ARVO EDUCATION COURSE

Saturday, May 3, 2025
8am – 5pm, MST
Salt Palace Convention Center
Salt Lake City, Utah

The New Era of Uveitis: Embracing Modern Technology

Course organizers

Chairperson: Vishali Gupta, MD

Course Coordinators: Rupesh Vijay Agrawal, MD, FRCS, MMed, Esen K. Akpek, MD, David S. Chu, MD, Phoebe Lin, MD, PhD, Careen Y. Lowder, MD, PhD, Quan Dong Nguyen, MD MSc, FARVO and Carlos E. Pavesio, FRCOphth, MD

From conventional labs to omics: What has changed in the diagnosis of uveitis?

Moderators: Esen K. Akpek, MD and Phoebe Lin, MD, PhD
8am – 10am

This session will highlight the significant advancements in diagnostics, which have evolved from a few basic laboratory tests to cutting-edge 'omics' technologies.

Presentations		
8:00 AM	**Welcome and introduction to the course**	Vishali Gupta, MD
8:05 AM	**Conventional Laboratory Testing in Uveitis** Uveitis represents a group of ocular inflammatory diseases of which 25-30 are more common, but many others may exist. As such, laboratory testing could become extensive; therefore, understanding which conventional lab testing should be undertaken to aid in the diagnosis is essential. Furthermore, not all lab testing is pertinent for each uveitic anatomatic location. This talk aims to summarize a parsimonous set of conventional laboratory testing for the uveitidies according to their anatomic locations and provides evidence for the utility of the testing.	Jennifer E. Thorne, MD, PhD
8:20 AM	**Multi-omics for uveitis** Confirmation of ocular infectious and inflammatory diseases can pose significant challenges to the clinician. A fundamental limitation is the small amounts of specimens that can be obtained from the eye. Newer molecular diagnostics can circumvent this limitation, improve mechanistic understanding, and identify potential therapeutic targets. The purpose of this talk is to review the various applications of high-throughput sequencing-based approaches in the diagnosis of ocular inflammatory diseases.	Thuy Doan, MD, PhD

8:35 AM	**Advanced techniques to identify novel microbes** Advances in molecular biology techniques now permit use of deep DNA sequencing methods for near-realtime identification of ocular pathogens. In this talk, I will review emerging methodologies in this area, and highlight an example of their application in understanding the genesis of Seasonal Hyperacute Panuveitis (SHAPU) as well as other examples.	Russell N. Van Gelder, MD, PhD, FARVO
8:50 AM	**Microbiome implications in uveitis** This will be an overview of current literature illustrating the role the intestinal, oral, or ocular surface microbiota plays in the pathogenesis and treatment of uveitis.	Phoebe Lin, MD, PhD
Case study		
9:05 AM	**Case illustrating diagnostics/ advanced molecular diagnostics** A patient with a previous history of unilateral sclerouveitis, managed using topical steroid and oral antiviral treatment elsewhere, presented with subsequent contralateral eye involvement and newly diagnosed interstitial kidney disease. Serology for autoimmune disease and infectious etiology revealed negative results. Ocular surface examination and cytokine signature of tear film unveiled an underlying autoimmune disease which was corroborated by tissue biopsy. The importance of ocular surface evaluation and assessing tear film parameters in the diagnosis of systemic disease will be discussed.	Esen K. Akpek, MD
Debates: Personalized medicine vs. Bayesian analysis		
Bayesian Breakthrough: Can it Guide patient treatment in Uveitis?		
9:15 AM	**Yes. Bayesian analysis can guide patient treatments in uveitis.** Establishing a diagnosis in uveitis which consists of a heterogeneous group of clinical inflammatory entities either limited to the eye or associated with systemic disease requires a combination of clinical history, examination, imaging, and a focused set of laboratory investigations. The appropriateness of imaging and laboratory testing will depend on patient specific and epidemiological factors. We will summarize the performance of commonly-used tests, and demonstrate the efficacy of test combinations in particular to rule-out possible diagnoses. A path for further research making use of Bayesian analysis will be discussed.	Marc ' D de Smet, MD CM PhD FRCSC, FARVO

9:25 AM	**No. I don't follow statistical models to treat my patients.** Uveitis is a highly heterogeneous condition with often elusive causes, and even cases with the same etiology can behave differently across individuals. No algorithm can fully capture this complexity. In such scenarios, individualized clinical judgment must take precedence over statistical models. Overreliance on these models risks treatment delays and potentially irreversible vision loss. A nuanced, integrative, and patient-centered approach is essential for managing a disease as multifaceted as uveitis.	Dr. Sudharshan Sridharan
9:35 AM	**Voting & Concluding Remarks**	Esen K. Akpek, MD
Personalized Medicine: Innovation or Passing Trend?		
9:40 AM	**Yes. Personalized Medicine is innovation in healthcare** Over the last couple of decades, the exponential growth in information regarding the molecular aspects of human health and disease has enabled the discovery of better, safer therapies. Today, the use of biomarkers is rapidly expanding across all spheres of human health from treating cancer, heart disease, etc., to estabilishing lifestyle choices for better health span and longevity. The era of using refined biomarkers in the clinic that allows for bespoke treatment and accurate monitoring is certainly here to stay with the onus of establishing faithful and informative tests being on scientists, diagnosticians and clinicians. To that end biomarker analyses in ocular fluids such as tears and aqueous humor samples present easily accessible, robust means of estimating disease status as well as response to therapy. Molecular biomarkers are often dysregulated prior to the appearence or clinical signs and symptoms. Our data demonstrates that biomarker panels allow for patient stratification for risk of adverse events in case of ocular surface inflammatory conditions, uveitis, as well as in retinal conditions such as diabetic retinopathy. These biomarkers further help the ophthalmologist select the right treatment options to best treat the patients. Therefore, just like in cancer therapies, the future of ophthalmic care is progressing towards innovative point-of-care diagnostic biomarker panels that has the potential for early diagnosis, prognostication and therapy customisation, the ultimate goal being personalised care for every patient.	Arkasubhra Ghosh, PhD

9:50 AM	**Personalized Medicine is just a passing trend.** "Personalized Medicine" is the utopian dream. That we will be able to know exactly what the diagnosis is, and exactly how to treat it, using treatments tailored to your genome and microbiome...to give you eternal life? The answer is no. "Personalized Medicine" is not that personalized! And hence the term "Personalized Medicine" is a fad that will fade and be replaced with reality.	Lyndell L Lim, MBBS, DMedSci, FARVO
10:00 AM	**Voting & Concluding Remarks**	Rupesh Vijay Agrawal, MD, FRCS, MMed

*Presenters and presentations are subject to change without notice.