Laboratory Regulation

Laboratory Regulation BOKU Core Facility BMCA

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Fire department	122
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Euro - emergency call	112
Poisoning information center	+43 1 4064343
Portier	+43 1 47654 37335 (Muthgasse 18, Muthgasse II, EG)

2. Scope of validity

These laboratory regulations are valid in all areas of the BOKU Core Facility Biomolecular & Cellular Analysis (CF BMCA, see Figure 1). They apply to all employees, users, trainees, students, interns, guests, external company representatives, service technicians, etc.

All users of the CF BMCA must read and accept these laboratory regulations/safety guidelines before using the laboratory areas. All users of the CF BMCA must follow these laboratory regulations/safety guidelines.

The laboratory regulations can be found in the booking system PPMS after creating an account and are additionally posted in the laboratory areas B01-015 and B01-021.

3. Rooms of the BOKU CF BMCA

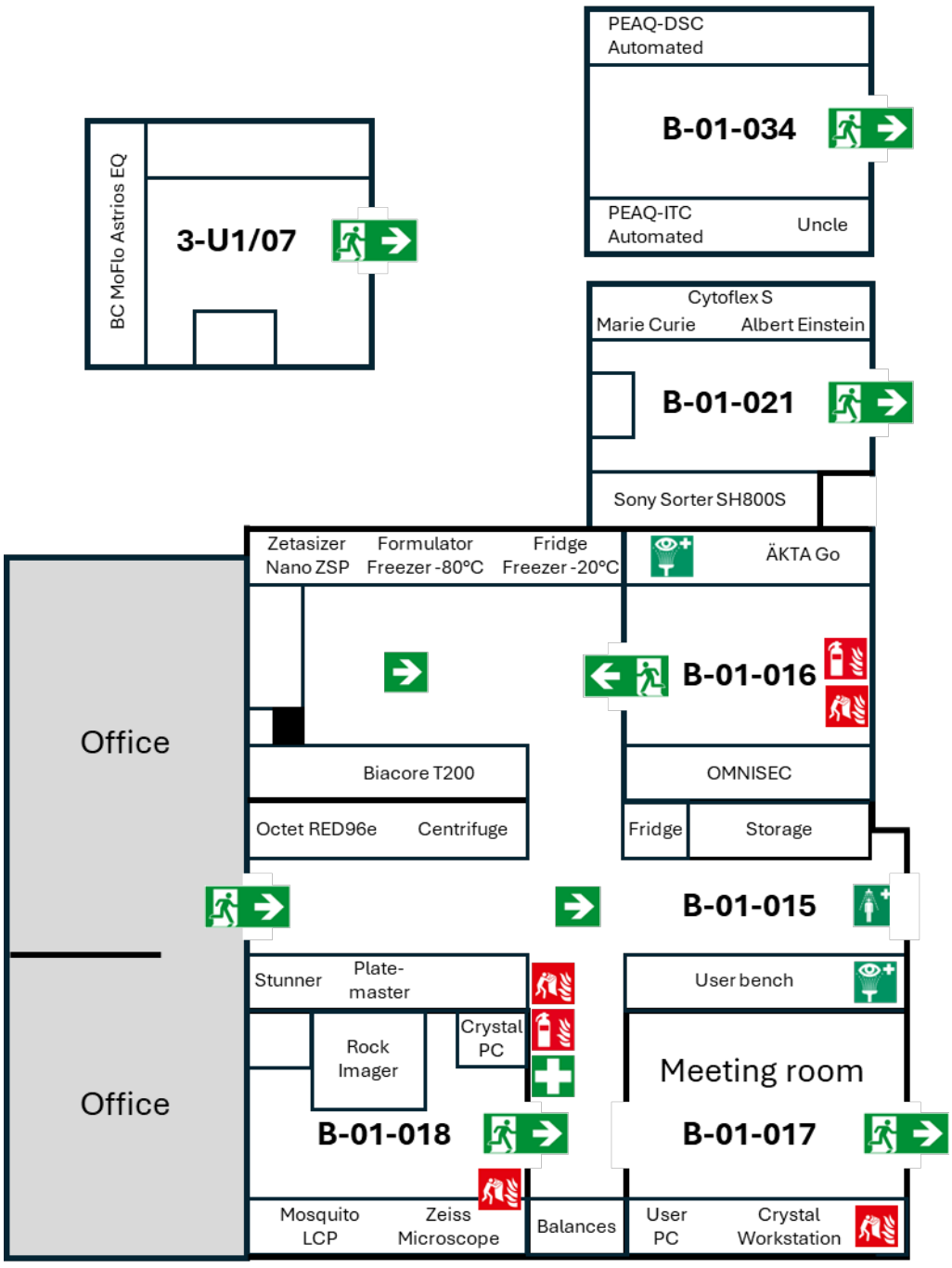

Figure 1. Floor plan of the CF BMCA.

4. Safety facilities and the security

Each person working in the laboratory area must be informed about the location and operation of the safety equipment, e.g.

Eyewash und emergency shower 

Escape route 

Fire-extinguisher 

First aid kit 

Fire blanket 

Fire assembly point (Plaza Muthgasse III) 

- Escape and traffic routes must be kept clear of objects of all kinds under all circumstances. Safety equipment such as emergency showers, eyewashes, first aid kits, fire-extinguishers, etc. must not be obstructed and must be visible and accessible at all times.
- Accidents, near-misses and injuries must be documented. Accident reports should be reported to the BOKU Health and Safety officer.
- Obvious safety deficiencies must be reported immediately to the CF BMCA personnel. In this case, the work must be interrupted or stopped.

5. General

All users will be instructed about security rules by Core Facility personnel. Unauthorized persons are not permitted to enter the laboratory areas.

Pregnant and nursing persons are not allowed to come into contact with hazardous substances (maternity protection evaluation required).

Eating, drinking and smoking is prohibited in the laboratory areas. Food, drinks and tobacco may not be brought into the laboratory. Working with headphones is also prohibited in the laboratory areas.

6. Personal protective equipment (PPE)

As a rule, sturdy, closed shoes must be worn in the laboratory. In addition, depending on the work material or work procedure, protective goggles (corrective goggles are not considered protective goggles!), protective gloves, lab coat and, if necessary, mouth protection (e.g. dust mask) must be used. The PPE can be provided by the CF BMCA if required.

To prevent accidental carryover of hazardous chemical and biological agents as well as personal exposure, protective gloves must not be used to handle objects that never come into contact with chemicals or biological agents (e.g., laboratory notebook, books, telephone, door handles, etc.). In addition, laboratory clothing and protective equipment must be removed before leaving the laboratory areas. All instrument PCs and user PCs (for data analysis and data transfer) may only be used without gloves.

7. Organization at the workplace and labeling of chemicals/samples.

All persons working in the laboratory must ensure order and cleanliness. The workplace and all communal facilities must be kept in an orderly condition. Chemicals must always be closed and properly labeled. Containers with hazardous substances must be labeled with the appropriate hazard symbols.

- Chemicals/samples may be temporarily stored in the CF BMCA refrigerator, freezer (-20°C) or freezer (-80°C). All chemicals/samples must be labeled with the following:
- Product name
- Full name of the user
- Filling date
- In case of potential danger: Hazard note!

Unlabeled chemicals/samples will be discarded by laboratory personnel.

8. Access rules, working at night, weekend and on holiday

Access to the laboratories of the Core Facility BMCA is controlled by an electronic locking system, only Core Facility staff has free access to the main laboratory (room B01-015). Therefore, the use of the main laboratory is only possible by appointment/instrument booking.

CytoFLEX or Sony Sorter users have free access to the flow cytometry room (room B01-021) on weekdays between 08:00 am and 7:00 pm via their BOKU card after a training session. It is also possible to use the flow cytometry room (B01-021) outside these standard working hours as

well as on weekends and holidays. For use of the flow cytometry room outside standard working hours, users must open a ticket of the Facility Management Portal (FM Helpdesk) to ensure upregulation of the ventilation. This has to be done at least one working day (until 10:00 am) prior to use. Under Fault Reports / Repair Work, select Ventilation and enter the following:

- Affected organizational unit: H15001
- Location: B01-021
- Description: Please activate the ventilation on <date> from <time> to <time> in room B01-021.

CytoFLEX or Sony Sorter users also have access to the key safe (located on the right side of the door to the flow cytometry room), the key safe can be opened with the BOKU card at any time.

This key safe contains a dead man's switch (= Emergency Device) together with an access card that opens the door to the flow cytometry room even outside standard working hours. To ensure the personal safety of users, wearing the dead man's switch is imperative while working alone in the laboratory outside of standard working hours. Further information on the use of this device can be found in a separate document ("Use of the Emergency Device"), which is located in the key safe.

9. Hazardous work - Hazardous substances labeling, poisons and CMR substances

9.1. Hazardous substances

- Hazardous substances must be stored in accordance with the applicable regulations
- Hazardous work must always be carried out under special protective measures (e.g. under laboratory hood)
- Before working with hazardous substances, all users should be informed about possible dangers and instructed in the appropriate emergency measures.
- When transferring hazardous substances into other containers (e.g. for hand use), these must be labeled (name of hazardous substance, hazard symbol)
- CF BMCA users must not bring hazardous substances into the CF BMCA premises. If these are essential for the analyses, exceptions can be granted by CF BMCA employees, but this must be announced in advance (by email, including a current safety data sheet).

Hazardous work includes all work with substances that have the following properties:

GHS hazard symbols (Hazardous Substances Ordinance - GefStoffV i.V.m. Verordnung EG Nr. 1272/2008 valid from 1.12.2010)

(GHS = Globally Harmonized System of Classification and Labelling of Chemicals)

- GHS01: Explosive 
- GHS02: Flammable 
- GHS03: Oxidizing 
- GHS04: Compressed gas 
- GHS05: Corrosive 
- GHS06: Toxic 
- GHS07: Harmful 
- GHS08 Gefahr: Health hazard 
- GHS09 Warnung: Environmental hazard 

9.2. Poisons and CMR substances

All poisons are chemicals that have dangerous properties, such as a toxic or a very toxic effect on the human or animal organism (hazard symbol H300, H310, H330, H301, H311, H331 und

H370). CMR substances are chemicals that exhibit either carcinogenic, mutagenic or reproductive toxicity (H340, H350, H360, H341, H351, H361) as a hazardous property. Due to their acute toxic effects all poisons fall under the Chemical law 1996 and Poisons Order 2000. The purchase of toxic substances is only possible with a toxin purchase license. Each newly acquired poison must be entered into the poison book. It is mandatory to store poisons and CMR chemicals in a lockable cabinet or in the appropriate lockable refrigerator. It is mandatory to record each removal of poisons in the Poisons Book.

Material Safety Data Sheets (MSDS) for each toxin or CMR chemical must be available in both electronic and paper form in the laboratory.

Before using a toxin/CMR chemical, users must have read and understood the safety data sheet for the corresponding toxin/CMR substance. In case of questions and uncertainties, users must contact the laboratory personnel. The instructions in the safety data sheet must be followed.

10. Disposal of waste and/or laboratory chemical residues

All types of waste must be properly disposed in accordance with the AA Waste Disposal. When disposing liquids, care must be taken to avoid unintentional chemical reactions when emptying them together (it is prohibited to empty liquids together). Containers with liquids must be clearly labeled and stored in a safe place (collection tray, safety cabinet). The storage of waste canisters in the sink is not permitted. Solvent waste must be collected in the solvent canisters provided for this purpose and these canisters must be disposed separately. Hazardous substances must not be emptied into the sink. Residues or residual solutions containing methanol and heavy metals must be emptied into canisters provided for this purpose and those will be disposed separately by the CF laboratory staff.

10.1. Cleaning of non-contaminated glassware and plastic containers (for multiple use)

The containers to be cleaned must be placed in the correspondingly labelled tub.

10.2. Disposal of biological waste

Biological waste and anything that has been in contact with biological samples must be disposed in the labeled autoclave bags for decontamination.

11. Operating instructions for working with liquid nitrogen (LN2)

Danger of cold burns and frostbite, especially in poorly ventilated rooms, danger of suffocation due to air displacement during evaporation (decanting!) of the liquid nitrogen! Do not close unpressurized containers tightly! Never leave vessels containing liquid nitrogen open for an unnecessarily long time to avoid oxygen depletion! Prevent water from penetrating!

Filling of liquid nitrogen from the tank and transport through the building only after instruction by a competent person! Pressureless filling!

- The elevator must not be used if liquid nitrogen is transported with it!
- Filling liquid nitrogen dewar vessel: wear protective clothing, safety goggles or a protective shield, leather gloves. Do not use latex gloves!
- Metal objects such as rings, watches, bracelets must be removed while handling liquid nitrogen. When filling, the weight of a larger storage dewar vessel must be taken into account! Boiling nitrogen can splash!
- Check the fill level of the dewar vessel with liquid nitrogen and refill it if necessary. The filling level of the Dewar vessel must not be tested with a hollow rod!

11.1. Disposal

Do not pour back, let it evaporate in the open air.

11.2. Behavior in case of emergency

Leave the room immediately; if possible provide plenty of fresh air until normal oxygen atmosphere is restored. Remove damaged containers and leaks. In case of leakage/ spillage of liquid nitrogen, leave the room immediately, leave the door open and warn other persons. If possible ensure fresh air supply and prevent any further leakage of liquid nitrogen.

11.3. First aid

- In case of body contact with liquid nitrogen, move injured person to a warm place. Do not apply direct heat. Any clothing that obstructs blood flow to the injured skin has to be removed. Pour large amounts of lukewarm water over the affected areas of the skin and then cover loosely with sterile bandages.
- Eye contact: Rinse immediately with water for at least 15 minutes.
- Bring unconscious persons out of the danger zone into fresh air!

- Call an ambulance! Perform chest compressions continuously on unconscious persons with no or no normal breathing until professional helpers take over. If necessary, provide artificial respiration!

12. In case of emergency

In case of emergency (e.g. evacuation alarm) work must be stopped immediately. You have to exit via the escape routes to the designated assembly point (only in German).

12.1. In case of dangerous situations

In case of dangerous situations, e.g. fire, leakage of gaseous substances or leakage of hazardous liquids, the scene of the accident must be secured immediately. Immediate measures must be taken, including an emergency call if necessary.

The following instructions must be followed:

- Keep calm and act in a considered manner!
- Pay attention to your own safety during all assistance!
- Warn endangered persons, if necessary, request to leave the danger zone. Stop or cancel operating processes immediately!
- In the event of a fire, the fire department must be alerted immediately. See also the fire protection regulations:
- Fight incipient fires with the fire extinguishers present. The simultaneous use of several extinguishers is more effective than their subsequent use. Because of the risk of re-ignition on hot objects, extinguished fire sources must be monitored until they cool down.
- After eye or skin contact with chemicals, always rinse with plenty of water (e.g. emergency eyewash shower).
- In case of accidents with hazardous substances that have led to an injury, indisposition or skin reaction, a doctor must be consulted.

12.2. Making an emergency call

When making an emergency call, make sure that you include the following information:

- Who reports?
- Where did it happen?
- What happened? (Type of accident, fire, etc.)
- How many injured?

Waiting for further inquiries!

13. First aid

- In all cases of assistance, please pay attention to your own safety. An EMERGENCY CALL must be made as soon as possible!
- Persons in danger must be warned as soon as possible.
- Rescue persons from the danger zone and bring them out into the fresh air.
- Extinguish of clothing fires.
- Check and monitor breathing and circulation.
- Injured persons must not be left alone until the rescue service arrives.