Recent Recipients of American Society for Laser Medicine and Surgery awards

Dieter Manstein, MD

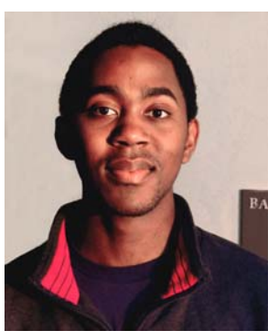
Dieter Manstein was recently selected to receive the first Dr. Horace Furumoto Innovations award. This award was created to memorialize and honor Dr. Furumoto's genius and leadership in the development of laser technology. Dieter was selected to receive this year's inaugural award for demonstrating a potential for contributing to the education and creativity required to expand the development of lasers in health care.

Allan Izikson, MD

Allan Izikson received an ASLMS travel grant to attend and present at the 2008 Annual Conference of the American Society for Laser Medicine and Surgery. His presentation was entitled, "Treatment End Points for Port Wine Stains With the 755nm Laser."

Fernanda Sakamoto, MD

Fernanda Sakamoto's paper entitled "Selective Photothermolysis to Target Sebaceous Glands" has been selected as the Best Overall Science Paper submitted for the 28th Annual ASLMS Conference. Her paper discusses early research findings on the use of a tunable free electron laser that selectively targets the chemical bond structures of acne sebum.



Nicholas Smith

Nicholas Smith received an ASLMS travel grant to attend and present at the 2008 Annual Conference of the American Society for Laser Medicine and Surgery. He received this award for his work and presentation on "the Iontophoretic Delivery of ALA."

Molly Wanner, M.D.

Molly Wanner's paper entitled "*In Vivo* Selective Photothermolysis of Adipose Tissue in Human Subject" has been selected as the Best Overall Clinical Science Paper submitted for the 28th Annual ASLMS Conference.

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Elena Salomatina

Elena Salomatina received an ASLMS travel grant to attend and present at the 2008 Annual Conference of the American Society for Laser Medicine and Surgery. Her presentation was entitled, "Image fusion for automated detection of skin cancers".

Rongjing Zhang, PhD

Rongjing Zhang received an ASLMS travel grant to attend the 2008 Annual Conference of the American Society for Laser Medicine and Surgery. She received this award for her work and presentation on "Optical imager for *in vivo* macro- and micro-scale evaluation of tissue"

2008 American Society for Laser Medicine and Surgery (ASLMS) Research Grant Recipient

Min Yao, MD, PhD
Instructor

Min Yao, M.D., Ph.D. was recently selected to receive a 2008 ASLMS Research Grant to fund her proposal "Activated Technology for Corneal Grafting." The American Society for Laser Medicine and Surgery (ASLMS) supports research projects designed to foster the development and use of lasers and other related technologies in medical and surgical applications.

Min, along with her mentor Dr. Irene Kochevar, is developing a novel, sutureless laser-activated method for securing grafts onto the cornea. By eliminating the need for sutures, this method could substantially decrease post-surgical complications.

Light-activated technology for corneal grafting

Executive Summary

Accidents or diseases affecting the ocular surface are second only to cataracts as causes of blindness worldwide and are the most common reason of visits to eye care clinicians. Tissue grafting, especially amniotic membrane transplantation (AMT), is the most frequent treatment for serious corneal surface damage. However the sutures used for securing the graft cause additional injury, infection, and other complications that may lead to delayed wound healing, scarring, and even graft rejection.

This research will introduce a novel, sutureless laser-activated method for securing grafts onto the cornea. This technology, photochemical tissue bonding (PTB), employs a FDA-approved dye that is activated by green light from a clinical laser to initiate bonding between tissue surfaces without added glues or protein. In contrast to laser welding, PTB operates by a photochemical, not a thermal mechanism. By eliminating the need for sutures, PTB can decrease substantially post-surgical complications. In addition, securing grafts using PTB eliminates the tedious and difficult placement of fine sutures in the cornea, thus shortening procedure times and decreasing the level of surgical skill required.

We propose to: 1) test the hypothesis that securing an amniotic membrane or a tissue engineered stroma construct on the corneal matrix with PTB will decrease inflammation and scarring, and possibly enhance epithelialization, compared to sutured attachment, and 2) test the hypothesis that attaching a graft of limbal stem cells (LSC) on amnitoc membrane with PTB will promote LSC survival and improves the reconstruction of the ocular surface compared to suture attchment. These studies will use rabbit corneal defect or limbal stem cell deficiency models. Inflammation, epithelialization, collagen fibril organization, and corneal scarring after surgery will be monitored with histology, immunohistochemistry, biochemistry, and in vivo microscopy to compare grafting techniques.

If these studies are successful, a new laser application will be introduced for the clinical treatment of severe damage to the cornea and a wide variety of other surgeries involving grafting onto the ocular surface will be easier and faster, and the incidence of complications due to sutures will be reduced.