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
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
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 in 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
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

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

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

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

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

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

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

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

Consequences of Blood Retinal Barrier Breakdown
Timothy Lyons, Charleston, South Carolina, United States

A Unified Mechanism for Multiple Forms of Cone Photoreceptor Degeneration
Yingbin Fu, Houston, TX, United States

09:40
Implication of Various Oxidative Stress Pathways in the Phenotype of Prpf31-Mutant Mice
Abdallah Hamieh, Paris, France
Session: Cornea and Ocular Surface
08:00 - 10:00
Meeting Room 1B

**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** 08:00
  Neil Lagali, Linköping, Sweden

- **Making Corneas from Corneas** 08:27
  Mark Ahearne, Dublin, Ireland

- **Initial Experience with Acellular Porcine Corneal APC Deep Anterior Lamellar Keratoplasty** 08:54
  Miltos Balidis, Thessaloniki, Greece

- **The Role of Substrate Curvature on Corneal Stromal Cell Behavior** 09:21
  Ricardo Gouveia, Newcastle, United Kingdom

- **Mesenchymal Stem Cells for Corneal Epithelial Regeneration: Source Dependent Variations and Status of Transdifferentiation** 09:48
  Sachin Shukla, Boston, United States

Session: Retinal Cell Biology
08:00 - 10:00
Meeting Room 2A

**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** 08:00
  Susan Brockerhoff, United States

- **Photoreceptor Dysfunction Associated with Rhodopsin Mislocalization** 08:24
  Yoshikazu Imanishi, Cleveland, United States

- **New Insights into the Mechanism of Photoreceptor Disc Morphogenesis** 08:48
  Vadim Y. Arshavsky, United States

- **Opsin’s Route to the Cilium** 09:12
  Abhishek Chadha, Los Angeles, CA, United States

- **The Intrinsic Peripheral Membrane Protein Compartmentalization Code of Photoreceptor Neurons** 09:36
  Peter Calvert, Syracuse, NY, United States
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

10:00

**Chemistry and Biology of Vision**
Krzysztof Palczewski

10:40

**Award Ceremony**

11:25

Session: RPE-Choroid

13:00 - 15:00

Hall 1A

**RPE2, RPE-Choroid pathological immune processes: Molecules**

Chairs:
Robert Mullins, United States

- **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

Session: Cornea and Ocular Surface

13:00 - 15:00

Hall 1B

**COS2, Corneal transplantation and immunomodulation**

Chairs:
Thomas Ritter, Galway, Ireland

- **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
Corneal Substitutes from Decellularized Porcine Tissues  
Julia Fernández-Pérez, Dublin, Dublin, Ireland

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 Imetabolism 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
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
Meeting Room 3B

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
Meeting Room 1A

IND3, Dementia in the Eye

Chairs:
Imre Lengyel, United Kingdom

Neuropathological Hallmarks of Alzheimer's Disease in Post Mortem AD Retinas
Jurrie den Haan

Alzheimer's Disease β-Amyloid (Aβ) Pathology in the Lens of the Eye: Pathway to Early Diagnosis and Effective Treatment
Lee Goldstein
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

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

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

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

Elucidating AMD pathophysiology through allelic specific expression in donor eyes
Margaret DeAngelis, United States

Comparative transcriptomic analyses of Muller glia reprogramming
John Ash, United States

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

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

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

Lens Epithelial Cells Adaptation and Transformation under Oxidative Stress
Xingjun Fan, Cleveland, OH, United States
Scientific Programme

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

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

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

14:40 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

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

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

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

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

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

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

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

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

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

Role of rebindin 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

It Gets Nerves to Control Ocular Surface Inflammation
Giulio Ferrari, Milan, Italy

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

Novel Approaches to Control Immunopathogenesis Associated with Herpes Stromal Keratitis (HSK)
Susmit Suvas, United States

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

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

Mechanisms Underlying Lens Transdifferentiation in Neural Retina Cells and Pituitary Precursors
Hisato Kondoh, Japan

Specification of the Retina Pigment Epithelium and its Implication in Vertebrate Optic Cup Morphogenesis
Paolo Bovolenta, Spain
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

Hydrogen Sulfide-releasing Compounds: Potential Role in Glaucoma Pharmacotherapy
Sunny Ohia, Houston, United States
16:30

Latanoprostene Bunod: A Nitric Oxide-donating Prostaglandin Analog with a Dual Mechanism of Action for Intraocular Pressure Lowering
Megan Cavet, Rochester, United States
16:50

The Science Behind the Design and Material Comprising the InnFocus MicroShunt®
Leonard Pinchuk, Miami, United States
17:10

Session: Retinal Cell Biology
15:30 - 17:30
Meeting Room 2A

RCB6, Animal models of cone health and disorder

Chairs:
Ben Sajdak, United States

Cellular-scale two-Photon Excited Fluorescence Imaging of Retina in the Living Macaque
Jennifer Hunter, Rochester, New York, United States
15:30

Cone-rich Rodents as Useful Animal Models of Human Visual Physiology and Pathology
David Hicks, France
15:57

Assessing the Roles of Irbp and Irbp-like in the Zebrafish Eye
Ross Collery, United States
16:24

High Resolution Imaging and Correlative Histology in Cone-dominant Mammals
Ben Sajdak, United States
16:51

In vivo Electroretinographic Differentiation of Rod, Short-wavelength and Long/Medium-wavelength Cone Responses in Dogs Using Silent Substitution Stimuli
Freya Mowat, Raleigh, United States
17:18

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

OPT2, Genetics and inflammation in ocular melanoma

Chairs:
Emine Kilic, Rotterdam, Netherlands
Martine Jager, Leiden, Netherlands

Update on the Genomics of Uveal Melanoma
Emine Kilic, Rotterdam, Netherlands
15:30

Analyzing the Function of BAP1 in Uveal Melanoma
Joni Turunen, Finland
15:57
Scientific Programme

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

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

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

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 15:30
Elisabeth Andriessen, Montreal, Canada

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

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

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
Poster Area

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

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

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
Scientific Programme

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

Poster Session
17:30 - 19:00

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 Cellf1
Sandeep Aryal, Newark, Delaware, United States

Effects of PI3K and PTEN ON Lens Postnatal Growth and Homeostasis
Caterina Sellitto, Stony Brook, United States
Scientific Programme

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 (NSAIDs) 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 Neoangiogenesis 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
Poster Area

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
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, Birmingham, 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

Poster Session
17:30 - 19:00
Poster Area

RPE Choroid

Eplerenone in Treatment of Chronic Non-resolving Central Serous Chorioretinopathy without Active Choroidal Neovascularization
Gleb Arslanov, Saint Petersburg, Russian Federation
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
  08:00

- **Inflammasome in RPE and AMD**
  Nikolaos Efstatthiou, Boston, Massachusetts, United States
  08:40

- **Nucleoside Analogs Prevent RPE Degeneration due to Multiple AMD Stimuli**
  Bradley Gelfand, United States
  09:20

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
  08:00

- **Deconstructing Retinal Organoids: To Assess the Heterogeneity, Maturity and Transplantation Potential of hESC-derived Photoreceptors**
  Joseph Collin, Newcastle upon Tyne, United Kingdom
  08:26

- **Using Patient-derived Human Induced Pluripotent Stem Cells to Model Inherited Retinal Disease**
  Erin Burnight, Iowa City, United States
  08:52

- **Modeling Retinal Ganglion Cell Development and Disease with Human Pluripotent Stem Cells**
  Jason Meyer, Indiana, United States
  09:18

- **Understanding Why PAX6 Gene Mutations Cause Poor Vision from Birth**
  Lisa Maria Hentschel, London, United Kingdom
  09:44
Session: Glaucoma
08:00 - 10:00
Hall 2A

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
Hall 2B

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
Meeting Room 3B

IMA2, Imaging and understanding retinal blood flow and vasculature disease

Chairs:
Stephen Burns, United States
XXIII Biennial Meeting of the International Society for Eye Research,
September 9 - 13, 2018,
Belfast, Northern Ireland, UK

Scientific Programme

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

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

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

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

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

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
David S. Williams, United States
08:00

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

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

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

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)
Rei Murakami, Kyoto, Kyoto, Japan
09:48

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

08:00

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

08:22

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

08:44

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

09:06

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

09:28

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

09:50

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

08:00

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

08:24

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

08:48

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

09:12

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

09:36

08:00 - 10:00
Meeting Room 2B

Empty Slot
Scientific Programme

Session: Lens
08:00 - 10:00

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 TGFβ-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

The Ernst H. Barany Prize & Plenary Lecture

- **Introduction**
  William Stell
  10:30

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

- **Award Ceremony**
  11:25

Business Meeting
11:45 - 12:15

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.

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


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

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

RPE5, Photoreceptor-RPE Interface

Chairs:
Silvia Finnemann, United States

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** 14:48
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** 13:00  
  Elfride De Baere, Belgium

- **Frequent Variants in the Japanese Population Determine Quasi-Mendelian Inheritance of Rare Retinal Ciliopathy** 13:22  
  Carlo Rivolta, Switzerland

- **Identification of Pseudo-exons due to Deep-intronic ABCA4 Variants in Stargardt Disease Using Midigenes and Patient-derived Photoreceptor Progenitor Cells** 13:44  
  Frans Cremers, Netherlands

- **Comprehensive Characterization of Cis-regulatory Elements in Human Retina** 14:06  
  Timothy Cherry, United States

- **Dissection of Cis-regulatory Elements of PITX2** 14:28  
  Elena Semina, Milwaukee, United States

- **Detection of Novel Alternative Splicing Events in Retinal Microvascular Endothelial Cells Using Single Cell RNA Sequencing** 14:50  
  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** 13:00  
  Andrew Tatham

- **OCT and Glaucoma Diagnosis** 13:22  
  Augusto Azuara-Blanco

- **Optimising the Perimetric Detection and Monitoring of Glaucoma with Two- and Three-dimensionally Scaled Stimuli** 13:44  
  Padraig Mulholland

- **Biomarkers or Endpoints in Glaucoma** 14:06  
  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

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Country</th>
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<tbody>
<tr>
<td>13:00</td>
<td>Mathematical Models of Retinal Circulation and Metabolism</td>
<td>Robert A. Linsenmeier</td>
<td>United States</td>
</tr>
<tr>
<td>13:22</td>
<td>Retinal Capillary Oximetry by Visible Light Optical Coherence Tomography</td>
<td>Robert A. Linsenmeier</td>
<td>United States</td>
</tr>
<tr>
<td>13:34</td>
<td>Computational Investigation of Mass Transfer between the Choriocapillaris and the Outer Retina</td>
<td>Moussa A. Zouache</td>
<td>United States</td>
</tr>
<tr>
<td>13:56</td>
<td>Predicting Spatial Patterns of Retinal Degeneration in Retinitis Pigmentosa using Mathematical Models</td>
<td>Paul Roberts</td>
<td>Birmingham, United Kingdom</td>
</tr>
<tr>
<td>14:16</td>
<td>Retinal Vascular Wall Thickness in Hypotensive Subjects, the Naive Vascular State: Data and Theoretical Model</td>
<td>Thomas Gast</td>
<td>United States</td>
</tr>
<tr>
<td>14:38</td>
<td>Statistical Assessment of Blood Vessel Activity as a Surrogate of in vivo Retinal Vascular Function</td>
<td>Joan M. Nunez do Rio</td>
<td>London, United Kingdom</td>
</tr>
</tbody>
</table>

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

Meeting Room 1B

#### RCB9, Signal transduction and congenital diseases of photoreceptors

**Chairs:**
Alexander Dizhoor, United States

<table>
<thead>
<tr>
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<tr>
<td>13:00</td>
<td>Dysregulation of Second Messenger Homeostasis and Congenital Retinal Dystrophies: The Variety of GUCA1A Mutations in Photoreceptors</td>
<td>Daniele Dell’Orco</td>
<td>Verona, Italy</td>
</tr>
<tr>
<td>13:27</td>
<td>Retinal Guanylyl Cyclase RetGC1 and its Regulatory Proteins in Congenital Eye Diseases</td>
<td>Igor Peshenko</td>
<td>United States</td>
</tr>
<tr>
<td>13:54</td>
<td>Retinal Dysfunction of Second Messenger Homeostasis in Photoreceptor Cells Caused by Mutations in Guanylate Cyclase GC-E</td>
<td>Karl-Wilhelm Koch</td>
<td>Oldenburg, Germany</td>
</tr>
</tbody>
</table>
**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  
14:21

**Photoreceptor Degeneration Driven by Ca2+-dependent Enzymatic Activity**  
Michael J. Power, Tübingen, Baden-Württemberg, Germany  
14:48

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**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  
13:00

**Ankyrin-B and Ankyrin-G Play Distinct and Crucial Roles in Lens Morphogenesis, Cytoarchitecture and Function**  
Vasantha Rao, Durham, North Carolina, United States  
13:10

**Fine Tuning of Ocular FGF Activity Regulates Differentiation and Collective Movement of Lens Fibre Cells**  
Yuki Sugiyama, Okinawa, Japan  
13:30

**The Epithelial Template for Coordinated Growth of the Eye Lens**  
Alexia Kalligeraki, United Kingdom  
14:00

**Caspases Processing of BFSP1 Produces C-terminal Fragments Containing Lipid Binding Domains**  
Miguel Jarrin, Durham, United Kingdom  
14:30

**Discussion**  
14:45

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**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  
13:00

**The Impact of refractive correction on productivity and education**  
13:27

**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  
13:54
### COS5, Keratoconus: Biology and management

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

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>13:00</td>
<td><strong>Surgical Management of Keratoconus</strong></td>
<td>Sheraz Daya, United Kingdom</td>
</tr>
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<td>13:33</td>
<td><strong>Molecular Marker for Keratoconus</strong></td>
<td>Calvin C. P. Pang, Hong Kong, China</td>
</tr>
<tr>
<td>14:06</td>
<td><strong>Understanding the immune and inflammation pathways in Keratoconus</strong></td>
<td>Arkasubhra Ghosh, Bangalore, India</td>
</tr>
<tr>
<td>14:39</td>
<td><strong>The Effect of Medium Composition and Substrate Curvature on the Behavior of Keratoconus-derived Corneal Stromal Cells</strong></td>
<td>Anna Song, Newcastle upon Tyne, United Kingdom</td>
</tr>
</tbody>
</table>

### RPE6, Bruch’s membrane

**Chairs:**
Christine Curcio, Birmingham, AL, United States

<table>
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<tr>
<td>15:30</td>
<td><strong>BLamD, BLinD, BrM - What’s the Difference, and Why it Matters for AMD</strong></td>
<td>Christine Curcio, Birmingham, AL, United States</td>
</tr>
<tr>
<td>15:54</td>
<td><strong>Calcification of Bruch’s Membrane in ABCC6 Knock-out Mice and Other Models for Pseudoxanthoma Elasticum (PXE) and AMD</strong></td>
<td>Arthur A. Bergen, Netherlands</td>
</tr>
<tr>
<td>16:18</td>
<td><strong>The Role of EFEMP1 Gene in Malattia Leventinese, AMD, and beyond</strong></td>
<td>Lihua Marmorstein, Rochester, Minnesota, United States</td>
</tr>
<tr>
<td>16:42</td>
<td><strong>Late-onset Retinal Degeneration: Molecular Mechanisms and Phenotypic Consequences of C1QTNF5 Mutations</strong></td>
<td>Astra Dinculescu, United States</td>
</tr>
<tr>
<td>17:06</td>
<td><strong>Considerations in Studying Transport across Bruch’s Membrane</strong></td>
<td>Mark Johnson, United States</td>
</tr>
</tbody>
</table>
IND8, Molecular regulation of ocular morphogenesis

Chairs:
Sabine Fuhrmann, United States

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

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

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

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

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

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 15:30
Pete Williams, Stockholm, Sweden

Gerassimos Lascaratos, United Kingdom

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

Axonal Metabolic Rescue in Glaucoma 16:36
Denise Inman

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

The Hypoxic Microenvironment: How it Influences LOXL1 Expression in Pseudoexfoliation Glaucoma 17:20
Alison Greene, Dublin, Ireland
Session: Ocular Immunology
15:30 - 17:30
IMM6, Advances in the diagnosis and management of uveitis
Chairs:
Conor Murphy, Dublin, Ireland

**Non Systemic Therapy in Sight Threatening Uveitis**
Dara Kilmartin

**Improving Clinical Outcomes in Acute Anterior Uveitis-associated Spondyloarthritis**
Conor Murphy, Dublin, Ireland

**MicroRNA Therapeutics for the Treatment of Autoimmune Uveitis**
Stephane Heymans, Maastricht, Netherlands

**Non-tuberculous Mycobacterial Endophthalmitis Complicated by ESRD**

**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

Session: Ophthalmic Genetics/Genomics
15:30 - 17:30
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

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

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

**Retina Circuit Disassembly and Connectivity in Glaucoma**
Yvonne Ou

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

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

**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**
  Andreas Stahl, Freiburg, Germany  
  15:30

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

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

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

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

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

Session: Retinal Cell Biology
15:30 - 17:30

**RCB10, Molecular mechanisms of rhodopsin signaling**

**Chairs:**
Vsevolod Gurevich, United States

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

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

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

- **Efficiency of Rod Transduction Activation by a Single Opsin Molecule**
  Vladimir Kefalov  
  17:00
### Session: Lens
15:30 - 17:30 Meeting Room 2A

**LEN4, Lens differentiation, regeneration and cataract treatment**

**Chairs:**
David Li

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>15:30</td>
<td>Mouse Lens Lacking SUMO1 Is Prone to Stress-induced Apoptosis through Activation of both Extrinsic and Intrinsic Death Pathways</td>
<td>David Li</td>
</tr>
<tr>
<td>15:54</td>
<td>The cAMP Responsible Element Binding Protein (CREB) Regulates Lens Differentiation through Control of Various Sets of Downstream Genes</td>
<td>Wang Ling, Guangzhou, China</td>
</tr>
<tr>
<td>16:18</td>
<td>Modulation of ERK1/2 in Lens by Spreds</td>
<td>Fatima Wazin, Sydney, NSW, Australia</td>
</tr>
<tr>
<td>16:30</td>
<td>Tropomyosin 3.1 is a Target to Prevent Lens Epithelial-to-Mesenchymal Transition during Cataract Formation</td>
<td>Justin Parreno, La Jolla, CA, United States</td>
</tr>
<tr>
<td>16:42</td>
<td>Role of Thiol Antioxidants in Prevention and Treatment of Cataract</td>
<td>Nuran Ercal, United States</td>
</tr>
<tr>
<td>17:06</td>
<td>Investigating the Initial Molecular Mechanisms of Human Cataract Formation Using Light-focusing Micro-lenses Derived from Pluripotent Stem Cells</td>
<td>Michael O'Connor, Australia</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>15:30</td>
<td>Global Epidemiology of Glaucoma - The Global Causes of Blindness and Distance Vision Impairment 1990-2020: A Systematic Review and Meta-analysis Presented on behalf of the Vision Loss Expert Group</td>
<td>Alex Silvester</td>
</tr>
<tr>
<td>15:55</td>
<td>Barriers to Glaucoma Care in Low Resource Areas</td>
<td>Olusola Olawoye, Ibadan, Nigeria</td>
</tr>
<tr>
<td>16:20</td>
<td>Managing Glaucoma in Low Resource Areas: Role of Selective Laser Trabeculoplasty</td>
<td>William Eric Sponsel</td>
</tr>
<tr>
<td>16:45</td>
<td>The African Glaucoma Consortium - A Model for Regional Problem-solving</td>
<td>Tony Realini, Morgantown, United States</td>
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<tr>
<td>17:10</td>
<td>Discussion</td>
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</tbody>
</table>
Session: Cornea and Ocular Surface
15:30 - 17:30

**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

**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

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

Dowregulation 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
Mohammad Uddin, Sydney, NSW, Australia

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

Preliminary Study of the Effect of Prostaglandin 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

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**

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

**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

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

- **Pragmatism of Randomised Clinical Trials on Ranibizumab for the Treatment of Diabetic Macular Oedema: Impact on Clinical Outcomes**
  Stephen Stewart, Belfast, 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
Scientific Programme

**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

Poster Session
17:30 - 19:00

**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
Scientific Programme

**Multiomics Study of Primary Human Foetal Retinal Pigment Epithelial Cells: Effects of Zinc Supplementation**
Eszter Emri, Belfast, United Kingdom

**Gap Junctions Formed By Connexin 43 in Astrocytes Contribute to Neuronal Damage after Ischemia-reperfusion Injury**
Miduturu Srinivas, New York, United States

**Impact of α-adducin Deletion on the Retinal Structure and Function**
Elisa Julião Campos, Coimbra, Portugal

**Retinal Ganglion Cells Are Protected through Hypothermia Treatment in a Porcine Retina Organ Culture Model**
Jose Hurst, Tübingen, Baden-Württemberg, Germany

**Novel Function of β-catenin in Regulation of RPE Adhesion Junctions**
Qiutang Li, Louisville, Kentucky, United States

**Insulin Activates the PI3K/Akt/GSK3 Pathway in Culture Rat Retinal Pigment Epithelium**
Rocío Salceda, Mexico, D.F., Cd. Mex., Mexico

**Pre-transplantation Analysis of Retinal Organoids Using Dual-wavelength Excitation of Metabolic Markers**
Magdalene Seiler, United States

**Peptides Derived from PEDF Prevent Apoptosis and Promote Apical Localization of Rhodopsin in Retina Photoreceptors**
German Michelis, Bethesda, Maryland, United States

**A Lipidic Phloroglucinol Derivative Against Carbonyl and Oxidative Stress Involved in Macular Dystrophy**
Philippe Brabet, Montpellier, France

**Global Gene Expression Analysis of Zebrafish Eye with Digenic eys+/-; lrp5+/- Retinitis Pigmentosa-candidate Mutations**
Shimpei Takita, Suita, Japan

**Distribution of Pregnancy Zone Protein in the human eye - implications for type two diabetes mellitus**
Lasse Hansen Olesen, Aarhus C, Denmark

**Immunogold Electron Microscopy Reveals Re-localization of Gap Junctions in Retinal Pigment Epithelium during Phagocytosis**
Viivi Jokinen, Tampere, Finland

**The Effect of Substrate Composition on Retinal Ganglion Cell Neurite Growth**
Karl Erich Kador, Kansas City, MO, United States

**tLearning The Hard Way: Role of Vascular Stiffening in Early Diabetic Retinopathy and AMD**
Kaustab Ghosh, Riverside, United States

**Retinal mTORC Expression and Protein Synthesis**
Thomas Gardner, Ann Arbor, Michigan, United States

**High Serum Iron Levels Can Promote Retinal Degeneration**
Joshua Dunaief, Philadelphia, PA, United States
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

Poster Session
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
Wednesday, 12 September 2018

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

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 08:00
  James Hurley

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

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

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

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

Session: Ocular Pharmacology, Therapeutics & Drug Delivery 08:00 - 10:00 Hall 1B

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? 08:00
  Tanja Ilmarinen, Finland

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

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

Rescue of vision by photoreceptor cell transplantation involves multiple cellular mechanisms 09:00
Rachel Pearson, United Kingdom

Overexpression of β-Secretase 1 (BACE1) by AAV-mediated Gene Delivery Provides Protection in a Mouse Model of AMD 09:20
Xiaoping Qi, Birmingham, Alabama, United States

Implementing the Patient Perspective in Your Research 09:40
Melissa Jones, Dublin, Ireland

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 08:00
Jessica Cooke Bailey

Genomic locus modulating corneal thickness in the mouse identifies POU6F2, a potential risk of developing glaucoma 08:22
Eldon Geisert, Atlanta, GA, United States

Mitochondrial Genetics and Primary Open Angle Glaucoma 08:44
Colin E. Willoughby, Coleraine, Northern Ireland, United Kingdom

Quantitative Traits and GWAS Unravelling the Genetics of Primary Open Angle Glaucoma 09:06
Kathryn Burdon, Australia

Increased Retinal APBB2 and β-amyloid in Eyes with an APBB2 Risk Allele Associated with POAG 09:28
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 09:44
Karen Lester, Liverpool, United Kingdom

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 08:00
Konstantinos Balaskas, United Kingdom
Scientific Programme

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

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

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

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

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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**
Nilisha Fernando, Canberra, Australia 08:00

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

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

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

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

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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**
Julie Eldred, United Kingdom 08:00

**Resveratrol Inhibits Fibrotic Events Associated with PCO**
Andrew Smith, United Kingdom 08:22
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
Meeting Room 1B

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

08:00 - 10:00
Meeting Room 2A

Empty slot

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

IMA3, Vision science with Virtual Reality

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>How Immersive Technologies Will Improve the Health and Education of a City</td>
<td>Mark Mon-Williams, United Kingdom</td>
</tr>
<tr>
<td>08:30</td>
<td>Distance Perception in VR</td>
<td>Paul Hibbard, United Kingdom</td>
</tr>
<tr>
<td>09:00</td>
<td>Simulating the Optics of the Human Eye with Ray-tracing</td>
<td>Trisha Lian, United Kingdom</td>
</tr>
<tr>
<td>09:30</td>
<td>Using VR to Study 3D Space Perception</td>
<td>Andrew Glennerster, United Kingdom</td>
</tr>
</tbody>
</table>

### Session: Cornea and Ocular Surface

#### COS7, Alternative approaches to corneal epithelial wound healing

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

<table>
<thead>
<tr>
<th>Time</th>
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<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>08:00</td>
<td>Modulation of Healing of Corneal Epithelium Debridement via Interaction of Lumican and TGFβ Receptor 1 (Alk5)</td>
<td>Winston Kao, Cincinnati, Ohio, United States</td>
</tr>
<tr>
<td>08:20</td>
<td>Evaluation of a Novel FKBPL-derived Peptide in the Treatment of Corneal Neovascularisation</td>
<td>Gideon Obasanmi, Coleraine, United Kingdom</td>
</tr>
<tr>
<td>08:40</td>
<td>Transcriptomic Analysis of Expanded Limbal Epithelium Reveals Enrichment for Wound Healing Genes</td>
<td>Finbarr O'Sullivan, Ireland</td>
</tr>
<tr>
<td>09:00</td>
<td>Vitamin D Influences on Corneal Epithelial Wound Healing</td>
<td>Mitchell Watsky, Augusta, United States</td>
</tr>
<tr>
<td>09:20</td>
<td>Corneal Epithelial Regeneration after Biosynthetic Corneal Implantation</td>
<td>May Griffith, Montreal, Canada</td>
</tr>
<tr>
<td>09:40</td>
<td>An Improved Treatment Strategy for Acute Ocular Disease Using Dry-preserved Human Amnion</td>
<td>Andrew Hopkinson, Nottingham, United Kingdom</td>
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</tbody>
</table>

### Opening Ceremony, Plenary Lecture

**10:30 - 11:45**

**Hall 1A**

**The Endre A. Balazs Prize & Plenary Lecture**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>10:30</td>
<td>Introduction</td>
<td>Yeni Yucel, Canada</td>
</tr>
<tr>
<td>10:40</td>
<td>Deconstructing Aqueous Humor Outflow - The Last 50 Years</td>
<td>Paul Kaufman, Madison, United States</td>
</tr>
</tbody>
</table>
Scientific Programme

Award Ceremony

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

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

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

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

- Involvement of Helper T Cell Immunity Balance in Diabetic Retinopathy
  Manzo Taguchi, Japan

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

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

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

- Molecular Genetics of Age Related Macular Degeneration
  Andrew Lotery, Southampton, United Kingdom

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

**Session: Lens**  
13:00 - 15:00  
Hall 2A

**LEN6, Channels and transporters in lens transparency**

**Chairs:**  
Kulandaiappan Varadaraj, United States

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

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

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

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

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

**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**  
  Stephanie Proulx, Quebec, Quebec, Canada  
  13:00

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

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

- **Interactions between Uveal Choroidal Melanocytes and Monocytes in vitro**  
  Mogens Holst Nissen, Denmark  
  14:30
**Scientific Programme**

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

**Meeting Room 1A**

**RCB12, Sterol biosynthesis and elimination in retinal structure and function**

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

- **The Pathways of Cholesterol Homeostasis in the Retina: Significance and Regulation**
  Irina Pikuleva, Cleveland, OH, United States
  13:00

- **Statins, RPE and Drusen**
  Xiaohong Chen, Boston, MA, United States
  13:33

- **A Computational Model of Retinal Cholesterol Dynamics: Insights into the Pathophysiology of Dry AMD**
  Seyedeh Zekavat, New Haven, Connecticut, United States
  14:06

- **Vitamin-D3 Acts as a Potent Vascular Inducer in Hyperoxic Insult: Primary Human Retinal Pigment Epithelium**
  Murugeswari Ponnalagu, Bangalore, India
  14:39

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

**Meeting Room 1B**

**RCB13, Ion channels and ischemic retinopathies**

**Chairs:**
Ashay Bhatwadekar, United States

- **Kir4.1 Channel Function in the Postischemic Retina of Various Transgenic Mouse Lines with Altered Müller Cell Gliosis**
  Antje Grosche, Munich, Germany
  13:00

- **Diabetes and Circadian Regulation of Kir4.1 Channels**
  Ashay Bhatwadekar, United States
  13:27

- **Involvement of TRPV1 and TRPV4 Channels in Pathological Retinal Angiogenesis**
  Tim Curtis, United Kingdom
  13:54

- **Functional Characteristics of a New Type of Perivascular Cell Displaying Calcium Activity during Changes in Tone of Retinal Arterioles**
  Toke Bek, Denmark
  14:21

- **Voltage-gated Ion Channels in RPE Co-regulate the Uptake of Photoreceptor Outer Segments**
  Soile Nymark, Tampere, Finland
  14:48
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

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

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

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

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

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

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

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

**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  
13:48

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

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

**Non-invasive Delivery Utilising Cell Penetrating Peptides to Deliver Therapeutics for the Treatment of Ocular Disease**  
Felicity de Cogan, Birmingham, United Kingdom  
14:48
**Scientific Programme**

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

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

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

- **Human Stem Cells as a Powerful Tool for Cornea Surface Renewal**  
  Heli Skottman, Tampere, Finland  
  13:00

- **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**  
  Martina Miotto, Newcastle upon Tyne, United Kingdom  
  13:20

- **Stem Cell Tracking, Loss and Recovery in the Corneal Epithelium**  
  Ruby Shalom-Feuerstein, Haifa, N/A, Israel  
  13:40

- **Pre-Clinical and clinical evaluation of a regenerative bioengineered corneal implant as an alternative to human donor cornea for treatment of advanced keratoconus**  
  Mehrdad Rafat, Linköping, Sweden  
  14:00

- **Importance of Limbal Tissue Stiffness in Wound Repair**  
  Che John Connon, Newcastle-upon-Tyne, United Kingdom  
  14:20

- **The Role of Nerve Growth Factor in Maintaining the Limbal Stem Cell Proliferative Capacity, Colony-Forming Efficiency and Phenotype**  
  Ali Ghareeb, Newcastle Upon Tyne, United Kingdom  
  14:40

15:00 - 15:30  
Hall 1D

**Meet the Experts Tables**
Session: RPE-Choroid
15:30 - 17:30

**RPE9, Pathological immune processes in the RPE-choroid: role of immune cells**

T.L. Session

**Chairs:**
Thomas Langmann, Köln, Germany

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**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 Complosome 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

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Session: Ocular Immunology
15:30 - 17:30

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

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

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**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
Scientists 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

Chairs:
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

Chairs:
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
Supraja Varadarajan, Stanford, United States
Scientific Programme

**Müller Glia Proliferation and Retinal Regeneration is Triggered by Acute Damage but Not Progressive Photoreceptor Degeneration in Zebrafish cep290-/- Mutants**
Brian Perkins, United States

**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

**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, Kumatori-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  
16:40

**The Effects of Crowding on the Structure of AlphaB-crystallin**  
John Carver, Australia  
17:00

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  
  15:30

- **Translational Cell-based Therapy Research in the Non-human Primate**  
  Trevor McGill  
  16:00

- **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  
  16:30

- **Fluorescence Imaging of Hydroxyapatite in Macaque sub-RPE Deposits (Drusen)**  
  Richard Thompson, Baltimore, Maryland, United States  
  17:00

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  
  15:30

- **Straylight in the Human Eye: Visual Implications, Models and Measurement**  
  Harilaos Ginis, Athens, Greece  
  16:10

- **Non-invasive Assessment of Corneal Biomechanical Properties**  
  Susana Marcos, Spain  
  16:50
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**
  Mike Sapieha, Montreal, Canada
  15:30

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

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

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

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**
  Stanislav I. Tomarev, United States
  15:30

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

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

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

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

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

**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

**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 Schmidl
  - 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
Hall 2A

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
  08:00

- Transcriptomic Analysis to Understand FGFR-Regulated Lens Survival and Differentiation
  Michael L. Robinson, Oxford, Ohio, United States
  08:24

- Analysis of the Many and Varied Lens Proteomes
  Kevin Schey, United States
  08:48

- Lens Metabolites and Cataractogenesis
  Xiaohua Gong, United States
  09:12

- Systems biology of the Lens: iSyTE 2.0 Integrated Web Resource Tool for Lens Research
  Salil A. Lachke, United States
  09:36

Session: Cross-Discipline
08:00 - 10:00
Hall 2B

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
  08:00

- 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
  08:30

- Overcoming a Major Barrier of Neuronal Regeneration in the Mouse Retina
  Mike Karl, Dresden, Germany
  09:00

- Glial involvement in Retinal De- and Regeneration in Zebrafish and Mouse
  Volker Enzmann, Bern, Switzerland
  09:30
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**  
  Rocío Herrero-Vanrell, Madrid, Spain  
  **08:00**

- **Biocompatible Nanomaterials for the Treatment of Dry Eye**  
  Laurence Fitzhenry  
  **08:24**

- **Penetration Enhancers in Ocular Drug Delivery: in vitro and in vivo Studies**  
  Vitaliy Khutoryanskiy, United Kingdom  
  **08:48**

- **The Development and Commercialisation of Sustained Release Ocular Drug Delivery Systems**  
  Michael O’Rourke, Tampa, United States  
  **09:12**

- **Lipid-DNA Nanoparticles - A Versatile Vehicle for Anterior Segment Drug Delivery**  
  Sven Schnichels, Tübingen, Please select an option below, Germany  
  **09:36**

- **Novel Glaucoma Therapy Lowers IOP by 40% after a Single Dose**  
  Monica Jablonski, Memphis, TN, United States  
  **09:48**

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  
  **08:00**

- **Inhibition of Early Immune Responses Exacerbate Retinal Ganglion Cell Loss in a Mouse Model of Ocular Hypertension**  
  Jeffrey Harder, Maine, United States  
  **08:27**

- **Mechanotransduction Drives the Activation of Retinal Müller Cells, Astrocytes and Microglia**  
  Monika Lakk, Salt Lake City, UTAH, United States  
  **08:54**

- **A Novel Clinically-relevant Optic Nerve Injury Model in Large Animals**  
  Yikui Zhang, China  
  **09:21**

- **Microglia Depletion Mediated Retinal Ganglion Cell Survival on Branch Retinal Vein Occluded Mice**  
  Joel Jovanovic, Bern, Switzerland  
  **09:48**
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 Theofylaktopoulos, 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
08:00
M. Andrew Nesbit, Coleraine, United Kingdom

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

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

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

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

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
10:35
Takeshi Iwata, Japan

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

Award Ceremony
11:25
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
  
- **Anaphylatoxin Signaling in RPE Cells**
  Olaf Strauß, Berlin, Germany
  
- **TLR2 Bridges Oxidative Damage and Complement Activation and Is a Therapeutic Target for Age-related Macular Degeneration**
  Kelly Mulfaul, Dublin, Ireland

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

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

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

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

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

- **Functional retinal imaging with Optical Coherence Tomography**
  Robert J Zawadzki, Davis, California, United States
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  
  13:00

- **Early Changes of Müller Glia in the Diabetic Retina**
  Anna-Monika Pfaller, Germany  
  13:27

- **The Role of Proliferation in Müller Cell Remodeling and Subretinal Glial Scar Formation Induced by Retinal Detachment**
  Geoff Lewis, San Francisco, United States  
  13:54

- **The Hippo/YAP Pathway and Müller Glial Cell Reactivation in the Retina**
  Muriel Perron, France  
  14:21

- **TGFβ Isoforms Are Differently Modulated during Laser-induced Retinal Degeneration/Regeneration in Mouse and Zebrafish**
  14:48

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  
  13:00

- **Linking the Cellular Physiology of the Lens to its Optical Properties**
  Paul Donaldson, New Zealand  
  13:22

- **Actin and Lens Biomechanics**
  Velia Fowler, United States  
  13:44

- **Biomechanics of the Aging Lens**
  Matthew A. Reilly  
  14:06

- **Effects of Age-related Changes of Lens Physiological Optics on Overall Vision**
  Xingzheng Pan, Auckland, New Zealand  
  14:28

- **Ray Tracing Confirms the Optical Properties of the Bovine Are Actively Maintained by the Lens Microcirculation System**
  Peter Qiu, Auckland, New Zealand  
  14:50
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
13:00

Investigating Bestrophinopathies Using Induced Pluripotent Stem Cells
Amanda Carr, United Kingdom
13:30

ARMS2/HTRA1 as Potential Therapeutic Target for Age-related Macular Degeneration
Takeshi Iwata, Japan
14:00

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
13:00

Detection of Early Microvascular Retinal Changes in Type I Diabetic Mice with OCT-angiography
Bala Ambati
13:27

Leucine-rich Alpha-2-glycoprotein-1 Disrupts Vessel Maturation in Developmental Retinal Angiogenesis
Alexandra Eva Hoeh, London, United Kingdom
13:54

Hyperoxia in ROP in Retinal Vascular Endothelial Cells and in Vivo Models
Denise McDonald, United Kingdom
14:06

AOSLO Measurements of Capillary and Other Small Vessel Changes in Early Diabetic Retinopathy
Stephen Burns, United States
14:33

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

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>The Cellular Mechanisms Underlying Lowe Syndrome, an Ocular, Cerebral</td>
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<td>and Renal Disorder</td>
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<td>Martin Lowe, Manchester, United Kingdom</td>
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<td>Identification of Novel Roles for Inositol Polyphosphate 5-Phosphatases</td>
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<td>in the Retina</td>
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<td>Michele Davies, Australia</td>
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<td>Mechanistic Insights into Ciliary Signalling and Function Using Gene</td>
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<td>Discovery and Functional Genomics</td>
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<td>Colin Johnson, Leeds, United Kingdom</td>
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<td>Phosphatidylinositol 3-phosphate 5-kinase Rescues Cone Photoreceptor</td>
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<td>Degeneration due to the Absence of Phosphatidylinositol 3-phosphate</td>
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<td>Raju Rajala, Oklahoma City, OK, United States</td>
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<td>Essential Roles for Phosphoinositides in Retinal Neurons and Retinal</td>
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<td>Pigment Epithelium</td>
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<td>Theodore G. Wensel, United States</td>
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<td>Empty Session</td>
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<td>Session: Ophthalmic Genetics/Genomics</td>
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<td>OGM6, Mendelian glaucoma genetics</td>
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<td>John Fingert, Iowa City, Iowa, United States</td>
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<td>Molecular Basis for Glucocorticoid-induced Ocular Hypertension</td>
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<td>Abbot Clark, United States</td>
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<td>NDR Kinases Regulate Retinal Development, Homeostasis and Gene</td>
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<td>Hélène Léger, Philadelphia, PA, United States</td>
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<td>Epigenetic Regulation of the LOXL1 Gene in Pseudoexfoliation Glaucoma</td>
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<td>Sarah Eivers, Dublin, Ireland</td>
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<td>TBK1 Gene and Normal Tension Glaucoma Pathophysiology</td>
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<td>John Fingert, Iowa City, Iowa, United States</td>
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<tr>
<td>ID1 &amp; ID3 Proteins Block TGFβ2 -Induced Ocular Hypertension and</td>
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<td>Decreased Aqueous Humor Outflow Facility in Mice</td>
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<td>John Cameron Millar, Fort Worth, Texas, United States</td>
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Scientific Programme

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

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

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

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

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

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

- **Translational Ophthalmology: Current Challenges at the Interface between Research and Clinic**
  Oliver Zeltz, Berlin, Germany

- **Can we use the retinal blood vessels to predict “vascular disease”?**
  Noemi Lois, Belfast, United Kingdom

- **System Medicine in Ophthalmology**
  Antonia Joussen, Berlin, Germany
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 15:30
Christine Purslow, Newcastle-Under-Lyme, United Kingdom

Sex, Gender and Hormone Effects on Dry Eye. The Role of Oestrogen 15:58
Blanka Golebiowski

Targeting Inflammation in Dry Eye Disease-novel MicroRNAs as Potential Therapeutics 16:26
Joan Ni Gabhann, Dublin, Ireland

Protection by a Metalloporphyrin Superoxide Dismutase Mimetic against Signs of Dry-eye Disease 16:54
Jenni J Hakkarainen, Kuopio, Finland

Ellipsometry of Human Tears 17:06
Ben Glasgow, Los Angeles, United States

Comparison of Corneal Lymphangiogenesis during Dry Eye Induction between Two Murine Models: Extraorbital Lacrimal Gland Excision versus Controlled Environmental Chamber 17:18
Sang-Mok Lee, Gangwon-do, Korea, Republic of

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 15:30
Renu Kowluru, United States

Ceramide-induced Mitochondrial Damage in Diabetic Retinopathy 16:00
Denis Proshlyakov, United States

Mitochondrial Morphology Change and Diabetic Retinopathy 16:30
Sayon Roy, United States

Mitochondrial Quality Control Becomes Compromised in the Retina During the Progression of Diabetes 17:00
Jose R Hombrebueno, Belfast, Northern Ireland, United Kingdom

Development of Gene Therapies for Mitochondrial Deficiencies 17:15
Daniel Maloney, Dublin, Ireland, Ireland
Scientific Programme

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30
Meeting Room 1B

OPT10, Hope or hype for HDAC-mediated neuroprotection / Neurotropism

Chairs:
Francois Paquet-Durand, Germany
Orson Moritz, Vancouver, Canada

Inhibitors of HDAC for the Treatment of Hereditary Retinal Degeneration
Francois Paquet-Durand, Tuebingen, Germany
15:30

Examination of the Effects of Histone Deacetylase Inhibitors on Autophagy and Retinal Degeneration Using Transgenic Xenopus laevis
Orson Moritz, Vancouver, Canada
15:58

Epigenetic Modifications during Retinal Degeneration Suggest a Deregulation of Photoreceptor Identity and of Postmitotic Cell Status Maintenance
Yvan Arsenijevic, Lausanne, Please select, Switzerland
16:26

A Selective Histone Deacetylase 6 Inhibitor, Tubastatin A, Rescues Visual Capacity in Raifteiri, a Novel Zebrafish Retinal Mutant Model
Husvinee Sundaramurthi, Dublin, Ireland
16:54

A New Pluripotent Epigenetic Repressor of Diverse Genes, OBP801, Remarkably Prevents Chorioretinal Fibrosis and Choroidal Neovascularization
Atsushi Mukai, Kyoto, Japan
17:12

LEN10, Chemical modifications and peptides of crystallins in lens

Chairs:
Ram Nagaraj, United States

Acylation of Lens Proteins Improves the Chaperone Activity of α-crystallin
Ram Nagaraj, United States
15:30

Peptide Chaperones: Effect of D-amino Acids
Krishna Sharma, United States
15:57

Phosphorylation of AlphaA-crystallin on T148 Directly Controls its Chaperone Activity and its Protective Function
Patrice Fort, Ann Arbor, United States
16:24

Neuroprotective Potential of Peptain-1 for Glaucoma.
Dorota L. Stankowska, Fort Worth, TX, United States
16:51

The Crystal Structure of the Disulfide-linked γS-crystallin Dimer Provides Insight into an Aggregation-prone Oxidation Product Associated with Cataractous Lenses
Aidan Bradley Grosas, Canberra, Australian Capital Territory, Australia
17:18
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

15:30
Glial Cells - Gatekeeper of Neuronal and Vascular Functions
Susanne Mohr, Michigan, United States

15:50
Interactions between Müller Cells and the Vasculature in Human Retinal Disease
Marcus Fruttiger, London, United Kingdom

16:10
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

16:30
Acute Laser-induced Chorioretinal Damage Elicits Distinct Cytokine/Chemokine Spatiotemporal Profiles in Rats
Sabine Uhles, Basel, Switzerland

16:50
The Role of Retinal Microglia during Formation of Retinal Neovascularisation in the OIR Mouse Model
Myriam Böck, Freiburg, Germany

17:00
Effects of Interleukin-6 Trans-signaling on Human Müller Versus Retinal Endothelial Cells under Hyperglycemic Conditions
Brandon Coughlin, East Lansing, Michigan, United States

Meeting Room 3A

Empty Slot