



DISCOVERY

THE DISCOVERY EYE FOUNDATION



The Discovery Eye Foundation supports cutting-edge research related to sight-threatening eye diseases and their treatments.

Supporting vision-saving research at the University of California, Irvine's Gavin Herbert Eye Institute since 2002.

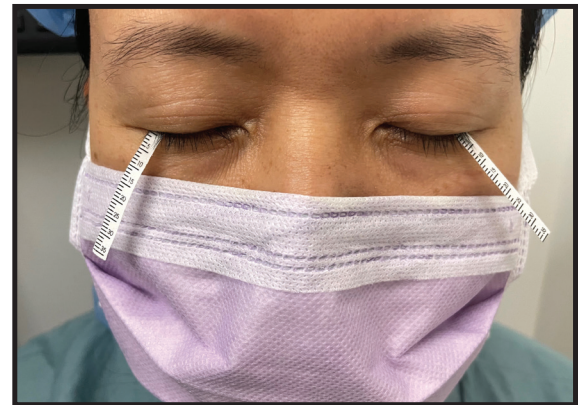
Spring 2023

DEF Grant Funding Research on Early KC Interventions

Keratoconus (KC) is an eye disease in which the cornea thins and bulges, causing blurry vision and vision loss. In many cases, it ultimately requires a corneal transplant. Advances in contact lenses, as well as corneal crosslinking (CXL), which increases the stiffness of weak corneas to stop KC progression, have resulted in fewer corneal transplants in recent years.

However, while CXL has positively affected the lives of many with KC, most insurance plans will not cover the procedure until the disease has progressed significantly.

“Wouldn’t it be nice if we could find a way to identify which people are going to develop progressive disease and intervene earlier rather than later?” asks Dr. Olivia Lee, an associate clinical professor of ophthalmology at the UC Irvine School of Medicine. “We would like to be able to predict which patients are going to progress before they actually experience progression of the disease.”



A Schirmer's test being performed on a patient to measure tear secretion.

To that end, Lee and DEF Research Director Dr. Cristina Kenney are working on a project called “Predictors of Keratoconus Progression: A Translational Study using Ocular Imaging and Tissue Biomarkers.” Building on research showing that inflammation may play a role in KC, they are studying whether

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Meet the Researcher: Mithalesh Singh



Dr. Mithalesh Singh owes his connection to DEF to his wife, Dr. Lata Singh (meet her in our Thanksgiving 2020 newsletter). She began working in the lab of DEF Research Director Dr. Cristina Kenney in 2019, thanks to research grants from DEF.

While visiting his wife in 2019, Singh met Kenney, who invited him to join her team for a month to learn about tissue culture and molecular techniques. Upon completing his PhD in India a short time later, he started a post-doctoral position at the University of Wisconsin School of Medicine and Public Health. He arrived at the university in March 2020, four days before the lab shut down due to COVID-19. After several lonely months, he started going to the lab in August, working on projects related to skin cancer. While many other researchers left the lab because of the pandemic, Singh diligently completed his four-year project in just a year and a half, publishing three papers and a book chapter.

Singh wanted to get back to his real interests: eye cancer and mitochondria. He joined Kenney's lab in March 2022 as a post-doctoral fellow in retinal degeneration at the Gavin Herbert Eye Institute at UC Irvine. Chief among his projects is the study of how inflammation degenerates retinal cells and advances age-related macular degeneration (AMD). With his knowledge of the important role inflammation plays in cancer, Singh has brought new approaches into the Kenney lab to work on how inflammation contributes to AMD.

"If we can reduce the degeneration or inflammation, we can have a very effective treatment for the AMD patient," Singh says. "That is the question we are working on right now with the help of DEF."

Singh, who names being able to work with Kenney as the best part of his UC Irvine experience, hopes to take all he has learned back to India, so he can work with different eye disorders, including adult eye cancer and retinal diseases.

DEF Trustee Joan Seidel Approaches Living by Giving

“The story is really my husband,” Joan Seidel says of her spouse of 64 years. “Arnold had keratoconus. When he was a child, his mother was called into school, because they felt he was not learning properly, and it might be some kind of mental issue. While he was sitting there, he said, ‘Why are they writing on the chalkboard sideways?’ Eureka! They realized it was his eyes.”

Arnold, who died in 2021 at the age of 95, went on to thrive. “He had two corneal transplants, he had his lenses, and he was not a complainer,” Joan says. “He lived with what he had to live with, and he was always very willing to talk to other people with keratoconus. He would explain how he led his life and how he was able to deal with everything. He was a very kind and good man, and he was more than happy to share his experiences and how he lived with it.”

A teacher by training, Joan became an investment advisor/stockbroker and worked with her husband at the family’s stock brokerage, which was founded in 1925. She is



currently president of Morton Seidel Century City Advisor Group, an independent practice of Ameriprise Financial Services.

The Seidels have two sons and three grandsons, and they have long been part of the philanthropic community in Southern California. Arnold was a member of the American Technion Society (ATS) national board of directors, the ATS Southern California board and the Technion board of governors. He served on the boards of Friends of Griffith Park Observatory Foundation and Young Musicians Foundation.

Joan is a past national president of ATS, and she still serves on the international board. She’s on the board of the Los Angeles Opera, Hebrew Union College and Los Angeles Jewish Home for the Aging, and was she was elected treasurer of the city of Beverly Hills. She’s also served

on the Discovery Eye Foundation board of trustees for more than 40 years, something of which she is very proud.

“I remember going to a Discovery event early on, where they had a group of people who had keratoconus,” Joan

says. “Keratoconus wasn’t known as well as it is today — even doctors had difficulty diagnosing it. And I remember how grateful the people in that room were to be with other people who were dealing with this issue. For me, it was a real awakening of how important this was. You can’t get treatment, and you can’t learn to live with it, if you don’t know what you have.”

“DEF has really evolved from not only taking care of keratoconus, but other diseases of the eye,” she says. “They are doing research that is truly cutting edge, and they’re very, very cognizant of how what they do can help people. Not being able to do these things myself, it’s wonderful to have a proxy who can do it. I’m glad to be part of research that will ultimately help people.”

Research on Early KC Interventions

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corneal inflammation is associated with disease progression. And based on previous research that shows inflammatory molecules in the cornea may seep into tears, they are collecting tears from patients for their project.

“Collecting tears is a relatively easy and non-invasive method to get a sample from the patient’s eye without having to do a biopsy or scrape the cornea or do something that would cause pain to the patient,” Lee says. “Most patients do not mind giving us a tear sample.”

The researchers are collaborating with Dr. Lauro de Oliveira of the Federal University of São Paulo in Brazil, who has experience analyzing inflammatory proteins in patients with KC and other corneal diseases. Thanks to a grant from DEF, they have also been able to hire a research fellow, Dr. Arthur Milhomens Filho, who trained with Oliveira. They are already collecting tears to compare the inflammatory proteins in the eyes of patients who have KC with patients who don’t. Additionally, they are using newer imaging devices

to take pictures of patients’ corneas and correlate those with the proteins found in the tears.

“My goal for this project is to identify biomarkers in the tears, plus an imaging finding that tells us we have a patient with early-stage keratoconus. Using this biomarker or combination of biomarkers, we hope we can predict this patient, compared to that patient, is the one who’s going to progress,”

Lee says. “Then we can advise the patient that they are more likely to lose vision as the disease progresses. It’s crucial to catch them early and do the corneal cross-linking procedure to prevent them from getting to a stage where they have irreversible vision loss.”

Employing the old adage that an ounce of prevention is worth a pound of cure, Lee also hopes insurance companies will accept the testing as a method to diagnose the progression of KC — before it gets to the point of needing a corneal transplant, which will cost the insurance company much more money.

“Wouldn’t it be nice if we could identify which people are going to develop progressive disease and intervene earlier?”

A group of Discovery Eye Foundation’s most stalwart donors gathered in February at Shutters on the Beach in Santa Monica for our annual Donor Appreciation Luncheon.

Pictured, from left to right: Joan Seidel, Katy Schoellerman, Nancy Snider, Cristina Kenney, Anthony Nesburn, Victor Snider, Jack Schoellerman.

