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Guide to good lab practice in the microbiology lab at Kristineberg

Persons responsible

The microbial safety officer at Kristineberg is Lars Ljungqvist, telephone 031-7869506, e-mail: lars.ljungqvist@gu.se.
Advisor on matters of microbial safety is Maria Asplund 0702-907134.

Laboratory routines

Before you start

All lab procedures have an associated "Risk Assessment Form" that details how the procedure is carried out, but more importantly the risks involved such as the toxic nature of any of the reagents. Before carrying out any lab procedure it is essential that you read and sign the risk assessment form administered by the chemical safety officer.

Inform the people working in the lab

Everyone working in the microbiology lab needs to know what the other people working in the lab are doing. This is to prevent undesired events due to contamination that could have been avoided. With appropriate knowledge of what is going on in the lab, you should take precautions to avoid any problems. Do you need advice? Please contact advisory or safety staff, see above.

Routine maintenance is performed by people who are not microbiologists. Minimise health hazards for all the staff by keeping the lab tidy and clean.

"Good microbiological praxis" must be applied

- No eating, drinking, applying cosmetics, use of tobacco or otherwise handling of foodstuff in the lab
- Keep the lab tidy and clean
- Do not pipette by mouth. Do not work in any way so that there is a risk for GMM to end up in somebody's mouth
- Avoid aerosol formation. Avoid spillage and splashing
- Be careful with needles and sharp objects, especially if they have been in contact with GMM. Do not apply the cap on a needle using a two-hand grip.
- Know how to handle waste, see below.
- Wear proper protective clothing WITHIN the lab. But do NOT bring your protective clothing out of the lab.
- Be prepared so that you know what to do if something happens (see below)

The lab benches are divided in zones

To prevent transfer of resistance genes to pathogenic organisms or any related problems the benches are divided in zones. Bench 1 is the one closest to the door and bench 2 is by the fume hoods (see figure). The bench by the window is not controlled.
- Bench 2 is allowed for work with pathogenic organisms. Bench 2 is NOT allowed for work with antibiotics-resistant organisms.
- Bench 1 is allowed for work with organisms resistant to antibiotics. Bench 1 is NOT allowed for work with pathogenic organisms.
- The SW corner on the bench by the window is used for cloning work only. Keep this area extra clean.
Common storage facilities e.g. freezers and refrigerators are currently not divided.

Aerosol formation, splashing

- Aerosols can be formed when you open e.g. centrifuge tubes and eppendorf tubes.
- Open lids and caps carefully.
- If available, use a cap opener for eppendorf tubes.

- Pour liquids gently so that it doesn't splash.
- When pipetting, aerosols may form. Take care when pipetting so that you do not contaminate the pipette itself. Pipettes that are autoclavable should be autoclaved on a regular basis. If the pipette gets contaminated it needs to be autoclaved right away, or be taken apart and thoroughly cleaned and disinfected.
- Be careful with platinum loops when handling agar plates. Aerosols may form when the hot loop comes in contact with the agar or culture. Consider using disposable loops.
- Bubbling of liquids that may contain biological organisms is not allowed without the use of some kind of cap or lid. This is to prevent formation or spreading of aerosols.

Hygiene and pace of work

- Move and work calmly so that you don't disturb other people
- Use gloves when there is a risk for splashing etc.
- Wash your hands when you leave the lab. After washing your hands, use a paper towel to close the tap.
- Use disinfectant lotion on your hands, e.g. Alcogel.
- Be extra careful and observant if you have open cuts on your hands
- Use a protective lab coat in the lab and take it off when you leave the lab.

Lab coats

Lab coats should be stored in the microbiology lab. There are hangers by the door.
When the coats need washing, start by autoclaving them, e.g. program 1. After autoclaving they may be washed using the washer in the basement of the research building. Do not wash in the machine in the mess building. It is a good idea to wash several coats at the same time.

Waste handling

The golden rule: Do **not** produce waste that you do not know how to handle.

Decontaminated waste (autoclaved) does not normally require any special labelling with regards to biohazard. Other hazards, such as sharp objects, chemicals, radioactivity etc. should be considered.

If you need some equipment e.g. waste bags, talk to the chemical safety officer, Lars Ljungqvist.

In general
All contaminated material such as pipette tips, needles etc. must be autoclaved. Solutions and liquids with cultures and organisms must be autoclaved. Put plastic bags and other smaller objects in an autoclavable plastic bag before placing in the autoclave.

Waste bags etc.
The former telephone booth, room 159 b in the old building on the ground level is where you will find:

- Clear plastic bags, fit for the autoclave. Seal them with autoclave tape
- Black, thick, plastic bags
- Boxes for hazardous waste. To be used with a black plastic bag inside.

If you miss anything, please contact the staff responsible for the labs.

Ordinary waste bags can be found in the room for cleaning material "Städmateriel", which can be found near the printer on the ground floor.

Pipette tips etc.
Plastic tips and similar waste are conveniently disposed of in clear autoclavable plastic bags. Shut the bags with autoclave tape and autoclave the entire bag.

Agar plates
Autoclave the plates and pack them in plastic bags (preferably their original packages). Close the bags

with tape and put them in large plastic waste bags.

Sharp objects

Handle needles and other sharp items with care. Sharps waste should be discarded into special sharps containers that are to be autoclaved before disposal. Optionally, waste with sharp edges may be disposed of in special plastic containers with a disinfection liquid, which is filled with plaster before disposal.

Microscopy glassware

Be aware that slides may contain live organisms and these should be autoclaved after use.

Spillage - decontamination

Avoid spillage as much as possible. In case of accidental spillage occurring consider this:

- Small amounts of liquids may be wiped clean with paper and the surface should be washed with 70% ethanol. If the spillage concerns spore forming bacteria use 70% ethanol + 2,5% H_2O_2. Place the paper in a large vessel e.g. a beaker and autoclave.
- Larger amounts of liquid: Use paper tissues to limit the spillage and pour concentrated disinfection liquid on the spillage and leave it to work for a couple of minutes. Use an amount of disinfectant that produces roughly 0.5% concentration in the spillage. Wipe it up with paper and autoclave the whole mess.

Labelling

Cultures and samples must be labelled with date, your name and what the sample contains. This applies especially to common storage facilities such freezers, refrigerators. If samples are to be kept outside of the microbiology lab, they must be labelled with “biohazard”/“smittorisk” or be placed in a box/drawer/case/etc. in such a manner that it is obvious what the sample contains.

Equipment, machines, tools

You are responsible for making sure that you know how to handle the equipment that you need. Make sure that you understand how to use the gear before you start working. Ask your colleague, your supervisor or the lab supervisor, Lars Ljungqvist.

Be careful when operating the Bunsen burner. There is a lot of highly flammable stuff in the lab, including ethanol. Double-check the gas cylinder’s valve when you leave the lab.