

# Chancellor's Award Lecture

*in Neuroscience  
and Ophthalmology*



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**4:00 p.m.  
Friday  
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**8th Floor  
Neuroscience Center  
of Excellence  
Conference Room**  
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## Translational Corneal Research: From the Bench to the Clinic

**1. Novel therapeutic approaches in corneal wound healing after refractive surgery:** DHA produces a synergism with NGF, increasing nerve density and proliferation of epithelial cells. Topical co-application of NGF/DHA may be useful to avoid post-LASIK induced cornea nerve degeneration and consequences of dry eye and persistent epithelial defects.

**2. Process of development of a novel synthetic in-situ forming hydrogel bandage:** A synthetic in situ-forming hydrogel bandage was developed specifically to protect surgical ocular wounds, thereby acting as a physical barrier against the entry of pathogens. This novel product, is now supplied as a three-part synthetic liquid system, made of polyethylene glycol (PEG), trilycine, and a pH-balanced aqueous accelerator solution, producing crosslinking that creates a flexible and lubricous hydrogel.

**3. Corneal ectasia after refractive surgery and the biologic effect of collagen cross-linking using UVA and Riboflavin:** By stimulating a stronger wound healing response at the edge of the flap, the cornea may better resist steepening under increased IOP conditions and improve the long term stability of LASIK surgery in borderline thin corneas. The cross-linking effect can be directly visualized using immunofluorescence imaging. There is no difference in the apoptosis response, inflammatory cell infiltration and appearance of alpha-SMA positive cells with or without epithelial removal.