



Byers Eye Institute at Stanford University

Presents

The 2021 Byers Young Investigators Research Conference

SCIENTIFIC PROGRAM

BYIRC Young Investigators Planning Committee

Vyas Akondi, PhD (Dubra Laboratory)

Hashem Ghoraba, MD, MSc (Nguyen/Do/Sepah Laboratory)

Muhammad Hassan, MD (Resident Service)

Jennifer Haensel, PhD (Roberts Laboratory)

Sohail Halim, MBBS (Nguyen/Do/Sepah Laboratory), ***Coordinator***

Cheng-Hui Lin, PhD (Wang Laboratory)

Louise Mesentier Louro, PhD (Liao Laboratory)

Young Joo Sun, PhD (Mahajan Laboratory)

BYIRC Faculty Advisory Committee

Diana V. Do, MD

Alfredo Dubra, PhD

Jeffrey L. Goldberg, MD, PhD

Yang Hu, PhD

Y. Joyce Liao, MD, PhD

Vinit Mahajan, MD, PhD

Quan Dong Nguyen, MD, MSc, ***Chair***

Tawna Roberts, OD, PhD

Yasir J. Sepah, MBBS

Sui Wang, PhD



DAY 1: SATURDAY, APRIL 10, 2021

7:50 AM PDT Welcome and Overview
M. Sohail Halim, MBBS and Louise A. Mesentier-Louro, PhD

Session 1

Moderators: Ruwan Silva, MD, MPhil and Sui Wang, PhD

8:00 AM *Identification of cis-regulatory elements that allow for AAV-based Müller glial-specific labeling and manipulation in the retina*

Cheng-hui Lin (Mentor: Sui Wang, PhD)

8:10 AM *Inferring retinal ganglion cell light response properties from intrinsic electrical features*

Moosa Zaidi (Mentor: E.J. Chichilnisky, PhD)

8:20 AM *Primary Cilia Regulate Wound Repair in Retinal Pigment Epithelium*

Ke Ning (Mentor: Yang Sun, MD, PhD)

8:30 AM Discussion

Session 2

Moderators: Alfredo Dubra, PhD and Stephen J. Smith, MD

8:40 AM *Oral montelukast is associated with decreased odds of diabetic retinopathy*

Brandon Huy Pham (Mentors: Quan Dong Nguyen, MD, MSc, Diana Do, MD, and Yasir Sepah, MBBS)

8:50 AM *Proteomics-guided design of HtrA1 inhibitors for age-related macular degeneration treatment*

Soo Hyeon (Mentor: Vinit B. Mahajan, MD, PhD)

9:00 AM *Evaluating optical coherence tomography (OCT) findings as potential biomarkers in central nervous system (CNS) lymphoma with or without ocular involvement*

Muhammad Hassan (Mentors: Yasir J. Sepah, MBBS and Quan Dong Nguyen, MD, MSc)

9:10 AM *Correlation between photoreceptor density in adaptive optics imaging with retinal structure and sensitivity in autoimmune retinopathy*

Wataru Matsumiya (Mentor: Quan Dong Nguyen, MD, MSc)

9:20 AM Discussion



Guest of Honor and Visiting Professor



PATRICIA A. D'AMORE, PHD, MBA

Charles L. Schepens Professor of Ophthalmology

Vice Chair, Basic and Translational Research, Department of Ophthalmology

Co-Director, AMD Center of Excellence

Harvard Medical School

Director of the Howe Laboratory, Massachusetts Eye and Ear Infirmary

- 9:30 AM Introduction of the Guest of Honor by Quan Dong Nguyen, MD, MSc
- 9:35 AM Lecture by Dr. Patricia D'Amore: *"Why Mentoring Should Matter to You"*
- 10:05 AM Discussion and Questions

Session 3

Moderators: Michael Gaynon, MD and Quan Dong Nguyen, MD, MSc

- 10:20 AM *Efficacy and safety of tocilizumab in the management of non-infectious retinal vasculitis*
Gunay Uludag (Mentor: Quan Dong Nguyen, MD, MSc)
- 10:30 AM *Altered patient demography and increased complexity of ICD coding in uveitis over 10 years*
Jaclyn Hwang (Mentors: Quan Dong Nguyen, MD, MSc and Yasir J. Sepah, MBBS)
- 10:40 AM *Posterior segment manifestations in patients with HLA-B27 associated uveitis*
Sherin Lajevardi (Mentor: Quan Dong Nguyen, MD, MSc)
- 10:50 AM Discussion



Session 4

Moderators: **Y. Joyce Liao, MD, PhD and Tawna Roberts, OD, PhD**

- 11:00 AM *Imaging findings as markers of idiopathic intracranial hypertension*
Arhem Barkatullah (Mentor: Heather Moss, MD, PhD)
- 11:10 AM *Evaluation of correlation between Diopsys® NOVA fixed-luminance flicker electroretinography and Diagnosys® full-field electroretinography*
Jonathan Regenold (Mentors: Quan Dong Nguyen, MD, MSc and Hassan Khojasteh, MD)
- 11:20 AM *Effect of pupil size on fixed-luminance flicker full-field electroretinogram magnitude*
Azadeh Mobasserian (Mentors: Quan Dong Nguyen, MD, MSc and Hassan Khojasteh, MD)
- 11:30 AM Discussion
- 11:40 AM End of Day 1 of the 2021 BYIRC**



Day 2: Saturday, April 24, 2021

7:50 AM PDT Welcome and Overview
Hashem Ghoraba, MD and Young Joo Sun, PhD

Session 5

Moderators: Diana Do, MD and Prithvi Mruthyunjaya, MD, MHS

8:00 AM *Structural and functional changes in non-paraneoplastic autoimmune retinopathy*

Negin Yavari (Mentor: Quan Dong Nguyen, MD, MSc)

8:10 AM *Patients visits requiring anti-VEGF treatment dropped precipitously during the COVID-19 pandemic*

Arthur Brant (Mentor: Diana V. Do, MD)

8:20 AM *Association of oral montelukast with reduced odds of developing neovascular age-related macular degeneration*

Irmak Karaca (Mentors: Diana V. Do, MD and Quan Dong Nguyen, MD, MSc)

8:30 AM Discussion

Session 6

Moderators: Jeffrey L. Goldberg, MD, PhD, Yang Hu, PhD, and David Myung, MD, PhD

8:40 AM *Unfolded Protein Response dysregulation prevents rhodopsin protein clearance and accelerates retinal degeneration in retinitis pigmentosa mouse model*

Kyle Kim (Mentor: Jonathan Lin, MD, PhD)

8:50 AM *Liposome-aided direct delivery of magnetic nanoparticles into the cytosol*

Fang Chen (Mentors: Jeffrey L. Goldberg, MD, PhD and David Myung, MD, PhD)

9:00 AM *Single cell RNA sequencing of retinal ganglion cells with enhanced perinuclear cAMP signaling after optic nerve crush injury*

Ying Zhu (Mentors: Jeffrey L. Goldberg, MD, PhD and Michael S. Kapiloff, MD, PhD)

9:10 AM *Supramolecular host-guest hyaluronic acid hydrogels for corneal endothelial cell delivery and epithelial wound healing*

Caitlin Logan (Mentor: David Myung, MD, PhD)

9:20 AM Discussion



Guest of Honor and Visiting Professor



JOHN FRASER WRIGHT, PHD

Professor (Research) of Pediatrics – Stem Cell Transplantation

Department of Pediatrics and Center for Definitive and Curative Medicine

Stanford University

Co-Founder, Spark Therapeutics

- 9:35 AM Introduction of the Guest of Honor
- 9:40 AM Lecture by Dr. Wright: *“Climbing One Mountain of Ocular Gene Therapy: Inspiration, Challenges, Teamwork, and Accomplishments”*
- 10:10 AM Discussion and Questions

Session 7

Moderators: Edward Wood, MD and Yasir J. Sepah, MBBS

- 10:20 AM *Novel retinopathy in pediatric retinal vasculitis*
Cigdem Yasar (Mentor: Quan Dong Nguyen, MD, MSc)
- 10:30 AM *Safety of intravenous high-dose pulse methylprednisolone succinate in the management of pediatric uveitis*
Hashem Ghoraba (Mentor: Quan Dong Nguyen, MD, MSc)
- 10:40 AM *Measuring anterior chamber flare using novel slit-lamp imaging technique*
Muhammad Sohail Halim (Mentor: Yasir J. Sepah, MBBS)
- 10:50 AM Discussion



Session 8

Moderators: Christopher Ta, MD and Jonathan Lin, MD, PhD

11:00 AM *A novel device for descemetorhexis creation: 3D Printed Prototype Design and Ex Vivo Evaluation*

Michael Mbagwu (Mentor: David Myung, MD, PhD)

11:10 AM *Comparison of ocular biometric parameters between Hispanic and non-Hispanic ethnicities*

Brandon Chau Lam (Mentors: Ahmad Kheirkhah, MD and Quan Dong Nguyen, MD, MSc)

11:20 AM *Structure-based phylogeny identifies Avoralstat as a TMPRSS2 inhibitor that prevents SARS-CoV-2 infection in mice*

Young Joo Sun (Mentor: Vinit B. Mahajan, MD, PhD)

11:30 AM *Millisecond-latency FPGA-based pupil tracker for eye motion stabilization*

Bartlomiej Kowalski (Mentor: Alfredo Dubra, PhD)

11:40 AM Discussion

11:50 AM Conclusion of the 2021 BYIRC