DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY

SAFE OPERATING PROCEDURE

BIORAD GEL DOCUMENTATION SYSTEM

Purpose:
To provide safe operation and instruction for the gel documentation system for staff members in the Dept. of Molecular and Cellular Biology

Safety Precautions:

- All operators must receive training prior to using the equipment. Please arrange training by contacting Jamie Jones (Department Support Technician), ext. 53816/ SCIE 4482. It remains the responsibility of the supervisor to ensure their personnel are adequately trained.
- Ethidium Bromide is a known mutagen. Always wear a lab coat and gloves when handling Ethidium Bromide solutions and stained agarose gels.
- Do not look into the UV light source without face or eye protection.

Notes:

- To move a gel from one room to another in the same wing it is recommended that the gel be placed in a secondary container (i.e. small tray) so it can be transported without the need for gloves. It is also permissible to use the 'one-glove' technique described below:

a) Remove the glove from your dominant hand. Use the non-gloved hand to open all doors. Carry the gel in the gloved hand.
b) Open the door to the exposure chamber with the non-gloved hand. Place the gel into the exposure chamber using the gloved hand and a spatula.
c) Use the non-gloved hand to manipulate all controls on the Gel Doc system including the computer and camera settings.
d) Sign the log book with the non-gloved hand.
e) When the documentation process has finished, open the chamber door with the non-gloved hand, and remove the gel with the gloved hand and a spatula.
f) Using the gloved hand, use a tissue to wipe the glass surfaces of the Gel Doc with kimwipes only. Paper towel tend to scratch the glass plate over time.
g) Use the gloved hand to carry the gel back to your laboratory, opening all doors with the non-gloved hand.

Procedure:

Do not use gloves when operating the computer or camera controls. Gloves are only to be worn when handling the gel and inside of the chamber.

Starting the program

- Ensuring you are using a non-gloved hand, click the mouse to activate the monitor.
- Open the Gel Doc software if it is not already open.

Imaging with Quantity One software: Basic Protocol

- Open the chamber door with the non-gloved hand and position the gel into the chamber with the gloved hand. Centre the gel on glass drawer. Close door and switch on UV light (Trans UV) with the non-gloved hand.
- With a non-gloved hand, open Quantity One software. Select Basic mode. Go to File=> Gel Doc XR. Click 'Live/focus'. Then click 'Auto Expose'. You can then adjust Zoom, Focus and IRIS controls with the software. Increasing IRIS will allow more light to enter the camera lens and acts as a brightness control. Adjust exposure control as required.
- Click 'Freeze' button to stop live focus, then click 'Video print' for image or save option. Please do not store files on computer and ensure all memory keys are virus-free.

Imaging with Image Lab Software: Basic Protocol

- Open the chamber door with the non-gloved hand and position the gel into the chamber with the gloved hand. Centre the gel on glass drawer.
- With a non-gloved hand, open the Image Lab Software. Select 'New protocol'
- Select the appropriate application and complete the settings. Click 'Position Gel'. Adjust Zoom as required. Software may ask to adjust filter position at this time which is manually done on the Universal Hood.
- Click 'Run Protocol'. The software will auto expose and an image will appear in a separate window. Adjust Brightness/Contrast and color saturation if required.
- Click Print from the menu bar in main application menu or snapshot to save image if required. Close all windows. Please do not store files on computer and ensure all memory keys are virus-free.

Closing the program

- Turn off the UV light with a non-gloved hand.
- With a gloved hand, remove your gel from the chamber and wipe down the surfaces with kimwipes (do not use paper towel, it tends to scratch the glass over time).
- Close the door to the chamber with a clean hand.
- Record your name and the number of photos taken in the log book.
- If printer paper has a pink stripe, obtain a new roll from the stock room (SCIE 1110) and install as per the directions on the printer.

Emergency Exposure Procedures:

- Seek immediate medical attention after a suspected Ethidium Bromide Exposure.
- **Skin contact:** Remove any sources of contaminated clothing. Wash the affected areas thoroughly with soap and water.
- **Eye Contact:** Irrigate immediately. Open eyes and flush for 20 min using a designated eye wash station.

Spill Procedure:

- Restrict access to the area of the spill. Ask for assistance from those nearby if necessary.
- Ensure you are wearing PPE (lab coat, closed toed shoes, gloves, and eye protection).
- If the spill has occurred on lab liner, remove the affected section and place in a leak-proof container or bag. Label the bag as Ethidium Bromide waste and submit a waste disposal requisition to EHS.
- If the gel was dropped on a hard surface, absorb any liquid/gel with paper towels or absorbent pads. Do not use bleach on the affected area.
- Place used materials in a leak proof bag or container and label as Ethidium Bromide waste.
- To decontaminate the area, it is recommended that a solution of sodium nitrite and hypophosphorus acid (50%) be used. Add 4.2 g sodium nitrite and 20mL of hypophosporus acid to 300mL of water.
- Use a UV-light to locate any remaining traces of Ethidium Bromide.
- Soak paper towels with the decontamination solution and wash the affected area.
- Use wet paper towels and soap to clean the area again. Rinse the area a few times to ensure any residue has been cleaned up.
- Place all used materials in the Ethidium Bromide waste and submit a chemical waste disposal requisition to EHS.

Gel Doc locations: SCIE 3202, 4256, 4402F. Any questions or concerns please contact Jamie Jones: Room SCIE 4482 ext. 53816