

## Presentation Details

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**Presentation Title** Laser Trabeculoplasty with 3 Lasers in a Human Donor Eye Model

**Content Focus** Glaucoma / Laser Treatment

**Time** 3/19/2006 8:22 AM - 8:27 AM

**Location** Moscone - Room 121

**Session Number** 2-C

**Presenters** Gabriel Simon

**Abstract Synopsis & Educational Value** Purpose: To study the laser-tissue interaction and depth of penetration associated with three laser trabeculoplasty techniques: Argon Laser Trabeculoplasty (ALT), Selective Laser Trabeculoplasty (SLT), and Titanium Sapphire Laser Trabeculoplasty (TLT). Methods: Laser trabeculoplasty was performed on three fresh human donor eyes from different donors. Each eye was sectioned into thirds such that all lasers were used on each eye. ALT was performed with an argon laser at a wavelength of 488-514nm, exposure duration of 200msec, and spot size diameter of 200 microns; SLT a frequency-doubled Q-switched Nd:YAG laser (532nm; 3 nsec; 400 microns), and TLT a Titanium:Sapphire laser (790nm; 7usec; 200 microns). Three laser exposures of increasing energy/power settings were used with each laser on each eye section: ALT 200/400/800 mW; SLT 0.5/1.0/1/5 mJ; and TLT 30/50/80 mJ. Following laser exposure, tissue samples were fixed in 4% glutaraldehyde and processed with hematoxylin and eosin staining for histological analysis by light microscopy. Results: Trabecular meshwork exposed to ALT exhibited the most anatomical alteration, with thermal damage and anatomical alterations consistent with prior literature. SLT and TLT both exhibited little anatomical alteration. Zones of depigmented meshwork could be identified with both ALT and TLT, but not with SLT. Conclusion: The three lasers used in this study each created unique effects on human trabecular meshwork tissue that could be identified using light microscopy.

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