

Retina in a dish: Methods & applications in life sciences

FEBS Advanced Lecture Course

8–12 June 2026 | Kuopio, Finland

APPLICATION DEADLINE
31 March 2026

ABSTRACT SUBMISSION BY
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KEYNOTE SPEAKERS

retinaexvivo2026.febsevents.org

Krzysztof Palczewski
Chair of Ophthalmology,
Distinguished
Professor
University of
California-Irvine, USA



Marius Ueffing
Director of the Institute for
Ophthalmic Research, Professor
University of Tübingen,
Germany



Arto Urtti
Professor of
Biopharmaceutics
University of
Eastern Finland



SPEAKERS

Henri Leinonen
Research Director, Adj. Prof.
University of Eastern Finland
Finland

Blanca Arango-Gonzalez
Senior Staff Scientist
University of Tübingen
Germany

Petri Ala-Laurila
Professor of Neurobiology
University of Helsinki
Finland

François Paquet-Durand
Prof. Dr. rer. nat.
University of Tübingen
Germany

Alexa Klettner
Professor, ophthalmology
University of Kiel, Germany

María Miranda
Professor, Faculty Dean
Cardenal Herrera-CEU University
Spain

Frans Vinberg
Associate Professor
University of California-Irvine, USA

Raunak Sinha
Associate Professor
University of Wisconsin-Madison, USA

Yuanyuan Chen
Assistant Professor
University of Pittsburgh, USA

Ana Almansa García
Senior PhD student, University of
Tübingen, Germany

Elena Vecino
Professor of Cell Biology
University of Basque Country
Spain

Marco Bassetto
Postdoctoral scholar
University of California-Irvine
USA

Antolin Canto
Postdoctoral researcher
Cardenal Herrera-CEU University
Spain

Xandra Pereiro
Postdoctoral researcher
University of Basque Country
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Catherine Hottin
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University of Tübingen, Germany

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CEO and Founder of
Experimentica Ltd,
Finland

Jukka Puoliväli
Managing Director
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Teemu Turunen
CSO and founder of
Maculaser Ltd.,
Finland

ORGANIZERS

Henri Leinonen
Main organizer
Blanca Arango-Gonzalez
Co-organizer
Petri Ala-Laurila
Co-organizer

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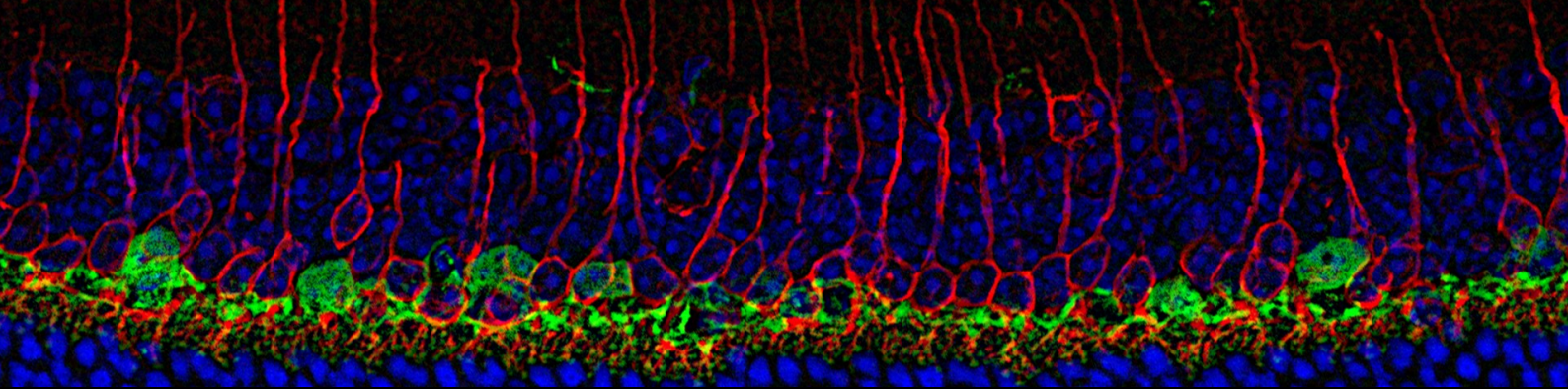
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Day 1: Organotypic Retina Cultures – Foundations & Setup

Morning Session: Basics & Methodology

- 9-9.15: Welcome and event organization: Henri Leinonen

Lecture session 1: Introduction to Organotypic Retina Cultures

- 9.15-10.00: History, basics, and key applications 1/2: Blanca Arango-Gonzalez
- 10.00-10.45: History, basics, and key applications 2/2: Blanca Arango-Gonzalez
- 10:45-10:50: Short break
- 10:50-11:35: Development of serum free organotypic retinal explant cultures: A historical overview: François Paquet-Durand

LUNCH BREAK 11.35-12.30

Lecture session 2: Experimental Setup & Best Practices

- 12.30-13.15: Dissection, media composition, and maintaining tissue viability in rodent: Catherine Hottin
- 13.15-14:00: Primate and porcine ex vivo retinas: Ana Almansa García, Frans Vinberg

Afternoon Session: Keynote and flash talks

- 14.05-15.00: **Keynote lecture 1: Ocular drug delivery**
- 15:00-15.30 Selected abstract flash talks (1-10)

COFFEE BREAK 15.30-16:00

Evening Session: Scientific Publishing in Retinal Research

- 16:00-16:30 FEBS Press Representative (Daniela Ruffell, PhD)

Lecture session 3: Writing & Publishing High-Impact Research

- 16.30-17.30 Choosing the right journal, structuring a manuscript, and responding to reviewers: Raunak Sinha, Henri Leinonen (other PIs)

Workshop 1: Manuscript Abstract & Figure Preparation

- 17.30 →: Participants can receive feedback on pre-submitted materials

18.00- POSTER SESSION 1 & GET-TOGETHER & EVENING SOCIAL

Keynote speaker

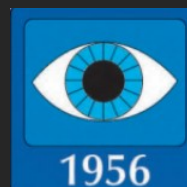


Arto Urtti

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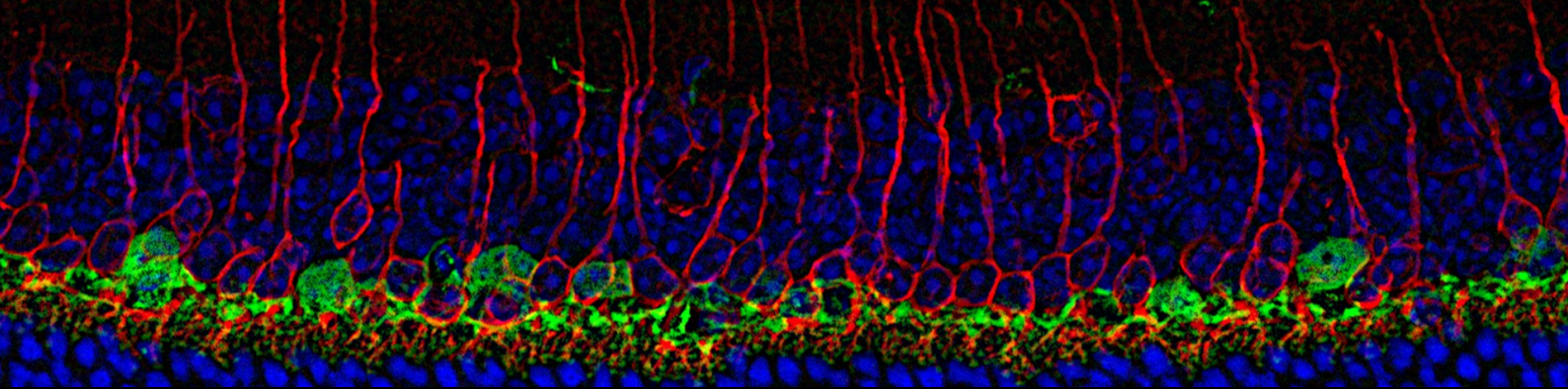


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Day 2: Applications in Disease Modeling & Drug Testing

Lecture session 4: *Disease models, Organotypic Cultures and Therapeutic aspects*

- 9.00-9.45: Inherited retinal degenerations: **Francois Paquet-Durant**
- 9.45-10.30: Age-related macular degeneration: **Alexa Klettner**
- 10.30-10.40 short break
- 10.40-11.25: Diabetic retinopathy and oxidative stress: **Maria Miranda**
- 11.25-12.10: Glaucoma: **Elena Vecino**

LUNCH BREAK 12.10-13.00

- 13:00-13:45 Special lecture: Adult Müller glia cultures: **Xandra Pereiro**
- 13.45-14. 15: Selected abstract flash talks (11-20)

Afternoon Session: Tutorial session 1

- 14.15-15.45: Demo/tutorial Session: Virtual set up of explants. Discussion of all things that go wrong, points of extra care, common pitfalls and troubleshooting. Coordinators: **Xandra Pereiro, Antolin Canto, Catherine Hottin, Ana Almansa Garcia**

COFFEE BREAK 15.45-16.15

Evening Session: Grant Writing & Funding Strategies

Lecture session 5: Writing Competitive Grant Applications

- 16.15-17.00: Structuring proposals for funding agencies (e.g., ERC, NIH, Marie Curie): **Petri Ala-Laurila, Frans Vinberg (other Pis)**
- **Workshop 2: Developing a Winning Grant Proposal**
- 17.00- Participants can get feedback on presubmitted research proposals

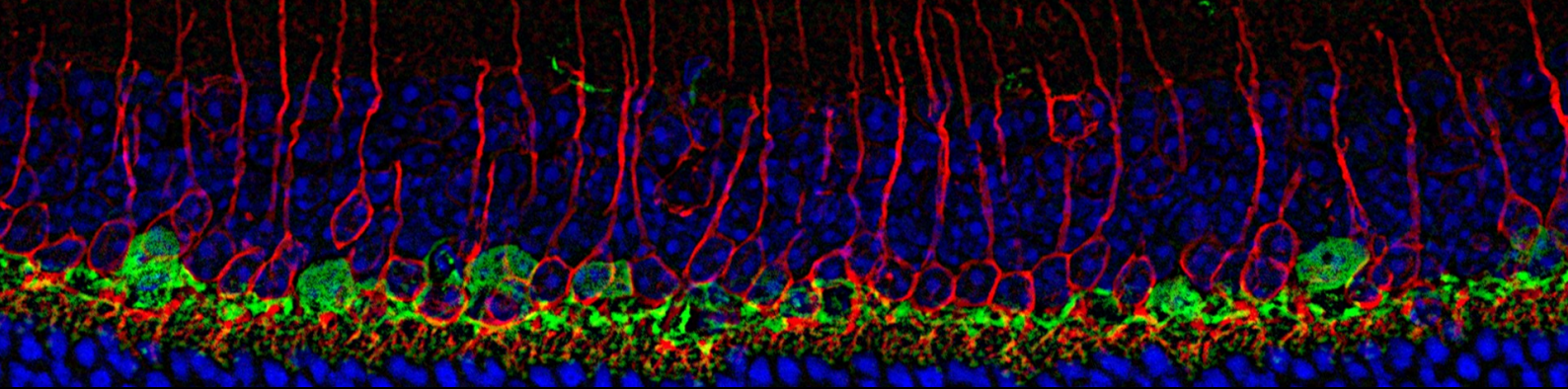
17:15- POSTER SESSION 2 with SNACKS

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Day 3: Organotypic Retina Cultures in testing advanced therapy and drug delivery aspects

Lecture session 6: Gene therapy and RNA approaches

- 9:00-9:05: **CONFERENCE PICTURE, BE THERE!**
- 9.05-9.50: Testing AAV vectors, CRISPR-based approaches, and alternative gene-editing tools: **Yuanyuan Chen**
- 9.50-10.25: RNA interference, RNA therapeutics: **Marco Bassetto**
- Short break 10.25-10.30

Distinguished keynote speaker



Krzysztof Palczewski

Late morning/Afternoon Session: Ocular drug delivery

10.30-11.30: **Keynote 2 – Biochemistry at the Core of Retina**

Research: Past, Present, and Future

LUNCH BREAK 11.30-12.30

Lecture session 7: Studying barriers and Drug Delivery with Tissue Cultures

- 12:30-13:15: Porcine Single-Eye Retinal Pigment Epithelium Cell Culture for Barrier and Polarity Studies (1/2): **Alexa Klettner**
- 13.15-14.00: Studying drug delivery with explants: **Blanca Arango-Gonzalez**

Evening Session: Industry & Venture Science in Retinal Research

- 14:00-14.45: Industry roles for retinal researchers, biotech innovation, and venture science: **Jukka Puoliväli, Giedrius Kalesnykas**

COFFEE BREAK 14:45-15:15

- 15.15-16.00: Spinning off from academia and start ups: **Teemu Turunen, Frans Vinberg**
- 16.00-16.30: How to attract angel investors or venture capital: TBD
- 16.30-18.00: FREE TIME

18:00-late: LAKE KALLAVESI CRUISE & NETWORKING

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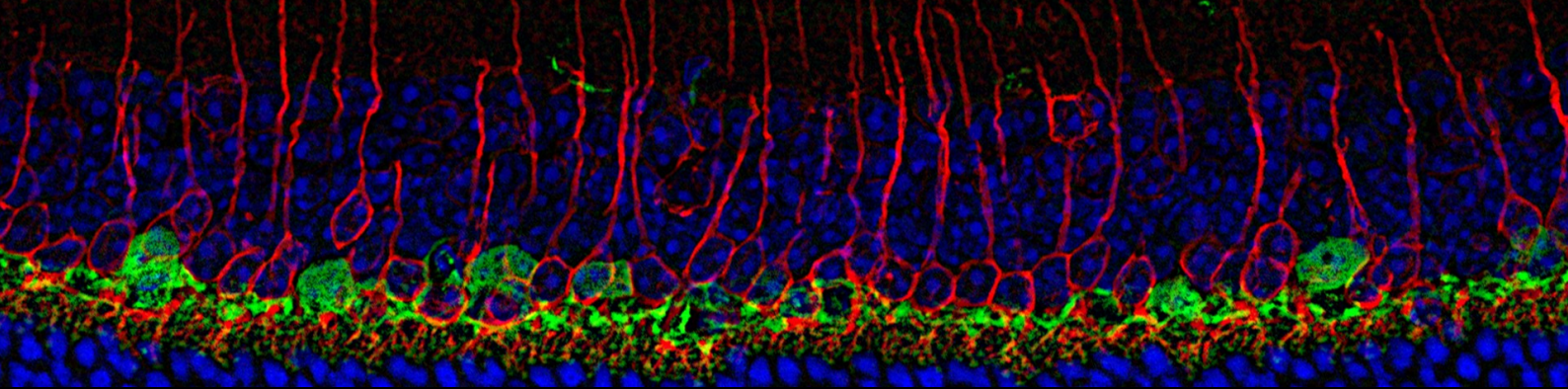


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Day 4: End-point assays + functional testing in living retinas

Lecture session 9: Conventional end-point assays in organotypic retina culture experiments

- 9-9.45: Histology/IHC staining and & microscope: challenges and common pitfalls **Catherine Hottin, Ana Almansa Garcia, François Paquet-Durand, Blanca Arango-Gonzalez**
- 9:45-10:30: Apoptosis and other sensitive cell death assays **Catherine Hottin, Ana Almansa Garcia, François Paquet-Durand, Blanca Arango-Gonzalez**
- Break 10:30-10:40
- 10:40-11:25 Assays with homogenates: Immunoblots, qPCR, ELISA etc: **Henri Leinonen lab**
- 11:25-12:10 Preparation for omics (RNA-seq, proteomics etc.) **Henri Leinonen Lab**

LUNCH BREAK 12.10-13.00

Lecture session 10: Electrophysiology / Functional Analysis

- 13.00-13.45: Ex vivo electroretinogram: **Teemu Turunen**
- 13:45-14:30: Patch-clamp: **Petri Ala-Laurila**
- 14:30-15:15 Single-cell recordings from photoreceptors: **Raunak Sinha**

COFFEE BREAK 15.15-15.45

- 15.45-16:30: Selected abstracts flash talks (21-30)
- 16:30-17:00 FEBS Representative **Jan Riemer**

Evening Session: Choosing the Right Postdoc & Career Paths

- 17:00-18:00 Panel Discussion: Surviving & Thriving in a Postdoc Position – **young generation PIs**

Insights from Pis. Including: Academia vs. Industry, key considerations, networking, and career trajectory planning

18.00 - POSTER SESSION 3 with SNACKS

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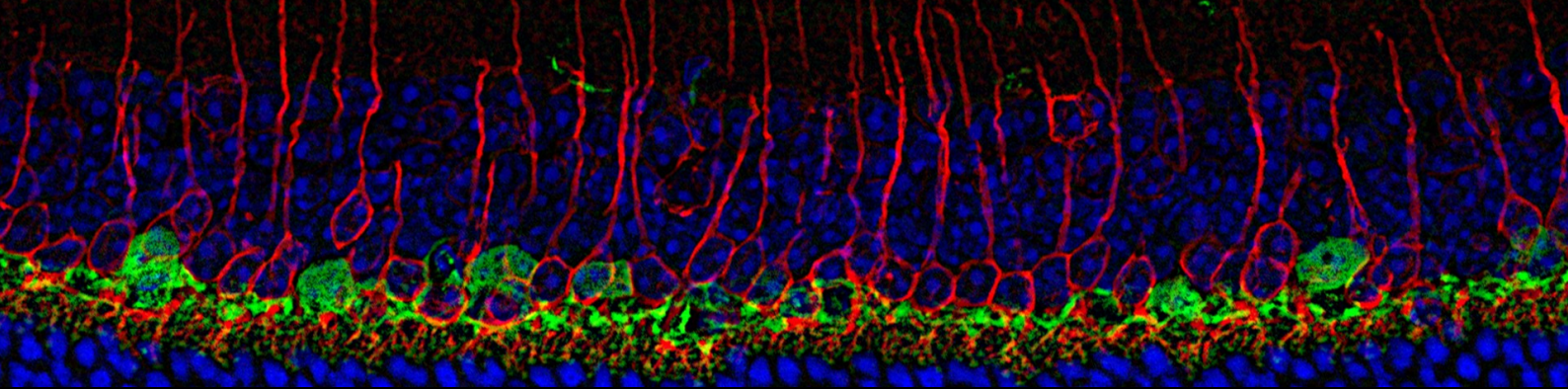


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Day 5: The Retina as a Model for Neuroscience Applications

Morning Session:

9.00-9:50 **Keynote lecture 3: Critical Factors for Success in Retinal Research: A Personal Perspective**

- Short break 9:50-10:00

Lecture session 11: The Retina as an Accessible Model for neuroscience and CNS Research

- 10-10.45: Synaptic transmission: **Frans Vinberg**
- 10:45-11:10 Complex neuronal circuits: **Petri Ala-Laurila**

LUNCH BREAK 11.10-12:00

- 12:00-12:20 Complex neuronal circuits: **Raunak Sinha**
- 12.20-13.05 Synaptic plasticity: **Henri Leinonen**
- 13:05-13:15: Short break

Afternoon Session:

Demo/tutorial Session based on video material:

- 13.15-14.00: Neuronal Activity Recording in Isolated Retinas: TBD

COFFEE BREAK 14.00-14.30

- 14.30-15.30 Group discussion: Ex vivo versus in vivo – opportunities, challenges and pitfalls: **everyone, what did we learn during this week?**
- Awards ceremony and pictures

15.30-16.00: Event conclusion and future ideas

Keynote speaker



Marius Ueffing

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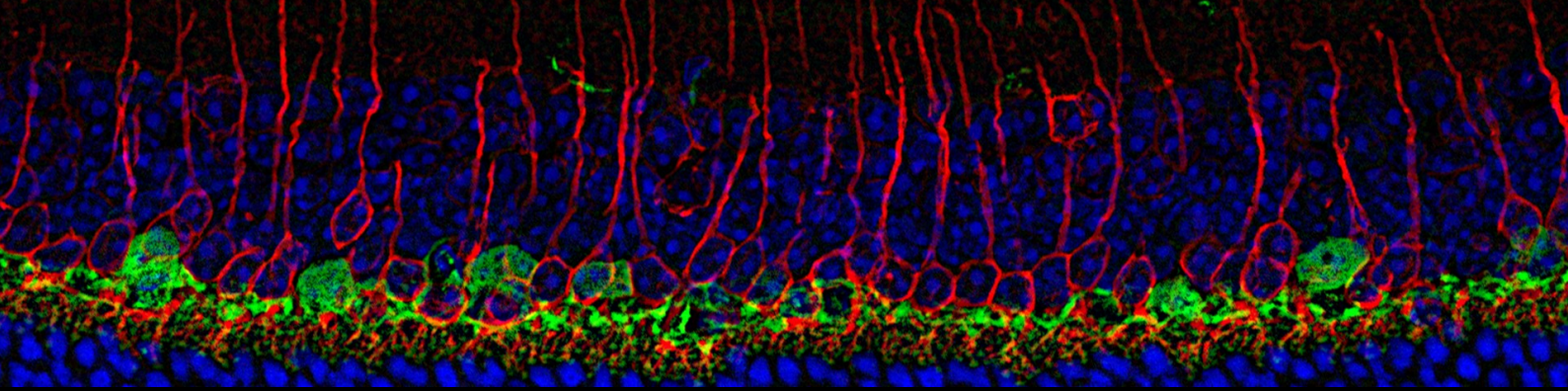


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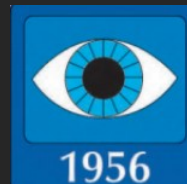




Course Goals and Outcomes

- ✓ Knowhow of organotypic retina culture techniques
- ✓ Understanding of disease modeling, drug testing, and neuroscience applications
- ✓ Experience with imaging, functional assays, and gene therapy applications
- ✓ Knowledge of publishing, grants, and career development

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