University of Texas Health Science Center at San Antonio
Standard Operating Procedures
for
Optical Imaging Core Facility
Main Campus, Dental Building,2.518U.1
Laser Controlled Area
Ver. 3.0 (July 24, 2013)

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Laser Custodian:

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Name Printed Signature Date

Laser Safety Officer:

Jennifer Cerecero Jennifer Cerecero Digitally signed by Jennifer Cerecero DN: cn=Jennifer Cerecero, o=UTHSCSA, ou=EHS, email=watsonj@uthscsa.edu, c=US Date: 2013.07.29 11:47:00 -05'00'

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INTRODUCTION

Room 2.518U.1, Dental Building, Main Campus contains the following lasers:

Blue Diode (405nm)
3-line Argon (458nm, 488nm, 514nm)
Green HeNe (543nm)
Red Diode (635nm)
Chameleon fs-pulsed tunable TiSaph laser (680 -1080 nm)

Visible light lasers are connected to Olympus FV1000 Laser Scanning Confocal Microscope via fiber optiC cable. The Chameleon laser is couple via hard-optics through an enclosed light path.

Primary Laser Custodian:

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Name Badge# Contact# Email

Alternative Contact:

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Name	Badge#	Contact#	Email

Authorized Primary Users

A list of authorized users is on file with Environmental Health and Safety. This list will be updated as frequently as needed.

Incidental Personnel

In addition to the authorized primary users, incidental personnel may be in the roqm at the time of the experiment. These personnel are not trained on the system, nor have they gone through the laser safety program. They will be observing only and not involved in the operation of the system. They will not be in the room during any alignment or maintenance of the lasers.

Normal Laser Operation

Room 2.518U.1, Dental Building, Main Campus contains the following lasers:

	Make	Model	S/N	Wavelength	Power output
3B	Argon	GLG 3135	10096	457-514nm	40mW
3A	HeNe 543	GLG 7000	171	543nm	<5mW
3B	405 diode	Olympus		405nm	50mW
3B	635 diode	Olympus		635nm	35mW
4	Coherent	Chameleon	GDP.1121786.7913	680-1080nm	<5W

Visible light lasers are connected to Olympus FV1000 Laser Scanning Confocal Micro cope via fiber optic cable. The Chameleon laser is connected to the FV1000 Laser Scanning Confocal through hard-coupled prism compensation optics in an enclosed pathway.

The visible light lasers (Diodes, Argon, HeNe) are located on a sled on the floor under the anti-vibration table. The Multiphoton laser is located on the anti- vibration table, rear-right of the microscope.

All lasers are listed under the same Property ID- 126110.

The main purpose of these lasers is for Laser Scanning Confocal or Multiphoton excitation imaging of fixed and live specimens.

Eyewear

Wavelength specific eyewear will be used by field service engineers during alignment into the fiber optic cable (visible laser lines) or into the compensation optics (pulsed NIR lines).

Alignment Hazard Control

Visible light lasers (Blue Diode, Red Diode, Green *HeNe,* 3-line Argon), Class 3A & *3B,* are aligned into the fiber optic cable by field service engineers and are not adjusted by users or facility staff.

Chameleon fs-pulsed, tunable Ti-Saph laser (Class 4) is mounted and aligned by field service engineers. Staff and users change operating wavelength via computer control and perform secondary alignment with coupling optic with the laser pathway fully enclosed. Laser safe viewing windows are built into the enclosure to protect the user from hazardous irradiation. The NIR beam is visualized using a hand held NIR Viewer.

Laser Hazard Control

1. Access to LCA room is restricted to trained personnel. Main door is accessible by combination lock.
2. Main access door is locked when nobody is using the system.
3. Power supplies to the Class 3A & 3B lasers (Blue Diode, Red Diode, Green *HeNe,* 3-line Argon) are located under the anti-vibration table.
4. Keys to laser power supplies are kept in a combination lockbox in 2.518U.1 with combination made available to trained users.
5. Operation of the Class 3B lasers is only accessible through the software for the FV1000 system. Computer access is restricted to trained users with unique login names and passwords.
6. Power supply to the Class 4laser (Chameleon fs-pulsed, tunable Ti-Sapphire laser) is located under the anti-vibration table.
7. Keys to the Chameleon laser power supply are kept in a combination lockbox in 2.518U.1with the combination made available only to trained users. The keys will be removed from the laser and stored in the combination lock box when the laser is not in use.

8. Operation of the Class 4 laser is only accessible through the software for the FV1000 system.
9. A "Laser in Use" warning sign is mounted at the entrance to 2.518U.l. It will be illuminated when the Chameleon fs-pulsed, tunable Ti-Sapphire laser is in operation.
10. All lasers are enclosed with no open beam throughout the path.

Primary users are trained in the operation of the FV1000 and the proper use and care for the lasers.

Tuning of the Class 4 laser is usually performed by Primary and Alternate Custodian or by users who have received specific training by Primary and Alternate Custodians. Tuning is performed while beam path is fully enclosed.

Authorized User Signatures

This standard operating procedure is reviewed and understood by each authorized laser user during initial training on the system.