

## **SAFETY RULES FOR THE CENTER FOR SYSTEMS MICROBIOLOGY - DTU SYSTEMS BIOLOGY**

Before starting on a project or as an employee at the Center for Systems Microbiology, you must:

1. Read the attached safety rules.
2. Date and sign the agreement which can be found at the end of this document and give it to someone from the local Work Environmental Group.
3. Acquaint yourself with the relevant chemical risk assessment (APV) from our database [R:\Sikkerhed](#). If it doesn't exist, you must in collaboration with your supervisor prepare a chemical risk assessment – a short written description of the type of experiment you expect to perform during your project. You must specifically write which chemicals will be used, their toxicity, how they should be treated as waste and which precautions you will take in order to do the project in a responsible way regarding safety.

Info regarding chemical risk assessment can be found on [www.kemibrug.dk](http://www.kemibrug.dk).

Before the practical project work can be started, the chemical risk assessment should be sent to Management Representative Jan Martinussen for approval.

## **General rules for all laboratory rooms regardless of work to be carried out**

- 1) Lab coat must be worn when working in the laboratory and everybody should have their own safety glasses. You are allowed to move in the laboratories without lab coat for a shorter period if you only need to speak to people working there.
- 2) You must wear gloves when you are working with GMO organisms.
- 3) Make sure you know where to find safety equipment such as emergency showers, fire extinguishers and fire blankets.
- 4) You are not allowed to smoke, eat, drink, put on cosmetics or keep bags or outdoor coats in the laboratory.
- 5) Mobile phones and other electronic equipment are not allowed to be used in GMO labs, unless they are permanently placed in the GMO lab. If the phone or tablet must be used in GMO labs, it must be placed in a bag and discarded when leaving the laboratory. Phones that are carried in the pocket may be used only after you have taken off your gloves, have washed your hands, and the lab is left.
- 6) Mouth pipetting is not allowed. Mechanical pipettes have to be used.
- 7) Glass equipment must be rinsed before being sent to the laboratory glassware washing facility.
- 8) You are required to wash your hands before leaving the laboratory.
- 9) Alarms for fume hoods must not be switched off during use of the hoods.
- 10) Before the first use of autoclaves, centrifuges, freeze-dryers, gas cylinders, extraction or distillation equipment you are required to learn how to use the equipment.
- 11) Directions for use of all relevant chemicals can be found on <http://www.kemibrug.dk/>. New ones may be ordered.
- 12) All solutions should be kept in bottles and be marked with content, date and initials of the person who has made it, together with the appropriate security symbols.
- 13) All transport should be on wheels, e.g. rolling tables or trucks, sack trucks, gas cylinder trucks. Transport of goods between floors should be made by lifts, whereas persons are to use the stairs. Do not use the lifts for personal transport after working hours. Never use the lifts in case of fire.
- 14) Gas cylinders must be secured either consolidated to a wall or in an appropriate gas cylinder truck. Gas cylinders must not be fixed to a fume hood, table or other kinds of furniture.

## **1. Working with microorganisms.**

- a) Work with a microorganism must not take place in a laboratory with a classification less than what is required for the particular microorganism.
- b) The work must be organized in such a way that aerosols are avoided. If this is not possible then the aerosol should be collected in hood.
- c) Liquid waste with microorganisms must be disinfected before thrown away. Solid waste from laboratories classified 1 must be sent directly to incineration in closed brown bags (clinical waste), labeled "GMO". Otherwise it must be disinfected.
- d) Syringes must be sent to incineration.
- e) Hypodermic needles and other sharp items must be collected in special needle boxes.

## **2. Cleaning.**

- a) Any kind of spill should be removed immediately with a wetted cloth, vacuum cleaner with special filter or handled in another relevant way. Disposable dishcloths must be put in plastic bags immediately after use.
- b) Clean up whenever you change working place to make sure that the laboratory is ready for cleaning by the cleaners or for use by others.
- c) Reduce the amount of free-standing items as much as possible. Instead place items in closed cupboards.

## **3. Chemical and other waste.**

- a) The different buildings have special arrangements for the collection of chemical waste.
- b) Common glass waste is collected in special containers. Empty chemical flasks have to be cleaned before thrown away. Otherwise they should be handled as chemical waste.

## **4. Radioactive isotopes.**

- a) You are directed to the specific rules in this area on drive R: R: \ Radioactivity \ Radioactivity rules CSM 2010.pdf

## **5. In case of accidents.**

- a) Accidents and “near-accidents” have to be reported to the local Work Environmental Group.
- b) Use plenty of water on burns, cauterizations or accidents with the eyes. WATER, WATER and WATER. Flasks with eye rinsing water should be in all laboratories.

## **6. Emergency plan.**

In case of fire the building need to be evacuated. If you are the first to discover a serious fire which you cannot handle yourself shout: “Evacuation – all out”.

- a) Stop machines.
- b) Close doors and windows before leaving the room.
- c) Make sure everybody in the room gets out.
- d) Use emergency exits - no elevators.
- e) Go to the local meeting point - and stay there.

## **7. Alarm - call 112.**

- a) Inform correct address.
- b) Inform about what has happened.
- c) Receive ambulances and/or fire engines.

<b>The work environment organization at DTU Systems Biology at 10/6-2015</b>	
<b>Function</b>	<b>Name</b>
Leader of the work environment organization (AMO)	<a href="#">Hanne Jarmer</a>
Local work environment coordinator	<a href="#">Lene Holberg Blicher</a>
Contact between AMO and liaison committee	
<b>Group 1. CMB (Center for Mikrobiel Bioteknologi) and (work shops building 223 and 221)</b>	
Leader of CMB group Management representative Building 221	
Work environmental representative Building 221	<a href="#">Lisette Knoth-Nielsen</a>
Management representative Building 223	<a href="#">Mikael Rørdam Andersen</a>
Work environmental representative Building 223	<a href="#">Tina Johansen</a>
<b>Gruppe 2. EPC (Enzyme and Protein Chemistry) bygn 224, SBIR (del af CBS) og stuen vest bygn 301</b>	
Leader of EPC group Management representative Building 224 and 301 ground floor east	<a href="#">Per Hægglund</a>
Work environmental representative Building 224 and 301 ground floor east	<a href="#">Anne Blicher</a>
Management representative Building 224 CBS	<a href="#">Susanne Brix Pedersen</a>
Work environmental representative Building 224 and 301 ground floor east	<a href="#">Jannie Agersten</a>
<b>Group 3. CBS (Center for Biological Sequence Analysis) building 208, CBS group in building 301 2.floor and DMAC group in building 208</b>	
Leader of CBS group Management representative Building 208	<a href="#">Lone Boesen</a>
Work environmental representative Building 208	
Work environmental representative Building 208 DMAC	
<b>Group 4. CSM (Center for Systems Microbiology) Building 301</b>	
Leader of CSM group Management representative Building 301	<a href="#">Jan Martinussen</a>
Work environmental representative Building 301	<a href="#">Susanne Koefoed</a>
<b>Group 5. Office group (Administration in Building 208 and 221)</b>	
Leader of the office group Management representative	<a href="#">Lone Boesen</a>
Work environmental representative	
<b>Group 6. Students</b>	
Students representative	

## LOCAL SAFETY RULES

### CENTER FOR SYSTEMS MICROBIOLOGY

- The theoretical - or the practical supervisor will give you **the compulsory guided safety tour** required for every new student or employee.
- **Lab coat** can be found with Annette Skaftø (room 146).
- Make an agreement with Lissner St. Clair-Norton (room 129) with respect to **supervision of work in the Weighing Room**.
- If you have to work in a **P2 laboratory**, contact ~~Christian Munk~~ (room 156).
- All **rooms and larger equipment** have a person responsible (see notice on door or instrument). This person has a duty to ensure order and operating in these, which is achieved through the recommendations and guidance to those using the facilities.
- **Labeling of chemicals**. For the preparation of labels for chemicals and solutions you can use Kemibrug and labeling system OzZone. These should ALWAYS be labeled although in some cases must be labeled "Not classified".

Ring binders with **chemical labels** are located in room 127 and lab.  
In case of lack of labels you should inform laboratory technician.

- All **chemical risk assessments (APVs)** are available online in the Safety folder on the R drive: <R:\Sikkerhed>. Ring binder with relevant APVs is available in every laboratory.
- **Registration of chemicals**. All new chemicals must be registered in the database (Kemibrug) and have to have a sticker (date, name, and place). The information with name of chemical, CAS number, quantity, place of storage, name of owner and company name should be sent to the person responsible for chemicals: Marzanna Pulka-Amin [mpa@bio.dtu.dk](mailto:mpa@bio.dtu.dk) or to one of Kemibrug redactors: Susanne Koefoed [sk@bio.dtu.dk](mailto:sk@bio.dtu.dk), Regina Schürmann [ras@bio.dtu.dk](mailto:ras@bio.dtu.dk).
- **Common chemicals** can be found in the Chemical Room at the first floor, room 127. Some flammable chemicals are stored in the Ether Room on the first floor, room 160. (key in lab. 161)  
**Toxic cupboard**: the first floor, room 127 and the second floor, room 217.  
**Toxic refrigerator**: the first floor, room 127. (key at Lissner, room 130).
- You must not remove chemicals from the common store. Write a note with name / date / room if you temporarily remove the chemical from its place.
- If a student uses a chemical up or can see that it will soon happen, he/she should immediately inform the responsible lab technician or supervisor.
- **Ordering of goods** contact Lone Hansen (room 152) - students order by the lab technician. The template for ordering (Excel sheet) is available on the R drive: R: \ Info - Order form.

- **Registration of equipment.** All new equipment must be registered in the database. The invoice should be sent to Lone Hansen (room 152).
- For safety questions contact the Work Environmental Group for CSM-301:

**Management Representative:** Jan Martinussen (room 160)  
**Work Environmental Representative:** Susanne Koefoed (room 106)

Responsible for radioactivity: Jan Martinussen  
Responsible for chemicals: Marzanna Pulka-Amin

- All refer to the HR Work Environment website  
[http://portalen.dtu.dk/DTU\\_Generelt/AHR/Arbejdsmiljo.aspx](http://portalen.dtu.dk/DTU_Generelt/AHR/Arbejdsmiljo.aspx)

- **After finishing work at the laboratory:**
  - Your lab coat should be returned for washing in room 146.
  - Your lab place should be cleaned up, incl. fridge place and freezer -20° C and -80°C.
  - Keys must be returned to Anna Joensen (room 224).
  - Your office place must be cleaned / emptied.

1. Lab coats and working clothes must not be used in sitting room, coffee room, offices, and toilets.
2. You only use gloves when work requires it.  
No gloves when using the tap, touching the door handles, refrigerators, centrifuges, etc.  
Always use gloves in the Photo Room at gel instrument.
3. **One glove rule** on the corridor – if necessary.
4. Unauthorized traffic to and from laboratories should be limited.
5. Tables should be decontaminated daily and always after a work day. Tables, appliances and other decontaminated with ethanol solution (70%) or 2.5% "cetyl" immediately after any spill of microorganisms.
6. Before leaving the labs turn off instruments, which are not in use, by the light switch. Water baths, mixers, etc., light and Bunsen burners should be turned off. Windows must be closed.
7. The doors to the labs are locked after work.
8. Work clothes should be washed on the section. Soiled work clothes should be placed in the closed dirty washing container on the first floor, room 146.
9. Covered chairs must not be used in the laboratories.
10. No rusty things, wood, cardboard or stacks of paper in the laboratory.
11. Work, involving risk to health via air pollution, must take place under the fume hood.  
**Remember to close after use.**
12. Everything – you put in the Cold Room, Thermostat Room, incubators, refrigerators and freezers – must be clearly labeled (contents, name and date).
13. For water bath and autoclave you should use "orange" distilled water.
14. No lab-related waste in the gray rubbish bins.

## **Disinfection Instruction for Class I lab**

Disinfectant: "Cetyl" cetyltrimethylammonium chloride

### **• Surface Disinfection:**

Table surfaces should be wiped regularly with ethanol and cetyl after admitted spillage.

Other surfaces after admitted spills.

Cultures should be wiped off with cloth / floor cloth, with plenty of 0.05% "cetyl", i.e. the floor / table is washed in 0.05% "cetyl". The area should be decontaminated thoroughly.

Small "waste" can be decontaminated directly with ethanol.

### **• Disinfection of accessories:**

**Pipettes:** Means: 0.005% "cetyl" (20 ml 2.5% sol./10 L).

Use: Pipette buckets etc. should be filled with the solution and changed every week.

**Glass and plastic ware:** Means: 0.00625% "cetyl" (50 ml 2.5% sol./20 L).

Use: Glassware is placed in vessel with "cetyl" overnight. Glassware should be completely submerged (no air). Then rinsed with water and dishwashing liquid. Cetyl vessel should be changed daily.

Measuring cylinders and flasks for culture waste should be labeled "cetyl". These should be reused and never sent for washing. It is forbidden to use "cetyl" in the flasks used in experiments.

## **Waste**

### **• Rest of bacterial cultures:**

Should be collected in containers under the fume hood and autoclaved or added 50 ml 2.5% "cetyl" per. liter of culture and poured down the sink the next day.

### **• All bio waste and contaminated disposable plastic:**

Should be collected in brown bags (clinical waste). Filled up bags must be closed by a metal clamp, labeled as "GMO" and put in the selected location in the laboratory.

Waste will be placed by Brian in locked containers outdoors. Note – do NOT fill the bags all the way, they should be closed at the line so fill to just below.

### **• Chemicals:**

We must not dispose of chemicals in Clinical Waste. We have to collect them!

This applies to both hazardous and non-hazardous chemicals.

Read the Guide for sorting of chemicals.

About chemicals – which should be collected in the Ether Room - contact the person responsible for chemical disposal and send a list of chemicals with CAS numbers (if possible) and Kommune Kemi Group, which can be required from the Safety Data Sheet on

[www.kemibrug.dk](http://www.kemibrug.dk).

**• Glass Waste:**

Bottles with chemical residues should be placed in your own fume hood for evaporation, rinsed with water and disposed of as normal glass waste.

Bottles with especially toxic content should - after evaporation - be collected as chemical waste - send a list of chemicals to the person responsible for chemical disposal.

**For special waste**

**EtBr waste:**

Agarose gels should be collected in brown bags (clinical waste). Running Buffer is poured down the sink.

Maximum concentration of EtBr allowed in a solution which can be poured into drains is 0.1%.

**Needles and scalpels:**

Should be placed in special needle containers in laboratories. Filled up needle containers can be disposed of as biological waste. Remember to close them properly. You can get a new empty container in the Ether Room.

**Phenol, toluene and the like:**

**Liquid waste:** should be collected in small containers in your own fume hood and poured into a larger container in the Ether Room.

**Solid waste (tips, tubes)** should be collected in an empty plastic container in your own fume hood. When it is full – close container and put in the fume hood in the Ether Room. Remember to label the content.

**Radioactive waste:** (also refer to the applicable rules which can be found on the R drive: <R:\Radioactivity\Radioactivity rules CSM 2010.pdf>)

Biological materials with isotope rest **below 0.1 MBq / kg** should be handled as ordinary waste and discarded as clinical risk waste.

With higher concentrations other kinds of bags should be ordered and removed by Risø.

P<sup>32</sup> waste: labeled with name and date can be left to decay in the Ether Room.

**In the Ether Room you find the following waste containers in the fume hood:**

- Phenol / chloroform
- Isopropanol
- Crystal Violet
- Coomassie blue
- LiCl / H<sub>3</sub>BO<sub>3</sub>

New containers will be set up as needed.

The undersigned student / employee has read and understood the safety instructions for Center for Systems Microbiology.

Your theoretical supervisor/Nearest Manager: \_\_\_\_\_

Name

Your practical guide/supervisor in lab: \_\_\_\_\_

Name/Names

\_\_\_\_\_  
Date                      Name – Student / Employee                      Signature