Scientific Programme

Monday, 10 September 2018

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

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

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

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

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

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

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

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

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

RPE1, Non-VEGF mechanisms in angiogenesis

Chairs:
Mary Elizabeth Hartnett, United States

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

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

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

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

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

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

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

Chairs:
Joseph Carroll, United States

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

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

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

Understanding Retinal Directionality in Imaging and 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
Hall 2B

OPT1, Emerging therapies for ocular malignancies

Chairs:
Sarah Coupland, Liverpool, United Kingdom

Impact of clinical/translational research on patient treatment
Giuseppe Gullo

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
**Scientific Programme**

**Elucidating the Role of Oncogenic Cysteinyl Leukotriene Receptor 2 in Uveal Melanoma Using CRISPR/Cas9 Genome Editing**
Kayleigh Slater, Dublin, Ireland 09:48

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

**Chairs:**
Rupert Bourne, United Kingdom

- **Rapid Assessment of Avoidable Blindness (RAAB) studies - their evolution and their contribution** 08:00
- **The Global Vision Database and what it tells us about vision impairment now and into the future** 08:24
  Rupert Bourne, United Kingdom
- **Novel technologies to expand diagnostic capacity in surveys** 08:48
- **Data driven visible eye health systems- the inclusion of innovative techniques to expand the diagnostic capacities of RAAB** 09:12
  Nigel Bolster
- **Making these data actionable - the view of the CEO of the International Agency for Prevention of Blindness** 09:36

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

**Chairs:**
Jonathan Lin, San Diego, United States

- **The Role of Cell Stress Responses in Retinal Degeneration** 08:00
  Michael Cheetham, London, United Kingdom
- **Integrated Stress Response, Protein Synthesis and New Therapeutic Strategies for Treatments of Retinal Degenerative Disorders** 08:20
  Marina Gorbayuk, Birmingham, Alabama, United States
- **Stem Cell Modeling of ATF6 Cone Photoreceptor Diseases** 08:40
  Jonathan Lin, San Diego, United States
- **Consequences of Blood Retinal Barrier Breakdown** 09:00
  Timothy Lyons, Charleston, South Carolina, United States
- **A Unified Mechanism for Multiple Forms of Cone Photoreceptor Degeneration** 09:20
  Yingbin Fu, Houston, TX, United States
XXIII Biennial Meeting of the International Society for Eye Research, 
September 9 - 13, 2018, 
Belfast, Northern Ireland, UK

Scientific Programme

Implication of Various Oxidative Stress Pathways in the Phenotype of Prpf31-Mutant Mice 09:40

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
Scientific Programme

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**
  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
  08:37

- **tbc**
  Anand Hardikar
  09:13

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

Opening ceremony and plenary lecture

- **Introduction**
  Michael Cheetham, London, United Kingdom
  10:30

- **Chemistry and Biology of Vision**
  Krzysztof Palczewski
  10:40

- **Award Ceremony**
  11:25
Session: RPE-Choroid
13:00 - 15:00

**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

- **C-reactive Protein in AMD**
  Blanca Molins
  14:33

Session: Cornea and Ocular Surface
13:00 - 15:00

**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

- **tbc**
  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. FuchsSluger, Erlangen, Germany
  14:21

- **Corneal Substitutes from Decellularized Porcine Tissues**
  Julia Fernández-Pérez, Dublin, Dublin, Ireland
  14:48
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  
13:00

**tbc**  
13:20

**Neurorecovery in Glaucoma**  
Jonathan Crowston  
13:40

**AKT-dependent and Independent Pathways Mediate PTEN Deletion-induced CNS Axon Regeneration**  
Yang Hu, Palo Alto, California, United States  
14:00

**Treatment with P38 Inhibitor Birb 796 is Neuroprotective in Models of Glaucoma**  
Wendi Lambert, Nashville, TN, United States  
14:20

**Cholesterol Imetabolism is Impaired in Glaucoma**  
Sanjoy K. Bhattacharya, Miami, United States  
14:40

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  
13:00

**Retinal Repair through Photoreceptor Transplantation**  
Robin Ali, London, United Kingdom  
13:27

**tbc**  
Seth Blackshaw, Baltimore, Maryland, United States  
13:54

**Growth of Mammalian Retina by mTORC1-induced RPC Proliferation and Retinal Neurogenesis**  
Jin Woo Kim, Daejeon, Korea, Republic of  
14:21

**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  
14:48
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

Lymphatics and Glymphatics in the CNS - latest insights and controversies
13:00

Near-Infrared Imaging of Lymphatic Function and Cerebrospinal Fluid Outflow
Steven Proulx, Zurich, Switzerland
13:24

Active Lymphatic Drainage from the Eye Measured by Noninvasive Photoacoustic Imaging of Near-infrared Nanoparticles
Yeni Yucel, Canada
13:48

Evidence for lymphatics and glymphatics in posterior eye and their draining lymph nodes
Tailoi Chan-Ling, Sydney, Australia
14:12

Determining Mechanisms of Aqueous Humor Drainage Using Mice
Simon John, United States
14:36

IND3, Dementia in the Eye

Chairs:
Imre Lengyel, United Kingdom

Neuropathological Hallmarks of Alzheimer's Disease in Post Mortem AD Retinas
Jurre den Haan
13:00

tbc
13:22

Is the Retina a Reliable Window to Look into the Brain in Alzheimer's Disease? Lessons from an Animal Model
António Francisco Ambrósio, Coimbra, Portugal
13:44

Update on Ultrasensitive Methods to Detect Molecular Changes in Neurodegenerative Dementias
Henrik Zetterberg
14:06

Investigating Tau Pathology through the Eye: A Preclinical and Clinical Study of Frontotemporal Dementia
Ian Harrison
14:28

tbc - abstract presentation
14:50
Scientific Programme

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

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

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

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

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

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

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

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

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

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

**Chairs:**  
Marc Kantorow, United States

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

- **Lens Epithelial Cells Adaptation and Transformation under Oxidative Stress**  
  Xingjun Fan, Cleveland, OH, United States  
  13:20

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

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

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

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

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

EED2, Global perspectives on AMD and diabetic retinopathy

Chairs:
Tunde Peto, United Kingdom

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

Dietary Patterns and Risk of Age Related Macular Degeneration 13:34
Jayne Woodside, United Kingdom

Racial Differences in Age-related Macular Degeneration and in the Use of Anti-VEGF Agents to Treat Age-related Macular Degeneration among U.S. Medicare Beneficiaries 14:08
Jay Erie, Rochester, Minnesota, United States

Obesity, metabolic syndrome and diabetic retinopathy: Beyond hyperglycemia 14:26
Azza B. El-Remessy, Augusta, United States

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

IND4, Retinoids in development, maturation, and aging

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

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

Functional Role of RPE65 Palmitoylation 13:40
T. Michael Redmond, Bethesda, United States

The role of IRBP in eye size determination 14:20
John Nickerson, Atlanta, United States

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

RCB5, Diabetic retinopathy - Where do we stand?

Chairs:
Renu Kowluru, United States

tbc 15:30
Julia V. Busik, Michigan, United States

Molecular Mechanisms of Diabetic Retinopathy-Arginase as a Therapeutic Target 15:52
Ruth B. Caldwell, Augusta, GA, United States
Scientific Programme

DRGen Study: Novel Genetic Variants in Extreme and Advanced Phenotypes of Diabetic Retinopathy
Arup Das, New Mexico, United States 16:14

Neuronal Dysfunction in Diabetic Retinopathy
Machelle T. Pardue, Decatur, Georgia, United States 16:36

Rac1-Nox2 Signaling Axis in the Pathogenesis of Diabetic Retinopathy: Complexity of Simplicity
Anjan Kowluru, United States 16:58

A Diabetic Milieu Induces Premature Senescence in Retinal Endothelial Cells
Pietro Maria Bertelli, Belfast, Northern Ireland, United Kingdom 17:20

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 15:30

Surgical strategies for RPE cell delivery in animal models
Boris Stanzel, Germany 15:57

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 16:24

Autologous iPSC Derived CECs for Evaluating Pathophysiology and Treatment of AMD
Budd Tucker, United States 16:51

Endothelial Colony Forming Cell Modulation of Choroidal Angiogenesis
Stuart McKeown, Belfast, United Kingdom 17:18

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

COS3, Inflammation / Infection of the cornea and ocular surface

Chairs:
Susmit Suvas, United States

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

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

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

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

**KLF4 and TGF-β Superfamily Crosstalk in Corneal Epithelial Homeostasis**
17:18

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

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

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

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

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

**Using zebrafish to provide genetic models of human congenital eye abnormalities**
Stephen Wilson, London, United Kingdom
16:48

**Temporal Requirement of Mab21l2 during Eye Development in Chick Reveals Stage Dependent Functions for Retinogenesis**
Soufien Sghari, Umeå, Sweden
17:14

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**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
15:30

**ANGPT1 Variants Contribute to Early and Late-onset Glaucoma**
Janey Wiggs, United States
16:00
Scientific Programme

16:30

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

17:00

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

Omidenepag 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

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

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

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

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
Scientific Programme

**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

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

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

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

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

17:18
**Arginase 1 Promotes Retinal Neurovascular Protection from Ischemia through Suppression of Macrophage Inflammatory Responses**
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

15:30
**Gut Microbiota and the Gut-retina Axis Influence Pathological Choroidal Neovascularization**
Przemyslaw (Mike) Sapieha, Montreal, Canada

15:57
**tbc**
Scientific Programme

Infectious Etiology of Age-related Macular Degeneration  
16:24

Identification of Bacillus megaterium as the Major Etiology of Early Age-related Macular Degeneration  
16:36
Lai Wei, China

The Use of Predatory Prokaryotes to Control Human Ocular Pathogens  
17:03
Robert Shanks, Pittsburgh, PA, United States

Poster Session
17:30 - 19:00

Cornea and Ocular Surface

The Association between Smartphone Addiction and Dry Eye Disease: A Cross Sectional Study  
17:30
Yara Alqahtani, Jeddah, Saudi Arabia

Expression of IQGAP-1 in Pterygium Body and the Association with Clinical Grading  
17:35
Tzu-Ting Lai, New Taipei City, Taiwan, Province of China

Effectiveness and Optical Quality of Topical 3.0% Diquafosol versus 0.05% Cyclosporine A in Dry Eye Patients following Cataract Surgery  
17:40
Seokhyun Bae, Daegu, Korea, Republic of

4D Tissue Engineering: Shaping the Corneal Stroma Using Localised, Time-dependant, Cell-mediated Contraction  
17:45
Martina Miotto, Newcastle upon Tyne, United Kingdom

Gene Expression Analysis of Conjunctival Epithelium of Stevens-Johnson Syndrome Patients in the Chronic Stage  
17:50
Mayumi Ueta, Kyoto, Japan

Mega-dose Dietary Riboflavin and Direct Sunlight UV Exposure in the Treatment of Keratoconus and Post-refractive Surgery Ectasia  
17:55
John Jarstad, Columbia, Missouri, United States

Optimal Cryopreservation Conditions for Limbal Stem Cells  
18:00
Charlie Osei-Bempong, Newcastle Upon Tyne, Tyne and Wear, United Kingdom

Cell Alive System (CAS) as a New Freezing Storage System for Donor Cornea  
18:05
Tetsuya Kawakita, Tokyo, Japan

A Nonlinear Viscoelastic Model of Corneal and Whole-eye Motion under Air-puff Loading by a Dynamic Scheimpflug Analyzer  
18:10
B. Audrey Nguyen, Columbus, Ohio, United States

Asymmetrical Endothelial Cell Migration from in vitro Quarter-DMEK Grafts  
18:15
Alina Miron, Rotterdam, Zuid Holland, Netherlands

Effect of Extraction Method and Location on in vitro Stromal Cell Behavior  
18:20
Thomas Volatier, Gateshead, Tyne And Wear, United Kingdom

A Mesenchymal Stem Cells Patch for Corneal Wound Healing  
18:25
Olla Al-jaibaji, Newcastle Upon Tyne, United Kingdom
Posters 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, Singapore

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

**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
Scientific Programme

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

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

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

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

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

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

Lens

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

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

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

Heparan Sulfate Proteoglycans in the Lens: The Role of Glycosaminoglycan Chain Sulfation in Epithelial Cell Mitogenesis
Tayler F.L. Wishart, Sydney, New South Wales, Australia

Ocular Imaging and Psychophysics

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

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

Imaging Dementia through the Eye
Lajos Csincsik, Belfast, Northern Ireland, United Kingdom
XXIII Biennial Meeting of the International Society for Eye Research, 
September 9 - 13, 2018, 
Belfast, Northern Ireland, UK

Scientific Programme

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

Obtaining a Stable and Reliable Dilated Pupil Using a Gel Combination in Patients between the Ages of 30 - 50
Rebecca Zoltoski, Chicago, United States

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

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

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

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

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

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

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

Mitochondrial Morphology Change and the Expression of Mitochondrial Fission/Fusion Genes in RPE Cells under Oxidative Stress
Xu Liu, Xi’an, 陕西省, 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

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

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

Retinal Cell Biology

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

Regulation of mRNA Decay by Zfp36l1 and Zfp36l2 in Retinal Development and Maintenance
Xiuqian Mu, Buffalo, New York, United States

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
Scientific Programme

**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

**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
Scientific Programme

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

RPE Choroid

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

- **Development of a Planar Retinal Organoid**  
  Lawrence Rizzolo, New Haven, CT, United States, United States  
  08:00

- **Retinal Regeneration Therapy Using iPSC Derived Retina**  
  Michiko Mandai, Japan  
  08:22

- **Deconstructing Retinal Organoids: To Assess the Heterogeneity, Maturity and Transplantation Potential of hESC-derived Photoreceptors**  
  Joseph Collin, Newcastle upon Tyne, United Kingdom  
  08:44

- **Using Patient-derived Human Induced Pluripotent Stem Cells to Model Inherited Retinal Disease**  
  Erin Burnight, Iowa City, United States  
  09:06

- **Modeling Retinal Ganglion Cell Development and Disease with Human Pluripotent Stem Cells**  
  Jason Meyer, Indiana, United States  
  09:28

- **Understanding Why PAX6 Gene Mutations Cause Poor Vision from Birth**  
  Lisa Maria Hentschel, London, United Kingdom  
  09:50
Session: Glaucoma
08:00 - 10:00

**GLA4, Inner Plexiform Layer**

**Chairs:**
James Morgan, Cardiff, United Kingdom

- **Mayhem in the IPL? Retinal ganglion cell degeneration in experimental glaucoma and mitochondrial neuropathy**
  James Morgan, Cardiff, United Kingdom 08:00
- **Müller Cell Changes during Disturbed Energy Metabolism**
  Miriam Kolko, Glostrup, Denmark 08:30
- **Retinal ganglion cell degeneration in human glaucoma**
  James Tribble 09:00

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

**COS4, Advances in corneal crosslinking**

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

- **Corneal Cross-linking Solutions: A Better Way to Strengthen the Cornea for Keratoconus?**
  David Paik, New York City, United States 08:00
- **Advances in the Use of Genipin in Corneal Crosslinking**
  Marcel Y Avila, Bogota DC, Colombia 08:22
- **Use of Ultrafast Lasers for Enhancement of Corneal Biomechanics towards Treating Corneal Ectasias and Refractive Error Correction**
  Sinisa Vukelic, New York City, United States 08:44
- **Non Linear Corneal Collagen Cross Linking (NLO CXL)**
  James V. Jester, California, United States 09:06
- **In vitro Effectiveness of Photodynamic Antimicrobial Chemotherapy with TONS504 for Eradication of Acanthamoeba**
  Taiichiro Chikama, Hiroshima, Japan 09:28
- **Discussion** 09:50

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

**IMA2, Imaging and understanding retinal blood flow and vasculature disease**

**Chairs:**
Stephen Burns, United States
Scientific Programme

Quantifying Retinal Microvasculature with AOSLO vs. OCTA
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-associated phagocytosis in the RPE
Kathleen Boesze-Battaglia, 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

Empty Slot
Scientific Programme

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

LEN2, Models for lens fibrosis and PCO

Chairs:
Melinda Duncan, United States

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

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

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

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

- Regulation of 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
Hall 1A

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

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

RPE5, Photoreceptor-RPE interface

Chairs:
Silvia Finnemann, United States
Scientific Programme

Revisiting Recessive Stargardt Disease Pathogenesis 13:00
Roxana Radu, United States

Understanding the Dynamics of Subretinal Space in Health and Disease 13:24
Karina Guziewicz, United States

The Circadian Regulation of RPE Functions 13:48
Kenkichi Baba, United States

RPE Contributions to Photoreceptor Outer Segment Renewal 14:12
Silvia Finnemann, United States

βA3/A1-crystallin is a Potential Regulator of Receptor Tyrosine Kinases (RTKs) Endocytosis and Maintain the Polarity of RPE Cells 14:36
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 13:00
Elia Duh, Baltimore, Maryland, United States

Harnessing Activation of the “Innate Repair Receptor” (IRR) to Prevent Inflammatory Pathology in Diabetic Retina 13:24
Alan Stitt, Belfast, United Kingdom

Conditional Endothelial Expression of Pro-barrier Occludin Mutant Preserves Visual Function in Diabetes 13:48
David Antonetti, United States

Novel Insights into the Role of VEGF and NRP1 in Ocular Neoangiogenesis 14:12
Alessandro Fantin, London, United Kingdom

Characterization of Monocyte Derived Macrophages in Diabetic Retinopathy 14:36
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 13:00
Gianluca Tosini, Atlanta, United States
Scientific Programme

Multiple Effects of Retinal BMAL1 Disruption: Structure and Function during Development and Aging
P. Michael Iuvone, Atlanta, Georgia, United States
13:27

Melatonin is a key player in the circadian physiology of the retina
Virginie Laurent-Gyde, Strasbourg, France
13:54

An Opposing Role for Neuronal and Endothelial Bmal1 in Retinal Vascular Growth, Remodeling, and Homeostasis
Sujata Rao, Cleveland, Ohio, United States
14:21

Differential Roles for Cryptochromes in the Mammalian Retinal Clock
Stuart Peirson, Oxford, United Kingdom
14:48

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

OGM2, Beyond the genome: Functional genomics in genetic eye disease
Chairs:
Elfride De Baere, Belgium

The Non-coding Morbid Genome of Inherited Retinal Diseases
Elfride De Baere, Belgium
13:00

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

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

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

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

Detection of Novel Alternative Splicing Events in Retinal Microvascular Endothelial Cells Using Single Cell RNA Sequencing
Mark Watson, Belfast, Antrim, United Kingdom
14:50

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

GLA5, Novel technologies for exploring the glaucomatous eye
Chairs:
Andrew Tatham
## Scientific Programme

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<th>Title</th>
<th>Presenter/s</th>
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<td>13:00</td>
<td>The Role of OCT Angiography in Glaucoma</td>
<td>Andrew Tatham</td>
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<tr>
<td>13:22</td>
<td>OCT and Glaucoma Diagnosis</td>
<td>Augusto Azuara-Blanco</td>
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<td>13:44</td>
<td>Optimising the Perimetric Detection and Monitoring of Glaucoma with Two- and Three-dimensionally Scaled Stimuli</td>
<td>Padraig Mulholland</td>
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<td>14:06</td>
<td>Biomarkers or Endpoints in Glaucoma</td>
<td>M Francesca Cordeiro, London, United Kingdom</td>
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<td>14:28</td>
<td>Relative Diagnostic Accuracy of Optic Disc, RNLF and Macula as Imaged by SD-OCT: From Statistics to Clinical Practice</td>
<td>Francesco Oddone</td>
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<td>14:50</td>
<td>The Waist of the Nerve Fiber Layer at the Optic Nerve Head (PIMD-2Pi), a Potential Morphometric Estimate of Glaucoma Progress</td>
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### 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

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<tr>
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<td>13:00</td>
<td>Mathematical Models of Retinal Circulation and Metabolism</td>
<td>Robert A. Linsenmeier, Evanston, United States</td>
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<tr>
<td>13:22</td>
<td>Retinal Capillary Oximetry by Visible Light Optical Coherence Tomography</td>
<td>Ji Yi, United States</td>
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<tr>
<td>13:44</td>
<td>Computational Investigation of Mass Transfer between the Choriocapillaris and the Outer Retina</td>
<td>Moussa A. Zouache, Salt Lake City, United States</td>
</tr>
<tr>
<td>14:06</td>
<td>Predicting Spatial Patterns of Retinal Degeneration in Retinitis Pigmentosa using Mathematical Models</td>
<td>Paul Roberts, Birmingham, United Kingdom</td>
</tr>
<tr>
<td>14:28</td>
<td>Retinal Vascular Wall Thickness in Hypotensive Subjects, the Naive Vascular State: Data and Theoretical Model</td>
<td>Thomas Gast, United States</td>
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<tr>
<td>14:50</td>
<td>Statistical Assessment of Blood Vessel Activity as a Surrogate of in vivo Retinal Vascular Function</td>
<td>Joan M. Nunez do Rio, London, United Kingdom</td>
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Scientific Programme

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

RCB9, Signal transduction and congenital diseases of photoreceptors
Chairs:
Alexander Dizhoor, United States

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

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

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

**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

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

LEN3, Architecture & ultrastructure of the lens
Chairs:
Roy Quinlan, United Kingdom

**Lenticular cytoskeleton**
Paul Fitzgerald, United States
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
13:30

**Fine Tuning of Ocular FGF Activity Regulates Differentiation and Collective Movement of Lens Fibre Cells**
Yuki Sugiyama, Okinawa, Japan
14:00

**The Epithelial Template for Coordinated Growth of the Eye Lens**
Alexia Kalligeraki, United Kingdom
14:30
XXIII Biennial Meeting of the International Society for Eye Research,  
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Scientific Programme

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

Models of spectacle delivery for children in China  
14:21

Perception of Textile Factory Workers on Vision in their Workplace: A Qualitative Study  
14:48

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

COS5, Keratoconus: Biology and management

Chairs:  
Vishal Jhanji, United States  
Rajiv Mohan, Columbia, Missouri, United States

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

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

tbc  
Arkasubhra Ghosh, Bangalore, India  
14:06

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

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

RPE6, Bruch’s membrane

Chairs:  
Christine Curcio, Birmingham, AL, United States

BLamD, BLinD, BrM - What’s the Difference, and Why it Matters for AMD  
Christine Curcio, Birmingham, AL, United States  
15:30
XXIII Biennial Meeting of the International Society for Eye Research, September 9 - 13, 2018, Belfast, Northern Ireland, UK

Scientific Programme

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

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

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

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

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

IND8, Molecular regulation of ocular morphogenesis

Chairs:  
Sabine Fuhrmann, United States

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

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

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

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

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

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

GLA6, Metabolic dysfunction/ bioenergetics in glaucoma

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

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

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

**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 Hall 2B
**IMM6, Advances in the diagnosis and management of uveitis**

**Chairs:**
Conor Murphy, Dublin, Ireland

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

**Improving Clinical Outcomes in Acute Anterior Uveitis-associated Spondyloarthritis** 16:06
Conor Murphy, Dublin, Ireland

**MicroRNA Therapeutics for the Treatment of Autoimmune Uveitis** 16:42
Stephane Heymans, Maastricht, Netherlands

**Non-tuberculous Mycobacterial Endophthalmitis Complicated by ESRD** 17:18

**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** 17:30
Charles E. Egwuagu, Bethesda, United States

Session: Ophthalmic Genetics/Genomics 15:30 - 17:30 Meeting Room 3B
**OGM3, Genes, cell death and glaucoma**

**Chairs:**
Rob Nickells, United States

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

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

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

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

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

**Efficient Simultaneous Mapping of Many Retinal Ganglion Cell Center-Surround Receptive Fields**
John B Troy, Evanston, Illinois, United States
17:20

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

**OPT3, New candidate drugs and targets for angiogenesis**

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

**Semaphorins as Angiogenic Modulators in the Retina**
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
Meeting Room 1B

**RCB10, Molecular mechanisms of rhodopsin signaling**

**Chairs:**
Vsevolod Gurevich, United States
Scientific Programme

**Molecular Mechanism of G protein Binding to Rhodopsin**  
15:30

**Role of structural dynamics in retinal binding and release to rhodopsin**  
16:00

**Molecular Mechanism of Arrestin-1 Binding to Rhodopsin**  
16:30

Vsevolod Gurevich, United States

**Efficiency of Rod Transduction Activation by a Single Opsin Molecule**  
17:00

Vladimir Kefalov

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

**Chairs:**  
David Li

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

**The cAMP Responsible Element Binding Protein (CREB) Regulates Lens Differentiation through Control of Various Sets of Downstream Genes**  
15:54

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

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

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

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

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

**Chairs:**  
Tony Realini, Morgantown, United States

15:30  
Alex Silvester
Scientific Programme

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

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

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

Discussion 17:10

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

COS6, Genetics of keratoconus

Chairs:
Colin Willoughby

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

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

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

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

Poster Session 17:30 - 19:00 Poster Area

Cornea and Ocular Surface

Nucleic Acid Stimulation Increases Barrier Function in Immortalized Corneal and Conjunctival Epithelium via Toll-like Receptor 3 15:30
YURIKO BAN, Nantan, Japan

Evaluation of the Suitability of Biocompatible Carriers as Artificial Transplants Using Cultured Porcine Corneal Endothelial Cells 16:00
Alina Miron, Rotterdam, Zuid Holland, Netherlands

Integral Analysis of Cytokines and miRNAs in the Aqueous Humor of Bullous Keratopathy Patients to Develop Prognostic Biomarkers 16:30
Morio Ueno, Kyoto, Japan

Topical TRPM8 Antagonist AMTB Reduces the Activity of Cold Thermosensitive Trigeminal Neurons Innervating the Ocular Surface 17:00
Ariadna Diaz-Tahoces, San Juan de Alicante, Spain
Scientific Programme

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

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
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

Downregulation of Tight Junctions in Schlemm’s Canal Endothelia Decreases Intraocular Pressure and Increases Outflow Facility in a Model of Steroid-induced Ocular Hypertension
Ruth A Kelly, Dublin, Ireland

An Assessment of Inflammatory Response after Retrobulbar Injection of Genipin
Richard Kjoon 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 Electroretinograms of Glaucoma Patients with Initial Parafoveal Scotoma versus Initial Peripheral Nasal Step
Da Young Shin, Seoul, Korea, Republic of

Preliminary Study of the Effect of 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

Poster Session
17:30 - 19:00

Lens

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

**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, -- select one --, United Kingdom

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

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

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

**Safety of a new Biodegradable Poly(E-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
**Scientific Programme**

**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

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**Ophthalmic Genetics/Genomics**

**Homoyzgous Mutations in a Novel Deubiquitylase Gene Are Associated with Leber Congenital Amaurosis**
Zhen Yi, Guangzhou, China

**The Role of Genomic Analyses in Pathogen Identification in Keratitis**
Michael Glenn, Belfast, United Kingdom

**Lens Fiber Cell Morphogenesis and Genetic Modifiers in Cataractogenesis of Gja3 Knockout Mice**
Chun-Hong Xia, Berkeley, United States

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

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

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

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**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
Scientific Programme

**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

**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
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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+/--; Irp5+/--; 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

tlarning The Hard Way: Role of Vascular Stiffening in Early Diabetic Retinopathy and AMD
Kaustabh Ghosh, Riverside, United States

Ciliary Regulation of Wnt Signaling during RPE Maturation Is Essential for Visual Function
Helen May-Simera, Mainz, Germany

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

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

NDR Kinases Regulate Retinal Development, Homeostasis and Gene Expression
Hélène Léger, Philadelphia, PA, 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
Scientific Programme

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
Poster Area

RPE Choroid

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

Wednesday, 12 September 2018

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

New Insights in the Nucleoredoxin-like 1 Metabolic and Redox Signaling
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
Nancy J. Philp, United States

Role of Aerobic Glycolysis in Photoreceptors
Claudio Punzo, United States

A Key Element of the Directionality of the Metabolic Flux between Rod and Cone Photoreceptors
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?
Tanja Ilmarinen, Finland

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

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

Rescue of vision by photoreceptor cell transplantation involves multiple cellular mechanisms 09:21
Rachel Pearson, United Kingdom

Overexpression of β-Secretase 1 (BACE1) by AAV-mediated Gene Delivery Provides Protection in a Mouse Model of AMD 09:48
Xiaoping Qi, Birmingham, Alabama, United States

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
Colin Willoughby, Coleraine, Northern Ireland, 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

Medical Image Processing and Analysis - An Overview 08:22
Tariq Aslam, Manchester, United Kingdom
**Scientific Programme**

**Teleophthalmology - a platform to facilitate collaborative eye care**
08:44

**Artificial Intelligence in Ophthalmology - The Moorfields-DeepMind Collaboration**
Pearse Keane, United Kingdom
09:06

**Implementation of Virtual Clinics for Medical Retina Patients in a Tertiary Eye Care Referral Centre**
Karsten Kortuem, Munich, Germany
09:28

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**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**
  Jan Provis, 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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**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

- **Pharmacological PCO Prophylaxis - Using the IOL as a Drug Delivery Device**
  Christian Wertheimer, Munich, Germany
  08:44
Scientific Programme

**Fabrication of Implantable IOLs Using 3D Printing Technology**  
Aram Saeed, United Kingdom  
09:06

**The Role of αβ8-integrin in Posterior Capsular Opacification (PCO) Pathogenesis**  
Mahbubul Shihan, Newark, Delaware, United States  
09:28

**EGF Potentiates TGF-beta-Induced Epithelial-mesenchymal Transition in Lens by Enhancing EGF Receptor Signaling**  
Daisy Shu, Camperdown, NSW, Australia  
09:43

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  
08:00

**TRPV2 and Diabetic Retinopathy**  
Peter Barabas, Belfast, United Kingdom  
08:24

**Vanilloid TRP Channels Regulate Neuroglial Signaling in the Mammalian Retina**  
David Krizaj, United States  
08:48

**Organization of the TRPM1 “Signalosome” at the First Visual Synapse**  
Kirill Martemyanov, United States  
09:12

**In vitro Modulation of Retinal TRPV4 - Implications for Neuronal Survival and Neuroinflammation**  
Linnea Taylor, Sweden  
09:36

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

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

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

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

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

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

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

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

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

**Evaluation of a Novel FKBPL-derived Peptide in the Treatment of Corneal Neovascularisation**  
Gideon Obasanmi, Coleraine, United Kingdom  
08:10

**Transcriptomic Analysis of Expanded Limbal Epithelium Reveals Enrichment for Wound Healing Genes**  
Finbarr O'Sullivan, Ireland  
08:32

**Vitamin D Influences on Corneal Epithelial Wound Healing**  
Mitchell Watsky, Augusta, United States  
08:54

**Corneal Epithelial Regeneration after Biosynthetic Corneal Implantation**  
May Griffith, Montreal, Canada  
09:16

**An Improved Treatment Strategy for Acute Ocular Disease Using Dry-preserved Human Amnion**  
Andrew Hopkinson, Nottingham, United Kingdom  
09:38

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

**Plenary Lecture**

**Introduction**  
10:30

**Deconstructing Aqueous Humor Outflow - The Last 50 Years**  
10:40

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

**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

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>13:00</td>
<td><strong>Innate Immune Dysregulation and Diabetic Retinopathy</strong></td>
<td>Mei Chen, Belfast, Yes, United Kingdom</td>
</tr>
<tr>
<td>13:22</td>
<td><strong>Pro-inflammatory role of 12/15-Lipoxygenase-derived Eicosanoids in Diabetic Retinopathy</strong></td>
<td>Mohamed Al-Shabrawey, Augusta, United States</td>
</tr>
<tr>
<td>13:44</td>
<td><strong>Chemokines in Diabetic Retinopathy: The Good, the Bad and the Ugly</strong></td>
<td>Sofie Struyf, Leuven, Belgium</td>
</tr>
<tr>
<td>14:06</td>
<td><strong>Osteoprotegerin is a Novel Biomarker of Proliferative Diabetic Retinopathy</strong></td>
<td>Ahmed M. Abu El-Asrar</td>
</tr>
<tr>
<td>14:28</td>
<td><strong>Involvement of Helper T Cell Immunity Balance in Diabetic Retinopathy</strong></td>
<td>Manzo Taguchi, Japan</td>
</tr>
<tr>
<td>14:50</td>
<td><strong>VEGF-B Protects Muller Cells under Hypoxic and Oxidative Conditions</strong></td>
<td>Maria Llorian-Salvador, Belfast, United Kingdom</td>
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</tbody>
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**Session: Ophthalmic Genetics/Genomics**  
13:00 - 15:00  
Hall 1B

**OGM4, AMD genetics and cell biology**

**Chairs:**  
Andrew Lotery, United Kingdom

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<th>Time</th>
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<tr>
<td>13:00</td>
<td><strong>An iPSC Patient Specific Model of CFH (Y402H) Polymorphism Displays Characteristic Features of AMD</strong></td>
<td>Majilinda Lako, Newcastle, United Kingdom</td>
</tr>
<tr>
<td>13:27</td>
<td><strong>The Impact of Systemic Inflammation on the Retina: Implications for Age-related Macular Degeneration</strong></td>
<td>Jessica Teeling, Southampton, United Kingdom</td>
</tr>
<tr>
<td>13:54</td>
<td><strong>Molecular Genetics of Age Related Macular Degeneration</strong></td>
<td>Andrew Lotery, United Kingdom</td>
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<tr>
<td>14:21</td>
<td><strong>Complement Gene Expression and its Modulation in Human Retinal Pigment Epithelium</strong></td>
<td>Selina McHarg, Manchester, United Kingdom</td>
</tr>
<tr>
<td>14:48</td>
<td><strong>Genome-wide DNA Methylation Study in Dry Age-related Macular Degeneration: Novel Candidate Loci Identified and Validated</strong></td>
<td>Louise Frances Porter, Liverpool, United Kingdom</td>
</tr>
</tbody>
</table>
Scientific Programme

Session: Lens
13:00 - 15:00

LEN6, Channels and transporters in lens transparency

Chairs:
Kulandaiappan Varadaraj, United States

- **AQP0 C-terminal End Truncation Is Critical for Establishing the Refractive Index Gradient in the Lens to Prevent Spherical Aberration**
  Kulandaiappan Varadaraj, United States
  
- **Lens Channels Regulate Intracellular Hydrostatic Pressure**
  Thomas White, Stony Brook, United States
  
- **Cataract-linked Connexin50 Mutations Cause Misfolding and ER Stress: Approaches to Treatment**
  Eric Beyer, Chicago, Illinois, United States
  
- **Functional Organization of AQP0-regulated Membrane Specializations in Lens Fiber Cells**
  Woo-Kuen Lo, United States
  
- **Cell Adhesion Function of Aquaporin 0**
  Yosuke Nakazawa, Japan

Session: RPE-Choroid
13:00 - 15:00

RPE8, Non-vascular cells of the choroid

Chairs:
Solange Landreville, Canada

- **Understanding Choroidal Cell Interactions through Tissue Engineering**
  Stephanie Proulx, Quebec, Quebec, Canada
  
- **Defective Choroidal Blood Flow Baroregulation and Retinal Dysfunction and Pathology following Sympathetic Denervation of Choroid**
  Anton J. Reiner, United States
  
- **Modeling Mast Cell Involvement in Geographic Atrophy**
  Gerard Lutty, United States
  
- **Interactions between Uveal Choroidal Melanocytes and Monocytes in vitro**
  Mogens Holst Nissen, Denmark

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

RCB12, Sterol biosynthesis and elimination in retinal structure and function

Chairs:
Irina Pikuleva, Cleveland, OH, United States
### Scientific Programme

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<tr>
<td>13:00</td>
<td>The Pathways of Cholesterol Homeostasis in the Retina: Significance and Regulation</td>
<td>Irina Pikuleva, Cleveland, OH, United States</td>
</tr>
<tr>
<td>13:27</td>
<td>Statins, RPE and Drusen</td>
<td>Xiaohong Chen, Boston, MA, United States</td>
</tr>
<tr>
<td>13:54</td>
<td>Cholesterol-24S-hydroxylase in the Retina: From Expression to Pathophysiological Implication in Glaucoma</td>
<td>Lionel Bretillon, France</td>
</tr>
<tr>
<td>14:21</td>
<td>A Computational Model of Retinal Cholesterol Dynamics: Insights into the Pathophysiology of Dry AMD</td>
<td>Seyedeh Zekavat, New Haven, Connecticut, United States</td>
</tr>
<tr>
<td>14:48</td>
<td>Vitamin-D3 Acts as a Potent Vascular Inducer in Hyperoxic Insult: Primary Human Retinal Pigment Epithelium</td>
<td>Murugeswari Ponnalagu, Bangalore, India</td>
</tr>
</tbody>
</table>

#### Session: Retinal Cell Biology
13:00 - 15:00  
**RCB13, Ion channels and ischemic retinopathies**  
Meeting Room 1B

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

#### Session: Glaucoma
13:00 - 15:00  
**GLA8, Biomechanics and Astrocyte Mechanobiology in Glaucoma**  
Meeting Room 2A

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Scientific Programme

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
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
Daniel Aberdam, France
13:10

Stem Cell Tracking, Loss and Recovery in the Corneal Epithelium
Ruby Shalom-Feuerstein, Haifa, N/A, Israel
13:20

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
13:42

Importance of Limbal Tissue Stiffness in Wound Repair
Che John Connon, Newcastle-upon-Tyne, United Kingdom
14:04

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
14:26

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

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

T.L. Session

Chairs:
Thomas Langmann, Köln, Germany

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

Complement Regulator FHR-3 Induces the 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
Scientific Programme

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

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

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

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

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

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

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

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

Difficulty of Diagnosis for Ocular Sarcoidosis in Japanese Unprecedented Ageing Society
Kei Takayama, Tokorozawa, Saitama, Japan

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
Scientific Programme

Development of a Point-of-Injury Gel Bandage for Ocular Trauma 16:24
Michael Washington

Drug Delivery for Corneal Cystinosis 16:51
Jorge Jimenez, Pittsburgh, United States

Localized AAV-PEDF Gene Therapy for Corneal Neovascularization in vivo 17:18

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 15:30
Bryan William Jones, United States

Rod Bipolar cell Networks in Early Retinal Remodeling 15:52
Rebecca Pfeiffer, Utah, United States

Retina Ganglion Cells Regeneration 16:14
Homaira Nawabi, La Tronche, France

Plasticity of Retinal Bipolar Cells 16:36
Daniel Kerschensteiner, Saint Louis, United States

Barriers and Solutions to Retinal Ganglion Cell Regeneration 16:58
Supraja Varadarajan, Stanford, United States

Mülter Glia Proliferation and Retinal Regeneration is Triggered by Acute Damage but Not Progressive Photoreceptor Degeneration in Zebrafish cep290-/- Mutants 17:20
Brian Perkins, United States

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

OGM5, 100.000 genome project - Ocular results

Chairs:
Andrew Webster, United Kingdom
Christina Zeitz, France

The 100,000 Genomes Project - An Overview 15:30
Freya Boardman-Pretty, United Kingdom

Whole Genome Analysis of Inherited Retinal Disease Patients Reveals Mutations Intractable to Other Detection Strategies 15:52
Gavin Arno, United Kingdom

Utility of WGS in ocular maldevelopment management 16:14
Mariya Moosajee, London, United Kingdom
Scientific Programme

Using NGS to Find ´Difficult´ Alleles  
Christina Zeitz, France  
16:36

Hypomorphic alleles associated with non-syndromic retinal disease - an advantage of the unbiased nature of next-generation sequencing  
Andrew Webster, London, United Kingdom  
16:58

Target 5000: Population-scale Genotyping of Inherited Retinal Degenerations in Ireland  
Adrian Dockery, Dublin, Ireland  
17:20

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

LEN7, Aggregation of crystallin and cataract  
Chairs:  
Takumi Takata, Japan

The Mutation Studies for Isomerization Hot Spots of Aspartate Residues in Lens αA-Crystallin  
Takumi Takata, Kumatori-cho, Osaka, Japan  
15:30

Deamidation of Glutamines in Aged Human Lens Crystallins Is Not Accompanied by Isomerization of the Subsequent Glutamate Residues  
Larry David, United States  
16:00

The effect of deamidation on gammaS-crystallin stability  
John Carver, Australia  
16:30

The Effects of Crowding on the Structure of AlphaB-crystallin  
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

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

- **Antibody mimicry in neuroprotection**
  15:30

- **Allosteric Modulation of IL-1R: Selectivity and Efficacy in Retinopathy**
  Sylvain Chemtob, Montreal, QC, Canada
  15:50

- **Targeting Semaphorin 3A for Retinal Vascular Disease**
  Mike Sapieha, Montreal, Canada
  16:10

- **Unbiased Discovery of anti-Angiogenic and neuroprotective Drugs**
  Breandan Kennedy, Dublin, Ireland
  16:30

- **Mitochondrial Targeting for Eye Disease**
  Glen T Prusky, United States
  16:50

- **Optogenetics and RP**
  Zhuo-Hua Pan, United States
  17:10

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
Scientific Programme

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

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

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

Circulating MicroRNAs in Diabetic Retinopathy
Tengku Ain Kamalden, Malaysia

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

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

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

Chairs:
Astrid Limb

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

Session: 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
  Gerhard Garhöfer, Wien, Austria
- Mechanisms Underlying the Myogenic Constriction of Retinal Arterioles
  Mary McGahon, Belfast, United Kingdom
- Imaging the Choroid with Optical Coherence Tomography Technologies
  Daniela Ferrara, Medford, United States
- Autonomic Control of Choroidal Blood Flow: What’s the Anatomy?
  Falk Schroedl, Austria
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**
  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, Miami, Florida, United States

- **Epigenetic Signatures of RPE Reprogramming**
  Katia Del Rio-Tsonis, Miami, Florida, 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

- **Gliarial involvement in Retinal De- and Regeneration in Zebrafish and Mouse**
  Volker Enzmann, Bern, Switzerland  09:30
Scientific Programme

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

OPT7, Ocular drug delivery

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

Simultaneous Co-delivery of Therapeutics with Biodegradable Microparticles. Potential Treatment of Retinal Diseases
08:00
Rocio Herrero-Vanrell, Madrid, Spain

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

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

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

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

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

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

IMM10, Optic nerve regeneration and inflammation

Chairs:
Wencan Wu
David Krizaj, United States

IL-33/ST2 Signaling in the Glaucomatous Optic Nerve Head
08:00
Markus H. Kuehn, Iowa City, United States

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

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

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

Microglia Depletion Mediated Retinal Ganglion Cell Survival on Branch Retinal Vein Occluded Mice
09:48
Joel Jovanovic, Bern, Switzerland
Scientific Programme

08:00 - 10:00  Meeting Room 1B

Empty slot

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

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

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

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

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

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

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

  Vasileios Theofylaktopoulos, London, United Kingdom

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

GLA9, Pseudoexfoliation Glaucoma Update

Chairs:
Deborah Wallace, Ireland
Audrey Bernstein

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

- Autophagic and Microtubule Dysfunction in Exfoliation Glaucoma 08:27
  Audrey Bernstein

- Potential Roles of Aqueous miRNAs in Exfoliation Glaucoma 08:54
  Yatau Liu

- Glaucoma: An Insight into Epigenomic Reprogramming 09:21
  Deborah Wallace, Ireland
Loss of Loxl1 Expression in Optic Nerve Head Astrocytes Results in Molecular Signatures Suggestive of Reactive Astrocytosis and Elastinopathy
Anita Ghosh, Maywood, IL, United States

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

COS10, Genetics of corneal dystrophies

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

Challenges of CRISPR Gene Editing in Genetic Eye Disease
M. Andrew Nesbit, Coleraine, United Kingdom

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

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

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

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

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

Plenary lecture

Young Investigator Poster Competition Award Ceremony
10:30

Introduction
Takeshi Iwata, Japan

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

Award Ceremony
11:25
Scientific Programme

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

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

Chairs:
Diana Pauly, Regensburg, Germany

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

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

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

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

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

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

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

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

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

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

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

- **Functional retinal imaging with Optical Coherence Tomography**
  Robert J Zawadzki, Davis, California, United States
  14:30
Scientific Programme

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

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
  13:00

- **Inflammatory Resolution and Vascular Restoration in Diabetic Retinopathy**
  Steven F. Abcouwer, Ann Arbor, MI, United States
  13:22

- **The Role of the SIRT1/LXR Signaling Axis in Retinal Endothelial Cell Inflammation and Metabolism**
  Sandra Hammer, United States
  13:44

- **Cytokine-induced ECM Alterations in DR Pathogenesis**
  Meredith Giblin, Nashville, TN, United States
  14:06

- **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
  14:28

- **Inflammation and Pericyte Health in Diabetic Retinopathy**
  Teri Belecky-Adams, Indianapolis, IN, United States
  14:44

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
Scientific Programme

Ray Tracing Confirms the Optical Properties of the Bovine Are Actively Maintained by the Lens Microcirculation System
Peter Qiu, Auckland, New Zealand

Session: RPE-Choroid
13:00 - 15:00
Meeting Room 3B
RPE11, Molecular characteristic of macula susceptibility for dysfunction and degeneration

Chairs:
Takeshi Iwata, Japan

Investigating the Molecular Mechanisms of Macular Degeneration: The hiPSC Approach
Ruchira Singh, Rochester

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

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

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

Session: Retinal Cell Biology
13:00 - 15:00
Meeting Room 1A
RCB17, Vascular dysfunction in retinal disease

Chairs:
John Greenwood, United Kingdom

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

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

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

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

AOSLO Measurements of Capillary and Other Small Vessel Changes in Early Diabetic Retinopathy
Stephen Burns, United States
IND12, Phosphoinositide signaling in eye

Chairs:
Yang Sun, Indianapolis, United States
Hemant Khanna, United States

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

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

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

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

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

Empty Session

OGM6, Mendelian glaucoma genetics

Chairs:
John Fingert, Iowa City, Iowa, United States

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

13:22
Genome Editing in the Treatment of Glaucoma
Val Sheffield, United States

13:44
TBK1 Gene and Normal Tension Glaucoma Pathophysiology
John Fingert, Iowa City, Iowa, United States

14:06
ID1 & ID3 Proteins Block TGFβ2 -Induced Ocular Hypertension and Decreased Aqueous Humor Outflow Facility in Mice
John Cameron Millar, Fort Worth, Texas, United States
Session: Ocular Pharmacology, Therapeutics & Drug Delivery
13:00 - 15:00
Meeting Room 3A

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

Chairs:
Simon Kaja, Maywood, IL, United States

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

- 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

- tbc

- System Medicine in Ophthalmology
  Antonia Joussen, Berlin, Germany
Session: RPE-Choroid
15:30 - 17:30

**RPE12, "Eye-Risk" perspective of AMD**

**Chairs:**
Imre Lengyel, United Kingdom

- tbc
- tbc

**Serum Biomarkers for Age-related Macular Degeneration**
Anneke den Hollander, Netherlands

**Towards Personalized Prediction of AMD**
Cecile Delcourt, Bordeaux, France

Session: Ocular Pharmacology, Therapeutics & Drug Delivery
15:30 - 17:30

**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
- Age and Ethnic Differences in the Eye Show the Need for Personalized Medicine
  Carol Toris, Cleveland, OH, United States
- Proteomic Identification of Vitreous Biomarkers for Retinal Degeneration
  Vinit Mahajan, Palo Alto, United States
- Practicalities of Individualized Medicine - Is it Realistic?
  Cheryl L. Rowe-Rendleman, United States

Session: Cornea and Ocular Surface
15:30 - 17:30

**COS11, Dry eye disease**

**Chairs:**
Conor Murphy, Dublin, Ireland
TFOS DEWS II – highlights and insights in 2018
Christine Purslow, Newcastle-Under-Lyme, United Kingdom
15:30

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

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

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

Ellipsometry of Human Tears
Ben Glasgow, Los Angeles, United States
17:12

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

RCB18, Role of mitochondrial damage in diabetic retinopathy

Chairs:
Julia V. Busik, Michigan, United States

Deciphering Mitochondrial Homeostasis on an Epigenetic Platform
Renu Kowluru, United States
15:30
tbc
Denis Proshlyakov, United States
16:00

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

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

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

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

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

Chairs:
Francois Paquat Durand, Germany
Orson Moritz, Vancouver, Canada

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

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

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

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

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

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

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

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

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

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

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

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
Scientific Programme

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

Interactions between Müller Cells and the Vasculature in Human Retinal Disease  15:40
Marcus Fruttiger, London, United Kingdom

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  15:50
Yun Le, Oklahoma City, OK, United States

Acute Laser-induced Chorioretinal Damage Elicits Distinct Cytokine/Chemokine Spatiotemporal Profiles in Rats  16:00
Sabine Uhles, Basel, Switzerland

The Role of Retinal Microglia during Formation of Retinal Neovascularisation in the OIR Mouse Model  16:10
Myriam Böck, Freiburg, Germany

Effects of Interleukin-6 Trans-signaling on Human Müller Versus Retinal Endothelial Cells under Hyperglycemic Conditions  16:20
Brandon Coughlin, East Lansing, Michigan, United States

15:30 - 17:30  Meeting Room 3A

Empty Slot