



Centre for Biosystems Science and Engineering

S E M I N A R

at 4:00 PM on March 21st, 2016
Seminar Hall, MRDG, Biological Sciences Building.

Cellular Therapy for Ocular Disorders

Dr. Pallavi Deshpande

**Sri Research for Tissue Engineering,
Bangalore.**

Cell therapy is an evolving technique using cells to, in simple words, fix or replace damaged tissue. Limbal stem cell deficiency is one of the causes of loss of corneal transparency. For the past 15 years a small number of groups worldwide have cultured various cells and transplanted these to damaged corneas using the amniotic membranes as carriers. While the results can be good, there is some risk of disease transmission in using the amniotic membrane along with variation in results due to inter and intra donor variability. This presentation will describe the delivery of corneal cells onto damaged corneas using biodegradable, synthetic biomaterials as an alternative to amniotic membrane. All transfer studies were carried out on *ex vivo* corneal organ culture models to mimic the *in vivo* scenario. Results showed that the cells transferred onto the cornea organ culture models from the carrier maintained their corneal phenotype which was confirmed by histology and immunohistochemistry. Using these biodegradable, synthetic carriers to deliver the cells would make the treatment disease-risk free, off-the-shelf and inexpensive.

About the speaker:

Dr. Pallavi Deshpande completed her Bachelors in Chemical Engineering from BMS College of Engineering, Bangalore and obtained a Masters degree in Biotechnology from the University of Manchester, UK. She went on to pursue her PhD at the University of Sheffield (UoS), UK in Tissue Engineering of the Cornea. She worked as a post-doctoral researcher at the University during which she successfully forged a collaborative project between UoS and LV Prasad Eye Institute, Hyderabad, to develop a synthetic scaffold to treat diseases of the cornea, funded by the Wellcome Trust. Based on the success of this work, a first-in-man trial using these scaffolds is due to start this year in India. Over the years, Dr Deshpande has co-authored several papers and has presented her work at several international conferences. Since 2015 she has been working as a Scientist at Sri Research for Tissue Engineering, Bangalore. Dr Deshpande's interests lie in exploring cell therapies for various diseases, and *ex vivo* models to be used as testing beds for the cell therapies.