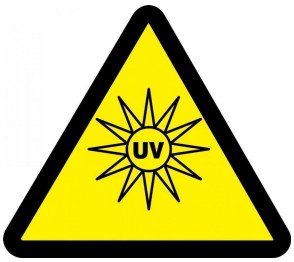
Biology and Wildlife

STANDARD OPERATING PROCEDURE

UV Light



Location(s): Murie 204, 206, 209, 211, 304, 306

Chemical(s): Gels, buffers, and stains vary. Consult the Safety Data Sheet(s) and SOP(s) relevant to the materials you are using. This SOP deals only with UV light.

Specific Hazards:

- UV light can cause skin and eye damage without proper protection.
- UV light exposure can contribute to the development of cancer, particularly skin cancer.

Contact Information:

Laboratory Supervisor:	Patrick Knavel	pdknavel@alaska.edu	474-5622
Laboratory Technician:	Rosa Villarreal	rvvillarreal@alaska.edu	474-7205

1. Purchasing:

All chemical orders are placed by the Laboratory Technician once approved by the Laboratory Supervisor. The department has UV light boxes and a Bio-Rad UV gel visualizer.

2. Storage:

UV light boxes are stored in locked cabinets in 204, 206, 306 and 211 Murie.

3. Authorized personnel:

- All authorized personnel must have completed all required employee and laboratory safety training.
- The Instructor is authorized to train their TAs on the proper preparation, handling, storage and disposal of this material. The instructor may delegate training to the B&W Laboratory Supervisor by making arrangements at least two (2) weeks in advance.
- TAs, once trained, are authorized to train and supervise their students.
- Students must be trained in the use of UV light imagers in accordance with this SOP before conducting lab.

4. Training requirements:

The user must demonstrate competency and familiarity regarding the safe handling and use of these materials prior to using them. Training shall include the following:

- Review of this SOP

5. Use location:

- Murie B&W teaching labs, rooms 204, 206, 209, 211, 304, 306
- On tables or lab benches.

6. Personal protective equipment (PPE):

When working with the Bio-Rad gel imaging system or a light box that has a UV shield attached, the shield provides protection from UV light. The light should only be turned on once the shield is in place, and should be turned off before the shield is removed. In this case, the following PPE is recommended as a precaution for accidental exposure should the shield be lifted while the box is on.

Nitrile gloves
UV resistant safety glasses
Long sleeved shirt or lab coat to cover exposed skin

If the procedure requires removal of the UV shield to carry out the work (e.g. excising bands from a gel), precautions must be taken to protect the eyes and skin from UV exposure. In this case, the following PPE is required:

Nitrile gloves
UV resistant face shield
Long sleeved shirt or lab coat to cover exposed skin

PPE must be inspected prior to use and replaced if damaged.

If ethidium bromide is being used as the stain, the SOP for its use must be followed and the required additional precautions taken.

7. Spill equipment:

UV light cannot be spilled and does not require clean-up. Follow appropriate spill procedures for the materials you are working with.

8. Procedure:

Materials needed:

- stained gel
- UV light box or UV flashlight or UV penlight
- PPE listed in section 6

Procedure Notes:

PPE must be used appropriately when needed.

Procedure Steps, Bio-Rad Imager

1. If using ethidium bromide, set up a work area as instructed in the ethidium bromide SOP.
2. Set up imager and computer. Open program.
3. Don appropriate PPE. Transfer the gel to the appropriate imaging tray.
4. Remove gloves before working on the computer to avoid contamination of the computer.
5. Don new gloves before handling gel.
6. Follow the directions provided by Bio-Rad. They are not reproduced here.

Procedure Steps, UV Light Box

1. If using ethidium bromide, set up a work area as instructed in the ethidium bromide SOP.
2. Don appropriate PPE.
3. Set up UV light box
4. Transfer gel to a light box. Secure UV shield over gel.
5. Turn on UV light and observe gel. Do not spend more time than necessary observing the gel, even with the shield and PPE on. To spend more time examining the gel, it should be photographed so that the photograph can be studied.
6. When photographing the gel, it is appropriate to remove gloves to handle the camera so that the camera does not become contaminated. Put gloves back on after taking photographs and before handling the gel or light box.
7. If the UV shield must be lifted to work with the gel while the bands can be visualized, be sure that PPE is used correctly and that a UV face shield is added over the UV resistant glasses. Work without the shield for the minimum time possible.
8. After visualizing and documenting the gel, turn the light box off before removing the shield..

Procedure Steps, UV Flashlights or Penlights

1. If using ethidium bromide, set up a work area as instructed in the ethidium bromide SOP. For other procedures involving UV light, follow all necessary precautions for the procedure.
2. Don appropriate PPE before beginning procedures.
3. Turn the light on for the minimum time possible for the procedure.
4. Be careful to avoid shining the UV light at any person, particularly in the face and eyes.
5. Turn light off after observations are completed.

9. Waste disposal and clean up:

- Gels shall be disposed of following the guidelines for the type of gel and stain used. Refer to the appropriate SDS and SOP(s).
- Clean off the surface of the UV light box by wiping it down to remove any residues.

10. Decontamination:

- UV light does not require decontamination. Follow any appropriate decontamination procedures based on the stain used to visualize the bands.

11. Exposures: Emergency procedures to be followed (from SDS):
The most important known symptoms and effects are as stated in the “Specific Hazards” statement at the beginning of this document.

General advice

If exposure is detected, discontinue exposure immediately.

Eye contact with UV light

UV light can cause eye damage. If unshielded UV light has entered a person’s eyes, s/he should consult an appropriate medical provider.

Skin contact with UV light

UV light can cause skin damage and burns (similar to sunburns). If skin exposure causes skin damage or burns, the individual should consult their medical provider as necessary.

Ingestion of UV light

It is not possible to ingest UV light. If a person swallows a small UV penlight, medical help should be sought immediately.

Inhalation

It is not possible to inhale UV light.

12. Spills:

If it is determined that UV light is not being properly shielded, work should be discontinued until proper shielding can be put in place.

13. Phone numbers:

Biology and Wildlife Laboratory Supervisor	474-5622
Biology and Wildlife Laboratory Technician	474-7205
EHSRM Hazardous Materials (if B&W Lab Supervisor not available, assistance with a spill)	474-5617
EHSRM Industrial Hygiene (if Hazardous Materials not available; assistance with exposures)	474-6771
EHSRM office (if Hazardous Materials or Industrial Hygiene not available)	474-5413
University of Alaska Fairbanks Emergency Response (serious accidents, fire)	911

14. Other important information:

This material must not enter the standard solid or liquid waste streams (i.e. regular trash or sink drains). All contaminated materials must be collected and disposed of as hazardous waste.

Training Record

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Supervisor and the Biology and Wildlife Laboratory Supervisor if I want to modify this procedure and obtain permission for any modifications before implementing them.

Name	Signature	Date	Person Providing Training

Prepared by: Denise Kind **Date:** 5/22/2015