MANDATORY LAB COURSE

AGENDA

Good Laboratory Practice

1. Local Occupational Health and Safety Group
2. Psychological Work Environment
3. Laboratory Conduct
4. Permissions from the Danish Working Environment Authority
5. Disposal of Chemicals and Waste
6. Chemical Risk Assessment

THE LOCAL OCCUPATIONAL HEALTH AND SAFETY GROUP AT BIOMEDICINE

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Head of Local Occupational Health and Safety Group

THE LOCAL OCCUPATIONAL HEALTH AND SAFETY GROUP AT BIOMEDICINE

The Skou Building (Building 1115-1116)

[Birgitte Mønster Christensen]

Head of Local Occupational Health and Safety Group

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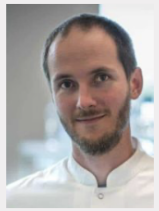

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THE LOCAL OCCUPATIONAL HEALTH AND SAFETY GROUP AT BIOMEDICINE

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PSYCHOLOGICAL WORK ENVIRONMENT

1. Stress
   - Take care of each other, talk about stress symptoms with the employee/student
   - https://medarbejdere.au.dk/en/administration/hr/workingenvironment/psychological-work-environment/stress/

2. Bullying and Harassment
   - At AU, we do not accept offensive behaviour
   - Everyone has a duty to speak up if you experience or see offensive behaviour, and you must help students/employees who experience offensive behaviour

3. Good communication
   - Consider each other's differences/culture/language/etc.

PSYCHOLOGICAL WORK ENVIRONMENT

4. Psychological WPA (carried out every three years, most recently in 2025)

5. Advisory services (anonymous, colleague, manager, work environment representative, union representative, other)
   - https://medarbejdere.au.dk/en/administration/hr/workingenvironment/psychological-work-environment/psychological-counselling-service/

ERGONOMICS

Pay attention to good working position – both in the laboratory and in the office

https://medarbejdere.au.dk/en/administration/hr/workingenvironment/physical-work-environment/indoor-climate/

LABORATORY CONDUCT

1. Read the common safety instructions of the department: https://biomed.medarbejdere.au.dk/en/working-environment/
2. You **DO NOT** eat and drink in the laboratory
3. Spills on tables and floor must be cleaned immediately
4. Clean the lab frequently
5. Wash and/or sanitize hands when leaving the laboratory
6. Writing areas for papers and computer must be marked if class I or higher (blue tape is placed with other labels at the back of the goods delivery room, Skou).
7. Your mobile phone should preferably be kept in your pocket or be placed within the writing space – possibly in a thin plastic bag. Do not use it near flammable liquids and consider whether it should be wiped with 70 % ethanol before you leave the lab.
8. Wear white coats in a GMO class I labs, green coats in GMO class II. In cell culturing labs coats in other colours can be used, (Skou). Note this is different in other buildings.

LABORATORY CONDUCT

9. Lab coats are not allowed in offices, toilets, lunch rooms or the canteen (the animal housing staff are exempted; they wear clean blue coats when leaving the animal facilities)
10. Only wear a glove on one hand when walking between labs and in the lifts. See "glove policy" One Glove Policy
11. No transport of liquid N_2 at the same time as people in lifts (make a large sign to put on the container so other employees can see they are not allowed to enter the lift until the nitrogen bottle is removed from the lift).
12. When transporting dry ice in a lift, the box **MUST** have a lid on.
13. CLP-Marked chemicals, large amounts of dry ice or liquid nitrogen and pressurized cylinders must not be transported without a valid transport permit. If necessary, use a handcart between AU's buildings.
14. An IATA package course is required if you need to send packages containing e.g. biological material, chemical reagtens and dry ice (https://medarbejdere.au.dk/administration/hr/kompetenceudvikling/kurser/kurser/oevrig-e-fagspecifikke/iatapakkekursus/

LABORATORY CONDUCT

15. Pregnant staff member? Check the WPA checklist
    https://health.medarbejdere.au.dk/en/staff-conditions-and-work-environment/work-environment/policy-for-pregnancy/

16. Don't forget to react to alarms on e.g. fume cupboards and to notify Building Services (Dalux)

17. Remember to familiarise yourself with the first aid and fire extinguishing equipment as well as emergency exits
    https://biomed.medarbejdere.au.dk/en/the-skou-building/fire-protection/

18. Always follow the workplace instructions for evacuation

19. Help craftsmen to follow guidelines in the lab

PERMISSIONS FROM THE DANISH WORKING ENVIRONMENT AUTHORITY

Are your permits in order? Do you have the right permits to do your work?

Working with GMO (guidance by Birgitte Mønster Christensen):
https://mst.dk/erhverv/genteknologi/forskning-med-gmo/

Working with biological agents class 2 and other (guidance by Birgitte Mønster Christensen):
https://at.dk/regler/bekendtgoerelser/biologiske-agenser-arbejdsmiljoe-1652/

The legislation also covers laboratory animals infected with pathogenic micro-organisms or viruses.

NOTE, depending on the experiment, it may be necessary to include GMO, biological agents and animal experiment permits.

PERMISSIONS FROM THE DANISH WORKING ENVIRONMENT AUTHORITY

Afterwards, always remember to put up the correct signs containing the LAB ID number

GMO kl. 1 lab id 230 467 (SKOU&BARTHOLIN)

GMO kl. 2 lab id 230 465 (SKOU&BARTHOLIN)

GMO kl. 1 og dyr lab id 230 464 (SKOU&BARTHOLIN)

GMO kl. 2 og dyr lab id 230 466 (SKOU&BARTHOLIN)

LAB ID for the other buildings ask Birgitte Mønster Christensen

Working with isotopes (Biomedicine Vest), carcinogenic substances, animals, etc.

License for animal experiments: https://en.dyreforsoegstilsynet.dk

Be aware that some toxins and reagents are covered by the rules for Biosecurity. Centre for Biosecurity and Biopreparedness https://www.biosecurity.dk

Responsible for Biosecurity: Uffe Birk Jensen (Skou), Steen Torben Nedergaard (West), Mai Marie Holm (South)

DANISH WORKING ENVIRONMENT AUTHORITY

Transportation of GMO and GMO animals – both internally and between buildings – must be carried out in closed containers with a GMO sign. Stickers are in the delivery of goods room.

Please pay attention to whether the laboratories have correct signs (e.g. "GMO Animal", or "biological agent Class II") (Ulla Vosegaard Als uva@biomed.au.dk can help if you need signs)

It is the responsibility of the group leader to ensure that the permits and signs are correct.

The Danish Working Environment Authority will be on both reported and unannounced visits; by immediate improvement injunctions, all work must be stopped immediately.

WORKING WITH CHEMICALS

Working with chemicals that are CLP labeled requires extra attention

HANDLING OF CHEMICALS

In-house transportation of chemicals (and/or glass bottles) should preferably take place on trolleys and in lifts, or by using white plastic containers (found in the weighing/chemical room). Avoid transportation of chemicals on stairs.

The chemical/scale room is for common use. As far as possible weigh on your own floor. It is important that you clean up and wipe off tables and scales after use. If you use the last of paper towels, etc. you must refill yourself. – New guidelines for use of chemical weighing rooms are in place

Waste after weighing hazardous substances (gloves, weigh boats, paper, etc.) can be collected in H-waste bags. When you leave the scale room you must take your waste with you.

Contact your local AMR for guidance.

Hazardous liquids must be placed **BELOW** eye level. Substances that can produce a chemical reaction when mixed (e.g. acids and bases) must be kept separately from each other.

HAZARDOUS WASTE - WHAT IS THAT?

If a chemical substance or mixture is classified hazardeous according to the CLP regulation when working with it, it will also be hazardeous when you need to dispose it.

Likewise, if a biological product is contagious when working with it, it will also be hazardeous when you need to dispose it-

https://medarbejdere.au.dk/en/administration/hr/workingenvironment/physical-work-environment/chemistry-and-biology/safety-adviser-function/harzardous-waste-what-is-that

LIST OF CHEMICAL WASTE:

WASTE GROUP:	COMPONENTS:
C1	Mixtures of **organic** liquids without halogenes and sulfur, with a concentration **> 50%** For example ethanol, acetone, methanol and isopropanol conc. > 50%.
H1	Mixtures of **organic** liquids without halogenes and sulfur, with a concentration **< 50%** For example ethanol, acetone, methanol and isopropanol conc. < 50%. For example > 0,1 % formaldehyde/para formaldehyde, > 0,1% glutaraldehyde, solutions from RNA-, DNA- and protein purification if dangerous and small amounts of dye (otherwise H4).
H2- SOLID	Eppendorf tubes and centrifuge tubes with minor amounts of chemicals (max. 25 ml), contaminated napkins, pipette tips, gloves etc. with major amounts of chemicals, the chemical must be marked with one of following hazard pictograms: 
H3	**Vials** containing C1 and H1 liquids or vials containing counting liquid from Isotopic analysis released as chemical waste.
H4	**Dyes**: Tryphan blue, hematoxylin, scarlet red, etc.
B2	Mixtures of **organic liquids containing > 1 % halogenes or sulfur** and the mixtures are flammable. Chloroform, dichlormethane, > 1 % ethidiumbromide, > 1% mercaptoethanol and trizol.
B3	Trichloric acid (**TCA**) solutions > 0,25%.
B5 - SOLID	Solid waste containing > 1% Chloroforme/Trizole and > 1% mercapto ethanol solutions.
X1	**Acidic inorganic acids**: Phosphoric acid > 10%, Hydrochloric acid > 10% and Sulfuric acid > 5% (Nitric acid is not included – see X2).
X2	**Nitric** acid > 1%.
X3	**Basic inorganic liquids**: Sodium hydroxide > 0,5%, Potassium hydroxide > 0,5%, Ammonia > 1% and Hypochlorite solutions > 0,25%.
X5	**Potassium cyanide** solutions > 0,5%.
X6	**Silver nitrate** solutions > 2,5%.
Z1	**Cytostatica** waste liquid and solid. For example BTB1, Doxyrubicine, Vincristin.
Z2	**Pharmaceuticals** and **toxins**.
Z	**Chemicals** from **cleanup** and chemicals you cannot place in other groups.
K1	**Mercury** waste, thermometers etc.
A	Waste **oil**, engine oil and oil from vacuum pumps.
Z	**Aerosols** and empty aerosols.
Z	**Gas cans** (Butane gas cans).
O	**Oxidizing** chemicals, must be collected and kept separate. Ex.: perchloric acid (O1), hydrogen peroxides Z 20% (O2), permanganates, chromates, persulphates, nitrates etc. (O3, O4, O5, O6 etc.)
	Clinical Hazardous waste.

DISPOSAL OF CHEMICALS

It is the responsibility of the group leader to dispose the chemical waste correctly

As an employee, you are also responsible for handling chemicals properly.

Skou: Requires specific access – Ask Hande Login for details. Info on waste can be found here

Bartholin: Requires specific access – Ask Britta Boserup Thestrup for details

DISPOSAL OF CHEMICALS

Chemicals must be labelled correctly and regularly disposed

Labelled correctly = ID, Lab nr., waste category (Mandatory) + cas. nr. and concentration (if known).

Get guidance from your local AMR or contact Lina Waldstrøm Asmussen Lina.waldstrom@au.dk

New containers for waste disposal are in room 035H (Skou), chemical waste room (Batholin). If these are out of stock, please contact officeaids@biomed.au.dk

If you have any problems or questions:

Contact the Safety Advisor Function at AU (Cathrin Guldager Sørensen): tgs@au.dk

DISPOSAL OF WASTE

Dispose of clinical risk waste in yellow plastic containers, pointed objects in yellow needle boxes

Pack dead animals (incl. GMO animals) in double plastic bags and put them in the yellow buckets in the freezer in room 035H

Autoclave Waste (Skou/Bartholin): Follow the instructions by the metal cages with autoclave buckets on the floors

DISPOSAL OF WASTE

Microbiological waste: Assess the risk and, if necessary, send it to clinical risk waste for incineration, and/or autoclave liquid waste before you discard it

GMO class I waste: Must be either autoclaved, followed by general incineration or alternatively, disinfected with e.g. Virkon S or disposed as clinical risk waste.

GMO class II waste: **MUST BE** autoclaved before leaving the GMO class II laboratory, followed by general incineration.

"HEAD OF POISON" - GIFTANSVARLIG

According to the Ministry of Environment, a "head of poison" (Danish: giftansvarlig) must be appointed. If no one is appointed, the group leader is by default "head of poison".

Stoffer, som er omfattet af nye opbevaringsregler og pligt til tyverianmeldelse, baseret på CLP forordningens mærkningselementer

Fareklasse og -kategori	H sætninger		Fare piktogram	Krav om opbevaring under lås mv. (eksisteren de krav) (§36, stk 1)	NYT: Krav om udpegning af sikkerheds-ansvarlig* (§36, stk 2)	NYT: Pligt til anmeldelse af tyveri (§40)
Acute Tox. 1 og Acute Tox. 2	H300 H310 H330	Livsfarlig ved indtagelse Livsfarlig ved hudkontakt Livsfarlig ved indåndring		X	X	X
Acute Tox. 3	H301 H311 H331	Giftig ved indtagelse Giftig ved hudkontakt Giftig ved indånding		X	X	X
STOT SE 1	H370	Forårsager organskader […]		X	X	
Carc. 1A og Carc. 1B	H350	Kan fremkalde kræft […]		X		
Rep. 1A og Rep. 1B	H360	Kan skade forplantningsevnen eller det ufødte barn […]		X		
Muta. 1A og Muta. 1B	H340	Kan forårsage genetiske defekter […]		X		

*Hvis den samlede mængde af de stoffer, som omfattes af kravet > 125 ml

Miljøstyrelsen • Strandgade 29 • 1401 København K
Tlf. 72 54 40 00 • Fax 33 32 22 28 • CVR 25798376 • EAN (drift)5798000863002 (tilskud)5798000863019 • mst@mst.dk • www.mst.dk

“HEAD OF POISON” - GIFTANSVARLIG

According to the Ministry of Environment, a ”head of poison” (Danish: giftansvarlig) must be appointed. If no one is appointed, the group leader is by default ”head of poison”.

More information can be found here:

https://mst.dk/kemi/kemikalier/fokus-paa-saerlige-stoffer/giftige-stoffer-og-blandinger/

REMEMBER TO ADD CLP LABELLING OF DANGEROUS CHEMICALS AND MIXTURES

CHEMICAL RISK ASSESSMENT

1. Compulsory; our starting point is Kiros where we have the workplace instructions

2. Kiros: https://www.kiros.dk/Web/

3. Provide Lina Waldstrøm with names and AU ID for your labs students and employees. Then they will get access to log into Kiros with their AU ID to see the workplace instructions and lists.

4. Contact chemical consultant Lina Waldstrøm Asmussen if you need access to Kiros or have questions about it: lina.waldstrom@au.dk
5. Note: Contact Lina, and she will give you a personal guide to Kiros.

6. EVERYONE in you lab must know where to find a list of the dangerous chemicals/reagents you group uses. We recommend a print from Kiros.

CHEMICAL RISK ASSESSMENT

7. The workplace instructions are prepared on the basis of SDS (Safety Data Sheet) from the supplier. In Kiros, you can make workplace instructions (APB) on mixtures and print labels to put on bottles (printer 2. floor in SKOU).

8. SDS can be found in English, they can be used as a supplement – make sense if you have English speaking people in your lab (must be checked for updates every second year)

9. **The chemical risk assessment consists of workplace instructions + SOP (protocol) + training**
   In the SOP, reference must be made to all relevant workplace instructions + including how to handle and dispose of the chemicals as well as which protective equipment to use

CHEMICAL RISK ASSESSMENT

10. Training of new students and employees is **mandatory**. The training can take place orally. However, in the case of special hazardous substances (e.g. carcinogenic), there must be a written instruction.

11. For non-Danish speaking employees, the group leader is responsible for ensuring that the information is available in English.

12. For questions about chemical risk assessments or for signing for the next course send an email to Helle Jakobsen (hej@biomed.au.dk)

IN ADDITION

1. Notification of accident at work:
https://medarbejdere.au.dk/en/administration/hr/workingenvironment/reportinginjuries/

2. Notification of near-accident
https://medarbejdere.au.dk/en/administration/hr/workingenvironment/reportinginjuries/near-accidents/

3. Share this presentation at a group meeting

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