

CORNEA and EYE BANKING FORUM 2025

ORLANDO, FL
FRIDAY, OCTOBER 17



Cornea Society

FINAL PROGRAM





Cornea Society
Advancing the treatment of corneal disease

MESSAGE FROM PROGRAM CHAIRS

October 2025

The Eye Bank Association of America (EBAA) and Cornea Society are pleased to welcome you to the 2025 Cornea and Eye Banking Forum. This year's program features the latest scientific research and innovation in cornea and eye banking through the presentation of scientific abstracts, industry awards, award lectures, invited sessions and the Best Paper of Session Award. We are thrilled about this year's line-up of presenters and topics, including the mini symposia featuring the Diabetes Endothelial Keratoplasty Study (DEKS) and Cornea Fellow Presentations on Clinical and Surgical Cases. We hope you enjoy this year's event!

The Bausch + Lomb Foundation will be sponsoring the R. Townley Paton Luncheon, which features a lively moderated discussion. All physician registrants, including medical students, residents and Cornea Fellows, are invited to attend.

On behalf of the joint planning committee, we would like to thank all of the organizations that are supporting this year's program and the events taking place throughout the day. New this year, the Forum includes an Exhibit Hall featuring 13 exhibiting organizations. Please visit the Exhibit Hall during breakfast and breaks to speak with the exhibitors to learn more about their organizations and the services they provide. We encourage everyone to attend the Networking Reception immediately following the program to catch up and connect after a day of learning and innovation.

In addition to the Forum, EBAA and Cornea Society encourage you to attend the following events at the American Academy of Ophthalmology (AAO) Annual Meeting taking place at Orange County Convention Center; separate registration is required.

- **Cornea Subspecialty Day 2025, "Cornea Chronicles — The Story Continues" on Saturday, October 18, hosted by AAO and Cornea Society.**
- **The Cornea Society Symposium on Sunday, October 19, for "Novel Corneal Treatments".**

As a reminder, Eye Donation Month is right around the corner! The theme, Everyday Heroes, celebrates how nearly anyone can be a cornea donor and therefore a superhero by giving the gift of sight. EBAA honors the "everyday" superheroes who restore sight, including donors and their families, corneal surgeons, eye bankers and champions of ocular donation. Thank you to everyone in the cornea and eye banking community for your role in the facilitation of the gift of sight and for being our everyday heroes!

We hope you enjoy Orlando and the 2025 Cornea and Eye Banking Forum!

Sincerely,

M. Soledad Cortina, MD

EBAA Scientific Programs Committee Chair

Jessica Ciralsky, MD

Cornea Society Scientific Program Chair

**CORNEA and
EYE BANKING
FORUM 2025**

**PROGRAM
COMMITTEE**

PROGRAM COMMITTEE CHAIRS



Jessica Ciralsky, MD
Chair, Cornea Society
Scientific Program
Weill Cornell Medicine
New York, NY



M. Soledad Cortina, MD
Chair, EBAA
Scientific Programs
University of Illinois, Chicago
Chicago, IL

PROGRAM COMMITTEE MEMBERS



Jessica Chow, MD
Yale University
New Haven, CT



Mohammad H. Dastjerdi, MD
Rutgers New Jersey
Medical School
Newark, NJ



Asim Farooq, MD
University of Chicago
Chicago, IL



Farida Hakim, MD
University of Pittsburgh
Medical Center
Pittsburgh, PA



Pedram Hamrah, MD
University of South Florida
Tampa, FL



Viral Juthani, MD
Montefiore Einstein
New York, NY



Joann Kang, MD
Montefiore Einstein
New York, NY



Joung Kim, MD
Emory Eye Center
Atlanta, GA



Caithlin Lopes
Eversight
Wrentham, MA



Lara Newman, MD
Jervy Eye Group
Greenville, SC



Ahmed Omar, MD, PhD
University Hospitals
Eye Institute
Cleveland, OH



Tolulope Oyedun, CEBT
Lions Eye Bank of
Wisconsin
Madison, WI



Christina R. Prescott, MD, PhD
NYU Langone Health
New York, NY



Daniel Sand, MD
Stein Eye Institute, UCLA
Los Angeles, CA



Divya Srikumar, MD
The Johns Hopkins Wilmer
Eye Institute
Baltimore, MD



Sowmyalakshmi Srinivasan, MS, CEBT
Lions Gift of Sight
St. Paul, MN



Zeba A. Syed, MD
Wills Eye Hospital
Philadelphia, PA



Tu Tran, MD
UCI Gavin Herbert
Eye Institute
Irvine, CA



Angela Verkade, MD
University of Michigan
Ann Arbor, MI



Evan Warner, MD
University of Wisconsin
School of Medicine
Madison, WI



YoneJung Yoon, PhD
The Eye-Bank for Sight
Restoration
New York, NY



Ching Yuan, CEBT
Lions Gift of Sight
Saint Paul, MN

**CORNEA and
EYE BANKING
FORUM 2025**

**PROGRAM
FACULTY**

MODERATORS



Jessica Ciralsky, MD
Weill Cornell Medicine
New York, NY



M. Soledad Cortina, MD
University of Illinois, Chicago
Chicago, IL

SPEAKERS



Anthony Aldave, MD
Stein Eye Institute, UCLA
Los Angeles, CA



Guillermo Amescua, MD
Bascom Palmer Eye
Institute, University of
Miami
Miami, FL



**Winston Chamberlain,
MD, PhD**
Northwest Permanente
Portland, OR



Enchi Chang, MD
Mass Eye and Ear,
Harvard Medical School
Boston, MA



Oscar Chen, MD, MS
University of California,
Irvine
Irvine, CA



Melanie Daulton, MD
Stein Eye Institute, UCLA
Los Angeles, CA



Nicole Fram, MD
Advanced Vision Care
Los Angeles, CA



**Dominique Geoffrion,
MD, CM, PhD**
University of Montréal
(CHUM)
Montréal, Canada



**Sheyla González
Garrido, PhD**
Stein Eye Institute, UCLA
Los Angeles, CA



Mark Greiner, MD
University of Iowa
Iowa City, IA



**William Herskowitz,
BA**
Bascom Palmer Eye
Institute, University of
Miami
Miami, FL



Edward Holland, MD
Cincinnati Eye Institute
Cincinnati, OH



Joshua H. Hou, MD
University of Minnesota
Minneapolis, MN



Bennie Jeng, MD
University of Pennsylvania
Perelman School of
Medicine
Philadelphia, PA



Vishal Jhanji, MD
University of Pittsburgh
Pittsburgh, PA



Ula Jurkunas, MD
Mass Eye and Ear,
Harvard Medical School
Boston, MA



**Friedrich Kruse, MD,
PhD**
University of Erlangen
Erlangen, Germany



Jonathan Lass, MD
Case Western Reserve
University/ University
Hospitals
Cleveland, OH



**W. Barry Lee, MD,
FACS**
Eye Consultants of Atlanta
Atlanta, GA



Jennifer Li, MD
University of California,
Davis
Sacramento, CA



Taylor Linaburg, MD
Ophthalmology
Consultants of Long Island
(OCLI)
Garden City, NY



**Kian Madjedi, MD,
MSc, FRCSC**
University of Cincinnati
Edgewood, KY



**Boris Maluyugin, MD,
PhD**
Stein Eye Institute, UCLA
Los Angeles, CA



Shahzad I. Mian, MD
University of Michigan
Kellogg Eye Center
Ann Arbor, MI

SPEAKERS



Mubarik Mohamed, MD
University of North Carolina, Chapel Hill
Durham, NC



Karanpreet Multani, MD
Dean McGee Eye Institute
Oklahoma City, OK



Nambi Nallasamy, MD
Kellogg Eye Center,
University of Michigan
Ann Arbor, MI



Siddharth Nath, MD, PhD
Wilmer Eye Institute,
Johns Hopkins University
Baltimore, MD



Clarissa Ng Yin Ling, MBBS
Singapore National Eye
Centre
Singapore



Diego Ojeda-Pedraza, PhD
University of Miami
Miami, FL



Sarah Pajek, MA, BS
Bascom Palmer Eye
Institute, University of
Miami
Miami, FL



Jared Peterson, MD
Legacy Devers Eye
Institute
Portland, OR



Francis Price, Jr., MD
Price Vision Group
Indianapolis, IN



Marianne Price, PhD, MBA
Cornea Research
Foundation of America
Indianapolis, IN



Karthik Reddy, BS
University of Michigan
Medical School
Ann Arbor, MI



Maria Rizk, MD
University of Montréal
(CHUM)
Montréal, Canada



Jennifer Rose-Nussbaumer, MD
Stanford University
Palo Alto, CA



Christopher Sales, MD
University of Iowa
Iowa City, IA



Simran Sarin
University of Iowa Carver
College of Medicine
Iowa City, IA



Namrata Sharma, MD
All India Institute of
Medical Sciences
New Delhi, India



Joanna Silverman, MD
Kellogg Eye Center,
University of Michigan
Ann Arbor, MI



Katie Solley, MS
Eyedea Medical
Baltimore, MD



Sarah Sunshine, MD
University of Maryland
School of Medicine
Baltimore, MD



Michael Szkarlat
Eversight
Ann Arbor, MI



Praneetha Thulasi, MD
Washington University in
St. Louis
St. Louis, MO



David Verdier, MD
Verdier Eye Center
Grand Rapids, MI



Ching Yuan, PhD, CEBT
Lions Gift of Sight
Saint Paul, MN



Asmaa Zidan, MD
Mass Eye and Ear, Harvard
Medical School
Boston, MA

CORNEA and
EYE BANKING
FORUM 2025

**EBAA AND
CORNEA SOCIETY
BOARDS OF DIRECTORS**



EBAA BOARD OF DIRECTORS 2025-2026



Jim Quirk, CEBT
Chair
AltruVision
Philadelphia, PA



**Winston Chamberlain,
MD, PhD**
Chair- Elect
VisionGift
Portland, OR



Jennifer Y. Li, MD
Immediate Past Chair
Sierra Donor Services
Eye Bank
Sacramento, CA



Adam Kaufman, MD
Secretary/ Treasurer
Cincinnati Eye Bank
Cincinnati, OH



**Shannon Schweitzer,
MBA, CEBT**
Speaker of the House
Lions Eye Bank of
West Central Ohio
Dayton, OH



Esther Baker, MA, MBA
At-Large Member
Iowa Lions Eye Bank
Coralville, IA



Jameson Clover, CEBT
At-Large Member
VisionGift
Portland, OR



Chris Hanna, CEBT
At-Large Member
Utah Lions Eye Bank
Murray, UT



**Kristen McCoy, MA, CEBT,
CTBS**
At-Large Member
Miracles In Sight
Chicago, IL



Shahzad I. Mian, MD
Medical Advisory
Board Chair
Eversight
Ann Arbor, MI



**Samuel Ramos,
CEBT, CTBS**
At-Large Member
Sierra Donor Services
Eye Bank
Sacramento, CA



Michelle Rhee, MD
At-Large Member
The Eye-Bank for
Sight Restoration
New York, NY



Kevin Corcoran, CAE
President/ CEO
Eye Bank Association
of America
Washington, DC



Cornea Society

Advancing the treatment of corneal disease

CORNEA SOCIETY BOARD OF DIRECTORS 2025-2026



William Barry Lee, MD
President
Eye Consultants of Atlanta
Atlanta, GA



**Deepinder K. Dhaliwal, MD,
L.Ac.**
Vice President I President-Elect
University of Pittsburgh School
of Medicine
Pittsburgh, PA



Bennie H. Jeng, MD
Past President
University of Pennsylvania
Perelman School of Medicine
Philadelphia, PA



**Jodhbir Mehta, BSc (Hons.),
MBBS, PhD, FRCOphth,
FRCS (Ed), FAMS, FARVO**
Vice President for
International Relations
Singapore National Eye Centre
Singapore Eye Research
Institute, Singapore



Anthony J. Aldave, MD
Vice President for Industry
Relations
Stein Eye Institute, UCLA
Los Angeles, CA



Shahzad I. Mian, MD
Secretary
University of Michigan
Kellogg Eye Center
Ann Arbor, MI



Sonal Tuli, MD
Treasurer
University of Florida College of
Medicine
Gainesville, FL



Sophie Deng, MD, PhD
AUPO-FCC Representative
Stein Eye Institute, UCLA
Los Angeles, CA



Maria Woodward, MD, MSc
AAO Councilor
University of Michigan
Kellogg Eye Center
Ann Arbor, MI



Jessica Ciralsky, MD
Scientific Program Chair
Weill Cornell Ophthalmology
New York, NY



Luis Izquierdo, MD, PhD
Director-At-Large
Ophthalmosalud Eye Institute
Lima, Peru



Jennifer Y. Li, MD
Director-At-Large
University of California, Davis
Sacramento, CA



Lisa M. Nijm, MD, JD
Director-At-Large
Warrenville Eyecare & Lasik
Chicago, IL



Christina Prescott, MD, PhD
Director-At-Large
NYU Grossman School
of Medicine
New York, NY



**Jennifer Rose-Nussbaumer,
MD**
Director-At-Large
Weill Cornell Medicine
Ophthalmology
New York, NY



Divya Srikumaran, MD
Director-At-Large
Wilmer Eye Institute
Odenton, MD



Zeba A. Syed, MD
Director-At-Large
Wills Eye Hospital
Philadelphia, PA



Reza Dana, MD, MSc, MPH
Cornea Editor in Chief
Mass Eye & Ear/
Harvard Medical School
Boston, MA



**Namrata Sharma, MD, DNB,
FRCSEd, FRCOphth**
R P Centre for Ophthalmic
Sciences, AIIMS
New Delhi, India

EYE BANKING AND CORNEAL TRANSPLANTATION



SPONSORED BY EYE BANK ASSOCIATION OF AMERICA

EBAA's journal featuring the latest research in eye banking and corneal transplantation.

Access articles and publish your research!



journals.lww.com/ebctjournal



Wolters Kluwer

CORNEA and
EYE BANKING
FORUM 2025

**CONFERENCE
SUPPORT**

SUPPORT

The Eye Bank Association of America and the Cornea Society gratefully acknowledge the unrestricted grants received in support of this program.

BEST PAPER OF SESSION AWARD

Beauty of Sight

GENERAL SUPPORT

Lions Eye Bank of the Northeast
Rocky Mountain Lions Eye Bank
Wolters Kluwer

R. TOWNLEY PATON LUNCHEON

Bausch + Lomb Foundation

NETWORKING RECEPTION

The Cincinnati Eye Bank
Kedrion
Moria
Oculus

CORNEA and
EYE BANKING
FORUM 2025

EXHIBIT HALL MAP

EXHIBIT HALL MAP

The Exhibit Hall will be open during the breakfast and two breaks and feature the 13 exhibitors listed below. The Networking Reception will have the four co-sponsors of the event still set up as exhibitors for you to chat with as well. Please stop by during the various Exhibit Hall times to visit with these organizations.

7	Corza Medical		
6	Innovia Medical	Bioniko	8
5	EBAA	Ocucell	9
4	Eyede Medical	TissueGUARD	10
3	Kedrion	OCULUS	11
2	LighTop Tech Corp.	Brightstar Therapeutics	12
1	Beauty of Sight	Moria	13

ENTRANCE

ENTRANCE



EYE DONATION
MONTH
NOVEMBER 2025

*Thank you for your heroic role
in sight restoration.*



FEATURING
CHRISTINE LICHTI
DOUBLE CORNEA RECIPIENT AND NURSE



DID YOU KNOW?
ALMOST ANYONE CAN BE A
CORNEA DONOR.
REGISTER AS A DONOR HERO
AT REGISTERME.ORG

#EYEDONATIONMONTH
EYEDONATIONMONTH.ORG



EYE DONATION
MONTH
NOVEMBER 2025

LEARN ABOUT
EYE DONATION



**CORNEA and
EYE BANKING
FORUM 2025**

**LEARNER NOTIFICATION
AND FINANCIAL INTEREST
DISCLOSURES**

LEARNER NOTIFICATION

Eye Bank Association of America/ Cornea Society
2025 Cornea and Eye Banking Forum
October 17, 2025
Orlando, FL

ACKNOWLEDGEMENT OF FINANCIAL COMMERCIAL SUPPORT

Wolters Kluwer

ACKNOWLEDGEMENT OF IN-KIND COMMERCIAL SUPPORT

No in-kind commercial support was received for this educational activity.

SATISFACTORY COMPLETION

Learners must complete an evaluation form to receive a certificate of completion. Your chosen sessions must be attended in their entirety. If you are seeking continuing education credit for a specialty not listed below, it is your responsibility to contact your licensing/certification board to determine course eligibility for your licensing/certification requirement.

ACCREDITATION STATEMENT

In support of improving patient care, this activity has been planned and implemented by Amedco LLC and Eye Bank Association of America. Amedco LLC is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Amedco Joint Accreditation #4008163



JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

PHYSICIANS

Amedco LLC designates this live activity for a maximum of 7 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

OBJECTIVES – AFTER ATTENDING THIS PROGRAM YOU SHOULD BE ABLE TO

1. Learn new developments, techniques, and therapies in sight restoration.
2. Analyze the efficacy of emerging technologies and innovative processes in corneal transplantation and eye banking that can improve patient outcomes.
3. Cite new research findings in cornea regarding disease, treatment, transplantation, preservation, preparation and processing.

HOW TO GET YOUR CERTIFICATE

1. Go to <http://EBAA.cmecertificateonline.com>
2. Click on the “Cornea and Eye Banking Forum 2025” link.
3. Evaluate the meeting and click the hyperlink provided on the last page to claim your credit certificate.
4. Save/Download/Print all pages of your certificate for your records.
5. If you lose your certificate, or need help, go to help.cmecertificateonline.com

CEBTs

Eye Bank Association of America approves this activity for a maximum of 6.5 CEUs. To claim CEUs for participating in this event, visit:

<https://www.surveymonkey.com/r/2025ForumCEU>

FINANCIAL INTEREST DISCLOSURES

DISCLOSURE OF CONFLICT OF INTEREST

The following table of disclosure information is provided to learners and contains the relevant financial relationships that each individual in a position to control the content disclosed to Amedco. All of these relationships were treated as a conflict of interest, and have been resolved. (C7 SCS 6.1- 6.2, 6.5)

All individuals in a position to control the content of CE are listed in the program book. If their name is not listed below, they disclosed that they had no relevant financial relationships with a commercial interest.

INDIVIDUAL

COMMERCIAL INTEREST: RELATIONSHIP

Anthony Aldave, MD	Alcon, Ascidian Therapeutics, ClearView Healthcare Partners, Dompe, EyeYon, Glaukos, Guidepoint, Kala Pharmaceuticals, Inc., SIFI, Surrozen, Thea Pharmaceuticals. W. L. Gore & Associates: Consultant Cornea Society, Massachusetts Eye and Ear Infirmary, National Institutes of Health, Oregon Academy of Ophthalmology, Stanford University: Other California Institute for Regenerative Medicine: Research Grant Overall Principal Investigator Combango (Kala Pharmaceuticals), Department of Defense, National Eye Institute, Research to Prevent Blindness, Santen Pharmaceuticals: Research Grant Site Principal Investigator
John Alverdy	Covira Surgical: Scientific/Medical Advisory Board Member
Guillermo Amescua, MD	W. L. Gore: Consultant Viatrix: Scientific/Medical Advisory Board Member Zeiss Meditec: Consultant
Peter Bedard, MS	Moria Surgical: Patent Holder BrightStar Therapeutics: Patent Holder University of Minnesota: Patent Holder
M. Soledad Cortina, MD	Gore: Scientific/Medical Advisory Board Member
Asim Farooq, MD	Amgen, Ambrx, AstraZeneca, Boehringer Ingelheim, Daiichi-Sankyo, Eisai, Immunogen, GlaxoSmithKline, Mythic Therapeutics, Seagen/Pfizer, Skye Bioscience: Consultant
Nicole Fram, MD	AbbVie, Alcon, Aurion, BVI, Glaukos, JNJ, LayerBio, Orasis, OSRX, RxSight, Tarsus: Consultant Alcon, Dompe, Glaukos, JNJ, MST, RxSight, Tarsus, Zeiss: Speakers Bureau Carl Zeiss Meditec: Research Grant Site Principal Investigator, Speakers Bureau Orasis, OSRX: Other
Dominique Geoffrion, MD, CM, PhD	Orbis: Consultant

FINANCIAL INTEREST DISCLOSURES

INDIVIDUAL

COMMERCIAL INTEREST: RELATIONSHIP

Nick Hicks

Eversight: Employee

Edward Holland, MD

Hanall, Hovione, IantECH, Imprimis Pharma, Invirsa, Johnson & Johnson Vision Care, Kala Pharmaceuticals, Katena, KeraKlear, Licrieye, Mati Pharmaceuticals, Merck KGaA, MG Thera, Mintz, Nanowafer, Inc., Novaliq, Novartis NIBR, Novartis Pharmaceuticals, Novartis Surgical, Ocunexus, Ocuphire, Omeros, Ophthotech, OysterPoint, Precise Bio, Prometic, ReGenTree, LLC, Retear, Senju, Shire, Sight Sciences, SightLife, Silktech, Slack, Stuart Therapeutics, Takeda Coordination, Tarsus, Tearfilm Innovations, TearLab, TissueTech, Topivert Pharma Limited, Vomarix, WL Gore and Associates, Zeiss: Consultant

Joshua Hou, MD

Brightstar Therapeutics: Patent Holder

Samir Jabbour, MD, CM, MPH,
FRCSC, FACS

Sun Pharma, Abbvie, Gore: Consultant

Ula Jurkunas, MD

Ocucell: Owner
Kowa: Consultant
VisionGift, Ocucell, Cellusion: Scientific/Medical Advisory Board Member
NEI: Research Grant Site Principal Investigator

Joann Kang, MD

Sanofi: Consultant
Physician Education Resources: Consultant

Shigeru Kinoshita, MD

Senju Pharmaceutical Co., Ltd.: Consultant, Patent Holder
KOWA Co., Ltd.: Scientific/Medical Advisory Board Member
CorneaGen: Private Stock Shareholder, Research Grant
Aurion Biotech: Scientific/Medical Advisory Board Member, Private Stock Shareholder, Patent Holder

Ellen Koo, MD

Emmecell: Research Grant Site Principal Investigator

Friedrich Kruse, MD

Patent Pending: Patent Holder

Jonathan Lass, MD

National Eye Institute: Research Grant Site Principal Investigator
Eversight: Corporate Board Member
Cleveland Eye Bank Foundation: Corporate Board Member

W. Barry Lee, MD

Bausch & Lomb: Speakers Bureau
Sun Ophthalmics: Speakers Bureau
Aurion: Research Grant Site Principal Investigator
Emmecell: Research Grant Site Principal Investigator
Dompe, Glaukos: Consultant

FINANCIAL INTEREST DISCLOSURES

INDIVIDUAL

COMMERCIAL INTEREST: RELATIONSHIP

Jennifer Li, MD	Ocucell: Scientific/Medical Advisory Board Member
Jessica Ludwig	Eversight: Employee
Boris Malyugin, MD, PhD	Microsurgical Technology Inc: Patent Holder Moecher GmbH: Patent Holder
Francis Price, MD	Alcon, Aurion, Bausch & Lomb, Staar Surgical: Consultant RxSight: Public Stock Shareholder Strathspey Crown: Private Stock Shareholder
Marianne Price, PhD, MBA	RxSight: Public Stock Shareholder EyeYon, Alcon, Aurion, Bausch & Lomb, Staar Surgical: Consultant Strathspey Crown: Private Stock Shareholder
Louis Racine, MD	Allergan, Bausch + Lomb, Shire: Consultant
Jennifer Rose-Nussbaumer, MD	Emmecell: Scientific/Medical Advisory Board Member
Alfonso Sabater, MD	Bausch & Lomb: Consultant Tissuecor, LLC: Stock Shareholder Ocubio, LLC: Stock Shareholder Abbvie: Research Grant Overall Principal Investigator GSK: Scientific/Medical Advisory Board Member Krystal Biotech: Scientific/Medical Advisory Board Member
Christopher Sales, MD	Sofia Biologics: Private Stock Shareholder Oko-Tek: Private Stock Shareholder Gunther Weiss Scientific Glass: Consultant
Onkar Sawant, PhD	Eversight: Employee
Ursula Schloetzer-Schrehardt, PhD	Patent Holder
Rajan Shukla	Brightstar Therapeutics: Owner
Jessica Skeie	S5G Therapeutics, Inc.: Owner
Uri Soiberman, MD	Research to Prevent Blindness: Research Grant Overall Principal Investigator
Katie Solley, MS	Eyede Medical: Stock Shareholder, Research Grant Overall Principal Investigator, Patent Holder

FINANCIAL INTEREST DISCLOSURES

INDIVIDUAL

Divya Srikumaran, MD

Sarah Sunshine, MD

Michael Szkarlat

Joseph Tauber, MD

Ching Yuan, PhD, CEBT

COMMERCIAL INTEREST: RELATIONSHIP

Alcon, Claris, SANTEN, Dompe: Research Grant Site Principal Investigator

GSK, Astra Zeneca: Consultant
Incyte: Research Grant Site Principal Investigator

Eversight: Employee

Brightstar: Employee

BrightStar Therapeutics: Patent Holder, Consultant



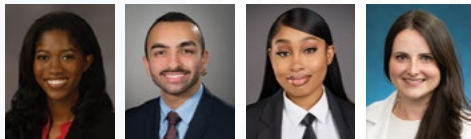
Cornea Leadership, Engagement and Advancement for Residents (CLEAR)

The CLEAR Program’s mission is to provide residents with exposure to the latest innovations in cornea and eye banking and opportunities to interact with leaders in the field. The program sponsors residents to attend the Cornea and Eye Banking Forum and Cornea Subspecialty Day at the American Academy of Ophthalmology Meeting, meet with Cornea Society and the Eye Bank Association of America leaders, and receive individualized mentorship.

Six out of seven of the inaugural 2022 residents are cornea fellows and the seventh will be applying for a cornea fellowship this fall. The program is open to all residents currently enrolled in ACGME-accredited ophthalmology residency programs. Residents who are first-generation college graduates or from socioeconomically disadvantage backgrounds are encouraged to apply. We hope to continue to support this pathway program to recruit the best and brightest to cornea with the continued support of generous eye banks and donors.

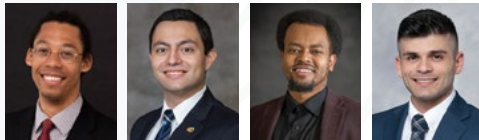
Please email fworetal@jhmi.edu if your eye bank or organization is interested in making a contribution to support the CLEAR Program.

Class of 2025



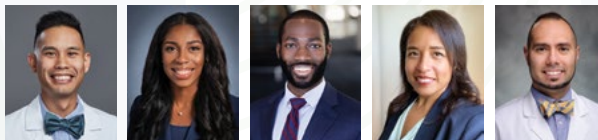
Amia Green, MD Keshav Patel, MD Alexius Russell, MD Mallory Suazo, MD

Class of 2024



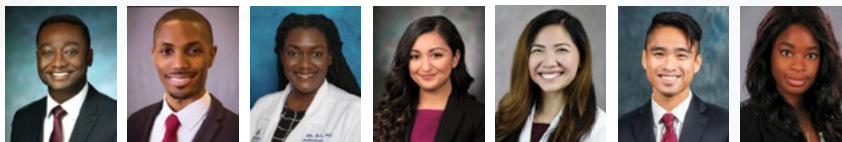
Amani Davis, MD Harry Levine, MD, MPH Mohamed Mubarik, MD Jonathan Trejo, MD

Class of 2023



Ethan Adre, MD Ugochi Aguwa, MD Dennis Akrobetu, MD Raven Diacou, MD Esteban Peralta, MD

Class of 2022



Derick Ansah, MD Aaron Dotson, MD Elisa Mike, PhD Tania Padilla Conde, MD Katherine Peters, MD Tu Tran, MD Adanna Udeh, MD

Supporters



CORNEA and
EYE BANKING
FORUM 2025

PROGRAM SCHEDULE

PROGRAM SCHEDULE

EVENT SCHEDULE

6:45 am – 2:00 pm	Registration (Jr. Ballroom Foyer)
6:45 am – 8:00 am	Breakfast (Jr. Ballroom G)
8:00 am – 5:15 pm	Cornea and Eye Banking Forum (Jr. Ballroom F)
9:55 am – 10:30 am	Refreshment Break in Exhibit Hall (Jr. Ballroom G)
12:00 pm – 1:30 pm	R. Townley Paton Luncheon & Moderated Discussion (Jr. Ballroom G) Physician attendees are invited to attend.
3:15 pm – 3:45 pm	Refreshment Break in Exhibit Hall (Jr. Ballroom G)
5:15 pm – 6:15 pm	Networking Reception (Jr. Ballroom G)

8:00 am – 9:55 am SECTION I

8:00 am – 8:02 am	Welcome and Introductions M. Soledad Cortina, MD, and Jessica Ciralsky, MD W. Barry Lee, MD, and Jim Quirk, CEBT
8:03 am – 8:13 am	Comparison of Graft Survival and Glaucoma Management in Endothelial Keratoplasty Dominique Geoffrion, MD, CM, PhD, ⁺ <i>University of Montréal (CHUM)</i>
8:14 am – 8:24 am	Inflammatory Cytokines in the Aqueous Humor and Keratoplasty Rejection Sarah Pajek, MA, BS, ⁺⁺ <i>Bascom Palmer Eye Institute, University of Miami</i>
8:25 am – 8:35 am	Graft Preparation and Clinical Outcomes of DMEK Grafts Prepared from Phakic vs. Pseudophakic Donors Jared Peterson, MD, [*] <i>Legacy Devers Eye Institute</i>
8:36 am – 8:46 am	Primary Graft Failure in Preloaded versus Surgeon Prepared DSAEK: A Clinical and Ex Vivo Correlation Study Karanpreet Multani, MD, <i>Dean McGee Eye Institute</i>
8:47 am – 8:57am	Preliminary Outcomes of Bowman Layer Only Transplantation for Keratoconus Using Tissue-Bank Pre-Prepared Grafts Michael Szkarlat, <i>Eversight</i>

- 8:58 am – 9:08 am **Effective and Efficient Big Bubble Creation for Deep Anterior Lamellar Keratoplasty**
Katie Solley, MS, *Eyede Medical*
- 9:09 am – 9:19 am **Descemet's Membrane Anterior Keratoplasty (DMAK) for Treatment of Non-Healing Diseases of the Ocular Surface**
Joshua Hou, MD, *University of Minnesota*
- 9:20 am – 9:48 am **Invited Session:**
Diabetes Endothelial Keratoplasty Study (DEKS):
Effect of Donor Diabetes on DMEK Graft Outcomes
Jonathan Lass, MD, *Case Western Reserve University/ University Hospitals*
Mark Greiner, MD, *University of Iowa*
Francis Price, Jr., MD, *Price Vision Group*
Marianne Price, PhD, MBA, *Cornea Research Foundation of America*
David Verdier, MD, *Verdier Eye Center*
- 9:49 am – 9:54 am **Claes Dohlman Award Presentation**
Recipient: Edward Holland, MD
Presented by W. Barry Lee, MD
- 9:55 am – 10:04 am **Cornea Society Business Meeting**
- 9:55 am – 10:30 am **Refreshment Break in Exhibit Hall**
Location: Jr. Ballroom G

10:30 am – 12:00 pm SECTION II

- 10:30 am – 10:32 am **Welcome Back**
Jessica Ciralsky, MD, and M. Soledad Cortina, MD
- 10:33 am – 10:35 am **EBAA High Impact Research Grant Announcement**
Mark Greiner, MD, *Chair, EBAA Research Committee*
- 10:36 am – 10:46 am **A Novel Scaffolded Decellularized Descemet's Membrane for Limbal Cell Expansion and Transplantation**
Ching Yuan, PhD, CEBT, *Lions Gift of Sight*
- 10:47 am – 10:57 am **Clinical and Surgical Burden in Severe Limbal Stem Cell Deficiency:**
A 22-Year Retrospective Analysis of 1,598 Eyes
Kian Madjedi, MD, MSc, FRCSC,* *University of Cincinnati*
- 10:58 am – 11:08 am **Femtosecond Laser-Assisted Glueless Simple Limbal Epithelial Transplantation in Unilateral Limbal Stem Cell Deficiency – 12-Month Outcomes**
Boris Malyugin, MD, PhD, *Stein Eye Institute, UCLA*

- 11:09 am – 11:19 am **Clinical Outcomes of Processed Keratolimbal Allograft (KLAL-Pro) for the Treatment of Limbal Stem Cell Deficiency**
Nambi Nallasamy, MD, *Kellogg Eye Center, University of Michigan*
- 11:20 am – 11:30 am **Interim Results of a Phase I Clinical Trial of Cultivated Autologous Limbal Stem Cells for Stage III Limbal Stem Cell Deficiency**
Sheyla González Garrido, PhD, *Stein Eye Institute, UCLA*
- 11:31 am – 11:35 am **R. Townley Paton Award Introduction**
Bennie Jeng, MD, *2024 R. Townley Paton Award Recipient*
- 11:36 am – 11:56 am **R. Townley Paton Award Lecture:
Disruption in Cornea: Lessons from the Past, Vision for the Future**
Recipient: Marianne Price, PhD, MBA, *2025 R. Townley Paton Award Recipient*
- 11:57 am – 12:00 pm **Session II Closing Remarks**
M. Soledad Cortina, MD, and Jessica Ciralsky, MD

12:00 pm – 1:30 pm R. TOWNLEY PATON LUCHEON

- 12:00 pm – 1:30 pm **R. Townley Paton Luncheon & Moderated Discussion**
Moderated by Jennifer Li, MD, and Shahzad Mian, MD
Location: Jr. Ballroom G
Included with all physician registration types.

1:30 pm – 3:15 pm SECTION III

- 1:30 pm – 1:32 pm **Welcome Back**
Jessica Ciralsky, MD, and M. Soledad Cortina, MD
- 1:33 pm – 1:43 pm **2025 Eye Banking: The Value EBAA gives to Our Profession**
Winston Chamberlain, MD, PhD, *Northwest Permanente*
- 1:44 pm – 1:54 pm **Adverse Events After Corneal Transplantation: Longitudinal Insights from 2007 to 2024**
Karthik Reddy, BS,** *University of Michigan Medical School*
- 1:55 pm – 2:05 pm **Corneal Transplantation from Donors with Suspected Sepsis: Infectious Risks and Graft Outcomes**
William Herskowitz, BA,** *University of Miami, Bascom Palmer Eye Institute*
- 2:06 pm – 2:16 pm **Rates of Graft Failure and Fungal Infections in Corneal Transplants Using Donor Corneas in Storage Media With or Without Amphotericin B**
Nicole Fram, MD, *Advanced Vision Care*

- 2:17 pm – 2:27 pm **Rapid Detection of *Candida albicans* in Corneal Storage Media Using Extraction-Free LAMP-Based Assays**
Diego Ojeda-Pedraza, PhD, *University of Miami*
- 2:28 pm – 2:38 pm **Increased Mitochondrial Function in Donor Corneas After Prolonged Storage in Novel Preservation Media**
Simran Sarin,^{**} *University of Iowa Carver College of Medicine*
- 2:39 pm – 2:49 pm **Calcitonin Gene-Related Peptide (CGRP) Enhances Corneal Endothelial Cell Survival During Cold Storage**
Asmaa Zidan, MD, *Mass Eye and Ear, Harvard Medical School*
- 2:50 pm – 3:00 pm **Deep Learning-Based Classification of Fungal and Acanthamoeba Keratitis**
Mubarak Mohamed, MD,* *University of North Carolina- Chapel Hill*
- 3:01 pm – 3:03 pm **Richard Troutman Prize Award Introduction**
Douglas R. Lazzaro, MD, *NYU Langone Health*
- 3:04 pm – 3:12 pm **Richard Troutman Prize Lecture:
Interpretable Machine Learning–Based Risk Score for Predicting 10-Year Corneal Graft Survival After Penetrating Keratoplasty and Deep Anterior Lamellar Keratoplasty in Asian Eyes**
Clarissa Ng Yin Ling, MBBS, *Singapore National Eye Centre*
- 3:13 pm – 3:14 pm **Session III Closing Remarks**
M. Soledad Cortina, MD, and Jessica Ciralsky, MD
- 3:15 pm – 3:44 pm **Refreshment Break in Exhibit Hall**
Location: Jr. Ballroom G

3:45 pm – 5:15 pm SECTION IV

- 3:45 pm – 3:47 pm **Welcome Back**
M. Soledad Cortina, MD, and Jessica Ciralsky, MD
- 3:48 pm – 3:58 pm **Association Between In Vitro Antibiotic Susceptibility and Visual Acuity Outcome in Bacterial Corneal Ulcers: A Secondary Analysis of the SCUT II Trial**
Jennifer Rose-Nussbaumer, MD, *Stanford University*
- 3:59 pm – 4:09 pm **Mid-Term Outcomes of Boston Type I Keratoprosthesis for Repeat Graft Failure: A Control Group for Evaluation of Novel Keratoprostheses**
Anthony Aldave, MD, *Stein Eye Institute, UCLA*

- 4:10 pm – 4:20 pm **How Does Endothelial Cell Injection Therapy Modify Guttae in Patients with Fuchs Dystrophy?**
Friedrich Kruse, MD, PhD, *University of Erlangen*
- 4:21 pm – 4:31 pm **The Effect of Age and Sex on Migration Dynamics in Descemet's Stripping Only**
Ula Jurkunas, MD, *Mass Eye and Ear, Harvard Medical School*
- 4:32 pm – 4:47 pm **Cornea Fellow Case Study Presentations: Surgical Cases**
Presenters:
Maria Rizk, MD,* *University of Montréal (CHUM)*
Siddharth Nath, MD, PhD,* *Wilmer Eye Institute, Johns Hopkins University*
Enchi Chang, MD,* *Mass Eye and Ear*
Panelists:
Vishal Jhanji, MD, *University of Pittsburgh*
Chris Sales, MD, *University of Iowa*
Praneetha Thulasi, MD, *Washington University in St. Louis*
- 4:48 pm – 5:10 pm **Cornea Fellow Case Study Presentations: Clinical Cases**
Presenters:
Joanna Silverman, MD,* *Kellogg Eye Center, University of Michigan*
Melanie Daulton, MD,* *Stein Eye Institute, UCLA*
Taylor Linaburg, MD,* *Ophthalmology Consultants of Long Island (OCLI)*
Oscar Chen, MD, MS,* *University of California, Irvine*
Panelists:
Guillermo Amescua, MD, *Bascom Palmer Eye Institute, University of Miami*
Namrata Sharma, MD, *All India Institute of Medical Sciences, New Delhi*
Sarah Sunshine, MD, *University of Maryland School of Medicine*
- 5:11 pm – 5:13 pm **Best Paper of Session Award**
Best Paper by a Medical Student, Resident or Cornea Fellow
Supported by *Beauty of Sight*
- 5:14 pm – 5:15 pm **Closing Remarks**
Jessica Ciralsky, MD, and M. Soledad Cortina, MD

5:15 pm – 6:15 pm NETWORKING RECEPTION

- 5:15 pm – 6:15 pm **Networking Reception**
Location: Jr. Ballroom G

R. TOWNLEY PATON LUNCHEON

12:00 – 1:30 PM

JR. BALLROOM G

All physician attendees are invited to attend, including medical students, residents, and Cornea Fellows.

Includes a moderated discussion, facilitated by Jennifer Li, MD, and Shahzad Mian, MD

Not a CME event.

SUPPORTED BY: BAUSCH + LOMB FOUNDATION

CORNEA and
EYE BANKING
FORUM 2025

**AWARD
LECTURES**

AWARD LECTURE

R. TOWNLEY PATON LECTURE

Disruption in Cornea: Lessons from the Past, Vision for the Future



Marianne Price, PhD, MBA, 2025 Paton Award Recipient

Disruption and innovation continually reshape the fields of cornea and eye banking, from the introduction of lamellar keratoplasty to the advancements of eye bank prepared tissue to the evolution of endothelial cell therapy and the rise of artificial corneas. During the 2025 R. Townley Paton Award Lecture, Marianne Price, PhD, MBA, explores pivotal moments when disruptive changes in cornea and eye banking fundamentally shifted thinking and practice and examines how these disruptions challenged existing paradigms, improved outcomes, and redefined standards. The lecture looks ahead to the next wave of disruption and provides insights into how to anticipate, adapt to, and lead through change in this rapidly evolving field.

AWARD LECTURE

RICHARD TROUTMAN CORNEA PRIZE LECTURE

Interpretable Machine Learning–Based Risk Score for Predicting 10-Year Corneal Graft Survival After Penetrating Keratoplasty and Deep Anterior Lamellar Keratoplasty in Asian Eyes



Clarissa Ng Yin Ling, MBBS, 2025 Troutman Cornea Prize Recipient

Purpose: To predict 10-year graft survival after deep anterior lamellar keratoplasty (DALK) and penetrating keratoplasty (PK) using a machine learning (ML)-based interpretable risk score.

Methods: Singapore Corneal Transplant Registry patients (n=1687) who underwent DALK (n=524) or PK (n=1163) for optical indications (excluding endothelial diseases) were followed up for 10 years. Variable importance scores from random survival forests were used to identify variables associated with graft survival. Parsimonious analysis using nested Cox models selected the top factors. An ML-based clinical score generator (AutoScore) converted identified variables into an interpretable risk score. Predictive performance was evaluated using Kaplan–Meier (KM) curves and time-integrated AUC (iAUC) on an independent testing set.

Results: Mean recipient age was 51.8 years, 54.1% were male, and majority were Chinese (60.0%). Surgical indications included corneal scar (46.5%), keratoconus (18.3%), and regrant (16.2%). Five-year and ten-year KM survival was 93.4% and 92.3% for DALK, compared with 67.6% and 56.6% for PK (log-rank P, 0.001). Five factors were identified by ML algorithm as predictors of 10-year graft survival: recipient sex, preoperative visual acuity, choice of procedure, surgical indication, and active inflammation. AutoScore stratified participants into low-risk and high-risk groups with KM survival of 73.6% and 39.0%, respectively (log-rank P, 0.001). ML analysis outperformed traditional Cox regression in predicting graft survival beyond 5 years (iAUC 0.75 vs. 0.69).

Conclusions: A combination of ML and traditional techniques identified factors associated with graft failure to derive a clinically interpretable risk score to stratify PK and DALK patients, a technique that may be replicated in other corneal transplant programs.

CORNEA JOURNAL

The Cornea Society sponsors and supports

Cornea: The Journal of Cornea and External Disease

For corneal specialists and for all general ophthalmologists with an interest in this exciting subspecialty, *Cornea* brings together the latest clinical and basic research on the cornea and the anterior segment of the eye.



Each volume is peer-reviewed by *Cornea's* board of world-renowned experts and fully indexed in the Web of Science and MEDLINE.

Led by current Editor-in-Chief Dr. Reza Dana, *Cornea* currently enjoys an Impact Factor of 2.1 and is recognized as the journal of record of the subspecialty of cornea and corneal disease.



Cornea Society
Advancing the treatment of corneal disease

CORNEA and
EYE BANKING
FORUM 2025

MINI-SYMPOSIUM

MINI-SYMPOSIUM

Diabetes Endothelial Keratoplasty Study (DEKS): Effect of Donor Diabetes on DMEK Graft Outcomes

Moderator: Jonathan Lass, MD
DEKS Study Chair

Introduction Jonathan Lass, MD

DEKS Background, Methods, Donor and Recipient Characteristics

Marianne Price, PhD, MBA
DEKS Study Co-Chair

Effect of Donor Diabetes on DMEK Graft Success 1-Year Postoperatively: DEKS Randomized Controlled Trial Results

Francis Price, Jr., MD

Endothelial Cell Loss and Morphometric Changes 1 Year after Successful DMEK in the DEKS

David Verdier, MD

Donor Diabetes Severity and Relation to DMEK Graft Outcomes

Mark Greiner, MD

Future Plans for the DEKS

Jonathan Lass, MD

Panel Q&A and Discussion

All

Diabetes is increasingly common in keratoplasty recipients and cornea donors, with the prevalence in cornea donors reaching 30-40%. Eye banks have found that donor diabetes is associated with a higher tissue preparation failure rate with DMEK, the most common keratoplasty procedure performed in the US, and a secondary analysis from the Cornea Preservation Time Study found that donor diabetes was associated with poorer DSAEK outcomes at 3 years. To address these concerns, the DEKS was designed with 3 specific aims:

- To determine if the 1-year graft success rate following DMEK performed with corneas from donors without diabetes is superior to the graft success rate with corneas from donors with diabetes.
- To determine if the 1-year central endothelial cell loss (ECL) following DMEK is less with corneas from donors without diabetes vs. donors with diabetes.
- To explore the relationship between graft outcomes 1 year after DMEK and donor diabetes severity assessed in 3 different ways: 1) eye bank-determined diabetes risk scores; 2) post-mortem hemoglobin A1c testing; and 3. post-mortem skin advanced glycation endproducts and oxidation markers testing.

The DEKS also examines the impact of recipient diabetes on graft outcomes and addresses the tissue preparation failure question by including donors over the full range of diabetes severity and masking the eye bank technicians and surgeons who prepare the tissue regarding the donor diabetes status.

In today's Mini-Symposium, we will summarize the DEKS methods and baseline characteristics, as reported in *Cornea*, and we will present for the first time the main study outcomes, with a coordinated release of outcome publications in *JAMA Ophthalmology*.

CORNEA and
EYE BANKING
FORUM 2025

**CORNEA FELLOW
CASE STUDY
PRESENTATIONS**

CORNEA FELLOW CASE STUDY PRESENTATIONS

Two panel discussions feature case studies presented by current Cornea Fellows. The first panel focuses on surgical cases, and the second panel will highlight clinical cases. The Cornea Fellows will present their cases and then a discussion with invited panelists will take place after each presentation.

SURGICAL CASES

Case Presentations

Surgical Technique of Modified Amnion-Assisted Conjunctival Epithelial Redirection (ACER) for Partial Limbal Stem Cell Deficiency

Maria Rizk, MD,* *University of Montréal (CHUM)*

Decoding the Daunting DMEK

Siddharth Nath, MD, PhD,* *Wilmer Eye Institute, Johns Hopkins University*

A Journey from Darkness to Light

Enchi Chang, MD, * *Mass Eye and Ear*

Panelists:

Vishal Jhanji, MD, *University of Pittsburgh*

Chris Sales, MD, *University of Iowa*

Praneetha Thulasi, MD, *Washington University in St. Louis*

CLINICAL CASES

Case Presentations

Conjunctival Lesion of Unknown Etiology

Joanna Silverman, MD,* *Kellogg Eye Center, University of Michigan*

Recurrence of p.Met619Lys Mutation – Associated TGFBI Corneal Dystrophy Following DALK

Melanie Daulton, MD,* *Stein Eye Institute, UCLA*

Corneal Infiltrates Following LASIK

Taylor Linaburg, MD,* *Ophthalmology Consultants of Long Island (OCLI)*

Recurrent Candida Keratitis After Penetrating Keratoplasty Despite Antifungal Storage Media

Oscar Chen, MD, MS,* *University of California, Irvine*

Panelists:

Guillermo Amescua, MD, *Bascom Palmer Eye Institute, University of Miami*

Namrata Sharma, MD, *All India Institute of Medical Sciences, New Delh*

Sarah Sunshine, MD, *University of Maryland School of Medicine*

CORNEA and
EYE BANKING
FORUM 2025

**SCIENTIFIC
ABSTRACTS**

SCIENTIFIC ABSTRACT

8:03 am – 8:13 am

Comparison of Graft Survival and Glaucoma Management in Endothelial Keratoplasty

Dominique Geoffrion, MD, CM, PhD*

University of Montréal (CHUM)

Co-Authors: Samir Jabbour, MD, MPH; Louis Racine, MD; Paul Thompson, MD; Edmond Sandouk, MD; Shayyan Wasim; Younes Agoumi, MD; Georges Durr, MD; and Mona Harissi-Dagher, MD

Purpose: To compare corneal graft survival, glaucoma risk factors and glaucoma management in Descemet membrane endothelial keratoplasty (DMEK) and Descemet stripping automated endothelial keratoplasty (DSAEK).

Methods: Retrospective, single center study of 930 consecutive eyes (DSAEK: 610, DMEK: 320) from 2010–2024 followed for up to 15 years, with ≥ 12 months follow-up. Main outcomes included graft survival, rejection, endothelial cell loss, best-corrected visual acuity (BCVA), and incidence of de novo glaucoma or glaucoma progression. Outcomes were compared between glaucoma interventions: medically managed, SLT, MIGS, tube shunts, trabeculectomy.

Results: In DMEK, graft survival was 80% (SLT), 83% (MIGS), 35% (tubes) at 5 years ($p=0.04$). In DSAEK, graft survival was 78% (SLT), 85% (MIGS), 20% (tubes) at 5 years ($p=0.03$). Endothelial cell loss at 2 years was lower in DMEK (26%) than DSAEK (33%, $p=0.02$). BCVA $\geq 20/40$ was achieved in 74% of DMEK vs. 58% of DSAEK eyes at 5 years ($p < 0.001$). De novo glaucoma occurred in 9% of DMEK and 13% of DSAEK eyes ($p=0.06$).

Conclusion: MIGS were associated with superior graft survival, versus tubes or laser. To the best of our knowledge, our study is the first one to compare and analyze separately the outcomes of MIGS to other glaucoma interventions in endothelial keratoplasty. Graft longevity is affected by more invasive glaucoma procedures.

SCIENTIFIC ABSTRACT

8:14 am – 8:24 am

Inflammatory Cytokines in the Aqueous Humor and Keratoplasty Rejection

Sarah Pajek, MA, BS⁺⁺

Bascom Palmer Eye Institute, University of Miami

Co-Authors: Andrea C. Santiago-Leon, MD; Diego Ojeda-Pedraza; Angela Gomez Bedoya; Alfonso L. Sabater, MD, PhD; and Ellen Koo, MD

Purpose: Inflammatory cytokines within aqueous humor are implicated in corneal endothelial damage, potentially contributing to graft rejection post-keratoplasty. This study assesses preoperative inflammasome cytokine levels as predictors of graft outcomes.

Methods: In a prospective clinical investigation, aqueous humor was sampled from 74 keratoplasty patients at surgery initiation; undetectable samples were excluded. A 27-gauge needle was used to aspirate 0.2 mL from the anterior chamber. ELISA quantified Caspase-1, ASC, and IL-18 concentrations. Clinical graft outcomes were evaluated at 2 and 6 months postoperatively. Statistical significance was set at $p \leq 0.05$.

Results: Elevated preoperative IL-18 correlated significantly with graft failure, increasing by 4.74 pg/mL at 2-month follow-up, 3.74 pg/mL at any follow-up, and 4.27 pg/mL in persistently non-clearing grafts. Caspase-1 correlated with increased corneal thickness at 1-month (0.898 pg/mL) and 3-month (0.808 pg/mL) follow-ups. ASC was elevated by 102 pg/mL in prior graft failures and 58.3 pg/mL in non-clearing grafts.

Conclusion: Elevated baseline IL-18, Caspase-1, and ASC significantly predict graft failure, highlighting their potential as therapeutic biomarkers. Pharmacological targeting may enhance graft survival and transform keratoplasty strategies.

SCIENTIFIC ABSTRACT

8:25 am – 8:35 am

Graft Preparation and Clinical Outcomes of DMEK Grafts Prepared from Phakic vs. Pseudophakic Donors

Jared Peterson, MD*

Legacy Devers Eye Institute

Co-Authors: Michael Straiko, MD; Megan M.W. Straiko; Khoa D. Tran, PhD; and Jessica Chen, MD

Purpose: To evaluate the tissue preparation success rate and clinical outcomes of Descemet membrane endothelial keratoplasty (DMEK) grafts prepared from pseudophakic donors.

Methods: A retrospective review of DMEK tissue preparation from phakic and pseudophakic donors at one eye bank from 2018 to 2024. Graft preparation success rate, preparation time, and peel difficulty rating were compared. A subset of the grafts transplanted at a single institution was followed postoperatively. Comparison of primary failure rate, early failure rate, rebubble rate, and endothelial cell loss between the two groups was performed.

Results: A total of 9209 DMEK grafts were prepared, 1051 of which were from pseudophakic donors. Of phakic donors, 2.5% failed graft preparation, compared with 6.3% of pseudophakic donors ($P < 0.01$). 1088 grafts (926 from phakic donors, 162 from pseudophakic donors) were subsequently followed over time. Post-operative primary graft failure rate in the phakic and pseudophakic groups was 1.3% and 3.1%, respectively ($P = 0.10$). Rebubble rate was 11.4% for phakic donor grafts and 12.3% for pseudophakic donor grafts ($P = 0.38$). Six-month endothelial cell loss was $28\% \pm 17\%$ for recipients of grafts prepared from phakic donors and $31\% \pm 18\%$ for recipients of grafts prepared from pseudophakic donors. Twelve-month endothelial cell loss was $30\% \pm 18\%$ for phakic donor grafts compared to $33\% \pm 20\%$ for pseudophakic donor grafts. Endothelial cell loss at 6- and 12-months post-operative were not statistically significant (all $P > 0.05$).

Conclusion: DMEK grafts from pseudophakic donors provided similar clinical outcomes to those prepared from phakic donors. Preparing DMEK grafts from pseudophakic donors is a safe and effective way to increase the number of DMEK grafts available for transplantation.

SCIENTIFIC ABSTRACT

8:36 am – 8:46 am

Primary Graft Failure in Preloaded Versus Surgeon Prepared DSAEK: A Clinical and Ex Vivo Correlation Study

Karanpreet Multani, MD

Dean McGee Eye Institute

Co-Authors: Kamran Riaz, MD; Liam Redden, MD; Osamah Mian, MD; Michael Szkarlat; Justin Dvorak, PhD; Kai Ding, PhD; Shahzad Mian, MD; Jessica Ludwig; and Onkar B. Sawant, PhD

Purpose: To evaluate primary graft failure (PGF) rates and ex vivo endothelial cell loss between surgeon-punched and eyebank-preloaded Descemet stripping automated endothelial keratoplasty (DSAEK) grafts.

Methods: This single-center retrospective study included 69 eyes undergoing DSAEK between 2020-2023, combined with an ex vivo analysis of DSAEK lenticules. Eyes were grouped as: 1) preloaded in Endoserter (PL-ES, n=20), 2) preloaded in glass tube (PL-GT, n=7), and 3) surgeon-punched DSAEK inserted with EndoSerter (SL-ES, n=42). The primary outcome was PGF, defined as persistent corneal edema and central graft haze more than 3 months postoperatively despite medical therapy and/or rebubbling. Secondary outcomes included cystoid macular edema (CME), rebubbling, endothelial cell density, central corneal thickness (CCT), corrected distance visual acuity (CDVA), and spherical equivalent (SE). Ex vivo study assessed percent endothelial cell loss (%ECL) in 9 PL-ES, 6 PL-GT, and 6 SL-ES grafts.

Results: PGF rate was significantly higher in PL-ES (8/20; 40%) and PL-GT (4/7; 57.14%) vs. SL-ES (1/42; 2.38%) ($p < 0.0001$). All PGF cases were successfully regrafted with SL-ES DSAEK without subsequent graft failure. Graft thickness was higher in PL-GT (57.43 ± 6.97) vs. PL-ES (45.75 ± 5.70) and SL-ES (50.98 ± 13.99) ($p = 0.0234$). No significant differences were observed in CME, rebubbling, CCT, CDVA, or SE. Ex vivo, %ECL was higher in both preloaded groups ($p = 0.0354$), though post-hoc analysis did not reach significance.

Conclusion: Preloading and storage of DSAEK grafts appears to impact PGF rates clinically and endothelial cell loss in the ex vivo laboratory setting.

SCIENTIFIC ABSTRACT

8:47 am – 8:57 am

Preliminary Outcomes of Bowman Layer Onlay Transplantation for Keratoconus Using Eye-Bank Pre-Prepared Grafts

Michael Szkarlat
Eversight

Co-Author: Uri Soiberman, MD

Purpose: To evaluate the safety and efficacy of Bowman layer (BL) onlay transplantation for patients with advanced or progressive keratoconus using eye bank prepared grafts.

Methods: Bowman layer grafts were prepared by a skilled tissue bank technician and evaluated with AS-OCT prior to transplantation at the eye bank. Following host epithelium removal and application of the graft to the stroma, the grafts were allowed to dry for 45 minutes before placement of a bandage contact lens. Preoperative and post-operative assessments included donor graft thickness, best-corrected visual acuity (BCVA), maximum keratometry (Kmax), and central corneal thickness (CCT).

Results: Two cases were performed thus far, one graft was retained. Postoperative outcomes, including changes in corneal topography, visual acuity, and complication rates, are being collected and will be presented at the time of the meeting.

Conclusion: Bowman layer onlay transplantation may offer a promising treatment option for patients with advanced keratoconus who seek a minimally invasive intervention to allow better contact lens fitting. The graft preparation is complex, which may have been a hurdle in the widespread adoption of this technique. Preparation of the graft by the tissue bank will allow to increase the availability of this procedure to more U.S. based surgeons.

SCIENTIFIC ABSTRACT

8:58 am – 9:08 am

Effective and Efficient Big Bubble Creation for Deep Anterior Lamellar Keratoplasty

Katie Solley, MS

Eyede Medical

Co-Authors: Kunal Parikh; Sudeep Pramanik, MD, MBA; and Noelle Nesbitt

Purpose: To assess the efficiency and effectiveness of a novel surgical approach and device, DesceCleave, for pneumodissection of the Dua's layer from the stroma in DALK.

Methods: DesceCleave (DC) is designed to safely create a big bubble (BB) through targeted and controlled needle placement into the peripheral cornea tangentially to Descemet's Membrane (DM). An experienced DALK surgeon tested DC on 10 human donor corneas secured on an artificial anterior chamber. A 26 G needle was placed into DC and safely advanced to the desired corneal depth via a stopping mechanism. Following air injection and bubble creation, trephination and stromal cap removal were performed.

Results: A BB was made in 100% of corneas in 1.2 ± 0.6 mins. Trephination was performed in 1.8 ± 1.1 mins and DM baring was completed in 2.5 ± 1.7 mins, resulting in a total time of 5.7 ± 2.6 mins. Optical coherence tomography confirmed an average remaining corneal thickness of 32.4 ± 4.3 μm .

Conclusion: DesceCleave has potential for efficient, effective, and standardized stromal removal in DALK surgery.

SCIENTIFIC ABSTRACT

9:09 am – 9:19 am

Descemet's Membrane Anterior Keratoplasty (DMAK) for Treatment of Non-Healing Diseases of the Ocular Surface

Joshua Hou, MD

University of Minnesota

Co-Authors: Joseph Tauber, MD, and Rajan Shukla

Purpose: To describe multi-surgeon, retrospective clinical outcomes data for Descemet's membrane anterior keratoplasty (DMAK) in the treatment non-healing diseases of the ocular surface.

Methods: We retrospectively reviewed postoperative outcomes of DMAK, performed between 2022 and 2025, based on surgeon outcome reports. Patients with a follow-up period of less than 60 days were excluded. Rates of complete epithelialization, mean healing time, and mean change in visual acuity were assessed. We report outcomes from 110 cases performed by 16 surgeons across the USA.

Results: Complete epithelialization occurred in 86.4% of all cases, with a median healing time of 28.0 days (IQR 24.5-42.0). Healing rates were 89.1% for limbal stem cell deficiency cases (n=46), with a median healing time of 30.5 days (IQR 26.75-43.50), 74.3% for persistent epithelial defect cases (n=35); median healing time is 32.5 days (IQR 28.0-42.75), and 80.0% for neurotrophic keratopathy cases (n=45); median healing time is 30.0 days (IQR 26.75-43.5). Graft retention was 92.7%. Among patients followed for over 6 months (n=46), 97.8% achieved complete healing. Nineteen (19) patients (33%) reported pain preoperatively and all reported improvement or resolution, with mean pain scores decreasing from 5.47 to 0.84 at follow-up. Visual acuity improved in 52.8% of cases. No infectious complications attributable to the tissue were reported.

Conclusion: DMAK represents a valuable technique for treating non-healing ocular surface diseases, providing high rates of durable epithelialization, pain reduction, visual improvement, and excellent graft retention.

SCIENTIFIC ABSTRACT

10:36 am – 10:46 am

A Novel Scaffolded Decellularized Descemet's Membrane for Limbal Cell Expansion and Transplantation

Ching Yuan, PhD, CEBT

Lions Gift of Sight

Co-Authors: Peter Bedard, MS, CEBT; Heidi Roehrich; Sung Lee, BS; and Joshua H. Hou, MD

Purpose: Descemet's Membrane Anterior Keratoplasty (DMAK) is a promising treatment for limbal stem cell deficiency and other ocular surface disorders. We developed a ready-to-use, scaffolded Descemet's membrane (DM) and evaluated its potential to support in vitro expansion of limbal epithelial cells (LECs) and corneal epithelial regeneration.

Methods: Decellularized DMs were peeled from donor corneas and affixed to NC rings shaped to eye curvature. LECs from explant cultures were seeded and expanded on DM-NC rings to assess (a) limbal stem cell (LSC) marker expression via immunostaining, and (b) epithelial differentiation/stratification under air-lifting. In parallel, single limbal explants were cultured on the DM-NC rings to generate cultivated limbal epithelial transplantation (CLET) grafts. To model DMAK—with or without cultured LECs—rings were applied to debrided donor corneas, NC removed, and organ-cultured to assess in vitro re-epithelialization.

Results: LECs seeded on DM-NC rings showed LSC marker expression similar to isolated DM: ABCG2 (89.0±3.2% vs. 80.1±11.4%), p63α (78.5±10.7% vs. 79.1±15.7%), and co-localized ABCG2/p63α (77.1±8.1% vs. 65.4±19.1%) (n=3, isolated DM; n=4, DM-NC ring). LEC outgrowth from limbal explants reached confluence on 8mm DM-NC rings in 9.0±1.5 days (n= 6). Air-lifting induced stratification and superficial epithelial differentiation (CK12+/CK3+). In DMAK w/o cells model, the recipient-derived corneal cells migrated onto donor DM. In DMAK w/ cells model, donor LECs repopulated the debrided corneal surface.

Conclusion: The DM-NC ring provides a versatile platform for in vitro expansion of LECs and holds translational potential for future ocular surface applications.

SCIENTIFIC ABSTRACT

10:47 am – 10:57 am

Clinical and Surgical Burden in Severe Limbal Stem Cell Deficiency: A 22-Year Retrospective Analysis of 1,598 Eyes

Kian Madjedi, MD, MSc, FRCSC*

University of Cincinnati

Co-Authors: Edward Holland, MD; Hunter Drenth; and Cameron Reinisch

Purpose: To characterize the diagnostic timeline, clinical features, and previous surgical interventions in patients with limbal stem cell deficiency (LSCD) over a 22-year period.

Methods: We conducted a retrospective chart review of 1,598 eyes diagnosed with LSCD referred to our tertiary care center between 2002 and 2024. Clinical data including time from symptom onset to formal diagnosis, ocular surface features, and prior surgical history were analyzed. The type and number of surgical procedures performed prior to referral was also obtained.

Results: The mean duration from initial symptom onset to confirmed LSCD diagnosis was 2,962 days (approximately 8.1 years). The most frequently performed surgical interventions prior to referral included penetrating keratoplasty (n=305), superficial keratectomy with or without amniotic membrane transplantation (n=239), Boston keratoprosthesis (n=31), Descemet stripping automated endothelial keratoplasty (DSAEK; n=24), and simple limbal epithelial transplantation (SLET; n=8). Among patients who had undergone previous surgery, the number of preceding surgeries ranged from 1-8. At time of presentation to our center 73% of referred LSCD patients exhibited stromal scarring.

Conclusion: LSCD is associated with significant diagnostic delay and a high burden of advanced ocular surface disease. A significant proportion of patients arrive with stromal scarring and a history of multiple prior surgical interventions. These findings underscore the urgent need for improved early detection and therapeutic algorithms to optimize visual outcomes and reduce surgical morbidity.

SCIENTIFIC ABSTRACT

10:58 am – 11:08 am

Femtosecond Laser-Assisted Glueless Simple Limbal Epithelial Transplantation in Unilateral Limbal Stem Cell Deficiency – 12-Month Outcomes

Boris Malyugin, MD, PhD
Stein Eye Institute, UCLA

Co-Authors: Svetlana Kalinnikova

Purpose: The glueless simple limbal epithelial transplantation (G-SLET) technique implements several limbal micrografts harvested from the healthy eye into the peripheral corneal tunnels without the use of fibrin glue and human amniotic membrane.

Methods: A novel customized algorithm and software for low-energy FSL were developed and tested using five pairs of isolated porcine eyes. FSL G-SLET modification was assessed in 3 clinical cases of unilateral LSCD caused by chemical burns. Corneal epithelialization efficacy, best corrected visual acuity (BCVA), corneal epithelial mapping, and central corneal thickness were evaluated. All patients were followed up for 24 months post-op.

Results: The FSL set for 100% energy and the pattern of eight nonpenetrating vertical cuts with oblique tunnel portions having variable incision depths and diameter of 8.5 mm and higher were selected for further clinical evaluation. Clinically, stable corneal epithelialization was achieved 2-3 weeks after intervention. At the 6-month follow-up, all patients had healthy corneal epithelium with limbal micrografts visible inside the corneal tunnels. BCVA markedly improved in two cases, but not in the third case with severe corneal stromal scarring. In addition, all patients noted a full-scale reduction in subjective complaints and substantial improvement in their quality of life.

Conclusion: FSL G-SLET is a new technique for limbal stem cell transplantation in patients with unilateral LSCD. It allows standardization of corneal tunnel localization and dimensions, thereby increasing the safety of the surgical procedure.

SCIENTIFIC ABSTRACT

11:09 am – 11:19 am

Clinical Outcomes of Processed Keratolimbal Allograft (KLAL-Pro) for the Treatment of Limbal Stem Cell Deficiency

Nambi Nallasamy, MD

Kellogg Eye Center, University of Michigan

Co-Authors: Shahzad Mian, MD; Pauline M. Dmitriev, MD; Jessica Ludwig; Stephanie Becker; Nick Hicks, CEBT; and Onkar B. Sawant, PhD

Purpose: To describe outcomes using KLAL-Pro, a novel, partial-thickness, limbal epithelial stem cells (LESC)-enriched graft prepared by the eye bank for treatment of limbal stem cell deficiency (LSCD).

Methods: KLAL-Pro grafts, 2–3 mm wide and 6–10 mm long with 200–300 µm depth, were processed from cadaveric corneas and confirmed to retain the palisades of Vogt. Two patients with severe unilateral LSCD underwent a modified Cincinnati procedure using KLAL-Pro in combination with a conjunctival limbal autograft (CLAU), and one patient with severe bilateral LSCD underwent ocular surface stem cell transplantation using KLAL-Pro alone.

Results: All three patients demonstrated the expected pace of epithelial recovery: complete epithelialization by postoperative month 1 (POM1) in two unilateral LSCD cases and 90% epithelialization by post-op week 3 in a bilateral LSCD case. At POM6, all patients demonstrated complete and sustained epithelial recovery. One modified Cincinnati procedure patient demonstrated a clear cornea with sustained epithelialization and no conjunctivalization despite lapses in immunosuppression, suggesting variability in immune response and possible influence of patient-specific factors.

Conclusion: KLAL-Pro grafts provide high-quality, LESK-enriched tissue with consistent surgical handling and promising clinical outcomes. This novel technique may improve access to and efficiency of LSCD treatment. Further studies are needed to optimize immunosuppression protocols and evaluate long-term outcomes.

SCIENTIFIC ABSTRACT

11:20 am – 11:30 am

Interim Results of a Phase I Clinical Trial of Cultivated Autologous Limbal Stem Cells for Stage III Limbal Stem Cell Deficiency

Sheyla González Garrido, PhD

Stein Eye Institute, UCLA

Co-Authors: Clemence Bonnet, MD; Sophie Deng, MD, PhD; Maxime Ruiz, PhD; Leya Weber, MS; and Madison Canter, BS

Purpose: To investigate the safety and efficacy of a novel limbal stem cell cultivation (cLSC) method for treating stage III limbal stem cell deficiency (LSCD) and to validate a set of standardized LSC biomarkers for their accuracy in assessing LSC function before and after transplantation of the cLSC product.

Methods: A novel xenobiotic- and feeder-free LSC cultivation method was developed. In a Phase I clinical trial, LSCD was diagnosed and staged based on a set of standardized criteria including clinic score and in vivo LSC biomarkers quantified using multimodal in vivo imaging. LSC function at 6 and 12 months after cLSC transplant was assessed using the same criteria.

Results: Ten subjects with unilateral stage III LSCD met the inclusion criteria and were enrolled in the trial. The cLSC was successfully manufactured under GMP conditions and transplanted in all subjects without adverse events. The average length of cultivation was 8.7 ± 0.8 days. LSC function was restored in 9 subjects (90% success) as evidenced by the repopulation of corneal and limbal epithelial cells. Corneal basal cell density increased from $1,054 \pm 1,629$ to a normal level of $7,075 \pm 2,735$ cells ($p < 0.001$) and corneal epithelial thickness increased from 20 ± 13 to 43 ± 16 μm ($p = 0.003$). Vision improved by 7.4 ± 5.8 lines at 12 months ($p = 0.001$) along with symptoms.

Conclusion: The novel LSC manufacturing is robust and the cLSC is safe and effectively treats stage III LSCD. This is the first clinical trial that demonstrates and quantifies the biological activity of transplanted LSCs using a set of objective standardized criteria.

SCIENTIFIC ABSTRACT

1:44 pm – 1:54 pm

Adverse Events After Corneal Transplantation: Longitudinal Insights from 2007 to 2024

Karthik Reddy, BS⁺⁺

University of Michigan Medical School

Co-Authors: Susan Hurlbert, CEBT; Shahzad Mian, MD; and Pauline Dmitriev, MD

Purpose: Adverse events (AEs) in corneal transplant range from 0.139%-1.2%. The most common adverse events are primary graft failure, endophthalmitis, and keratitis. The longitudinal trends of AEs associated are not well established.

Methods: Data were extracted from the Eversight Eyebank (Ann Arbor, MI) database between May 2007 and December 2024. A comprehensive analysis of overall and longitudinal trends was conducted.

Results: 129,800 donor tissues were transplanted with 176 AEs reported (0.14%). Mean (SD) time from the surgery to the reported event was 153.2 days (130.75). The most common AEs were primary graft failure (n=83). PKP had lower odds of infection compared to DMEK (OR = 0.25, $p<0.001$) or DSEK (OR=0.36, $p<0.001$), but there was no significant difference between DMEK and DSEK ($p=0.181$).

There was a 6.3% reduction in odds of an AE ($p<0.001$) year over year. There was a higher rate of cancer and lower rate of heart disease as the cause of death in donors with adverse events (30.1% vs. 18.4%; 33.5% vs. 41.5%, $p<0.001$). No significant differences were found in demographic and procurement-related factors.

Conclusion: AE rates continue to decline year over year, indicating improving safety. PKP has lower infection rates than DSEK or DMEK. No differences were seen in donor tissue characteristics or procurement-related factors. Cause of death of the donor may be a potential factor related to reported AEs.

SCIENTIFIC ABSTRACT

1:55 pm – 2:05 pm

Corneal Transplantation from Donors with Suspected Sepsis: Infectious Risks and Graft Outcomes

William Herskowitz, BA⁺⁺

Bascom Palmer Eye Institute, University of Miami

Co-Authors: Aaron Harris; Sofia Elena Parellada; Sarah Pajek, MA, BS; Andrea C. Santiago-Leon, MD; Vivian C. Lopez; Elizabeth Fout, MHSA; William Buras, CEBT; Sander R. Dubovy, MD; and Ellen Koo, MD

Purpose: To assess infectious risks and graft outcomes following corneal transplantation from donors with a documented suspicion of sepsis (DSS) who were ultimately deemed eligible for transplant use.

Methods: A retrospective analysis was conducted using the iTransplant database (2020–2024) of one eye bank to identify corneal donors who exhibited clinical evidence suggestive of sepsis or who were suspected of sepsis during hospitalization (DSS). Recipient medical records from Bascom Palmer Eye Institute over the same period were reviewed for positive corneoscleral rim cultures and recipient infections. Donors with positive rim cultures underwent additional review, including corresponding blood culture results and systemic infection sources. Graft failure outcomes for recipients of tissue from DSS were compared to matched controls.

Results: Out of 1520 cornea donors, 150 (9.9%) had a documented clinical suspicion for sepsis listed in their hospital record (DSS). Among 2399 recipients, 11 were found to have positive corneoscleral rim cultures, five of which were from DSS. Two bilateral rim cultures (n=4) grew *S. maltophilia*, resulting in one interface keratitis; one unilateral rim grew *C. glabrata*, leading to fungal endophthalmitis. Despite these isolated cases, there was no corresponding organism identified through donor blood cultures or found within medical records. When comparing graft outcomes of 48 recipients who received tissue from DSS to 108 matched controls, no significant differences in graft failure rates were observed.

Conclusion: We found no instance in which transplantation from a DSS resulted in an infectious complication linked directly to the organism identified in the donor's positive blood culture. Graft survival outcomes of donor corneas from DSS were comparable to matched donor controls.

SCIENTIFIC ABSTRACT

2:06 pm – 2:16 pm

Rates of Graft Failure and Fungal Infections in Corneal Transplants Using Donor Corneas in Storage Media With or Without Amphotericin B

Nicole Fram, MD

Advanced Vision Care

Co-Author: Matthew Giegengack, MD

Purpose: Evaluate the safety and efficacy of supplementation of corneal storage media with amphotericin B by comparing the primary graft failure/early regraft (PGF/ER) and fungal infection rates after corneal transplantation of corneas stored in amphotericin B-supplemented storage media (Ampho B) and non-supplemented storage media.

Methods: In this retrospective evaluation, data for all U.S. transplants of corneal tissue from a single eye bank over a 4-year period (2021 to mid-2024) were recorded, including storage media type, procedure type (penetrating keratoplasty [PK], Descemet stripping automated endothelial keratoplasty [DSAEK], or Descemet membrane endothelial keratoplasty [DMEK]), incidence of infection (bacterial, fungal, other) as reported via adverse reaction (AE) reports, and incidence of PGF/ER from AE reports. The rates of infection and PGF/ER complications for corneas stored in Ampho B storage media and those from unsupplemented media were compared.

Results: In all, the eye bank supplied tissue for 53,396 corneal transplants, 47.5% in storage media with amphotericin B and 52.5% in storage media without amphotericin B. The rate of PGF/ER was 0.48% with amphotericin B vs. 0.40% without ($p=0.272$, odds ratio [OR] 1.188) and the rate of fungal infection was 0.006% (1/17,765) with amphotericin B and 0.056% (11/19,598) without ($p=0.028$, OR 0.10). Rates of PGF/ER were 0.30% with amphotericin B vs. 0.16% without amphotericin B in PK procedures ($p=0.125$, OR 1.926); 0.59% vs. 0.61% in DMEK ($p=0.929$, OR 0.98), and 0.49% vs. 0.42% in DSAEK ($p=0.535$, OR 1.17).

Conclusion: The use of storage media supplemented with amphotericin B resulted in a tenfold reduction in fungal infections compared to unsupplemented storage media, with no statistically significant increase in primary graft failure or early regraft rates in the endothelial keratoplasty cohort.

SCIENTIFIC ABSTRACT

2:17 pm – 2:27 pm

Rapid Detection of *Candida albicans* in Corneal Storage Media Using Extraction-Free LAMP-Based Assays

Diego Ojeda-Pedraza, PhD

Bascom Palmer Eye Institute, University of Miami

Co-Authors: Angela Gomez-Bedoya; and Alfonso L. Sabater, MD, PhD

Purpose: To develop and validate two rapid, extraction-free loop-mediated isothermal amplification (LAMP) assays for detecting *Candida albicans* in Optisol-GS, enabling early fungal screening during corneal storage.

Methods: Two platforms were evaluated: 1) a lateral flow LAMP assay (LAMP-LFA) using biotin/FAM-labeled primers for strip-based visualization, and 2) a colorimetric LAMP assay based on a pH-sensitive dye. Analytical sensitivity and specificity were assessed using serial dilutions of *C. albicans* genomic DNA (10 ng/μL to 100 fg/μL). Assays were validated using Optisol-GS from donor corneal chambers inoculated with 10⁶ CFU/mL *C. albicans* and stored at 4°C.

Results: Both assays consistently detected *C. albicans* DNA at concentrations as low as 100 fg/μL without requiring DNA extraction. Visual results were obtained within 25 to 30 minutes. All corneal storage chambers inoculated with *C. albicans* tested positive on day 7. Negative controls remained negative throughout.

Conclusion: To our knowledge, this is the first application of LAMP for detecting *C. albicans* in the context of eye banking. These assays represent a novel, rapid, and extraction-free approach for identifying fungal contamination directly in Optisol-GS. Their ease of use, high sensitivity, and compatibility with routine workflows make them ideally suited for integration into eye bank protocols.

SCIENTIFIC ABSTRACT

2:28 pm – 2:38 pm

Increased Mitochondrial Function in Donor Corneas After Prolonged Storage in Novel Preservation Media

Simran Sarin^{††}

University of Iowa Carver College of Medicine

Co-Authors: Jessica M. Skeie, PhD; Khoa D. Tran, PhD; Hanna Shevalye, BS; Gregory Schmidt, MBA, CEBT; and Mark A. Greiner, MD

Purpose: To assess mitochondrial respiration of donor corneal endothelium stored in XTRA4 versus Optisol-GS after 28 days of hypothermic storage.

Methods: Corneas suitable for endothelial keratoplasty were prepped and analyzed for mitochondrial respiration (oxygen consumption rate [OCR]) using the Seahorse XFe24 respirometer. Corneas stored in XTRA4 for 28 days (N=19) were compared to corneas stored in Optisol-GS for 28 days (Optisol-28d, N=19) and controls (corneas stored in Optisol-GS for 14 days, N=8).

Results: XTRA4 and Optisol-28d groups had greater basal OCR than controls (0.021 ± 0.014 , 0.022 ± 0.013 and 0.011 ± 0.005 [$P=0.009$], respectively). Maximal OCR was greater in XTRA4 versus Optisol-28d and control groups (0.050 ± 0.030 ; 0.037 ± 0.021 ; 0.043 ± 0.014 [$P=0.533$]), and spare respiratory capacity was greater in both XTRA4 and controls than Optisol-28d (0.029 ± 0.026 ; 0.032 ± 0.011 ; 0.014 ± 0.020 [$P=0.060$]). OCR related to ATP production was greater in XTRA4 than Optisol-28d and controls (0.009 ± 0.005 ; 0.008 ± 0.006 ; 0.004 ± 0.002 [$P<0.001$]).

Conclusion: Corneas stored in XTRA4 for up to 28 days had higher maximal respiration, spare respiratory capacity, and ATP production compared to prolonged storage in Optisol-GS. Corneas stored in XTRA4 may better withstand perioperative stressors, supporting improved surgical outcomes and global tissue distribution.

SCIENTIFIC ABSTRACT

2:39 pm – 2:49 pm

Calcitonin Gene-Related Peptide (CGRP) Enhances Corneal Endothelial Cell Survival During Cold Storage

Asmaa Zidan, MD

Mass Eye and Ear, Harvard Medical School

Co-Authors: Swatilekha Hazra and Jia Yin, MD, PhD

Purpose: To evaluate the cytoprotective effects of calcitonin gene-related peptide (CGRP), a neuropeptide derived from corneal sensory nerves, in preserving corneal endothelial cell (CEnC) viability during cold storage, a critical step toward improving the quality and longevity of donor corneal tissue for transplantation.

Methods: Human corneal endothelial cells (hCEnC) were exposed to inflammatory (TNF- α) stress with or without CGRP supplementation (1 μ M). Apoptosis was assessed by Annexin V/PI flow cytometry and RT-PCR for apoptotic markers. Ex vivo experiments were performed using research-grade human donor corneas exposed to oxidative injury (H₂O₂) and stored in Optisol-GS with or without CGRP. Specular microscopy assessed CEnC morphology and integrity over 10 days.

Results: CGRP significantly reduced TNF- α -induced apoptosis and downregulated caspase-3 and Bax expression in cultured CEnCs. In ex vivo human corneas, CGRP preserved CEnC density and morphology following oxidative stress, in contrast to untreated controls which showed progressive deterioration.

Conclusion: CGRP supplementation during cold storage protects corneal endothelial cells from inflammation and oxidative damage. These findings support the potential of CGRP as a novel additive to enhance donor cornea preservation and reduce the risk of graft failure, addressing a critical challenge in eye banking and transplantation.

SCIENTIFIC ABSTRACT

2:50 pm – 3:00 pm

Deep Learning-Based Classification of Fungal and Acanthamoeba Keratitis

Mubarik Mohamed, MD*

University of North Carolina, Chapel Hill

Co-Authors: Omar Nusair, MD; Ikesinachi Osuorah; Jaron Sanchez; and Mohammad Soleimani

Purpose: This study evaluated deep learning (DL) in classifying fungal keratitis (FK), Acanthamoeba keratitis (AK), nonspecific keratitis (NSK), and FK subtypes using in vivo confocal microscopy (IVCM).

Methods: A total of 1,975 IVCM images from culture-confirmed cases (1,137 FK, 457 AK, 381 NSK) were obtained via Heidelberg Retinal Tomograph 3. A ResNet50-based transfer learning model was used. Images were randomly split into training and testing sets. To address class imbalance, the training set underwent augmentation (e.g., rotation, zoom), and class weights were applied ($\times 5$ for AK, $\times 30$ for NSK). Model 1 classified FK, AK, and NSK; Model 2 subtyped FK into filamentous and non-filamentous. Both models were trained for 150 epochs using the Adam optimizer and 5-fold cross-validation.

Results: Model 1 achieved 87% macro and 89% weighted accuracy. Precision and recall were high for AK (93%, 96%) and FK (90%, 92%), but lower for NSK (78%, 71%). Model 2 achieved 85% accuracy, with F1-scores of 0.81 (filamentous) and 0.85 (non-filamentous), and ROC AUC and PR AUC of 0.94 and 0.95.

Conclusion: DL applied to IVCM can accurately classify infectious keratitis and FK subtypes, supporting improved diagnosis and targeted treatment.

SCIENTIFIC ABSTRACT

3:48 pm – 3:58 pm

Association Between In Vitro Antibiotic Susceptibility and Visual Acuity Outcome in Bacterial Corneal Ulcers: A Secondary Analysis of the SCUT II Trial

Jennifer Rose-Nussbaumer, MD
Stanford University

Co-Authors: Sarah Abdelrahmen; N. Ventkatesh Prajna; Guillermo Amescua, MD; Nicole Varnado; Benjamin Arnold; and Thomas M. Lietman

Purpose: To assess the association between in vitro antibiotic susceptibility, measured by minimum inhibitory concentration (MIC), and 6-month visual acuity in bacterial keratitis.

Methods: The Steroids and Cross-linking for Ulcer Treatment Trial II was an NIH-funded international, randomized, double-masked, sham and placebo-controlled clinical trial. The trial evaluated the effect of adjunctive corticosteroids and/or corneal cross-linking (CXL) on 6-month best spectacle-corrected visual acuity (BSCVA) in smear- or culture-positive bacterial ulcers. In this analysis, two multivariable linear regression models—one for *S. pneumoniae* and one for *P. aeruginosa*—were used to assess the association between log₂ MIC and 6-month BSCVA, adjusting for baseline BSCVA and recruitment site.

Results: Among *S. pneumoniae* ulcers, each 2-fold increase in MIC to moxifloxacin was associated with a 1.9 Snellen-line worse 6-month BSCVA (0.19 logMAR; 95% CI: 0.04 to 0.34; P=0.01). Resistant isolates were associated with an 8.7-line worse BSCVA (0.87 logMAR; 95% CI: 0.10 to 1.63; P=0.03). MIC explained 15.8% of BSCVA variance. No association as observed between MIC and outcome in *P. aeruginosa* ulcers. Adjusting for MIC, the crosslinking with steroid group had significantly better visual acuity than the steroid group (-0.3 logMAR; 95% CI: -0.60 to -0.01; P=0.04).

Conclusion: Higher MIC to moxifloxacin was significantly associated with worse visual outcomes in *S. pneumoniae* keratitis, supporting the relevance of antibiotic susceptibility testing. Patients with keratitis from antibiotic resistant strains may benefit from adjunctive corneal crosslinking.

SCIENTIFIC ABSTRACT

3:59 pm – 4:09 pm

Mid-Term Outcomes of Boston Type I Keratoprosthesis for Repeat Graft Failure: A Control Group for Evaluation of Novel Keratoprostheses

Anthony Aldave, MD

Stein Eye Institute, UCLA

Co-Authors: Reza Ghaffari

Purpose: To report the mid-term outcomes of the Boston type I keratoprosthesis (KPro) for repeat corneal transplant failure to provide a historical control group against which novel keratoprostheses awaiting the initiation of clinical trials in the US will be compared.

Methods: Retrospective review of all KPro procedures performed by a single surgeon May 2004 to December 2022. Inclusion criteria were 2 or more failed grafts, CDVA < 20/400 in the operative eye and > 20/400 in the fellow eye. Exclusion criteria were cicatrizing conjunctivitis, history of chemical or thermal injury, history of HSV or HZV keratitis and phakic status at the time of KPro implantation. Postoperative outcomes (CDVA, retention and complications) were evaluated. Cox analysis with calculation of hazard ratios (HR) was performed to evaluate the association of risk factors and KPro retention failure.

Results: A total of 270 KPro procedures were performed in 222 eyes of 210 patients; 54 procedures in 51 eyes of 51 patients met the inclusion and exclusion criteria. CDVA > 20/200 was achieved following 81.5% of procedures (44/54), which was retained in 81.0% (17/21) 3 years and 66.7% (10/15) 5 years after surgery. The incidence of KPro retention failure was 0.051 per-eye-year during a mean follow up duration of 52.6±48.4 months. KPro retention at 3 and 5 years was 82% and 67%, respectively. Infectious keratitis (HR: 3.7 {1.1-12.0}) and endophthalmitis (HR: 4.6 {1.7-12.5}) were associated with KPro retention failure. KPro removal was required after 15 procedures (27.8%), most commonly for sterile necrosis (9/15, 60%) and keratitis or endophthalmitis (4/15, 27.7%). The most common complications included retroprosthetic membrane formation (32%), persistent epithelial defect (20.4%), sterile necrosis (18.5%), infectious keratitis (18.5%), elevated intraocular pressure (14.8%), idiopathic vitritis (11.1%), and endophthalmitis (11.1%).

Conclusion: While it is recognized that the outcomes of Boston type I keratoprosthesis implantation are largely dependent on the indications for implantation, large retrospective series in the literature contain a diverse population of indications, limiting their usefulness in providing a control group against which the outcomes of novel keratoprosthesis can be compared. We report the mid-term outcomes of the KPro for repeat graft failure in a population of eyes without significant ocular surface disease that will serve as a relevant control group.

SCIENTIFIC ABSTRACT

4:10 pm – 4:20 pm

How Does Endothelial Cell Injection Therapy Modify Guttae in Patients with Fuchs Dystrophy?

Friedrich Kruse, MD, PhD

University of Erlangen

Co-Authors: Andreas Giessl; Julia M. Weller, MD; Theofilos Tourtas, MD; Shigeru Kinoshita, MD; and Ursula Schlötzer-Schrehardt, PhD

Purpose: Cell injection therapy (Kinoshita et al. 2018) is emerging as an exciting alternative to endothelial keratoplasty for treatment of corneal endothelial disorders including Fuchs endothelial corneal dystrophy (FECD). This therapy relies on gravitational or magnetic forces to promote attachment of cultured human corneal endothelial cells (HCECs) to recipient Descemet membrane (DM). It has been proposed that injected cells may modulate or alter guttae architecture, thereby allowing for an increase in visual function. However, there is currently no consensus on the optimal delivery mode and no concept of how injected HCECs interact with host cells and guttae. Here, we investigated the attachment and interaction of HCECs and DM from FECD patients in an experimental model.

Methods: Cultured human endothelial cells expressing a fluorescent marker (eGFP) were seeded at a standard density of 2.800 cells/mm² with ROCK inhibitor onto intact or decellularized DM specimens obtained from FECD patients during DMEK surgery and incubated for up to 4 weeks before fixation in 4% PFA. Flat mounts or cross sections were investigated by immunofluorescence labeling using antibodies against fibronectin (marker of guttae), transmission electron microscopy (TEM), and apoptosis assays.

Results: Adhesion of cultured cells to DM was confirmed by eGFP detection. By light microscopy of flat mounts or cross sections, cells predominantly attached to the spaces between guttae. Attachment to typical guttae was only observed at high seeding densities or in the presence of atypical (flat, buried or confluent) guttae. TEM confirmed firm attachment of HCECs to host endothelial cells or inter-guttae areas of DM, whereas the guttae proper were covered by slender cell processes only. Early production of abnormal extracellular matrix could be observed in association with guttae. Cells attaching to the guttae surface appeared to undergo apoptosis.

Conclusion: The findings of this pilot study suggest, that injected cells tend to repopulate the areas between guttae instead of covering the abnormal excrescences, independent of the presence of host endothelial cells. The clinical impression of a decrease in guttae may result from coverage of atypical guttae and may be a transient phenomenon.

SCIENTIFIC ABSTRACT

4:21 pm – 4:31 pm

The Effect of Age and Sex on Migration Dynamics in Descemet's Stripping Only

Ula Jurkunas, MD

Mass Eye and Ear, Harvard Medical School

Co-Author: Mohit Parekh, PhD

Purpose: To investigate the influence of donor age and sex, and the impact of extracellular matrix modulation on corneal endothelial cell migration dynamics using a novel ex vivo Descemet's Stripping Only (DSO) model.

Methods: Endothelial cell migration was assessed using live-cell imaging technique on native Descemet's membrane (DM) obtained from normal and FECD donor tissues across four age groups (40-50; 51-60; 61-70; and 70-80 years), stratified by sex. Sex-based differences were evaluated using an ex vivo DSO model with stromal lenticules coated in ECM proteins FNC, FN1, LAM511, and LAM521.

Results: Corneal endothelial cells (CEnCs) from female donors (0.34 pixels/hr) exhibited significantly faster migration in terms of velocity on FECD-derived DM compared to male donors (0.23 pixels/hr; $p < 0.0001$) within the 50-70-year age group. Stromal coatings with extracellular matrix proteins, FNC, FN1, LAM521, and LAM511, improved velocity by 1.2-fold, 1.5-fold, 1.6-fold, and 1.6-fold, respectively, consistently outperforming the male group ($p < 0.0001$). On uncoated stroma, normal female CEnCs showed 11% faster endothelialization rate compared to male counterparts. Coating the stroma with FNC, FN1, LAM521, and LAM511 groups improved the endothelialization rate by 11%, 20%, 25%, and 27% from the male group, and 16%, 19%, 25%, and 27% from the female group. By day 60, all experimental groups formed a continuous monolayer, confirmed by ZO-1 protein expression, indicating functional barrier restoration.

Conclusion: Female patients aged 50-70 years may represent optimal candidates for DSO procedures, based on favorable endothelial cell migratory profiles. Stromal coating with ECM proteins like fibronectin and laminin may serve as an additive to reduce the overall rehabilitation time after DSO.

NETWORKING RECEPTION

5:15 – 6:15 PM

JR. BALLROOM G

All attendees are invited to attend.

Not a CME event.

**SUPPORTED BY:
THE CINCINNATI EYE BANK, KEDRION, MORIA, OCULUS**

CORNEA and
EYE BANKING
FORUM 2025

AWARDS



R. TOWNLEY PATON AWARD

Presented by the Eye Bank Association of America



Marianne Price, PhD, MBA

2025 R. Townley Paton Award Recipient

PAST AWARDEES

- | | | | |
|------|-----------------------------------|------|-----------------------------|
| 2024 | Bennie H. Jeng, MD | 2002 | Edward J. Holland, MD |
| 2023 | David D. Verdier, MD | 2001 | Paul J. Dubord, MD, FRCS |
| 2022 | Anthony J. Aldave, MD | 2000 | H. Dwight Cavanagh, MD, PhD |
| 2021 | Jennifer Y. Li, MD | 1999 | Kirk R. Wilhelmus, MD, MPH |
| 2020 | Stephen C. Kaufman, MD, PhD | 1998 | William Reinhart, MD |
| 2019 | Shahzad I. Mian, MD | 1997 | Joel Sugar, MD |
| 2018 | W. Barry Lee, MD | 1996 | Mark J. Mannis, MD |
| 2017 | Michael L. Nordlund, MD, PhD | 1995 | Richard Lindstrom, MD |
| 2016 | Mark A. Terry, MD | 1994 | William Bourne, MD |
| 2015 | George O.D. Rosenwasser, MD, CEFT | 1993 | Arthur Boruchoff, MD |
| 2014 | W. Craig Fowler, MD | 1992 | Richard C. Troutman, MD |
| 2013 | Naoshi Shinozaki | 1991 | Jay Harold Krachmer, MD |
| 2012 | Jonathan H. Lass, MD | 1990 | Walter Mayer, MD |
| 2011 | Allan Sugar, MD | 1989 | Donald Doughman, MD |
| 2010 | Woodford Van Meter, MD | 1988 | Frederick Brightbill, MD |
| 2009 | Thomas D. Lindquist, MD, PhD | 1987 | Busharat Ahmad, MD |
| 2008 | David Glasser, MD | 1986 | Claes Dohlman, MD |
| 2007 | Henry Edelhauser, PhD | 1984 | David A. Paton, MD |
| 2006 | Michael E. Hettinger, MD | 1983 | Lawrence B. Holt, MD |
| 2005 | R. Doyle Stulting, MD, PhD | | Herbert E. Kaufman, MD |
| 2004 | Wing Chu, MD | 1982 | Alson E. Braley, MD |
| 2003 | Marian S. Macsai, MD | | |



Cornea Society
Advancing the treatment of corneal disease

CASTROVIEJO AWARD

Presented by the Cornea Society



Kathryn A. Colby, MD, PhD

2025 Castroviejo Cornea Medalist

PAST MEDALISTS

2024	Michael W. Belin, MD	1998	Michael Lemp, MD
2023	Theo Wolfgang Seiler, MD, PhD	1997	Jules Baum, MD
2022	Carol L. Karp, MD	1996	Deborah Pavan-Langston, MD
2020	Jayne S. Weiss, MD	1995	Richard Forster, MD
2019	John K.G. Dart, MD	1994	Barrie R. Jones, MBCHB
2018	Alan Sugar, MD	1993	Anthony J. Bron, MD
2017	Jonathan Lass, MD	1992	Richard A. Thoft, MD
2016	Dimitri Azar, MD	1991	Peter R. Laibson, MD
2015	Elizabeth J. Cohen, MD	1990	Richard C. Troutman, MD
2014	Mark Mannis, MD	1989	S. Arthur Boruchoff, MD
2013	Edward Holland, MD	1988	Frank Polack, MD
2012	James McCulley, MD	1987	Herbert Kaufman, MD
2011	Joel Sugar, MD	1986	David Maurice, MD
2010	Richard Lindstrom, MD	1985	Phillips Thygeson, MD
2009	Dwight Cavanagh, MD, PhD	1984	Yves I. Poulliquen, MD
2008	Shigeru Kinoshita, MD, PhD	1983	Alberto Urrets-Zavalía, MD
2007	W. Bruce Jackson, MD, FACS	1982	Saiichi Mishima, MD
2006	Jay H. Krachmer, MD	1981	Claes H. Dohlman, MD
2005	Gary Foulks, MD	1980	A. Edward Maumenee, MD
2004	George O. Waring III, MD	1979	Max Fine, MD
2003	Ronald Smith, MD	1978	David G. Cogan, MD
2002	David L. Easty, MD	1977	Jose I. Barraquer, MD
2001	Teruo Nishida, MD	1976	Ramon Castroviejo, MD
2000	William M. Bourne, MD	1975	A. Gerard Devoe, MD
1999	Henry Edelhouser, PhD		



Cornea Society
Advancing the treatment of corneal disease

CLAES DOHLMAN AWARD

Presented by the Cornea Society



Edward Holland, MD

2025 Claes Dohlman Award Recipient

PAST AWARDEES

2023 Christopher J. Rapuano, MD
2022 Mark Terry, MD
2020 Eduardo Alfonso, MD
2019 Ivan Schwab, MD
2018 Ronald Smith, MD
2017 Mark J. Mannis, MD
2016 Deborah Pavan-Langston, MD
2015 Roger F. Steinert, MD
2014 Dan B. Jones, MD

2013 Richard K. Forster, MD
2012 Prof. Peter Watson
2011 S. Arthur Boruchoff, MD
2010 Herbert E. Kaufman, MD
2009 Jay H. Krachmer, MD
2008 Gilbert Smolin, MD
2007 Peter R. Laibson, MD
2006 Claes H. Dohlman, MD, PhD



Cornea Society
Advancing the treatment of corneal disease

TROUTMAN CORNEA PRIZE

Presented by the Cornea Society



Clarissa Ng Yin Ling, MBBS

2025 Troutman Prize Recipient

PAST AWARDEES

2024	Eisuke Shimizu, MD, PhD	2016	Konstantinos T. Tsaousis, MD
2023	Marija Anticic-Eichwalder, PhD	2015	Mark A. Greiner, MD
2022	Jodi Hwang, MD	2014	Fei-fei Huang, MM
2021	Maria A. Henriquez, MD, MSc, PhD	2013	Rafael A. Oechsler, MD
2020	C. Drew Salisbury, MD	2012	Kaevalin Lekhanont, MD
2019	Marina Bertolin, MSc	2011	Daniel Bohringer, MD
2018	Gregory Moloney, MBBS, BSc (Med), MMed, FRANZCO	2010	Vanitha Ratnalingam, MSurg (Ophthal)
2017	Khoa D. Tran, PhD	2009	Jay Bradley, MD
		2008	Hui-Jung Yeh, MS

SAVE THE DATE

JOIN US FOR A ONE-DAY EDUCATIONAL PROGRAM FEATURING THE LATEST SCIENTIFIC DEVELOPMENTS IN CORNEA AND EYE BANKING



CORNEA and
EYE BANKING
FORUM 2026

NEW ORLEANS, LA
FRIDAY, OCTOBER 9



Cornea Society
Advancing the treatment of corneal disease

CorneaSociety.org | RestoreSight.org