina Neuroprotection in Glaucoma?
Syed Zaidi, Charleston, SC, United States

The Activation of Endocannabinoid Signaling and Microglial Activity after Optic Nerve Injury
Margaret Luke, Halifax, Canada

The Apoptotic Machinery in the Retinal Ganglion Cells of Bax Heterozygous Animals is Deactivated Several Months After Optic Nerve Crush
Ryan Donahue, Madison, WI, United States

Hand-Held Spectral Domain Optical Coherence Tomography Measurements of Anterior Chamber Angle in Children with Congenital Glaucoma
Budor Edawaji, Leicester, United Kingdom

Lens

Cataracts Are a Non-cancerous Effect of Ionizing Radiation - A Lifetime Study in Mice
Claudia Dalke, Neuherberg / Munich, Germany

Post-transcriptional Control in the Lens: Function of the Cataract-linked RNA-binding Protein Celf1
Sandeep Aryal, Newark, Delaware, United States

Effects of PI3K and PTEN ON Lens Postnatal Growth and Homeostasis
Caterina Sellitto, Stony Brook, United States
Heparan Sulfate Proteoglycans in the Lens: The Role of Glycosaminoglycan Chain Sulfation in Epithelial Cell Mitogenesis
Tayler F.L. Wishart, Sydney, New South Wales, Australia

Ocular Imaging and Psychophysics

Investigating Retinal Biomarkers for Usher Syndrome in Preparation for Gene Therapy
Jasdeep Singh Gill, London, United Kingdom

Longitudinal Phenotyping of Non-syndromic Retinitis Pigmentosa Caused by Mutations in USH2A
Yun Lin Ang, London, United Kingdom

Imaging Dementia through the Eye
Lajos Csincsik, Belfast, Northern Ireland, United Kingdom

Intravitreal Anti-vascular Endothelial Growth Factor Therapies for Diabetic Macular Edema with Practical Protocol
Toshiyuki Oshitari, Chiba, Chiba, Japan

Evaluation of Intravitreal Anti-vascular Endothelial Growth Factor Injections on Renal Function in Patients with Diabetic Macular Oedema
Patrick Gallagher, Belfast, Northern Ireland, United Kingdom

Comparing Intravitreal (IVT) Pharmacokinetics of Selected Antiangiogenic Agents in Rabbits Using ESI-LC-MS/MS
Nabanita Halder, New Delhi, India

Tetramethylpyrazine Attenuates Intraocular Inflammation in Experimental Autoimmune Uveitis through Modulating Stat3 and Stat4 Pathways
Bo Lei, Chongqing, China

Efficacy of Nonsteroidal Anti-inflammatory Drugs (NSAIIDs) in Patients with Retinopathy: A Systematic Review and Meta-analysis
Muhammed Khaled Elfaituri, Tripoli, Libya

Metformin Improves Retinal Capillary Perfusion and Reserves Retinal Function in Diabetic Mice
Xiaoxi Qiao, Detroit, United States

Reassessment of Treatment Resistant Exudative AMD Diagnosis with Indocyanine Green Angiography Prior Switching Anti-VEGF Treatment to Aflibercept
Ali Demircan, Istanbul, Turkey

Real-life Evidence on Treatment Outcomes of Polypoidal Choroidal Vasculopathy in Turkey
Gokhan Demir, Istanbul, Turkey

The Evaluation of Topical SPL, a Novel Dendrimer Antiviral, against Adenovirus in NZW Rabbit Ocular Models
Eric Romanowski, Pittsburgh, Pennsylvania, United States
Scientific Programme

Comparation of an Intravitreal Dexamethasone Implant and Anti-VEGF Drugs in Treatment of Macular Edema: A Meta-analysis of Randomized Controlled Trials
Shuai Ming, Zhengzhou, Henan, China

Pentraxin 3 Enhances Myeloid Cell Phagocytic Function
Varun Pathak, Belfast, Antrim, United Kingdom

Targeting SRPK1 with Novel Potent and Selective Inhibitors Blocks Choroidal Neovascularisation through Modulating VEGF-A Alternative Splicing
Elizabeth Stewart, Nottingham, United Kingdom

Ocular Pharmacokinetics of Cyclosporine after Ocular Administration of OTX-101, a Novel Nanomicellar Formulation of Cyclosporine in New Zealand White Rabbits
Sidney L. Weiss, Delray Beach, FL, United States

Vasoreparative Cell Therapies for Ischaemic Retinopathies
Sarah Chambers, Belfast, United Kingdom

Mitochondrial Morphology Change and the Expression of Mitochondrial Fission/Fusion Genes in RPE Cells under Oxidative Stress
Xu Liu, Xi'an, Shaanxi, China

The Role of the LIM Homeodomain 2 (Lhx2) in Differentiation of the Mammalian Retinal-Pigmented Epithelium (RPE)
Ahuvit David, Tel Aviv, Israel

eNOS 4a/b Polymorphism Frequency in Jordanian Diabetic Retinopathy Patients
Diala Abu-Hassan, Amman, Jordan

Novel Frameshift Mutation in MAB21L2 in Two Patients with Bilateral Colobomata without Skeletal Malformation
Martin Wendlandt, Munich, Germany

Conditional Lack of Bcl-2 in Pericytes and Astrocytes Distinctly Impacts Retinal Vascularization
Christine Sorenson, Madison, Wisconsin, United States

A Novel Missense Mutation, G2284E, in the Zinc Finger Protein (ZNF469) Gene Contribute to the Pathogenesis of Korean Keratoconus Patients
Choun-Ki Joo, Korea, Republic of

Poster Session
17:30 - 19:00

Retinal Cell Biology

Decreased Uncoupling Protein 2 Expression in Aging Retinal Pigment Epithelial Cells
Xia Wang, Xi'an, Shaanxi, China

Protective Effects of Single or Combinations of Neuroprotective and Regenerative Agents against Degeneration of RGCs in Optic Nerve Crash Rat Model
Guzel Bikbova, Chiba, Japan

Correlation between Uncorrected Visual Acuity and Macular Distortion in Idiopathic Epiretinal Membrane Patients
Janghoon Lee, Seoul, Korea, Republic of
Scientific Programme

IL-1b in ROP and Choroidal Degeneration
Jose-Carlos Rivera, Montreal, Quebec, Canada

Endothelial-cell Specific Inactivation of TSPAN12 Reveals Pathological Consequences of Barrier Defects in an Otherwise Intact Vasculature
Harald J. Junge, Boulder, CO, United States

Stochastic Refractory Sampling Maximises Visual Information in a Limited Neural Channel
Zhuoyi Song, Sheffield, United Kingdom

Counteracting GCAP-dependent Activation of Retinal Guanylyl Cyclase (RetGC) by RD3 Protein is Essential for Preventing Photoreceptor Degeneration
Alexander Dizhoor, United States

Increased Levels of Lysyl Oxidase in the Vitreous Humor of Diabetic Patients with Advanced Diabetic Retinopathy
Manju Subramanian, Boston, Massachusetts, United States

COMP-Ang1 Stabilizes Hyperglycemic Disruption of Blood-retinal Barrier Phenotype in Human Retinal Microvascular Endothelial Cells
Keith David Rochfort, Dublin, Outside US, Ireland

RPE65 Gene Therapy Restores Melanopsin Function in a Mouse Model of Leber Congenital Amaurosis
Aisling Lynch, London, United Kingdom

A Novel Murine Model for Age-related Macular Degeneration Induced by Combined Chronic Exposure to Light and Hydroquinone
Zhang Jing, Beijing, China

Effect of a Traditional Chinese Medicine, BSYJ on Photoreceptor Apoptosis in RCS Rat with Inherited Retinal Degeneration
Liang Lina, Beijing, shijingshan, China

BACE1 Plays a Critical Role in Retinal Pigment Epithelial Cell Homeostasis
Sayak Mitter, Birrmingham, Alabama, United States

Activation of Sigma 1 Receptor (Sig1R) Regulates NRF2 in Cone Photoreceptor Cells
Sylvia Smith, Augusta, Georgia, United States

Spatial and Temporal Recruitment of Systemically Administered RPE65-programmed Bone Marrow-derived Cells to the Retina in a Mouse Model of AMD
Skyler Boehm, Birmingham, Alabama, United States

Subretinal Macrophages Produce Classical Complement Activator C1q Leading to the Progression of Focal Retinal Degeneration
Helen Jiao, Canberra, Australia

Rapid Aging XPG/- Mice Model Age-related Retinal Inflammation and Functional Deficits
Olivia E. O'Leary, Basel, Switzerland

RPE Tissue-specific Factor H Deletion Induces AMD-like Features
Katharina Lueck, London, United Kingdom, United Kingdom

Investigating the Transcriptome and Epigenome of Reprogrammed Zebrafish Retinal Müller Glia during Retinal Damage
Patrick Boyd, Notre Dame, United States
**Scientific Programme**

**Photoreceptor Outer Segment Phagosome Maturation in the Retinal Pigment Epithelium**  
Ankita Umapathy, Los Angeles, CA, United States

**Disruption of MicroRNA 204 Triggers Autophagy-related Retinal Degeneration**  
Congxiao Zhang, Bethesda, Maryland, United States

**Retinoic Acid and Insulin Play a Critical Role in the Regulation of the Blood-Retinal Barrier in Diabetes**  
Bela Anand-Apte, Cleveland, OH, United States

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**Poster Session**  
17:30 - 19:00

**RPE Choroid**

**Eplerenone in Treatment of Chronic Non-resolving Central Serous Chorioretinopathy without Active Choroidal Neovascularization**  
Gleb Arslanov, Saint Petersburg, Russian Federation
Scientific Programme

Tuesday, 11 September 2018

Session: Ocular Immunology
08:00 - 10:00
Hall 1A

IMM3, Inflammation in age-related macular degeneration

Chairs: Matthew Campbell, Dublin, Ireland

- **Signalling from the Toll/IL-1 Receptor (TIR) Domain Family in Retinal Degeneration**
  Sarah Doyle, Ireland

- **Inflammasome in RPE and AMD**
  Nikolaos Efthatiou, Boston, Massachusetts, United States

- **Nucleoside Analogs Prevent RPE Degeneration due to Multiple AMD Stimuli**
  Bradley Gelfand, United States

Session: Retinal Cell Biology
08:00 - 10:00
Hall 1B

RCB7, Retinal organoids: Developing disease models and transplantation

Chairs: Magdalene Seiler, United States

- **Retinal Regeneration Therapy Using iPSC Derived Retina**
  Michiko Mandai, Japan

- **Deconstructing Retinal Organoids: To Assess the Heterogeneity, Maturity and Transplantation Potential of hESC-derived Photoreceptors**
  Joseph Collin, Newcastle upon Tyne, United Kingdom

- **Using Patient-derived Human Induced Pluripotent Stem Cells to Model Inherited Retinal Disease**
  Erin Burnight, Iowa City, United States

- **Modeling Retinal Ganglion Cell Development and Disease with Human Pluripotent Stem Cells**
  Jason Meyer, Indiana, United States

- **Understanding Why PAX6 Gene Mutations Cause Poor Vision from Birth**
  Lisa Maria Hentschel, London, United Kingdom
Scientific Programme

Session: Glaucoma
08:00 - 10:00

GLA4, Inner Plexiform Layer

Chairs:
James Morgan, Cardiff, United Kingdom

- **Mayhem in the IPL? Retinal ganglion cell degeneration in experimental glaucoma and mitochondrial neuropathy**
  James Morgan, Cardiff, United Kingdom 08:00

- **Müller Cell Changes during Disturbed Energy Metabolism**
  Miriam Kolko, Glostrup, Denmark 08:30

- **Retinal ganglion cell degeneration in human glaucoma**
  James R Tribble, Stockholm, Sweden 09:00

Session: Cornea and Ocular Surface
08:00 - 10:00

COS4, Advances in corneal crosslinking

Chairs:
James V. Jester, California, United States
David Paik, New York City, United States

- **Corneal Cross-linking Solutions: A Better Way to Strengthen the Cornea for Keratoconus?**
  David Paik, New York City, United States 08:00

- **Advances in the Use of Genipin in Corneal Crosslinking**
  Marcel Y Avila, Bogota DC, Colombia 08:22

- **Use of Ultrafast Lasers for Enhancement of Corneal Biomechanics towards Treating Corneal Ectasias and Refractive Error Correction**
  Sinisa Vukelic, New York City, United States 08:44

- **Non Linear Corneal Collagen Cross Linking (NLO CXL)**
  James V. Jester, California, United States 09:06

- **In vitro Effectiveness of Photodynamic Antimicrobial Chemotherapy with TONS504 for Eradication of Acanthamoeba**
  Taiichiro Chikama, Hiroshima, Japan 09:28

  **Discussion**
  09:50

Session: Ocular Imaging & Psychophysics
08:00 - 10:00

IMA2, Imaging and understanding retinal blood flow and vasculature disease

Chairs:
Stephen Burns, United States
Scientific Programme

Quantifying Retinal Microvasculature with AOSLO vs. OCTA 08:00
Ann Elsner, United States

Alterations in Retinal Oxygen Delivery, Metabolism and Extraction Fraction due to Ischemia 08:26
Mahnaz Shahidi, Los Angeles, United States

Insights Into the Retinal Vasculature from OCT Angiography in Normal Eyes and in Diabetic Retinopathy 08:52
Amani Fawzi, Chicago, Illinois, United States

Static and Dynamic Changes of Retinal Microvasculature in Multiple Sclerosis 09:18
Sarah Houston, London, England, United Kingdom

In vivo Imaging of Retinal Neovascularization Using Self-quenched ICG-based Imaging Agents 09:39
Derrick Feenstra, Basel, Switzerland

Session: RPE-Choroid
08:00 - 10:00 Meeting Room 1A

RPE4, RPE organelles

Chairs:
Aparna Lakkaraju, San Francisco, United States

The Importance of Phagosome Content and Motility for Avoiding RPE Indigestion 08:00
David S. Williams, United States

RPE Exosomes in Health and Disease 08:27
Catherine Bowes Rickman, United States

LC3 dependent degradative processes in RPE lipid homeostasis. 08:54
Kathleen Boesze-Battaglia, Philadelphia, United States

A Common Pathway Regulates Endosome Biogenesis and Exosome Secretion in the RPE 09:21
Aparna Lakkaraju, San Francisco, United States

Innate/Inflammatory Cross Talk Between Macrophages (Mps) and RPE Cells Are Mediated by Exosomes Secreted by RPE Cells: Proposal of New Trait for the Pathogenesis of Age-related Macular Degeneration (AMD) 09:48
Rei Murakami, Kyoto, Kyoto, Japan

Session: Ocular Immunology
08:00 - 10:00 Meeting Room 1B

IMM4, Novel topics in immune homeostasis and ocular surface inflammatory disease

Chairs:
Daniel Saban, United States
Scientific Programme

Immune Mediated Conjunctival Scarring: Current Understanding of the Aldehyde Dehydrogenase/Retinoic Acid Autocrine and Paracrine Regulation of Fibrosis
John K. Dart, London, United Kingdom

Altered B Cell Homeostasis in Chronic Graft versus Host Disease
Stefanie Sarantopoulos, North Carolina, United States

An Ocular Surface Commensal as a Possible Pathobiont in Autoinflammatory Disease
Anthony St. Leger, Pittsburgh, Pennsylvania, United States

No Gain, No Pain: A Potential Role of Melanopsin in Corneal Trigeminal Neurons
Anna Matynia, Los Angeles, California, United States

Linking Immunity and the Etiology of Meibomian Gland Dysfunction
Daniel Saban, United States

Involvement of IQGAP-1 in Human Corneal Epithelial Cell Tight Junction Control and Wound Healing
Elizabeth P. Shen, New Taipei City, Taiwan, Province of China

Session: Cross-Discipline
08:00 - 10:00
Meeting Room 2A

IND6, Proteinopathy in AMD: protein misfolding, clearance and putative therapy targets
Chairs:
Kai Kaarniranta, Kuopio, Finland

Cystatin C in the Regulation of Proteostasis in RPE Cells
Luminita Paraoan, Liverpool, United Kingdom

Loss of Cryba1 in RPE Cells Affects the Phosphorylation Profile of Proteins Involved in the Calcium Signaling Pathway
Debasish Sinha, Pittsburgh, PA, United States

Age-related Retinal Changes in NRF-2 and PGC-1α Deficient Mice
Kai Kaarniranta, Kuopio, Finland

Protective Mechanisms and Therapeutic Potential of αB Crystallin-derived Chaperone Peptides in AMD
Ram Kannan, Los Angeles, United States

Mammalian Target of Rapamycin as a Potential Target of Neovascular Age-related Macular Degeneration: A Evidence in Laser-induced CNV Mouse Model
Tae Kwan Park, Korea, Republic of

Empty Slot
Scientific Programme

Session: Lens
08:00 - 10:00
Meeting Room 3A

LEN2, Models for lens fibrosis and PCO

Chairs:
Melinda Duncan, United States

- Using a Mouse Model to Discover How Events Occurring in the Eye Immediately after Cataract Surgery Elicit PCO
  Melinda Duncan, United States
  08:00

- The Human Capsular Bag Model of Posterior Capsule Opacification
  Michael Wormstone, United Kingdom
  08:22

- Investigating Pro-regenerative and Pro-fibrotic Processes in an Ex Vivo Mock Cataract Surgery Model
  Janice Walker, Philadelphia, United States
  08:44

- Application of the Canine Lens to Further the Understanding of Posterior Capsule Opacification
  Heather Chandler, United States
  09:06

- Regulation of TGFß-mediated Pathways Leading to Lens Epithelial to Mesenchymal Transition: Mammalian Models for Understanding Fibrotic Cataract Pathology
  Frank Lovicu, Australia
  09:28

- Morphological Comparison of in vivo and in vitro Developed Posterior Capsule Opacification in Human Donor Eyes
  Justin Christopher D’Antin, Barcelona, Spain
  09:50

Opening Ceremony, Plenary Lecture
10:30 - 11:45
Hall 1A

The Ernst H. Barany Prize & Plenary Lecture

- Introduction
  William Stell
  10:30

- Complement-Activation and Age-Related Macular Degeneration: Mechanisms, Treatments and Diagnostics
  Bàrbel Rohrer, Charleston, South Carolina, United States
  10:40

- Award Ceremony
  11:25

Business Meeting
11:45 - 12:15
Meeting Room 3B

ISER General Business Meeting (members only)
A new dawn in disease diagnosis – harnessing the power of artificial intelligence

Artificial Intelligence (AI) is the new face to diagnosis in medicine. Companies large and small are embracing this technology to assist clinicians in disease diagnosis as an efficiency gain in time, accuracy and people resource. To realize fully these goals for the technology, it is important to define the parameter space so that expectations are realistic because every diagnosis concerns an individual person and not a number.

Refreshments will be provided courtesy of Durham University and the Academic Health Science Network for North East and North Cumbria.

Sponsor: Intogral Limited Durham UK (http://intogral.com)

Chairs:
Roy Quinlan, United Kingdom
Boguslaw Obara, Durham, United Kingdom

Problems with diagnosis – consistent phenotyping of major eye diseases and impact on large-scale clinical trials
Tunde Peto, United Kingdom

Macular Hole and Edema Segmentation with 3D Image-to-Image Networks
Boguslaw Obara, Durham, United Kingdom

AI and diabetic eye disease – what is needed to turn potential into reality
Tunde Peto, United Kingdom

Improved care of the patient with age-related macular degeneration (AMD) using big data, machine learning
Andrew Lotery, Southampton, United Kingdom

RPE5, Photoreceptor-RPE interface

Revisiting Recessive Stargardt Disease Pathogenesis
Roxana Radu, United States

Understanding the Dynamics of Subretinal Space in Health and Disease
Karina Guziewicz, United States

The Circadian Regulation of RPE Functions
Kenkichi Baba, United States

RPE Contributions to Photoreceptor Outer Segment Renewal
Silvia Finnemann, United States
Scientific Programme

βA3/A1-crystallin is a Potential Regulator of Receptor Tyrosine Kinases (RTKs) Endocytosis and Maintain the Polarity of RPE Cells
Peng Shang, Pittsburgh, PA, United States

Session: Ocular Immunology
13:00 - 15:00
Hall 1B

IMM5, Inflammation in diabetic retinopathy; From microglia to macular edema
Chairs:
Przemyslaw (Mike) Sapieha, Montreal, Canada

**HMGB1 as an Inflammatory Mediator in Diabetic Retinopathy**
Elia Duh, Baltimore, Maryland, United States

**Harnessing Activation of the “Innate Repair Receptor” (IRR) to Prevent Inflammatory Pathology in Diabetic Retina**
Alan Stitt, Belfast, United Kingdom

**Conditional Endothelial Expression of Pro-barrier Occludin Mutant Preserves Visual Function in Diabetes**
David Antonetti, United States

**Novel Insights into the Role of VEGF and NRP1 in Ocular Neoangiogenesis**
Alessandro Fantin, London, United Kingdom

**Characterization of Monocyte Derived Macrophages in Diabetic Retinopathy**
Guillaume Blot, Paris, France

Session: Cross-Discipline
13:00 - 15:00
Hall 2A

IND7, Circadian clock in the retina modulates retinal development, function, and neuronal viability
Chairs:
Gianluca Tosini, Atlanta, United States

**The Circadian Clock Modulates Photoreceptor Functioning and Viability during Aging**
Gianluca Tosini, Atlanta, United States

**Multiple Effects of Retinal BMAL1 Disruption: Structure and Function during Development and Aging**
P. Michael Iuvone, Atlanta, Georgia, United States

**Melatonin is a key player in the circadian physiology of the retina**
Virginie Laurent-Gyde, Strasbourg, France

**An Opposing Role for Neuronal and Endothelial Bmal1 in Retinal Vascular Growth, Remodeling, and Homeostasis**
Sujata Rao, Cleveland, Ohio, United States
Scientific Programme

**Differential Roles for Cryptochromes in the Mammalian Retinal Clock**
Stuart Peirson, Oxford, United Kingdom

Session: Ophthalmic Genetics/Genomics
13:00 - 15:00
Hall 2B

OGM2, Beyond the genome: Functional genomics in genetic eye disease

Chairs:
Elfride De Baere, Belgium

- **The Non-coding Morbid Genome of Inherited Retinal Diseases**
  Elfride De Baere, Belgium
- **Frequent Variants in the Japanese Population Determine Quasi-Mendelian Inheritance of Rare Retinal Ciliopathy**
  Carlo Rivolta, Switzerland
- **Identification of Pseudo-exons due to Deep-intronic ABCA4 Variants in Stargardt Disease Using Midigenes and Patient-derived Photoreceptor Progenitor Cells**
  Frans Cremers, Netherlands
- **Comprehensive Characterization of Cis-regulatory Elements in Human Retina**
  Timothy Cherry, United States
- **Dissection of Cis-regulatory Elements of PITX2**
  Elena Semina, Milwaukee, United States
- **Detection of Novel Alternative Splicing Events in Retinal Microvascular Endothelial Cells Using Single Cell RNA Sequencing**
  Mark Watson, Belfast, Antrim, United Kingdom

Session: Glaucoma
13:00 - 15:00
Meeting Room 3B

GLA5, Novel technologies for exploring the glaucomatous eye

Chairs:
Andrew Tatham

- **The Role of OCT Angiography in Glaucoma**
  Andrew Tatham
- **OCT and Glaucoma Diagnosis**
  Augusto Azuara-Blanco
- **Optimising the Perimetric Detection and Monitoring of Glaucoma with Two- and Three-dimensionally Scaled Stimuli**
  Padraig Mulholland
- **Biomarkers or Endpoints in Glaucoma**
  M Francesca Cordeiro, London, United Kingdom
Scientific Programme

The Waist of the Nerve Fiber Layer at the Optic Nerve Head (PIMD-2Pi), a Potential Morphometric Estimate of Glaucoma Progress
Per G. Söderberg, Uppsala, Sweden

14:28

Session: Retinal Cell Biology
13:00 - 15:00
Meeting Room 1A

RCB8, Modeling of retinal circulation and metabolism

Chairs:
Robert A. Linsenmeier, Evanston, United States

13:00
Mathematical Models of Retinal Circulation and Metabolism
Robert A. Linsenmeier, Evanston, United States

13:22
Retinal Capillary Oximetry by Visible Light Optical Coherence Tomography
Robert A. Linsenmeier, Evanston, United States

13:34
Computational Investigation of Mass Transfer between the Choriocapillaris and the Outer Retina
Moussa A. Zouache, Salt Lake City, United States

13:56
Predicting Spatial Patterns of Retinal Degeneration in Retinitis Pigmentosa using Mathematical Models
Paul Roberts, Birmingham, United Kingdom

14:16
Retinal Vascular Wall Thickness in Hypotensive Subjects, the Naive Vascular State: Data and Theoretical Model
Thomas Gast, United States

14:38
Statistical Assessment of Blood Vessel Activity as a Surrogate of in vivo Retinal Vascular Function
Joan M. Nunez do Rio, London, United Kingdom

Session: Retinal Cell Biology
13:00 - 15:00
Meeting Room 1B

RCB9, Signal transduction and congenital diseases of photoreceptors

Chairs:
Alexander Dizhoor, United States

13:00
Dysregulation of Second Messenger Homeostasis and Congenital Retinal Dystrophies: The Variety of GUCA1A Mutations in Photoreceptors
Daniele Dell’Orco, Verona, VR, Italy

13:27
Retinal Guanylyl Cyclase RetGC1 and its Regulatory Proteins in Congenital Eye Diseases
Igor Peshenko, United States

13:54
Retinal Dysfunction of Second Messenger Homeostasis in Photoreceptor Cells Caused by Mutations in Guanylate Cyclase GC-E
Karl-Wilhelm Koch, Oldenburg, Germany
**Scientific Programme**

**Pre-clinical Development of an AAV Based Gene Therapy for the Treatment of Retinal Disease Due to Recessive Mutations in GUCY2D**
Sanford Boye, FL, United States

**Photoreceptor Degeneration Driven by Ca2+-dependent Enzymatic Activity**
Michael J. Power, Tübingen, Baden-Würtemberg, Germany

**Session: Lens**
13:00 - 15:00
Meeting Room 2A

**LEN3, Architecture & ultrastructure of the lens**

**Chairs:**
Roy Quinlan, United Kingdom

**Introduction**
Roy Quinlan, United Kingdom

**Ankyrin-B and Ankyrin-G Play Distinct and Crucial Roles in Lens Morphogenesis, Cytoarchitecture and Function**
Vasantha Rao, Durham, North Carolina, United States

**Fine Tuning of Ocular FGF Activity Regulates Differentiation and Collective Movement of Lens Fibre Cells**
Yuki Sugiyama, Okinawa, Japan

**The Epithelial Template for Coordinated Growth of the Eye Lens**
Alexia Kalligeraki, United Kingdom

**Caspases Processing of BFSP1 Produces C-terminal Fragments Containing Lipid Binding Domains**
Miguel Jarrin, Durham, United Kingdom

**Discussion**

**Session: Epidemiology of Eye Disease & Global Eye Health**
13:00 - 15:00
Meeting Room 2B

**EED3, Seeing to learn and work: Understanding and reducing the burden of uncorrected refractive error on adults and children**

**Chairs:**
Nathan Congdon, Ireland

**Strategies to Prevent Children’s Myopia**
Ian Morgan, Australia

**The Impact of refractive correction on productivity and education**

**Effect of Providing Near Glasses on Productivity Among Presbyopic Rural Indian Tea Workers: The PROSPER (PROductivity Study of Presbyopia Elimination in Rural-dwellers) Randomised Controlled Trial**
Nathan Congdon, Ireland
Models of spectacle delivery for children in China
Matthew Boswell

Session: Cornea and Ocular Surface
13:00 - 15:00
Meeting Room 3A

COS5, Keratoconus: Biology and management

Chairs:
Vishal Jhanji, United States
Arkasubhra Ghosh, Bangalore, India

Surgical Management of Keratoconus
Sheraz Daya, United Kingdom
13:00

Molecular Marker for Keratoconus
Calvin C. P. Pang, Hong Kong, China
13:33

Understanding the immune and inflammation pathways in Keratoconus
Arkasubhra Ghosh, Bangalore, India
14:06

The Effect of Medium Composition and Substrate Curvature on the Behavior of Keratoconus-derived Corneal Stromal Cells
Anna Song, Newcastle upon Tyne, United Kingdom
14:39

Session: RPE-Choroid
15:30 - 17:30
Hall 1A

RPE6, Bruch’s membrane

Chairs:
Christine Curcio, Birmingham, AL, United States

BLamD, BLinD, BrM - What’s the Difference, and Why it Matters for AMD
Christine Curcio, Birmingham, AL, United States
15:30

Calcification of Bruch’s Membrane in ABCC6 Knock-out Mice and Other Models for Pseudoxanthoma Elasticum (PXE) and AMD
Arthur A. Bergen, Netherlands
15:54

The Role of EFEMP1 Gene in Malattia Leventinese, AMD, and beyond
Lihua Marmorstein, Rochester, Minnesota, United States
16:18

Late-onset Retinal Degeneration: Molecular Mechanisms and Phenotypic Consequences of C1QTNF5 Mutations
Astra Dinculescu, United States
16:42

Considerations in Studying Transport across Bruch’s Membrane
Mark Johnson, United States
17:06
**Scientific Programme**

Session: Cross-Discipline  
15:30 - 17:30  
Hall 1B

**IND8, Molecular regulation of ocular morphogenesis**

**Chairs:**  
Sabine Fuhrmann, United States

- **Roles for Notch Signaling during Early Eye Morphogenesis**  
  Nadean Brown, United States  
  15:30

- **The Epithelial Cell Behaviors that Drive Lens Placode Invagination**  
  Tim Plageman, Ohio, United States  
  15:54

- **Extrinsic Regulation of Retinal Pigment Epithelium and Optic Cup Morphogenesis**  
  Sarah McFarlane, Calgary, Canada  
  16:18

- **Analysis of Transcriptomic Change during Periocular Neural Crest Cell Differentiation into Corneal Cells**  
  Peter Lwigale, Houston, Texas, United States  
  16:42

- **The Rho GTPase Cdc42 is Required for Filopodia Formation during Closure of the Optic Fissure**  
  Sabine Fuhrmann, United States  
  17:06

Session: Glaucoma  
15:30 - 17:30  
Hall 2A

**GLA6, Metabolic dysfunction/ bioenergetics in glaucoma**

**Chairs:**  
Patrick Yu-Wai-Man, United Kingdom  
Colm O’Brien, Dublin, Ireland

- **Targeting Neuronal Mitochondria for Neuroprotection in Glaucoma**  
  Pete Williams, Stockholm, Sweden  
  15:30

- **Mitochondrial Efficiency: The Holy Grail of Glaucoma Resistance?**  
  Gerassimos Lascaratos, United Kingdom  
  15:52

- **Lamina Cribrosa Cell Bioenergetics in Glaucoma**  
  Colm O’Brien, Dublin, Ireland  
  16:14

- **Axonal Metabolic Rescue in Glaucoma**  
  Denise Inman  
  16:36

- **Metabolomics in Mitochondrial Optic Neuropathies**  
  Patrick Yu-Wai-Man, United Kingdom  
  16:58

- **The Hypoxic Microenvironment: How it Influences LOXL1 Expression in Pseudoexfoliation Glaucoma**  
  Alison Greene, Dublin, Ireland  
  17:20
Scientific Programme

Session: Ocular Immunology
15:30 - 17:30
Hall 2B

IMM6, Advances in the diagnosis and management of uveitis

Chairs:
Conor Murphy, Dublin, Ireland

Non Systemic Therapy in Sight Threatening Uveitis
Dara Kilmartin
15:30

Improving Clinical Outcomes in Acute Anterior Uveitis-associated Spondyloarthritis
Conor Murphy, Dublin, Ireland
16:02

MicroRNA Therapeutics for the Treatment of Autoimmune Uveitis
Stephane Heymans, Maastricht, Netherlands
16:34

Non-tuberculous Mycobacterial Endophthalmitis Complicated by ESRD
17:06

Interleukin 35 and IL-12p35 Suppressed Uveitis and Encephalomyelitis in Mice by Inducing the Expansion of IL-10-producing and/or IL-35-producing Breg and Treg Cells
Charles E. Egwuagu, Bethesda, United States
17:18

Session: Ophthalmic Genetics/Genomics
15:30 - 17:30
Meeting Room 3B

OGM3, Genes, cell death and glaucoma

Chairs:
Rob Nickells, United States

Maintenance and Regeneration of Retinal Ganglion Cell Dendrites after Axonal Injury
Adriana Di Polo, Canada
15:30

JNK Dependent MAPK Signaling Has Multiple Roles in Axon Injury Induced Retinal Ganglion Cell Death
Richard Libby, Rochester, United States
15:52

Exploring the Pathological Contribution of HDAC3 in the Death of Retinal Ganglion Cells
Rob Nickells, United States
16:14

Retina Circuit Disassembly and Connectivity in Glaucoma
Yvonne Ou
16:36

Responses to Axotomy-induced Retinal Ganglion Cell (RGC) Death in Adult Rodents
Manuel Vidal-Sanz, Spain
16:58

Efficient Simultaneous Mapping of Many Retinal Ganglion Cell Center-Surround Receptive Fields
John B Troy, Evanston, Illinois, United States
17:20
Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30
Meeting Room 1A

OPT3, New candidate drugs and targets for angiogenesis

Chairs:
Tim Corson, United States
Alison Reynolds, Dublin, United Kingdom

Semaphorins as Angiogenic Modulators in the Retina 15:30
Andreas Stahl, Freiburg, Germany

Soluble Epoxide Hydrolase as a Target for Anti-angiogenic Therapies 15:52
Tim Corson, United States

Opticin and its Potential as an Anti-angiogenic Therapeutic for Pre-retinal Neovascularization 16:14
Paul N. Bishop, Manchester, United Kingdom

Phenotype-based Discovery and Development of Small Molecules as Retinal Therapeutics 16:36
Alison Reynolds, Dublin, United Kingdom

Drug Development of Topical Therapeutics for Retinal Neovascular Diseases 16:58
David Bates, Nottingham, United Kingdom

Selectively Targeting VEGFR2 Trafficking in Endothelial Cells Prevents Wet AMD 17:20
Kaori Yamada, Chicago, IL, United States

Session: Retinal Cell Biology
15:30 - 17:30
Meeting Room 1B

RCB10, Molecular mechanisms of rhodopsin signaling

Chairs:
Vsevolod Gurevich, United States

Molecular Mechanism of G protein Binding to Rhodopsin 15:30
Oliver Ernst, Toronto, Canada

Role of structural dynamics in retinal binding and release to rhodopsin 16:00
David Farrens, Portland, United States

Molecular Mechanism of Arrestin-1 Binding to Rhodopsin 16:30
Vsevolod Gurevich, United States

Efficiency of Rod Transduction Activation by a Single Opsin Molecule 17:00
Vladimir Kefalov
XXIII Biennial Meeting of the International Society for Eye Research, September 9 - 13, 2018, Belfast, Northern Ireland, UK

Scientific Programme

Session: Lens  
15:30 - 17:30  
Meeting Room 2A

LEN4, Lens differentiation, regeneration and cataract treatment

Chairs:
David Li

Mouse Lens Lacking SUMO1 Is Prone to Stress-induced Apoptosis through Activation of both Extrinsic and Intrinsic Death Pathways  
David Li  
15:30

The cAMP Responsible Element Binding Protein (CREB) Regulates Lens Differentiation through Control of Various Sets of Downstream Genes  
Wang Ling, Guangzhou, China  
15:54

Modulation of ERK1/2 in Lens by Spreds  
Fatima Wazin, Sydney, NSW, Australia  
16:18

Tropomyosin 3.1 is a Target to Prevent Lens Epithelial-to-Mesenchymal Transition during Cataract Formation  
Justin Parreno, La Jolla, CA, United States  
16:30

Role of Thiol Antioxidants in Prevention and Treatment of Cataract  
Nuran Ercal, United States  
16:42

Investigating the Initial Molecular Mechanisms of Human Cataract Formation Using Light-focusing Micro-lenses Derived from Pluripotent Stem Cells  
Michael O'Connor, Australia  
17:06

Session: Epidemiology of Eye Disease & Global Eye Health  
15:30 - 17:30  
Meeting Room 2B

EED4, Glaucoma: Approaches to the most common cause of irreversible blindness in areas of limited resources

Chairs:
Tony Realini, Morgantown, United States

Alex Silverstein  
15:30

Barriers to Glaucoma Care in Low Resource Areas  
Olusola Olawoye, Ibadan, Nigeria  
15:55

Managing Glaucoma in Low Resource Areas: Role of Selective Laser Trabeculoplasty  
William Eric Sponsel  
16:20

The African Glaucoma Consortium - A Model for Regional Problem-solving  
Tony Realini, Morgantown, United States  
16:45

Discussion  
17:10
Session: Cornea and Ocular Surface  
15:30 - 17:30  
Meeting Room 3A

COS6, Genetics of keratoconus

Chairs:  
Colin Willoughby

**Genetic and Functional studies of Keratoconus**  
Shukti Chakravarti, New York, United States  
15:30

**Genetic Investigation of Causes and Mechanisms behind Keratoconus: an Update**  
Pirro Hysi, London, United Kingdom  
16:00

**New Advances in Genetics of Syndromic and Non-syndromic Keratoconus**  
Yelena Bykhovskaya  
16:30

**The Integrated Stress Response in Keratoconus**  
James Foster, Baltimore, Maryland, United States  
17:00

Poster Session  
17:30 - 19:00  
Poster Area

Cornea and Ocular Surface

**Nucleic Acid Stimulation Increases Barrier Function in Immortalized Corneal and Conjunctival Epithelium via Toll-like Receptor 3**  
YURIKO BAN, Nantan, Japan  

**Evaluation of the Suitability of Biocompatible Carriers as Artificial Transplants Using Cultured Porcine Corneal Endothelial Cells**  
Alina Miron, Rotterdam, Zuid Holland, Netherlands  

**Integral Analysis of Cytokines and miRNAs in the Aqueous Humor of Bullous Keratopathy Patients to Develop Prognostic Biomarkers**  
Morio Ueno, Kyoto, Japan  

**Topical TRPM8 Antagonist AMTB Reduces the Activity of Cold Thermosensitive Trigeminal Neurons Innervating the Ocular Surface**  
Ariadna Diaz-Tahoces, San Juan de Alicante, Spain  

**Wnt/β-catenin Signaling Pathway Promotes Self-renewal and Stemness of Conjunctival Stem Cell**  
Chang Rae Rho, Daejeon, Korea, Republic of  

**Influence of Material Stiffness on a Corneal Epithelial Cell Line**  
Sophia Masterton, Dublin, Dublin, Ireland  

**Effects of Y-27632, a ROCK Inhibitor on Human Corneal Endothelial Cells Cultured by Isolating Human Corneal Endothelial Progenitor Cells**  
Ji Won Jung, Incheon, Jung-gu, Korea, Republic of  

**Laminin N Terminus α31 Distribution and Influence on Matrix Organisation Indicates a Role Controlling the Maturation of Corneal Epithelium after Wounding**  
Lee Troughton, Liverpool, England, United Kingdom
Scientific Programme

Deep Anterior Lamellar Keratoplasty with Xenograft. First Clinical Results
Miltos Balidis, Thessaloniki, Greece

Epithelial Repair and Re-innervation after Corneal Alkali Burn
M. Carmen Martinez-Garcia, Valladolid, Valladolid/Castilla y León, Spain

Corneal Cold Thermoreceptors Activity Decreases with Age
Juana Gallar, Spain

Poster Session
17:30 - 19:00
Poster Area

Epidemiology of Eye Disease & Global Eye Health

Accuracy of Diabetic Retinopathy Screening in Final-year Medical Students
Saksakul Engchuan, Phuket, Not applicable, Thailand

Comparison between Amblyopia Treatment with Glasses only and Combination of Glasses and Open-type Binocular “Occlu-pad” Device: A Randomized Clinical Trial
Yo Iwata, Sagamihara, Japan

Consultations in Ouesso, Extreme North, Congo: Incidence of Reversible and Irreversible Blindness -2017
André Mampouya Diandomba, Brazzaville, Congo

Prevalence of Pterygium and its Associations in Russia. The Ural Eye and Medical Study
Renat Kazakbaev, Ufa, Russian Federation

Glaucoma

Aqueous Humour Outflow Involves Metabolic Activity
Ester Reina-Torres, London, United Kingdom

Downregulation of tight junctions in Schlemm’s Canal endothelia decreases intraocular pressure and increases outflow facility in murine models of ocular hypertension
Ruth A Kelly, Dublin, Ireland

An Assessment of Inflammatory Response after Retrobulbar Injection of Genipin
Richard Kijoon Kim, Atlanta, GA, United States

AP-2β Expression Is Required in the Periocular Mesenchyme for Normal Development of the Trabecular Meshwork
Judith West-Mays, Canada

Glaucoma Risk Gene Tmco1 Binds to RNA in the Nucleolus and Affects Trabecular Meshwork Cell Viability
Shiwani Sharma, Australia
Scientific Programme

Mohammad Uddin, Sydney, NSW, Australia

Comparison of Pattern Electroretinograms of Glaucoma Patients with Initial Parafoveal Scotoma versus Initial Peripheral Nasal Step
Da Young Shin, Seoul, Korea, Republic of

Preliminary Study of the Effect of Prostaglanin Analogs on Corneal Biomechanics and IOP Measurement Error with Goldmann Applanation Tonometry
Cynthia J Roberts, Columbus, United States

Visual Evoked Potentials Detect Functional Correlates of Demyelination, Remyelination and Axon Loss in Feline Models of Common Optic Neuropathies
Gillian J. McLellan, Madison, Wisconsin, United States

The Role of Schlemm’s Canal Endothelium Cellular Connections in Giant Vacuole and Pore Formation: A 3D Electron Microscopy Study
Haiyan Gong, Boston, Massachusetts, United States

TGFβ2 Regulates the Expression of ECM and Associated Proteins by Modulating miRNA Expression in Human ONH Cells
Navita Lopez, Fort Worth, United States

Poster Session
17:30 - 19:00

Lens

An Unstable Relationship: Dimerization of Human γS-crystallin Leads to Non-cooperative Unfolding and the Formation of an Aggregation-prone Intermediate Associated with Cataract
David Cameron Thorn, Canberra, ACT, Australia

Effect of Intracameral Dexamethasone Injection at Conclusion of Cataract Surgery on Macular Thickness in Diabetics
Ahmed Hussien, Alexandria, Egypt

An Approach to Understanding Lens Epithelium Homeostasis – The Effect of Low Dose Ionising Radiation on Proliferation, Cell Density and Cellular Organisation
Alice Uwineza, Durham, Durham, United Kingdom

Development of Intraocular Delivery System for Controlled Release of Therapeutic Agents Used in the Treatment of PCO
Veronica Hidalgo-Alvarez, Norwich, Norfolk, United Kingdom

Comparison of Contact Lens Hygiene Compliance and Self-management Behaviors between Medical and Non-medical Students in Saudi Arabia
Shehana Alqahtani, Riyadh, Saudi Arabia

AKT Actively Regulates Epithelial-Mesenchymal Transition (EMT) of Human Lens Epithelial Cells through EZH2-H3K27me3 Axis
Jiawen Xiang, Changsha, China
Scientific Programme

Ocular Imaging and Psychophysics

- **Quantifying the Ellipsoid Zone Loss in Childhood-onset Stargardt Disease**
  Michalis Georgiou, London, United Kingdom

- **Reversible Cone Photoreceptor Dysfunction in Mice Lacking the Antioxidant Enzyme Methionine Sulfide Reductase A.**
  Francesca Mazzoni, Bronx, New York, NY, United States

- **Citrusline Protects Human Retinal Pigment Epithelium Cells against Oxidative Stress**
  Nathalie Jacquierot, Clermont-Ferrand, France

- **Pragmatism of Randomised Clinical Trials on Ranibizumab for the Treatment of Diabetic Macular Oedema: Impact on Clinical Outcomes**
  Stephen Stewart, Belfast, -- select one --, United Kingdom

- **Therapeutic Effect of Mesenchymal Stromal Cells in the Cornea in a GVHD Murine Model**
  Almudena Velasco, Salamanca, Salamanca, Spain

- **Intravenous Treatment of Choroidal Neovascularization by Photo-targeted Nanoparticles**
  Yanfei Wang, Boston, United States

- **Identification and Analysis of Retinal Ganglion Cell Promoters**
  Sophia Millington-Ward, Dublin, Ireland

- **Safety of a new Biodegradable Poly(ɛ-caprolactone) Implant to the Retina of Wistar Rats**
  Raquel Boia, Coimbra, Portugal

- **Delayed Treatment with AAV2.COMP-Ang1, a Potent, Bioengineered Angiopoietin-1 Replacement Therapy, Prevents Proliferative Vascular Changes Associated with Progression of Diabetic Retinopathy**
  Lara Carroll, Salt Lake City, Utah, United States

- **Three Year Real World Outcomes of Fluocinolone Acetonide Implant in Patients with DMO Considered Insufficiently Responsive to Prior Therapies**
  Claire Tomkinson, Manchester, United Kingdom

- **Use of SRPK1 Inhibitors in Diabetic Retinopathy**
  Naseeb Malhi, Nottingham, United Kingdom

- **The Efficacy of Intravitreal Anti-VEGF Injection for the CNV Occurring at the Margin of Posterior Staphyloma**
  Kook Lee, Seoul, Korea, Republic of

- **Efficacy of Allergic Immunotherapy on Vernal Keratoconjunctivitis**
  Kin Lun Lau, Newcastle upon Tyne, United Kingdom

Ophthalmic Genetics/Genomics

- **The Role of Genomic Analyses in Pathogen Identification in Keratitis**
  Michael Glenn, Belfast, United Kingdom
Lens Fiber Cell Morphogenesis and Genetic Modifiers in Cataractogenesis of Gja3 Knockout Mice
Chun-Hong Xia, Berkeley, United States

Prevalence of Age-related Macular Degeneration Associated Genetic Risk Factors and 4-year Progression Data in the Irish Population
Emma Connolly, Dublin, Ireland

YAP1 Mediates Notch Induction of Epithelial-mesenchymal Transition (EMT) in RPE
Qingxian Lu, Louisville, Kentucky, United States

Leucine-rich Repeats of PXDN Is Essential for Lens Development
Longhao Kuang, Shenzhen, Guangdong, China

Retinal Cell Biology

Is Rod-derived Cone Viability Factor an Allosteric Regulator of the Glucose Transporter GLUT1?
Alexandra Saint Charles, Paris, France

Regulating Placental Growth Factor (PLGF) Bioactivity in the Outer Retina as a New Therapeutic Approach to Age-related Macular Degeneration
Fiona Cunningham, Belfast, United Kingdom

CRB2 Is Involved in the Apicobasal Polarization of RPE Cells by Participating in Tight Junction Maintenance and Cell Cycle Arrest
Alicia Segurado, Salamanca, Spain

Glycogen Synthase Kinase 3 Restricts the Genesis of Displaced Ganglion Cells during Retinal Development
Jerome Roger, Orsay, France

Investigating a Role for SARM in Retinal Degeneration - Characterization of the Rhodopsin/SARM Double Knockout Mouse
Ema Ozaki, Dublin, Outside of U.S., Ireland

Is the Retina a Reliable Mirror of Alzheimer's Disease Brain? Screening of Molecular and Cellular Parameters
Ana Catarina Rodrigues Neves, Coimbra, Portugal

Diabetes-induced Visual Dysfunction in Rats Is due to a Combination of Inner Retina Thinning and Outer Retina Swelling
Alistair J. Barber, Hershey, United States

The Sodium Iodate (NAIO3) Model of Degeneration: Deciphering the Oxidative Stress Regulatory Mechanisms in the Retina and RPE
Vera Bonilha, United States

CNG Channel Inhibition as a Treatment Option for Rod Degeneration in Retinitis Pigmentosa
Soumyaparna Das, Tuebingen, Germany
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<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
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<td>Multiomics Study of Primary Human Foetal Retinal Pigment Epithelial Cells: Effects of Zinc Supplementation</td>
<td>Eszter Emri, Belfast, United Kingdom</td>
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<td>Gap Junctions Formed By Connexin 43 in Astrocytes Contribute to Neuronal Damage after Ischemia-reperfusion Injury</td>
<td>Miduturu Srinivas, New York, United States</td>
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<td>Impact of α-adducin Deletion on the Retinal Structure and Function</td>
<td>Elisa Julião Campos, Coimbra, Portugal</td>
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<td>Retinal Ganglion Cells Are Protected through Hypothermia Treatment in a Porcine Retina Organ Culture Model</td>
<td>Jose Hurst, Tübingen, Baden-Württemberg, Germany</td>
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<td>Novel Function of β-catenin in Regulation of RPE Adhesion Junctions</td>
<td>Quutang Li, Louisville, Kentucky, United States</td>
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<td>Insulin Activates the PI3K/Akt/GSK3 Pathway in Culture Rat Retinal Pigment Epithelium</td>
<td>Rocío Salceda, Mexico, D.F., Cd. Mex., Mexico</td>
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<td>Pre-transplantation Analysis of Retinal Organoids Using Dual-wavelength Excitation of Metabolic Markers</td>
<td>Magdalene Seiler, United States</td>
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<td>Peptides Derived from PEDF Prevent Apoptosis and Promote Apical Localization of Rhodopsin in Retina Photoreceptors</td>
<td>German Michelis, Bethesda, Maryland, United States</td>
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<td>A Lipidic Phloroglucinol Derivative Against Carbonyl and Oxidative Stress Involved in Macular Dystrophy</td>
<td>Philippe Brabet, Montpellier, France</td>
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<td>Global Gene Expression Analysis of Zebrafish Eye with Digenic eys+/-; Irp5+/- Retinitis Pigmentosa-candidate Mutations</td>
<td>Shimpei Takita, Suita, Japan</td>
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<td>Distribution of Pregnancy Zone Protein in the human eye - implications for type two diabetes mellitus</td>
<td>Lasse Hansen Olesen, Aarhus C, Denmark</td>
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<td>Immunogold Electron Microscopy Reveals Re-localization of Gap Junctions in Retinal Pigment Epithelium during Phagocytosis</td>
<td>Viivi Jokinen, Tampere, Finland</td>
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<td>The Effect of Substrate Composition on Retinal Ganglion Cell Neurite Growth</td>
<td>Karl Erich Kador, Kansas City, MO, United States</td>
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<td>tLearning The Hard Way: Role of Vascular Stiffening in Early Diabetic Retinopathy and AMD</td>
<td>Kaustabh Ghosh, Riverside, United States</td>
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<td>Retinal mTORC Expression and Protein Synthesis</td>
<td>Thomas Gardner, Ann Arbor, Michigan, United States</td>
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<td>High Serum Iron Levels Can Promote Retinal Degeneration</td>
<td>Joshua Dunaief, Philadelphia, PA, United States</td>
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**Scientific Programme**

**The Vasoreparative Potential of Endothelial Colony-forming Cells in the Ischemic Retina Is Enhanced by a Non-hematopoietic Erythropoietin Mimetic**
Paul Canning, Belfast, United Kingdom

**An Usher Syndrome Type IIA Knockin Model Exhibits Late-onset Retinitis Pigmentosa**
Muna Naash, Houston, TX, United States

**Flavin Homeostasis in the Mouse Retina during Aging and Degeneration**
Muayyad Al-Ubaidi, United States

**Functional Roles of the Fragile X Syndrome-related Gene in the Retina**
Taro Chaya, Suita, Japan

**Insights into RAB28-associated Retinal Degeneration from C. elegans and Zebrafish**
Stephen Carter, Dublin, Ireland

**Sustained Intraocular VEGF Neutralisation Does Not Induce Vascular Degeneration in a Mouse Model of Type 1 Diabetes**
Judith Lechner, Belfast, United Kingdom

**The Effect of Donor and Recipient Age on the Recruitment of Systemically Administered RPE65-programmed Bone Marrow-derived Cells to the Retina and Visual Function Outcomes in a Mouse Model of AMD**
Juliete Silva, Birmingham, Alabama, United States

**The trafficking of HCN1 channels in photoreceptors**
Sheila Baker, Iowa City, Iowa, United States

**Hybrid Phagosome Degradation Pathways Are Required for Lipid Homeostasis**
Brent Bell, Philadelphia, PA, United States

**Ablation of the Rod Specific Protein Retbindin Impairs the Metabolic Homeostasis of the Retina Leading to Progressive Degeneration of Both Rods and Cones**
Tirthankar Sinha, Houston, Texas, United States

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**Poster Session**

Poster Area

17:30 - 19:00

**RPE Choroid**

**Compromised Heterophagy, Autophagy and Reduced Metabolic Efficiency in Retinal Pigment Epithelium (RPE) Contribute to Age-related Retinal Degeneration During “Physiological Ageing”**
Saeed Shahhossein-Dastjerdi, Sydney, Australia
Scientific Programme

Wednesday, 12 September 2018

Session: RPE-Choroid
08:00 - 10:00

RPE7, Emerging concepts in metabolic coupling in the outer retina and relationship to disease

Chairs:
Kathleen Boesze-Battaglia, United States
Nancy J. Philp, United States

Retina, RPE and Metabolic Symbiosis
James Hurley
08:00

New Insights in the Nucleoredoxin-like 1 Metabolic and Redox Signaling
Thierry Leveillard, France
08:27

Cell-specific genetic deletion of Slc2a1 and Bsg provide model systems for understanding metabolic coupling in the outer retina as driven by substrate availability
Nancy J. Philp, United States
08:54

Role of Aerobic Glycolysis in Photoreceptors
Claudio Punzo, United States
09:21

A Key Element of the Directionality of the Metabolic Flux between Rod and Cone Photoreceptors
Géraldine Millet-Puel, Paris, France
09:48

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
08:00 - 10:00

OPT4, Cell-based therapeutics for eye disease

Chairs:
Marius Ader, Germany
Boris Stanzel, Germany

Creating Efficient hPSC-RPE Transplants - Can We Predict the in vivo Functionality in vitro?
Tanja Ilmarinen, Finland
08:00

Successful Subretinal Transplantation of Clinically Compatible Polarized RPE Cell Sheets Derived from Human Pluripotent Stem Cells in Rodents and Primates
Olivier Goureau, France
08:20

Autologous Cell Therapy for Macular Degeneration: From Proof of Concept to a Clinical Trial
Juan Amaral, United States
08:40
Scientific Programme

**Rescue of vision by photoreceptor cell transplantation involves multiple cellular mechanisms**
Rachel Pearson, United Kingdom

**Overexpression of β-Secretase 1 (BACE1) by AAV-mediated Gene Delivery Provides Protection in a Mouse Model of AMD**
Xiaoping Qi, Birmingham, Alabama, United States

**Implementing the Patient Perspective in Your Research**
Melissa Jones, Dublin, Ireland

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Session: Glaucoma
08:00 - 10:00
Hall 2A

**GLA7, Glaucoma genetics**

**Chairs:**
Janey Wiggs, United States

**A Cumulative Genetic Risk Score Is Associated with Younger Age of Diagnosis in Primary Open Angle Glaucoma**
Jessica Cooke Bailey

**Genomic locus modulating corneal thickness in the mouse identifies POU6F2, a potential risk of developing glaucoma**
Eldon Geisert, Atlanta, GA, United States

**Mitochondrial Genetics and Primary Open Angle Glaucoma**
Colin E. Willoughby, Coleraine, Northern Ireland, United Kingdom

**Quantitative Traits and GWAS Unravelling the Genetics of Primary Open Angle Glaucoma**
Kathryn Burdon, Australia

**Increased Retinal APBB2 and β-amyloid in Eyes with an APBB2 Risk Allele Associated with POAG**
Carly J. van der Heide, Iowa City, IA, United States

**Genome-wide Transcriptome Profiling of Human Trabecular Meshwork Cells Treated with TGFβ2 Identifies Enrichment of the RhoA Signalling Pathway**
Karen Lester, Liverpool, United Kingdom

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Session: Epidemiology of Eye Disease & Global Eye Health
08:00 - 10:00
Hall 2B

**EED5, Big data & image analysis**

**Chairs:**
Pearse Keane, United Kingdom
Ton Coolen

**Reading Centres and Telemedicine in Ophthalmology**
Konstantinos Balaskas, United Kingdom
Scientific Programme

Medical Image Processing and Analysis - An Overview  08:24
Tariq Aslam, Manchester, United Kingdom

Teleophthalmology - a platform to facilitate collaborative eye care  08:48
Dawn Sim, United Kingdom

Artificial Intelligence in Ophthalmology - The Moorfields-DeepMind Collaboration  09:12
Pearse Keane, United Kingdom

Implementation of Virtual Clinics for Medical Retina Patients in a Tertiary Eye Care Referral Centre  09:36
Karsten Kortuem, Munich, Germany

Session: Ocular Immunology
08:00 - 10:00  Meeting Room 3B

IMM7, Interleukin 1beta and the AMD eye: Effects and treatment strategies

Chairs:
Joanne A. Matsubara, Canada

Microglia-derived IL-1β Contributes to the Progression of Retinal Degenerations  08:00
Nilisha Fernando, Canberra, Australia

Humoral Immunity in AMD: Predictive Value and Possible Role in Disease Progression  08:27
Chuan-Hui Kuo, Vancouver, Canada

Allosteric Modulation of IL-1R: Selectivity and Efficacy in Retinopathy  08:54
Sylvain Chemtob, Montreal, QC, Canada

Subretinal Mononuclear Phagocyte-derived IL-1β Induces Rod Loss and Cone Segment Degeneration  09:21
Xavier Guillonneau, France

Inflammasome Activation by Experimental DNA Damage in Retinal Pigment Epithelium Cells  09:48
Anu Kauppinen, Finland

Session: Lens
08:00 - 10:00  Meeting Room 1A

LEN5, Target identification and management of PCO

Chairs:
Michael Wormstone, United Kingdom

Open Bag IOLs and VEGFR Inhibition in the Management of PCO  08:00
Julie Eldred, United Kingdom

Resveratrol Inhibits Fibrotic Events Associated with PCO  08:22
Andrew Smith, United Kingdom
Scientific Programme

Pharmacological PCO Prophylaxis - Using the IOL as a Drug Delivery Device
Christian Wertheimer, Munich, Germany

Fabrication of Implantable IOLs Using 3D Printing Technology
Aram Saeed, United Kingdom

The Role of αVβ8-integrin in Posterior Capsular Opacification (PCO) Pathogenesis
Mahbubul Shihan, Newark, Delaware, United States

EGF Potentiates TGF-beta-Induced Epithelial-mesenchymal Transition in Lens by Enhancing EGF Receptor Signaling
Daisy Shu, Camperdown, NSW, Australia

Session: Retinal Cell Biology
08:00 - 10:00

RCB11, Transient receptor potential signaling in the eye

Chairs:
David Krizaj, United States

TRPM1 and TRPM3: Drug and Autoimmune Targets in the Retina
Catherine Morgans, United States

TRPV2 and Diabetic Retinopathy
Peter Barabas, Belfast, United Kingdom

Vanilloid TRP Channels Regulate Neuroglial Signaling in the Mammalian Retina
David Krizaj, United States

Organization of the TRPM1 “Signalosome” at the First Visual Synapse
Kirill Martemyanov, United States

In vitro Modulation of Retinal TRPV4 - Implications for Neuronal Survival and Neuroinflammation
Linnea Taylor, Sweden

Session: Ocular Imaging & Psychophysics
08:00 - 10:00

IMA3, Vision science with Virtual Reality

Chairs:
Jenny Read, United Kingdom
Andrew Glennerster, United Kingdom
Scientific Programme

How Immersive Technologies Will Improve the Health and Education of a City
Mark Mon-Williams, United Kingdom
08:00

Distance Perception in VR
Paul Hibbard, United Kingdom
08:30

Simulating the Optics of the Human Eye with Ray-tracing
Trisha Lian, United Kingdom
09:00

Using VR to Study 3D Space Perception
Andrew Glennerster, United Kingdom
09:30

Session: Cornea and Ocular Surface
08:00 - 10:00
Meeting Room 3A

COS7, Alternative approaches to corneal epithelial wound healing

Chairs:
Mitchell Watsky, Augusta, United States
May Griffith, Montreal, Canada

Modulation of Healing of Corneal Epithelium Debridement via Interaction of Lumican and TGFβ Receptor 1 (Alk5)
Winston Kao, Cincinnati, Ohio, United States
08:00

Evaluation of a Novel FKBPL-derived Peptide in the Treatment of Corneal Neovascularisation
Gideon Obasanmi, Coleraine, United Kingdom
08:20

Transcriptomic Analysis of Expanded Limbal Epithelium Reveals Enrichment for Wound Healing Genes
Finbarr O'Sullivan, Ireland
08:40

Vitamin D Influences on Corneal Epithelial Wound Healing
Mitchell Watsky, Augusta, United States
09:00

Corneal Epithelial Regeneration after Biosynthetic Corneal Implantation
May Griffith, Montreal, Canada
09:20

An Improved Treatment Strategy for Acute Ocular Disease Using Dry-preserved Human Amnion
Andrew Hopkinson, Nottingham, United Kingdom
09:40

Opening Ceremony, Plenary Lecture
10:30 - 11:45
Hall 1A

The Endre A. Balazs Prize & Plenary Lecture

Introduction
Yeni Yucel, Canada
10:30

Deconstructing Aqueous Humor Outflow - The Last 50 Years
Paul Kaufman, Madison, United States
10:40
Scientific Programme

**Award Ceremony**  
11:25

Session: Ocular Immunology  
13:00 - 15:00  
Hall 1A

**IMM8, Immune responses in diabetic retinopathy: Molecules in disease progression**

**Chairs:**  
Masaru Takeuchi, Japan  
Ahmed M. Abu El-Asrar

- **Innate Immune Dysregulation and Diabetic Retinopathy**  
  Mei Chen, Belfast, Yes, United Kingdom  
  13:00

- **Pro-inflammatory role of 12/15-Lipoxygenase-derived Eicosanoids in Diabetic Retinopathy**  
  Mohamed Al-Shabrawey, Augusta, United States  
  13:22

- **Chemokines in Diabetic Retinopathy: The Good, the Bad and the Ugly**  
  Sofie Struyf, Leuven, Belgium  
  13:44

- **Osteoprotegerin is a Novel Biomarker of Proliferative Diabetic Retinopathy**  
  Ahmed M. Abu El-Asrar  
  14:06

- **Involvement of Helper T Cell Immunity Balance in Diabetic Retinopathy**  
  Manzo Taguchi, Japan  
  14:28

- **VEGF-B Protects Muller Cells under Hypoxic and Oxidative Conditions**  
  Maria Llorian-Salvador, Belfast, United Kingdom  
  14:50

Session: Ophthalmic Genetics/Genomics  
13:00 - 15:00  
Hall 1B

**OGM4, AMD genetics and cell biology**

**Chairs:**  
Andrew Lotery, Southampton, United Kingdom

- **An iPSC Patient Specific Model of CFH (Y402H) Polymorphism Displays Characteristic Features of AMD**  
  Majlinda Lako, Newcastle, United Kingdom  
  13:00

- **The Impact of Systemic Inflammation on the Retina: Implications for Age-related Macular Degeneration**  
  Jessica Teeling, Southampton, United Kingdom  
  13:27

- **Molecular Genetics of Age Related Macular Degeneration**  
  Andrew Lotery, Southampton, United Kingdom  
  13:54

- **Complement Gene Expression and its Modulation in Human Retinal Pigment Epithelium**  
  Selina McHarg, Manchester, United Kingdom  
  14:21
Scientific Programme

Genome-wide DNA Methylation Study in Dry Age-related Macular Degeneration: Novel Candidate Loci Identified and Validated 14:48
Louise Frances Porter, Liverpool, United Kingdom

Session: Lens 13:00 - 15:00 Hall 2A
LEN6, Channels and transporters in lens transparency

Chairs:
Kulandaiappan Varadaraj, United States

AQP0 C-terminal End Truncation Is Critical for Establishing the Refractive Index Gradient in the Lens to Prevent Spherical Aberration 13:00
Kulandaiappan Varadaraj, United States

Lens Channels Regulate Intracellular Hydrostatic Pressure 13:24
Thomas White, Stony Brook, United States

Cataract-linked Connexin50 Mutations Cause Misfolding and ER Stress: Approaches to Treatment 13:48
Eric Beyer, Chicago, Illinois, United States

Functional Organization of AQP0-regulated Membrane Specializations in Lens Fiber Cells 14:12
Woo-Kuen Lo, United States

Cell Adhesion Function of Aquaporin 0 14:36
Yosuke Nakazawa, Japan

Session: RPE-Choroid 13:00 - 15:00 Hall 2B
RPE8, Non-vascular cells of the choroid

Chairs:
Solange Landreville, Canada

Understanding Choroidal Cell Interactions through Tissue Engineering 13:00
Stephanie Proulx, Quebec, Quebec, Canada

Defective Choroidal Blood Flow Baroregulation and Retinal Dysfunction and Pathology following Sympathetic Denervation of Choroid 13:30
Anton J. Reiner, United States

Modeling Mast Cell Involvement in Geographic Atrophy 14:00
Gerard Lutty, United States

Interactions between Uveal Choroidal Melanocytes and Monocytes in vitro 14:30
Mogens Holst Nissen, Denmark
### RCB12, Sterol biosynthesis and elimination in retinal structure and function

**Chairs:**
Irina Pikuleva, Cleveland, OH, United States

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:00</td>
<td>The Pathways of Cholesterol Homeostasis in the Retina: Significance and Regulation</td>
<td>Irina Pikuleva, Cleveland, OH, United States</td>
</tr>
<tr>
<td>13:33</td>
<td>Statins, RPE and Drusen</td>
<td>Xiaohong Chen, Boston, MA, United States</td>
</tr>
<tr>
<td>14:06</td>
<td>A Computational Model of Retinal Cholesterol Dynamics: Insights into the Pathophysiology of Dry AMD</td>
<td>Seyedeh Zekavat, New Haven, Connecticut, United States</td>
</tr>
<tr>
<td>14:39</td>
<td>Vitamin-D3 Acts as a Potent Vascular Inducer in Hyperoxic Insult: Primary Human Retinal Pigment Epithelium</td>
<td>Murugeswari Ponnalagu, Bangalore, India</td>
</tr>
</tbody>
</table>

### RCB13, Ion channels and ischemic retinopathies

**Chairs:**
Ashay Bhatwadekar, United States

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>13:00</td>
<td>Kir4.1 Channel Function in the Postischemic Retina of Various Transgenic Mouse Lines with Altered Müller Cell Gliosis</td>
<td>Antje Grosche, Munich, Germany</td>
</tr>
<tr>
<td>13:27</td>
<td>Diabetes and Circadian Regulation of Kir4.1 Channels</td>
<td>Ashay Bhatwadekar, United States</td>
</tr>
<tr>
<td>13:54</td>
<td>Involvement of TRPV1 and TRPV4 Channels in Pathological Retinal Angiogenesis</td>
<td>Tim Curtis, United Kingdom</td>
</tr>
<tr>
<td>14:21</td>
<td>Functional Characteristics of a New Type of Perivascular Cell Displaying Calcium Activity during Changes in Tone of Retinal Arterioles</td>
<td>Toke Bek, Denmark</td>
</tr>
<tr>
<td>14:48</td>
<td>Voltage-gated Ion Channels in RPE Co-regulate the Uptake of Photoreceptor Outer Segments</td>
<td>Soile Nymark, Tampere, Finland</td>
</tr>
</tbody>
</table>
Session: Glaucoma
13:00 - 15:00
Meeting Room 2A

**GLA8, Biomechanics and Astrocyte Mechanobiology in Glaucoma**

**Chairs:**
Shandiz Tehrani, United States
Rudolf Fuchshofer, Regensburg, Germany

13:00
**Optic Nerve Astrocytes**
Tatjana Jakobs, United States

13:30
**Astrocyte Phagocytosis and High Myelin Turnover at the Retrolaminar Optic Nerve Head**
Nicholas Marsh-Armstrong, Davis, United States

14:00
**Optic Nerve Head Astrocyte Reactivity in Response to Elevated Intraocular Pressure in a Rat Model**
Shandiz Tehrani, United States

14:30
**Cellular Mechanisms of Astrocyte Injury Responses in the Inner Retina and Optic Nerve Head**
Jeremy Sivak, Toronto, Ontario, Canada

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
13:00 - 15:00
Meeting Room 2B

**OPT5, Emerging toolbox of ocular pharmacokinetics and pharmacodynamics**

**Chairs:**
Arto Urtti, Finland

13:00
**Melanin Binding Kinetics in the Eye**
Arto Urtti, Finland

13:24
**Development of Intravitreal Pharmacokinetic Toolbox**
Eva María del Amo Páez, Manchester, United Kingdom

13:48
**Semi-mechanistic Models of the Ocular Pharmacokinetics and Pharmacodynamics of Macromolecules Administered by Intravitreal Injection for the Treatment of Retinal Diseases: Theoretical Insights into the Durability of Anti-VEGF Effects**
Norman Mazer, Switzerland

14:12
**Studying the Barrier Role of the Vitreoretinal Interface upon Intravitreal Injection of Nanomedicines**
Katrien Remaut, Belgium

14:36
**Optimisation of Topical Retinal Drug Delivery of Small Molecule Inhibitors of Pro-angiogenic VEGF-A Splicing**
Jennifer Batson, Nottingham, United Kingdom

14:48
**Non-invasive Delivery Utilising Cell Penetrating Peptides to Deliver Therapeutics for the Treatment of Ocular Disease**
Felicity de Cogan, Birmingham, United Kingdom
Session: Cornea and Ocular Surface
13:00 - 15:00

COS8, Corneal cell-based therapy - Where are we now?

Chairs:
Che Connon, Newcastle upon Tyne, United Kingdom
Majlinda Lacko, United Kingdom

<table>
<thead>
<tr>
<th>Time</th>
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<th>Speaker(s)</th>
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<tbody>
<tr>
<td>13:00</td>
<td>Human Stem Cells as a Powerful Tool for Cornea Surface Renewal</td>
<td>Heli Skottman, Tampere, Finland</td>
</tr>
<tr>
<td>13:20</td>
<td>In vitro Modeling of Aniridia-related Pax6 Haploinsufficiency by the Use of CRISPR/Cas9 on Limbal Epithelial Stem Cells and Rescue by Recombinant PAX6 Protein</td>
<td>Martina Miotto, Newcastle upon Tyne, United Kingdom</td>
</tr>
<tr>
<td>13:40</td>
<td>Stem Cell Tracking, Loss and Recovery in the Corneal Epithelium</td>
<td>Ruby Shalom-Feuerstein, Haifa, N/A, Israel</td>
</tr>
<tr>
<td>14:00</td>
<td>Pre-Clinical and clinical evaluation of a regenerative bioengineered corneal implant as an alternative to human donor cornea for treatment of advanced keratoconus</td>
<td>Mehrdad Rafat, Linköping, Sweden</td>
</tr>
<tr>
<td>14:20</td>
<td>Importance of Limbal Tissue Stiffness in Wound Repair</td>
<td>Che John Connon, Newcastle-upon-Tyne, United Kingdom</td>
</tr>
<tr>
<td>14:40</td>
<td>The Role of Nerve Growth Factor in Maintaining the Limbal Stem Cell Proliferative Capacity, Colony-Forming Efficiency and Phenotype</td>
<td>Ali Ghareeb, Newcastle Upon Tyne, United Kingdom</td>
</tr>
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15:00 - 15:30

Meet the Experts Tables
XXIII Biennial Meeting of the International Society for Eye Research,
September 9 - 13, 2018,
Belfast, Northern Ireland, UK

Scientific Programme

Session: RPE-Choroid
15:30 - 17:30
Hall 1A

RPE9, Pathological immune processes in the RPE-choroid: role of immune cells
T.L. Session

Chairs:
Thomas Langmann, Köln, Germany

Identification of Myeloid Cell Populations at Sites of Laser-induced Choroidal Neovascularization by Single-cell Profiling
Anja Schlecht, Freiburg, Germany
15:30

Complement Regulator FHR-3 Induces the Compsosome in RPE Cells
Nicole Schäfer, Regensburg, Germany
15:57

Complement Dysfunction and Innate Immune Activation in the RPE Choroid with Age
Ulrich Luhmann, Basel, Switzerland
16:24

Targeting the Translocator Protein (18kDa) (TSPO) Prevents Mononuclear Phagocyte Reactivity in a Murine Laser Model of Wet AMD
Anne Wolf, Cologne, Germany
16:51

Protective Specialization of Subretinal Microglia to the Retinal Pigment Epithelium in Retinal Degeneration
Chen Yu, Durham, United States
17:18

Session: Ocular Immunology
15:30 - 17:30
Hall 1B

IMM9, The role of antigen presentation and autoimmunity in retinal diseases

Chairs:
François Willermain, Brussels, Belgium
John V. Forrester, Aberdeen, United Kingdom

How Can We Manipulate Antigen Presentation in Order to Treat Retinal Diseases
François Willermain, Bruxelles, Belgium
15:30

Potential role of autoimmunity in retinal degenerative disease and glaucoma
Franz Grus, Mainz, Germany
15:52

Diversity in Autoimmunity against Retinal Antigens in Retinal Degeneration
Grazyna Adamus, Oregon, United States
16:14

Non-infectious Uveitis: The Question of Autoimmunity
John V. Forrester, Aberdeen, United Kingdom
16:36

Difficulty of Diagnosis for Ocular Sarcoidosis in Japanese Unprecedented Ageing Society
Kei Takayama, Tokorozawa, Saitama, Japan
16:58
Scientific Programme

**CD8+ T Lymphocytes Contribute to the Development of Neovascularization in Ischemic Retinopathy**
Devy Deliyanti, Melbourne, Australia

Session: Cornea and Ocular Surface
15:30 - 17:30 Hall 2A

**COS9, Ocular drug and gene therapeutics delivery**

Chair:
Robin Ali, London, United Kingdom
Morgan Fedorchak, United States

- **Sustained and Widespread Gene Delivery to the Corneal Epithelium via in situ Transduction of Limbal Epithelial Stem Cells**
  Mark Basche, London, United Kingdom

- **AAV Gene Therapy in the Anterior Eye Prevents and Reverses MPS1 Corneal Disease**
  Matt Hirsch, Chapel Hill, North Carolina, United States

- **Development of a Point-of-Injury Gel Bandage for Ocular Trauma**
  Michael Washington

- **Drug Delivery for Corneal Cystinosis**
  Jorge Jimenez, Pittsburgh, United States

- **Localized AAV-PEDF Gene Therapy for Corneal Neovascularization in vivo**

Session: Retinal Cell Biology
15:30 - 17:30 Hall 2B

**RCB14, Retinal plasticity / Remodeling in disease**

Chair:
Bryan William Jones, United States

- **An Introduction to Retinal Plasticity and/or Remodeling in Disease**
  Bryan William Jones, United States

- **Rod Bipolar cell Networks in Early Retinal Remodeling**
  Rebecca Pfeiffer, Utah, United States

- **Retina Ganglion Cells Regeneration**
  Homaira Nawabi, La Tronche, France

- **Plasticity of Retinal Bipolar Cells**
  Daniel Kerschensteiner, Saint Louis, United States

- **Barriers and Solutions to Retinal Ganglion Cell Regeneration**
  Suprava Varadarajan, Stanford, United States
Müller Glia Proliferation and Retinal Regeneration is Triggered by Acute Damage but Not Progressive Photoreceptor Degeneration in Zebrafish cep290-/- Mutants
Brian Perkins, United States

Session: Ophthalmic Genetics/Genomics
15:30 - 17:30
Meeting Room 3B

OGM5, 100.000 genome project - Ocular results

Chairs:
Andrew Webster, United Kingdom
Christina Zeitz, France

The 100,000 Genomes Project - An Overview
Freya Boardman-Pretty, United Kingdom

Whole Genome Analysis of Inherited Retinal Disease Patients Reveals Mutations Intractable to Other Detection Strategies
Gavin Arno, United Kingdom

Utility of WGS in ocular maldevelopment management
Mariya Moosajee, London, United Kingdom

Using NGS to Find ´Difficult´ Alleles
Christina Zeitz, France

Hypomorphic alleles associated with non-syndromic retinal disease - an advantage of the unbiased nature of next-generation sequencing
Andrew Webster, London, United Kingdom

Target 5000: Population-scale Genotyping of Inherited Retinal Degenerations in Ireland
Adrian Dockery, Dublin, Ireland

Session: Lens
15:30 - 17:30
Meeting Room 1A

LEN7, Aggregation of crystallin and cataract

Chairs:
Takumi Takata, Japan

The Mutation Studies for Isomerization Hot Spots of Aspartate Residues in Lens αA-Crystallin
Takumi Takata, Kumator-cho, Osaka, Japan

Deamidation of Glutamines in Aged Human Lens Crystallins Is Not Accompanied by Isomerization of the Subsequent Glutamate Residues
Larry David, United States

The effect of deamidation on gammaS-crystallin stability
Kirsten J. Lampi, Portland, United States
Scientific Programme

The Dynamics of alpha crystallin activity
John Clark, United States

The Effects of Crowding on the Structure of AlphaB-crystallin
John Carver, Australia

Session: Cross-Discipline
15:30 - 17:30
Meeting Room 1B

IND9, Studying eye disease in primate models
Chairs:
Trevor McGill

Nonhuman Primate Models of Inherited Retinal Degenerative Diseases
Martha Neuringer

Translational Cell-based Therapy Research in the Non-human Primate
Trevor McGill

Integrating Quantitative Proteomic, Immunohistochemical, 3D Electron Microscopic and OCT Techniques to Study the Non-human Primate Optic Nerve Head Tissues in Early Experimental Glaucoma
Cheri Stowell

Fluorescence Imaging of Hydroxyapatite in Macaque sub-RPE Deposits (Drusen)
Richard Thompson, Baltimore, Maryland, United States

Session: Ocular Imaging & Psychophysics
15:30 - 17:30
Meeting Room 2A

IMA4, Advanced vision testing and imaging of ocular mechanics
Chairs:
Pablo Artal, Spain

How Well is the Crystalline Lens or IOL Attached to the Eye? The Lens and IOL Wobbling Effect
Juan Tabernero, United Kingdom

Straylight in the Human Eye: Visual Implications, Models and Measurement
Harilaos Ginis, Athens, Greece

Non-invasive Assessment of Corneal Biomechanical Properties
Susana Marcos, Spain
Scientific Programme

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30
Meeting Room 2B

OPT6, Drug discovery technologies for retinopathies

Chairs:
Sylvain Chemtob, Montreal, QC, Canada

Targeting Semaphorin 3A for Retinal Vascular Disease 15:30
Mike Sapieha, Montreal, Canada

Unbiased Discovery of anti-Angiogenic and neuroprotective Drugs 16:00
Breandan Kennedy, Dublin, Ireland

Mitochondrial Targeting for Eye Disease 16:30
Glen T Prusky, United States

Optogenetics and RP 17:00
Zhuo-Hua Pan, United States

Session: Cross-Discipline
15:30 - 17:30
Meeting Room 3A

IND10, The emerging roles of extracellular vesicles in health and diseases of the eye

Chairs:
Ana Raquel Santiago, Coimbra, Portugal
Michael Paulaitis

Mesenchymal Stem Cell-derived Exosomes Promote Retinal Ganglion Cell Survival after Optic Nerve Crush and in Rodent Models of Glaucoma 15:30
Stanislav I. Tomarev, United States

Exosomes Derived from Retinal Pigment Epithelium and its Relationship with Autophagy and Angiogenesis 15:57
Francesco J. Romero, Valencia, Spain

Cross Talk between Non-pigmented Ciliary Epithelium and Trabecular Meshwork Cells Is Taking Place by Exosomes 16:24
Elie Beit-Yannai, Israel

Circulating microRNAs in Diabetic Retinopathy 16:51
TA Kamalden, Kuala Lumpur, Malaysia

Elevated Hydrostatic Pressure-derived Microglial Extracellular Vesicles Drive Microglia Reactivity: Contribution to Neuroinflammatory Response in Glaucoma Models 17:18
Inês Dinis Aires, Coimbra, Portugal
Thursday, 13 September 2018

Session: Retinal Cell Biology
08:00 - 10:00
Hall 1A

RCB16, Inflammation in retinal vascular disease

Chairs:
John Penn, Nashville, United States

- **Foxp3+ Regulatory T Cells (Tregs) Dampen the Activation of Microglia and Repair Retinal Vasculopathy**
  Jenny Wilkinson Berka, Australia 08:00

- **Inflammation and Pericyte Health in Diabetic Retinopathy**
  Teri Belecky-Adams, Indianapolis, IN, United States 08:22

- **TXNIP is Required for HFD-induced Retinal Leukostasis, Endothelial Inflammation and Microvascular Lesions through Autocrine Activation of NLRP3 Inflammasome**
  Islam Mohamed, Elk Grove, United States 08:38

- **Cytokine-induced ECM Alterations in DR Pathogenesis**
  Meredith Giblin, Nashville, TN, United States 08:54

- **Inflammatory Resolution and Vascular Restoration in Diabetic Retinopathy**
  Steven F. Abcouwer, Ann Arbor, MI, United States 09:16

- **Diabetes-induced IL1b diminishes the pro-angiogenic function of Myeloid Angiogenic Cells in the retina**
  Reinhold Medina 09:38

Session: RPE-Choroid
08:00 - 10:00
Hall 1B

RPE10, Regulation and Imaging of the choroidal vasculature

Chairs:
Anton J. Reiner, United States
Leopold Schmetterer, Singapore

- **Choroidal Blood Flow Autoregulation in Health and Disease**
  Doreen Schmidli 08:00

- **Mechanisms Underlying the Myogenic Constriction of Retinal Arterioles**
  Mary McGahon, Belfast, United Kingdom 08:30

- **Imaging the Choroid with Optical Coherence Tomography Technologies**
  Daniela Ferrara, Medford, United States 09:00

- **Autonomic Control of Choroidal Blood Flow: What's the Anatomy?**
  Falk Schroedl, Austria 09:30
Scientific Programme

Session: Lens
08:00 - 10:00

LEN8, Big data in lens research

Chairs:
Salil A. Lachke, United States

- Genomics: The Hunt for Cataract-linked Genes in Mouse
  
  Jochen Graw, Munich, Germany

- Transcriptomic Analysis to Understand FGFR-Regulated Lens Survival and Differentiation
  
  Michael L. Robinson, Oxford, Ohio, United States

- Analysis of the Many and Varied Lens Proteomes
  
  Kevin Schey, United States

- Lens Metabolites and Cataractogenesis
  
  Xiaohua Gong, United States

- Systems biology of the Lens: iSyTE 2.0 Integrated Web Resource Tool for Lens Research
  
  Salil A. Lachke, United States

Session: Cross-Discipline
08:00 - 10:00

IND11, Endogenous regeneration in the retina

Chairs:
Volker Enzmann, Bern, Switzerland
David Hyde, Notre Dame, IN, United States
Katia Del Rio-Tsonis, Oxford, Ohio, United States

- Epigenetic Signatures of RPE Reprogramming
  
  Katia Del Rio-Tsonis, Oxford, Ohio, United States

- Comparative Transcriptomic and Epigenomic Analyses of Retinal Müller Glia during Different Damage Paradigms in Zebrafish, Chick and Mouse
  
  David Hyde, Notre Dame, IN, United States

- Overcoming a Major Barrier of Neuronal Regeneration in the Mouse Retina
  
  Mike Karl, Dresden, Germany

- Glial involvement in Retinal De- and Regeneration in Zebrafish and Mouse
  
  Volker Enzmann, Bern, Switzerland
Scientific Programme

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
08:00 - 10:00  Meeting Room 3B

OPT7, Ocular drug delivery

Chairs:
Raj Thakur, United Kingdom
Morgan Fedorchak, United States

Simultaneous Co-delivery of Therapeutics with Biodegradable Microparticles. Potential Treatment of Retinal Diseases
Rocio Herrero-Vanrell, Madrid, Spain

Biocompatible Nanomaterials for the Treatment of Dry Eye
Laurence Fitzhenry

Penetration Enhancers in Ocular Drug Delivery: in vitro and in vivo Studies
Vitaliy Khutoryanskiy, United Kingdom

The Development and Commercialisation of Sustained Release Ocular Drug Delivery Systems
Michael O'Rourke, Tampa, United States

Lipid-DNA Nanoparticles - A Versatile Vehicle for Anterior Segment Drug Delivery
Sven Schnichels, Tübingen, Please select an option below, Germany

Novel Glaucoma Therapy Lowers IOP by 40% after a Single Dose
Monica Jablonski, Memphis, TN, United States

Session: Ocular Immunology
08:00 - 10:00  Meeting Room 1A

IMM10, Optic nerve regeneration and inflammation

Chairs:
Wencan Wu
David Krizaj, United States

IL-33/ST2 Signaling in the Glaucomatous Optic Nerve Head
Markus H. Kuehn, Iowa City, United States

Inhibition of Early Immune Responses Exacerbate Retinal Ganglion Cell Loss in a Mouse Model of Ocular Hypertension
Jeffrey Harder, Maine, United States

Mechanotransduction Drives the Activation of Retinal Müller Cells, Astrocytes and Microglia
Monika Lakk, Salt Lake City, UTAH, United States

A Novel Clinically-relevant Optic Nerve Injury Model in Large Animals
Yikui Zhang, China

Microglia Depletion Mediated Retinal Ganglion Cell Survival on Branch Retinal Vein Occluded Mice
Joel Jovanovic, Bern, Switzerland
Scientific Programme

08:00 - 10:00  Meeting Room 1B

Empty slot

Session: Ocular Imaging & Psychophysics 08:00 - 10:00  Meeting Room 2A

IMA5, Neural and optical factors in vision, vision models, and physiological optics of the eye

Chairs:
Rafael Navarro, Spain
Brian Vohnsen, Dublin, Ireland

Peripheral Vision: Optical and Neural Factors 08:00
Linda Lundström, Stockholm, Sweden

Vision in infrared mediated with a two-photon process 08:26
Artal Pablo, Murcia, Spain

Monocular Dynamic Accommodation without Optical Cues 08:52
Philip Kruger, United States

Evolution of Drusenoid Lesions in Rhesus Macaques as Seen on Multimodal Imaging and Histology 09:18
Glenn Yiu, Sacramento, CA, United States

Vasileios Theofilaktopoulos, London, United Kingdom

Session: Glaucoma 08:00 - 10:00  Meeting Room 2B

GLA9, Pseudoexfoliation Glaucoma Update

Chairs:
Deborah Wallace, Ireland
Yutao Liu

Link between the Genetic and Functional Analyses in Pseudoexfoliation Syndrome/ Pseudoexfoliation Glaucoma 08:00
Francesca Pasutto

Potential Roles of Aqueous miRNAs in Exfoliation Glaucoma 08:24
Yutao Liu

Glaucoma: An Insight into Epigenomic Reprogramming 08:48
Deborah Wallace, Ireland

Loss of Loxl1 Expression in Optic Nerve Head Astrocytes Results in Molecular Signatures Suggestive of Reactive Astrocytosis and Elastinopathy 09:12
Anita Ghosh, Maywood, IL, United States
**Scientific Programme**

- **Regulation of Connective Tissue Growth Factor by miRNA-18a in the Human Trabecular Meshwork Cell Response to TGFβ: Therapeutic Opportunities?**
  John Knox, Liverpool, United Kingdom
  09:24

- **Session: Cornea and Ocular Surface**
  08:00 - 10:00
  Meeting Room 3A

**COS10, Genetics of corneal dystrophies**

**Chairs:**
Tara Moore, San Francisco, California, United States
Andrew Nesbit, United Kingdom

- **Challenges of CRISPR Gene Editing in Genetic Eye Disease**
  M. Andrew Nesbit, Coleraine, United Kingdom
  08:00

- **Advances in the Genetics of Corneal Dystrophies; A Convergent Pathogenic Mechanism for PPCD**
  Alison Hardcastle, London, London, United Kingdom
  08:27

- **Gene Editing for Fuchs Endothelial Corneal Dystrophy**
  Albert Jun, Baltimore, Maryland, United States
  08:54

- **The Role of HtrA1 Proteolysis in TGFBI-linked Corneal Dystrophy**
  Ebbe Toftgaard Poulsen, Aarhus, Denmark
  09:21

- **The Multiple Roles of MiR-146a in Limbal Epithelial Homeostasis**
  Adam Poe, Los Angeles, California, United States
  09:48

**Opening Ceremony, Plenary Lecture**
10:30 - 11:45
Hall 1A

**The Ludwig von Sallmann Prize & Plenary Lecture**

- **Young Investigator Poster Competition Award Ceremony**
  10:30

- **Introduction**
  Takeshi Iwata, Japan
  10:35

- **Stargardt and Other ABCA4 Diseases: A Model for Understanding Complex Genetic and Clinical Correlations**
  Rando Allikmets, United States
  10:45

- **Award Ceremony**
  11:25
Scientific Programme

Session: Ocular Immunology
13:00 - 15:00
Hall 1A

**IMM11, From compliment to insult: The complement system in retinal physiology and disease**

**Chairs:**
Diana Pauly, Regensburg, Germany

- **Cell Type-specific Complement Expression in the Retina**
  Diana Pauly, Regensburg, Germany
  13:00

- **Anaphylatoxin Signaling in RPE Cells**
  Olaf Strauß, Berlin, Germany
  13:27

- **TLR2 Bridges Oxidative Damage and Complement Activation and Is a Therapeutic Target for Age-related Macular Degeneration**
  Kelly Mulfaul, Dublin, Ireland
  13:54

- **Delivery of Complement Therapeutics: Targeting Pathogenic Self-recognition by Natural IgMs**
  Bärbel Rohrer, Charleston, South Carolina, United States
  14:21

- **Effect of the Colony Stimulating Factor-1 Receptor Inhibitor, PLX5622, on the Disease Course of Experimental Choroidal Neovascularization in Mice**
  Despina Kokona, Bern, Switzerland
  14:48

Session: Ocular Imaging & Psychophysics
13:00 - 15:00
Hall 1B

**IMA6, Probing the retina and vision at a single-photoreceptor level, biomarkers, and multiphoton imaging**

**Chairs:**
Jennifer Hunter, Rochester, New York, United States

- **Stimulus-evoked Intrinsic Reflectance of Cone Photoreceptors: A Biomarker of Cone Function**
  Jessica I.W. Morgan, Philadelphia, Pennsylvania, United States
  13:00

- **Probing Spatial and Color Vision at the Resolution of Single Cones**
  Ram Sabesan, Seattle, Washington, United States
  13:30

- **Calcium imaging in the living eye: Function, dysfunction and vision restoration in macaque fovea**
  Juliette E. McGregor, Rochester, United States
  14:00

- **Functional retinal imaging with Optical Coherence Tomography**
  Robert J Zawadzki, Davis, California, United States
  14:30
XXIII Biennial Meeting of the International Society for Eye Research, 
September 9 - 13, 2018, 
Belfast, Northern Ireland, UK

Scientific Programme

Session: Retinal Cell Biology
13:00 - 15:00

**RCB15, Role of Müller glia during retinal degeneration and in vitro development - Implications for the design of new retinal therapies**

**Chairs:**
Astrid Limb

- **Development and Maturation of Müller Glia during Retinogenesis in 3D Organoid Culture**
  Karen Eastlake, London, United Kingdom
  
- **Early Changes of Müller Glia in the Diabetic Retina**
  Anna-Monika Pfalle, Germany
  
- **The Role of Proliferation in Müller Cell Remodeling and Subretinal Glial Scar Formation Induced by Retinal Detachment**
  Geoff Lewis, San Francisco, United States
  
- **The Hippo/YAP Pathway and Müller Glial Cell Reactivation in the Retina**
  Muriel Perron, France
  
- **TGFβ Isoforms Are Differently Modulated during Laser-induced Retinal Degeneration/Regeneration in Mouse and Zebrafish**

Session: Lens
13:00 - 15:00

**LEN9, Physiological optics and biomechanics of the lens**

**Chairs:**
Barbara Pierscionek, United Kingdom

- **Optics of the Lens and Changes with Ageing**
  Barbara Pierscionek, United Kingdom
  
- **Linking the Cellular Physiology of the Lens to its Optical Properties**
  Paul Donaldson, New Zealand
  
- **Actin and Lens Biomechanics**
  Velia Fowler, United States
  
- **Biomechanics of the Aging Lens**
  Matthew A. Reilly
  
- **Effects of Age-related Changes of Lens Physiological Optics on Overall Vision**
  Xingzheng Pan, Auckland, New Zealand
  
- **Ray Tracing Confirms the Optical Properties of the Bovine Are Actively Maintained by the Lens Microcirculation System**
  Peter Qiu, Auckland, New Zealand
Scientific Programme

Session: RPE-Choroid
13:00 - 15:00
Meeting Room 3B

**RPE11, Molecular characteristic of macula susceptibility for dysfunction and degeneration**

**Chairs:**
Takeshi Iwata, Japan

- **Inflammation and Cell Death in A2E-associated Retinal Degeneration**
  Akiko Maeda, Kobe, Hyogo, Japan

- **Investigating Bestrophinopathies Using Induced Pluripotent Stem Cells**
  Amanda Carr, United Kingdom

- **ARMS2/HTRA1 as Potential Therapeutic Target for Age-related Macular Degeneration**
  Takeshi Iwata, Japan

Session: Retinal Cell Biology
13:00 - 15:00
Meeting Room 1A

**RCB17, Vascular dysfunction in retinal disease**

**Chairs:**
John Greenwood, United Kingdom

- **Vascular Function in Diabetic Retinopathy - Focus on Pericytes**
  Matthias Kolibabka, Germany

- **Detection of Early Microvascular Retinal Changes in Type I Diabetic Mice with OCT-angiography**
  Bala Ambati

- **Leucine-rich Alpha-2-glycoprotein-1 Disrupts Vessel Maturation in Developmental Retinal Angiogenesis**
  Alexandra Eva Hoeh, London, United Kingdom

- **Hyperoxia in ROP in Retinal Vascular Endothelial Cells and in Vivo Models**
  Denise McDonald, United Kingdom

- **AOSLO Measurements of Capillary and Other Small Vessel Changes in Early Diabetic Retinopathy**
  Stephen Burns, United States

Session: Cross-Discipline
13:00 - 15:00
Meeting Room 1B

**IND12, Phosphoinositide signaling in eye**

**Chairs:**
Yang Sun, Indianapolis, United States
Hemant Khanna, United States
Scientific Programme

The Cellular Mechanisms Underlying Lowe Syndrome, an Ocular, Cerebral and Renal Disorder 13:00
Martin Lowe, Manchester, United Kingdom

Identification of Novel Roles for Inositol Polyphosphate 5-Phosphatases in the Retina 13:22
Michele Davies, Australia

Mechanistic Insights into Ciliary Signalling and Function Using Gene Discovery and Functional Genomics 13:44
Colin Johnson, Leeds, United Kingdom

Phosphatidylinositol 3-phosphate 5-kinase Rescues Cone Photoreceptor Degeneration due to the Absence of Phosphatidylinositol 3-phosphate 14:06
Raju Rajala, Oklahoma City, OK, United States

Essential Roles for Phosphoinositides in Retinal Neurons and Retinal Pigment Epithelium 14:28
Theodore G. Wensel, United States

Meeting Room 2A

Empty Session

Meeting Room 2B

Session: Ophthalmic Genetics/Genomics 13:00 - 15:00
OGM6, Mendelian glaucoma genetics

Molecular Basis for Glucocorticoid-induced Ocular Hypertension Responsiveness 13:00
Abbot Clark, United States

NDR Kinases Regulate Retinal Development, Homeostasis and Gene Expression 13:30
Héléne Léger, Philadelphia, PA, United States

Epigenetic Regulation of the LOXL1 Gene in Pseudoexfoliation Glaucoma 13:50
Sarah Eivers, Dublin, Ireland

TBK1 Gene and Normal Tension Glaucoma Pathophysiology 14:10
John Fingert, Iowa City, Iowa, United States

ID1 & ID3 Proteins Block TGFβ2 -Induced Ocular Hypertension and Decreased Aqueous Humor Outflow Facility in Mice 14:30
John Cameron Millar, Fort Worth, Texas, United States
Session: Ocular Pharmacology, Therapeutics & Drug Delivery  
13:00 - 15:00  
Meeting Room 3A

**OPT8, Glioprotection: Pharmacological targeting of optic nerve head astrocytes in glaucoma**

**Chairs:**
Simon Kaja, Maywood, IL, United States

- **Cellular Mechanisms of Reactive Astrocytosis and Opportunities for Glioprotection**  
  Simon Kaja, Maywood, IL, United States  
  13:00

- **Injury-specific, Distinct Mechanisms of Action of Cellular Stress in Optic Nerve Head Astrocytes Provide Targets for Pharmacological Glioprotection**  
  Peter Koulen, United States  
  13:27

- **The P2X7 receptor for ATP links elevated IOP with cytokine signaling in optic nerve head astrocytes**  
  Claire Mitchell, Philadelphia, United States  
  13:54

- **Transcriptional Changes in Aging and Glaucomatous Murine Optic Nerve Heads**  
  Ying Zhu, Boston, MA, United States  
  14:21

- **CTGF Expression is Induced by Mechanical Forces in Astrocytes of the Glial Lamina under Normal and Glaucomatous Conditions**  
  Andrea E. Dillinger, Regensburg, Germany  
  14:48

Session: Cross-Discipline  
15:30 - 17:30  
Hall 1A

**IND13, The Eye - A window into the body**

**Chairs:**
Antonia M. Joussen, Germany  
Olaf Strauß, Berlin, Germany

- **Ocular Imaging of Brain Disease**  
  Leopold Schmetterer, Singapore, Singapore  
  15:30

- **Translational Ophthalmology: Current Challenges at the Interface between Research and Clinic**  
  Oliver Zeltz, Berlin, Germany  
  15:57

- **Can we use the retinal blood vessels to predict “vascular disease”?**  
  Noemi Lois, Belfast, United Kingdom  
  16:24

- **System Medicine in Ophthalmology**  
  Antonia Joussen, Berlin, Germany  
  16:51
Scientific Programme

Session: RPE-Choroid
15:30 - 17:30
Hall 1B

RPE12, "Eye-Risk" perspective of AMD

Chairs:
Imre Lengyel, United Kingdom

Serum Biomarkers for Age-related Macular Degeneration
Anneke den Hollander, Netherlands
15:30

Towards Personalized Prediction of AMD
Cecile Delcourt, Bordeaux, France
15:57

Marius Ueffing representing the Horizon2020 EYE-RISK consortium
(www.eye-risk.eu)
Marius Ueffing, Tübingen, Germany
16:24

The genetic and epidemiologic perspectives of AMD in EYE-RISK
Caroline Klaver, Netherlands
16:51

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30
Hall 2A

OPT9, Personalized medicine and other innovations

Chairs:
Cheryl L. Rowe-Rendleman, United States
Carol Toris, Cleveland, OH, United States

Personalized Medicine: Equal Access for All?
Eydie Miller-Ellis, Pennsylvania, United States
15:30

Age and Ethnic Differences in the Eye Show the Need for Personalized Medicine
Carol Toris, Cleveland, OH, United States
16:00

Proteomic Identification of Vitreous Biomarkers for Retinal Degeneration
Vinit Mahajan, Palo Alto, United States
16:30

Practicalities of Individualized Medicine - Is it Realistic?
Cheryl L. Rowe-Rendleman, United States
17:00

15:30 - 17:30
Hall 2B

Empty Slot
Scientific Programme

Session: Cornea and Ocular Surface  
15:30 - 17:30  
Meeting Room 3B

COS11, Dry eye disease

Chairs:  
Conor Murphy, Dublin, Ireland

- **TFOS DEWS II - highlights and insights in 2018**  
  Christine Purslow, Newcastle-Under-Lyme, United Kingdom  
  15:30

- **Sex, Gender and Hormone Effects on Dry Eye. The Role of Oestrogen**  
  Blanka Golebiowski  
  15:58

- **Targeting Inflammation in Dry Eye Disease–novel MicroRNAs as Potential Therapeutics**  
  Joan Ni Gabhann, Dublin, Ireland  
  16:26

- **Protection by a Metalloporphyrin Superoxide Dismutase Mimetic against Signs of Dry-eye Disease**  
  Jenni J Hakkarainen, Kuopio, Finland  
  16:54

- **Ellipsometry of Human Tears**  
  Ben Glasgow, Los Angeles, United States  
  17:06

- **Comparison of Corneal Lymphangiogenesis during Dry Eye Induction between Two Murine Models: Extraorbital Lacrimal Gland Excision versus Controlled Environmental Chamber**  
  Sang-Mok Lee, Gangwon-do, Korea, Republic of  
  17:18

Session: Retinal Cell Biology  
15:30 - 17:30  
Meeting Room 1A

RCB18, Role of mitochondrial damage in diabetic retinopathy

Chairs:  
Julia V. Busik, Michigan, United States

- **Deciphering Mitochondrial Homeostasis on an Epigenetic Platform**  
  Renu Kowluru, United States  
  15:30

- **Ceramide-induced Mitochondrial Damage in Diabetic Retinopathy**  
  Denis Proshlyakov, United States  
  16:00

- **Mitochondrial Morphology Change and Diabetic Retinopathy**  
  Sayon Roy, United States  
  16:30

- **Mitochondrial Quality Control Becomes Compromised in the Retina During the Progression of Diabetes**  
  Jose R Hombrebueno, Belfast, Northern Ireland, United Kingdom  
  17:00

- **Development of Gene Therapies for Mitochondrial Deficiencies**  
  Daniel Maloney, Dublin, Ireland, Ireland  
  17:15
### OPT10, Hope or hype for HDAC-mediated neuroprotection / Neurotropism

**Chairs:**
Francois Paquat Durand, Germany  
Orson Moritz, Vancouver, Canada

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:30</td>
<td>Inhibitors of HDAC for the Treatment of Hereditary Retinal Degeneration</td>
<td>Francois Paquet-Durand, Tuebingen, Germany</td>
<td>Meeting Room 1B</td>
</tr>
<tr>
<td>15:58</td>
<td>Examination of the Effects of Histone Deacetylase Inhibitors on Autophagy and Retinal Degeneration Using Transgenic Xenopus laevis</td>
<td>Orson Moritz, Vancouver, Canada</td>
<td>Meeting Room 1B</td>
</tr>
<tr>
<td>16:26</td>
<td>Epigenetic Modifications during Retinal Degeneration Suggest a Deregulation of Photoreceptor Identity and of Postmitotic Cell Status Maintenance</td>
<td>Yvan Arsenijevic, Lausanne, Please select, Switzerland</td>
<td>Meeting Room 1B</td>
</tr>
<tr>
<td>16:54</td>
<td>A Selective Histone Deacetylase 6 Inhibitor, Tubastatin A, Rescues Visual Capacity in Raifteiri, a Novel Zebrafish Retinal Mutant Model</td>
<td>Husvinee Sundaramurthi, Dublin, Ireland</td>
<td>Meeting Room 1B</td>
</tr>
<tr>
<td>17:12</td>
<td>A New Pluripotent Epigenetic Repressor of Diverse Genes, OBP801, Remarkably Prevents Chorioretinal Fibrosis and Choroidal Neovascularization</td>
<td>Atsushi Mukai, Kyoto, Japan</td>
<td>Meeting Room 1B</td>
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### LEN10, Chemical modifications and peptides of crystallins in lens

**Chairs:**
Ram Nagaraj, United States

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:30</td>
<td>Acylation of Lens Proteins Improves the Chaperone Activity of α-crystallin</td>
<td>Ram Nagaraj, United States</td>
<td>Meeting Room 2A</td>
</tr>
<tr>
<td>15:57</td>
<td>Peptide Chaperones: Effect of D-amino Acids</td>
<td>Krishna Sharma, United States</td>
<td>Meeting Room 2A</td>
</tr>
<tr>
<td>16:24</td>
<td>Phosphorylation of AlphaA-crystallin on T148 Directly Controls its Chaperone Activity and its Protective Function</td>
<td>Patrice Fort, Ann Arbor, United States</td>
<td>Meeting Room 2A</td>
</tr>
<tr>
<td>16:51</td>
<td>Neuroprotective Potential of Peptain-1 for Glaucoma.</td>
<td>Dorota L. Stankowska, Fort Worth, TX, United States</td>
<td>Meeting Room 2A</td>
</tr>
<tr>
<td>17:18</td>
<td>The Crystal Structure of the Disulfide-linked γS-crystallin Dimer Provides Insight into an Aggregation-prone Oxidation Product Associated with Cataractous Lenses</td>
<td>Aidan Bradley Grosas, Canberra, Australian Capital Territory, Australia</td>
<td>Meeting Room 2A</td>
</tr>
</tbody>
</table>
Scientific Programme

Session: Retinal Cell Biology
15:30 - 17:30
Meeting Room 2B

RCB19, Retinal glia cells - mediators of neurovascular dysfunction in retinal diseases

Chairs:
Susanne Mohr, Michigan, United States
Marcus Fruttiger, London, United Kingdom

- Glial Cells - Gatekeeper of Neuronal and Vascular Functions
  Susanne Mohr, Michigan, United States 15:30

- Interactions between Müller Cells and the Vasculature in Human Retinal Disease
  Marcus Fruttiger, London, United Kingdom 15:50

- Potential Role of VEGF Signaling in Müller Glia: Implication to Neuroprotection in Long-term Anti-VEGF Therapies for Diabetic Retinopathy, Age-related Macular Degeneration, and Other Hypoxic Retinal Vascular Diseases
  Yun Le, Oklahoma City, OK, United States 16:10

- Acute Laser-induced Chorioretinal Damage Elicits Distinct Cytokine/Chemokine Spatiotemporal Profiles in Rats
  Sabine Uhles, Basel, Switzerland 16:30

- The Role of Retinal Microglia during Formation of Retinal Neovascularisation in the OIR Mouse Model
  Myriam Böck, Freiburg, Germany 16:50

- Effects of Interleukin-6 Trans-signaling on Human Müller Versus Retinal Endothelial Cells under Hyperglycemic Conditions
  Brandon Coughlin, East Lansing, Michigan, United States 17:00

15:30 - 17:30
Meeting Room 3A

Empty Slot