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RESTORING VISION WORLDWIDE WITH STEM CELL THERAPY

Researchers at the Flaum Eye Institute (FEI) hope to take stem cell treatments to a higher level. FEI researchers—collaborating with colleagues at L. V. Prasad Eye Institute (LVPEI) in India—want to enhance and expand the use of stem cell transplants to restore the vision of millions of people worldwide.

LVPEI—a pioneer in the use of stem cells to treat eye disease—has physicians performing transplants on adults and children around the world who are blind from corneal disease caused by deficiencies of limbal stem cells that affect the outermost layer of the eye, the epithelium. The procedure requires taking the stem cells out of a living adult's good eye, growing them in a super clean lab, and then implanting the new cells into the damaged eye. In addition, the teams at LVPEI are also investigating the potential for

application of stem cells for treatment of other eye disorders, including the retina. For more information, visit: lvpei.org/patientcare/clinical-services/stem-cell.php

FEI researchers Ruchira Singh, Ph.D. and Holly B. Hindman, M.D., M.P.H.—in partnership with LVPEI researchers—hope to further develop this exciting stem cell technology to treat other types of corneal disease. One target is Fuch's dystrophy that affects the innermost cellular layer of the cornea, causing the tissue to become opaque and thereby blocking light from entering the eye. A long-term goal of the partnership is the formation of a stem cell center dedicated toward developing treatments for retinal diseases. These diseases include major causes of blindness such as age-related macular degeneration, diabetic retinopathy, glaucoma, and retinitis pigmentosa that affect millions of Americans and are currently incurable.

LVPEI is a World Health Organization Collaborating Centre for Prevention of Blindness that reaches 4 billion lives worldwide. The partnership between FEI and LVPEI is instrumental in allowing both organizations to leverage research, clinical care, community health and education to a global audience.

UNIVERSITY OF ROCHESTER EXPERTISE

The University of Rochester has extensive expertise in cell biology, stem cells, and understanding human disease. This includes conducting stem cell research that spans various organ systems in the body, including the eye and the nervous system; understanding how stem cells can be programmed to become a particular cell of interest; and using advanced ophthalmic imaging technologies that are ideal for tracking stem cells growth and function within a living organism. The University is home to a rich and diverse stem cell faculty, with more than 40 faculty from 15 different departments, and more than 35 research track faculty and senior research fellows. The Medical Center also has one of the few facilities in the United States certified to generate stem cells that can be used in humans.

Flaum Eye Institute and L. V. Prasad Eye Institute

FEI is a world leader in preserving and restoring vision, offering compassionate, multidisciplinary patient care, education, and vision research. FEI has more than 200 ophthalmologists, optometrists, scientists, and support staff who collaborate to conduct cutting-edge, National Institutes of Health-funded research to discover new diagnostics and treatments to help preserve vision.

FEI and LVPEI have a long history of collaboration. Gullapalli N. Rao, M.D. '79M (Flw), a former faculty member of the University of Rochester's Department of Ophthalmology, founded the not-for-profit LVPEI in 1987. LVPEI has developed into a premier, world-renowned academic ophthalmic institution in India with excellence in education, patient care, research, public health, and rehabilitation.

Dr. Steven E. Feldon, chair of the Department of Ophthalmology and director of FEI, and Dr. Rao have worked to strengthen the relationship between their institutes over the last decade with a goal to help end and prevent blindness for 4 billion people worldwide. Drs. Feldon and Rao have supported clinical rotations for FEI and LVPEI residents at each other's institute and encouraged clinical and research faculty lectures and exchanges between both institutes.

Your Gift Helps Us *make an impact in eye care and research*

Please join us in continuing FEI's revolutionary work in visual research, education, and patient care. Your gift could be the difference that leads to us discovering new and better ways to improve the lives of patients and advance the elimination of blindness.

ENDOWED FELLOWSHIPS—\$750,000 OR MORE

Fellowships provide significant research experiences for early career scientists who have the imagination and drive to develop new stem cell therapies for the treatment of ophthalmic disease. These fellowships provide permanent support that allows scientists to complete their training in stem cell biology. Your support will allow the fellows to concentrate on translating basic science discoveries to the clinic, an area where getting financial support can be difficult.

SCIENTIFIC PROJECT LEADER—\$300,000 to \$400,000

We have a need for an endowment to support a high-level scientist to lead the stem cell project and work regularly with Doctors Singh and Hindman and faculty at LVPEI, and fully integrate the research strategies of FEI and LVPEI. The scientist will also be responsible for developing collaborations with stem cell experts throughout the University of Rochester to ensure we leverage all available resources to achieve our goal of using stem cell technology to cure ocular disease.

EQUIPMENT SUPPORT—\$25,000 to \$250,000

Your support will allow us to have the necessary laboratory equipment and supplies to conduct our vital work to develop new stem cell therapies for research aimed at curing ocular disease. Human stem cell work requires highly sophisticated equipment and procedures that require robust financial resources. For example, to develop and maintain one stem cell line can cost more than \$50,000 per year. We also need specialized culture facilities for growing human stem cells.



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