

The Genetic Data Centre:

Laboratory Regulations And Guidelines For The
Use Of Equipment

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U.B.C.
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Laboratory Regulations and Policies:

- 1) Please check with Carol Ritland prior to starting any projects in the lab.
- 2) All researchers (including students and faculty members) are responsible for their own clean up (hopefully on a daily basis); that includes all dishes and all equipment used. **Do** remember that everyone likes to have a clean start prior to doing experiments.
- 3) Cooperation is essential with all personnel and the **number one rule** is respect for the working space and tools of others in the lab.
- 4) If there are disputes with equipment usage or personal differences please see Carol as soon as possible before conflicts damage the morale of the lab.
- 5) Please check with Carol or Allyson Miscampbell in the lab as to the proper usage of all unfamiliar pieces of equipment (exception: see LiCor DNA Analyzer).
- 6) Be sure to sign up for equipment that you are using. We use the "first come first served" policy unless a particular lab group purchased the equipment (e.g. PCR machine); they will be given priority to that piece of equipment. The sign up sheets are also used for record keeping and for cost recovery purposes.
- 7) No equipment is to be moved out of the lab. That includes all chemicals, glass and plastic ware. **DO NOT** move equipment around the lab with out prior notice of Carol or Allyson.
- 8) Report all damaged or malfunctioning machinery to Carol or Allyson immediately and place a sign on the machine so that others will know.
- 9) Each researcher is responsible for his/her own stock solutions. **DO NOT** "borrow" solutions without prior blessings from the owner.
- 10) In the usage of chemicals and disposable plastic ware, Carol will supply items on a credit basis or the end-user is to provide his/her own supplies prior to starting of project.
- 11) If you are the last person in the lab at any time of the day, be sure to lock all doors and set alarm system.
- 12) If there is breakage of equipment, the cost of the damage will be assessed and paid for either by the G.D.C. or charged directly to the researcher pending on the cause and severity of the damage.
- 13) Please **sign up a usage sheet** at the end of every month and send it to Allyson or Carol while working in the lab, unless alternate arrangements have been made.

Safety Regulations:

- 1) **NO** eating, drinking or smoking in the laboratory.
- 2) All accidents must be reported to Carol Ritland or Allyson Miscampbell.
- 3) Proper clothing (no shorts [Faculty of Forestry, U.B.C. policy]) and shoes (no open toe shoes) are to be worn in the lab. Chemical spills are possibilities. Lab. coats and safety goggles should be worn when working in the lab.
- 4) Bench liners (soakers) are provided for end-users, use when necessary (eg. organic chemicals or tissue preparation).
- 5) Ethidium Bromide [EtBr] (**A known CARCINOGEN**) is to be treated with great care. Lab. coat and gloves **must be** worn when working with EtBr. and if you suspect your gloves have been contaminated be sure to wash your hands with lots of water and dispose of the gloves immediately. (See below for further details.)
- 6) Lab. coats, gloves and UV face shield must be worn when operating the transilluminator to avoid intense UV burn to face, arms and neck.
- 7) Sharp objects such as broken glass or disposable glass pipettes must be placed in the glass disposal container NOT in the regular garbage. Razor blades and needles must be disposed of in the special "sharp" containers provided.
- 8) All hot plates and open flames must be turned off immediately after use.
- 9) **NO** mouth pipetting is allowed in the lab.
- 10) DO NOT use gloves when handling telephone receiver, door handles, catalogues, computers (with the exception of the photoimaging system) etc.
- 11) All researchers are responsible for knowing the location of the eye wash/shower station in the lab as well as the location of a first aid kit. Please take the time to locate the nearest exit door for the building.
- 12) In the event of a fire, please follow the University guideline for fire procedures (see The Safety Manual, Faculty of Forestry, U.B.C.).
- 13) All researchers **must** take the U.B.C. Chemical and Safety training course preferably prior to starting any laboratory work. Please let Carol know when you have been certified and sign up on her master sheet.

Equipment Usage:

1) DNA Extraction and Use of Fumehood:

For isolation of DNA, whenever chemicals such as mercaptoethanol or phenol/chloroform/isoamyl are used, one must do all the work in a proper fumehood. Use bench liners in the fumehood to avoid corrosion of workspace. All items necessary for work should be brought to the fumehood the day of isolation and removed by the end of the day. The only items that should be left in the fumehood are the homogenizer (when in constant use), the ethidium bromide (EtBr) liquid waste bottle and the solvent waste bottle for phenol/chloroform waste.

2) Solvent Waste:

Proper disposal of solvent waste is required when using phenol/chloroform/isoamyl. A red jerry can is provided in the fumehood for small quantity of waste. Please keep the lid closed when not in use. The cans are provided by the Chemical Waste Department of U.B.C. for special disposal.

3) Gel (Horizontal) Electrophoresis Boxes:

In order for an efficient working environment, small gel boxes should always be rinsed and flushed with distilled water (dH₂O) after several usages (ask your lab. mates if anyone will be using the buffer soon). The buffer will keep for 2-3 days prior to evaporation particularly when the lid is on the gel box. For the large gel boxes, if you are using the box for several days in a row, keep using the running buffer (4-5 usage). If not, then please place the buffer in a **clearly marked** bottle or in a covered beaker for the next person and rinse the electrophoresis box with dH₂O. These practices will prevent crystal build up in the gel boxes, which make for difficult cleanup. (**DO NOT** submerge any gel tray into the EtBr solution, instead slide the gel into the solution.)

4) Ethidium Bromide Staining Apparatus:

When using EtBr., be sure to double glove and to wear a proper lab coat. (Safety goggles are highly recommended especially for those who wear contact lenses or those who do not wear glasses.). We **ONLY** do post-staining of both agarose and horizontal polyacrylamide gels. Always wear the UV face shields provided to avoid UV burns.

DO NOT add EtBr solutions to the gel or to the gel boxes prior to running of the gels. It is a safety hazard to all. Use the metal and plastic spatulas to manipulate the gel in the EtBr solution.

5) Homogenizer:

The homogenizer is mainly used to grind up tissues, particularly plant tissues in the Isozyme Lab. Care should be used as well as protective gear for the eyes and ears. When using the homogenizer with mercaptoethanol be sure to use it in the fumehood. Clean the homogenizer with plenty of water in between samples. A small brush is provided to help with the cleaning. Do not use the homogenizer at a constant speed and rate, always stop the machine every 10-15 sec. There are two types of homogenizer "bit": the smaller one (7mm) can be used with 1.5-2.0ml microtubes and the larger homogenizer (9mm) is used with 10-50ml tubes or beakers.

6) Spectrophotometer :

A Spectrophotometer is provided by the Genetic Data Center for the researcher. Careful instructions are required prior to using the machine and currently there is only one cuvette for this machine. The cuvette holds minimally 50 μ l of diluted DNA solutions or control. Please handle the machine and cuvette with great care. Rinse out the cuvette after usage with generous amount of dH₂O from a squirt bottle and dry with kimwipes. **DO NOT** leave the cuvette in the machine. Please print out the calibration page and record the amount of time used and the user name.

7) PCR Machines:

DO NOT use oil in the PCR blocks, these machines do not require it. If you need to use the PCR machine and the previous person is not around to remove their reaction tubes, place the tubes in a rack and place the rack in a 4°C fridge. Some PCR reactions are to be kept in the dark. **Do** wrap the reaction tubes with aluminum foil if there is one provided.

8) Clinical Table Top Centrifuge:

Proper training in the use of the centrifuge is required prior to usage. Clean out the drum after each use with dH₂O and kimwipes to prevent ice build-up during cold spins. Use only closed polypropylene tubes or use safety caps when spinning open tubes particularly the glass Corex tubes. Check that the adapters are compatible with the tubes being spun.

10) MicroCentrifuges:

Use balance tubes when spinning an odd number of tubes. Clean up any spill in the centrifuge. The MIKOS centrifuges require their lids to be propped open when not in use due to heat build up in the rotor.

11) Freezers and Refrigerators:

Allotted space is given to each user; please stay in your spot. If you require more space let Carol know, particularly in the -80°C. Boxes will be removed if owner do not appear to claim them after 6 months. Clearly label all boxes and bottles going into the freezers and refrigerators and all microtubes must be stored in proper boxes with labels (ie. No microtube racks). From time to time, the freezers (-20°C) require defrosting and if there are stray tubes and unlabelled boxes they will be removed. Be sure all freezer and fridge doors are closed properly. **NO** food or drink is to be stored in the freezers or refrigerators.

12) LICOR DNA Analyzer:

DO NOT use the DNA Analyzer without extensive training from either Carol Ritland or Allyson Miscampbell.

13) Chemicals, Balances and pH meters:

Clean up all balances with the brush provided or use dH₂O and kimwipes. Turn balances off after usage. Please check that the pH meter has enough storage buffer after your usage.

14) Gel Documentation System:

The UVP imaging system should be used after being trained in by Carol Ritland or Allyson Miscampbell. Clean the UV box after each use with dH₂O and kimwipe. **DO NOT** use gloves contaminated with EtBr when handling the computer and camera. Change gloves when using the computer and camera.

15) Lab. Bench Work Space:

General tidiness should be maintained at your own bench. Respect other lab mates' things. Do not borrow without asking!

16) Microwave Oven:

Clean up any spills in the microwave oven immediately; agarose and starch gels are hard to clean up when they are dried.

17) Water Baths:

Check temperature with a thermometer prior to use. DO NOT assume the dials on the water baths are calibrated. Be sure to fill the water baths so that they do not run dry. If there is a spill in the water bath please empty the bath and clean it prior to filling up the bath with fresh water. Occasionally, these baths do require cleaning and volunteers are greatly appreciated!

18) Power Packs:

All power packs must be turned off prior to handling any gel boxes. Use the power switch in the back of power packs as well as the one in the front.

19) Sinks:

DO NOT accumulate your dirty dishes in the sinks, they are communal space, use the dish buckets provided for the accumulation of your dirty dishes or clean them as soon as possible.

20) Starch Gel Electrophoresis Equipment:

The light box used in scoring starch gels should be cleaned off with dH_2O and kimwipes after each use. Starch gels and chemicals used for isozymes must be disposed of carefully. All liquids must be charcoal filtered prior to disposal down the sink with plenty of water. All starch gels should be dried and disposed with the used dried charcoal filters. Notify Carol when the accumulation fills a small to mid. size box. Be sure to keep bench tops, balances, pH meters and ovens clean particularly after each use. It is all communal space in the isozyme lab. A chemical list of all the isozyme chemicals used in the lab. can be found near the large fridge.

Isozyme Lab. Rules:

- A) Do not use Lab. 3333 except when grinding tissue in the fumehood. Only use the fumehood in this lab and nothing else.
- B) KEEP the fumehood clean and tidy.
- C) Do not remove any equipment, glassware or chemicals from Room 3331 without approval from Carol.
- D) Return all equipment, glassware (cleaned) and chemicals where they belong, it is frustrating for the next user to have to spend time looking for them.
- E) DO NOT use the same measuring tool or glassware for different chemicals.
- F) KEEP the Lab. clean and tidy.
- G) If there are too many problems, you may be asked to stop your project.

Items Provided by the End User:

Writing implements
Tape (Invisible) for securing labels on the microtubes
Ruler
Permanent marking pens
Scissors
Calculator
Computer Disk(s)
Notepaper or lab notebook
Lab. coat
Safety goggles

Please label all items that are brought into the lab by the end user.

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