Ultra Violet (UV) Radiation Protection in Laboratories

The USC Upstate biology and chemistry laboratories utilize various UV radiation sources in laboratory procedures which may present an exposure risk. Unprotected exposure to UV radiation can damage corneas and skin. Proper protective equipment and training is required prior to use of transilluminators, hand held UV lamps, germicidal lamps, Biosafety cabinets , UV boxes or other sources containing UV lamps.

Health Effects from exposure of UV Radiation:

- Exposure to UV light can burn the retina or irritate the cornea and the conjunctiva. This can cause a feeling of "sand in the eye" and heightened sensitivity to light. Symptoms appear from 6 to 24 hours after exposure and usually disappear within 48 hours.
- Persons who have had the lens of an eye removed (e.g. cataract surgery) can receive permanent retinal damage from UV exposure - including blindness.
- Individuals who are exposed to photosensitizing agents (e.g. some oral drugs or topically applied creams) may not be aware of heightened sensitivity to UV radiation.
- UV radiation burns skin promoting skin aging and cancer.

General Safety Practices while utilizing UV equipment:

- Protect the hands by wearing rubber gloves.
- Wear a long sleeved shirt or laboratory coat to protect the lower portions of the arms from UV light.
- A full face shield must be worn while working with the illuminators or hand held UV light sources.
- A shield is required if other safety equipment is not present.

Good Work Practices:

- Label all UV sources properly with a warning of UV radiation.
- Instruct proper safety procedures for equipment during use.
- Do not remove face shield to get a closer look at material being visualized.
- UV bulbs must be treated as hazardous waste.

Transilluminator

A transilluminator is a box containing a UV light source and is used for viewing gels. The transilluminator is equipped with a plastic shield that folds down over the viewing area. When properly used, the shield absorbs the UV radiation and prevents exposure to anyone in the vicinity of the device. If the shield is not in its proper position, direct exposure to UV radiation is possible. Control of the work area is required during the use of the device.

Handheld UV lamps

Proper safety equipment is required. Always hold the unit in order that the light beam faces away from the body.

Biosafety hoods, germicicals boxes, etc.

Follow directions as described in user manual.

References:

University of South Carolina, Environmental Health and Safety
University of Minnesota, Environmental Health and Safety Department