



General laboratory rules

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1 Introduction

These General Laboratory Rules apply to the entire area of the Center for Pathobiochemistry and Genetics at the Medical University of Vienna. It applies to all employees. Employees within the meaning of these laboratory regulations are persons who usually work in laboratories, i.e. employees such as assistants, laboratory assistants, secretarial staff, doctoral students, post - docs, diploma students, interns.

Employees have

- to comply with the provisions of these laboratory regulations,
- to attend the instructions,
- to comply with the prescribed protective measures and to use the specified protective equipment,
- to pay attention to possible hazards and either avert any hazards that have occurred or, if this is not possible, report them to the area managers.

All new employees are demonstrably notified of these laboratory regulations / safety guidelines by the secretariat. They are also set up in every working group and all employees are instructed by the project managers in specific safety measures. Compliance with the laboratory regulations of the Center for Pathobiochemistry and Genetics is the responsibility of the group leader. Own work instructions, operating instructions, safety data sheets and hygiene regulations, which are adapted to the workplace, supplement the laboratory regulations and must be issued or instructed by the work group leaders or laboratory leaders.

2 In General

- The stay in laboratories is reserved for specialist staff only, in exceptional cases other people are only allowed to stay to the extent when they are accompanied by the responsible specialist staff. Unauthorized persons are prohibited from entering the laboratories. Hazardous areas must be marked (e.g. ionizing radiation) and access by unauthorized persons must be effectively prevented.



- Expectant and nursing mothers may not be employed in rooms where hazardous substances are handled, even if there is no direct contact with these substances. This applies also to areas with ionizing radiation and danger of infection.
- Young people between the ages of 16 and 18 may only work in laboratories under the supervision of specialist staff. In the field of ionizing radiation, people are only allowed to work beyond the age of 18.
- On the part of the laboratory management, it must be ensured that when working in the laboratory at least one other person is close to provide first aid.
- Eating, drinking, applying makeup, smoking and taking medication are prohibited in all laboratories. Food and drinks must **not** be stored in refrigerators together with working materials.



- The respective laboratory manager must ensure that his employees use suitable personal protective equipment (PSA).
- Your own workplace and all community facilities are to be cleaned up regularly and kept in good condition.
- Chemicals are to be checked at least annually for their need in the laboratory and disposed in case of non-usage.
- Traffic routes and aisles in the laboratory area must be kept free of any kind of storage, including temporary ones.

3 Work clothes and personal protective equipment (PSA)

Whenever working with hazardous substances

- a closed work coat made of non-flammable material (e.g. cotton, suitable blended fabric)
- safety glasses with side protection and upper eye area cover (also applies to corrective glasses wearers!)
- and closed and sure-footed footwear to have to be worn.

The use of gloves is mandatory for handling certain hazardous substances (caustic, skin irritant, sensitizing, radioactive, etc.). The glove material is to be selected according to the respective application (See e.g. safety data sheets and operating instructions).

Laboratory clothing used in high-risk areas must not be worn in places that are accessible to people who do not handle hazardous substances (office, common rooms, canteen, lecture hall, library, toilets, etc.).

Contaminated gloves must not be worn outside the laboratory and must be removed when making calls, typing on a PC, opening doors, using water taps, etc.!

If deep-freeze media are used, a suitable **PSA** must be used (face visor, apron, insulating gloves (observe the protection of the upper arms). Working with dangerous vapors, gases or dusts must always be carried out in digestors.

Safety Goggles



Protective Gloves

(Nitril-Gloves)



Lab Coat



4 Tidiness at the working space

Your own workplace and all community facilities must be kept in good condition.

The in-house laboratory workstation must be cleaned daily or subjected to wipe disinfection if necessary.

Chemicals must always be closed and labeled. Containers with hazardous substances have to be marked with the corresponding risk symbols.

Chemicals must be checked at least once a year for their necessity and their whereabouts in the laboratory and, if necessary, dispensed or disposed of.

5 General protective and safety devices

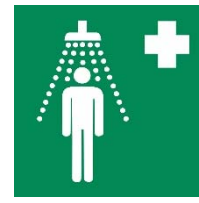
Fume cupboards / digestors are not storage locations for hazardous substances!

Substances and equipment that are not immediately required to continue work must be removed from the fume cupboard.

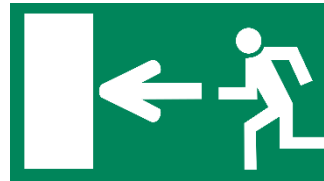
The front glass should be kept closed. The functionality of the fume cupboards must be checked, e.g. by a strip of paper or wool thread (if there is no electronic warning device). Defective fume cupboards must not be used and must be marked accordingly or reported immediately.

Everyone has to find out about the location and the functioning of the protective devices, emergency shut-off devices for gas, electricity and water supply. After an emergency shutdown, the laboratory manager or supervisor must be informed immediately.

Eye showers and emergency showers



Exit Routes



Fire-fighting equipment



First Aid



6 Emergency Showers

Emergency showers are installed above the doors in laboratories where workers can be exposed to flammable liquids.

The trigger device for opening the valve is attached and marked in the immediate vicinity of the shower. The extinguishing showers including the release device must be kept freely accessible at all times..

7 Exit Routes

The escape routes are marked with green and white illuminated signs. The escape route signs guide people in the building to corridors, stair cases and emergency exits on short and secure channels to the outside.

Keep in mind that corridors and staircases are essential safety zones in the house, and therefore storage that narrows or obstructs the escape route cannot be tolerated.

8 First and extended extinguishing aid

Hand-held fire extinguishers

As there is no universal extinguishing agent, the various substances have been divided into fire classes to which specific extinguishing agents can be assigned.

Fire classes:



- Fires of solid substances, mainly of an organic nature, which normally run off with embers.



- Fires of liquid and liquid substances.














- Gas fires.



- Metal fires.

You see on the portable fire extinguishers the respective fire classes (symbols with letters) specify for which fires the extinguisher is mainly suitable.

If possible, the extinguishers have been located in such a way that the correct extinguishing agent is largely available, for example in the laboratory area foam extinguishers and for electrical equipment carbon dioxide extinguishers.

TYPE	Code-Letters	Fire classes			
Wet Extinguisher	N				
Foam Extinguisher	S				
Dry chemical extinguisher with emberpowder	G				
Dry chemical extinguisher with flame fire powder	P				
Dry chemical extinguisher with metal fire powder	M				
Carbon dioxide extinguisher (CO ₂)	K				

Fire protection doors are part of the fire compartments, but can only have their effect if they are **closed**.

Fire protection doors therefore have a locking device so that they automatically lock.

The top priority must therefore be not to disable these locking devices out of function, such as through wedged or tied door leaves, disabled door closers etc. Please note that open fire doors do not offer any resistance to fire and smoke and promote large-scale smoke and fire spreading.

In some areas (e.g. practice halls, large glass doors) the fire doors are connected to a so-called fire control system. These doors can be kept open during operation, because they close automatically in the event of a fire (you can recognize such doors by the fact that they can be snapped in when the door is fully open).

Please close these doors only by pressing the corresponding wall button!

9 Working with hazardous substances and their labeling

All work involving harmful vapors, gases or dusts must be carried out in digestors.

All laboratory devices that release harmful vapors may only be operated in the area of effective exhaust systems.

Digestors (safety cabinets) are not explosion-proof!

When evaporating organ solvents in concentrator centrifuges a cold trap (-80 ° C) is to be used.

Work in which microbiological contamination of the environment could occur must be carried out in a safety workbench.

Only pipetting aids are to be used! Pipetting with the mouth is strictly prohibited!

In case of a risk of glass breakage (especially during vacuum work), protective measures against glass splinters (protective panes, digestors, personal protective equipment, etc., full visor for the head) must be used.

All hazardous substances have to be labeled according to ASchG § 44 (2).










Dangerous working materials must be kept in lockable cupboards.

Hazardous substances can belong to one or more of the following property groups. They must be labeled; for some of them, the Hazardous Substances Ordinance also requires labeling with the hazard symbols.

All persons working with hazardous substances, have to be instructed to all possibly occurring dangers and to be trained appropriate emergency measures.

Danger Symbols:

Hazard pictograms: According to CLP-VO / GHS (Globally Harmonized System of Classification and Labeling of Chemicals), hazardous substances are marked with the following symbols:

GHS-Symbol								
								
GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosion dangerous	Flammable	Fire-promoting	Compressed gases	Corrosive	Toxic / very toxic	Irritating	Health-harmful	Environmentally hazardous
The GHS symbols are supplemented with hazard warnings and safety instructions (H- and P- phrases).								

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/arbeitnehmerinnenschutz/>

10 Basic rules for handling dangerous substances

Before starting your work and afterwards at regular intervals, but at least once a year, you must be given oral and job-related training!

Before handling hazardous materials by the user safety data sheets, manufacturer or dealer catalogs or the chemicals list of laboratories basis of operating instructions, the dangers posed by the substances or their transformation products, are to be determined.

The identified special dangers (H-phrases) and safety advice (P-phrases) are binding as part of these operating instructions.

Hazardous substances must not be kept or stored in containers that can lead to confusion with food (e.g. water bottles).

All jars are to be marked with the name of the substance and the hazard symbols and designations.

Inhalation of vapors and dusts as well as the contact of hazardous materials with skin and eyes should be avoided.

When handling open gaseous, dusty or such dangerous materials that have a high vapor pressure, the work has to be performed in a fume hood (e.g. when using the usual solvents).

11 Behavior in dangerous situations

If dangerous situations occur, e.g. fire, leakage of gaseous substances, leakage of dangerous liquids, the following instructions must be observed:

Keep calm and avoid rash and rash actions!

If necessary, trigger the house alarm or **call the fire department under emergency number 0-122.**

The contact persons (SVP, first aiders, fire protection officers) can be seen on the notices displayed on the first aid case.

Warn endangered persons, if necessary ask them to leave the rooms.

Observe the principles of first aid.

Stop experiments immediately. Turn off gas, electricity and, if necessary, water (cooling water must continue to run!).

Do not use lifts in case of danger.

Notify supervisor and / or laboratory manager.

In case of accidents involving hazardous substances which cause injuries, or which have led to discomfort or skin reactions, consult a doctor.

File an accident report as quick as possible (within 3 days) via the ticket system and send it signed to the personnel administration.

Personal protection comes always first (before property protection)!

Pay attention to your own safety when helping others! Make an **emergency call** as soon as possible.

Rescue of the injured person from the danger area immediately.

Extinguish clothes fires by pouring water over them, wrapping them in blankets or rolling them on the floor.

If contaminated with chemicals: remove clothing. Wash off skin. Use emergency showers if necessary. If eye burns occur, rinse with an eye shower and consult a doctor immediately.

In the event of injuries, call the emergency services at 0-144.

Do not leave the injured person alone until the emergency services arrive. Lead ambulance service, which may be waiting at the front door, to the injured person.

Provide information for the doctor (e.g. specification of chemicals with safety data sheet), ensure vomit and chemicals and give them to the doctor.

EMERGENCY PHONE NUMBERS

Firefighters 122

Police 133

Ambulance Services 144

Poison Control Center 406 4343

When using the in-house phones lines dial 0 first for outside lines.

In the event of a technical emergency, the facility management's emergency number

(internal call - no 0 area code required).

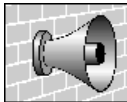
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12 Code of conduct in the event of fire

Evacuation signals



- Illuminated escape route signs



- Acoustic evacuation announcement

- In case of fire leave the building immediately!
- Follow the instructions of the fire protection system announcements.
- The instructions of the fire department has to be obeyed.
- Let the emergency services know whether people are missing.
- Close doors and windows in the fire room. Every closed door prevents fire and smoke from spreading, at least for a short time.
- In case of smoke on escape routes, move at the ground level as there is better view and breathable air.
- Extinguish fire on burning people immediately, cool burns with cold water for approx. 10 - 15 minutes.
- If in case of smoke no exit of the area is possible, stay in distance to the fire. Close the doors and open windows when possible and try to get attention of the firefighters.

13 Fire protection regulations (are found on the intranet, see link)

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/brandschutz/>

14 Handling with gases



For instructions how to handle gas cylinders (see following link)

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/arbeitnehmerinnenschutz/>

Compressed gas cylinders must be used only by **instructed and experienced** persons, with a minimum age of 18. The certificate of the instruction stating the date and signature of the employee is to be retained by the center.

The main risks when handling gas cylinders are:

- **Explosion**
- **Fire and Explosion of gases**
- **Handling**

Gas bottles may only be transported with:

- **Screwed on protective cap**
- **Suitable bottle cart**
- **A second person**

Gas cylinders must be protected against at every stage (transport or use)

- **Falling**
- **Damage**
- **Heating above 50°C**

The connection of the pressure reducing valve may only take place:

- **in the presence of a second person and**
- **after previous visual inspection (especially seal)**

Do not use grease or oil on pressure reducer and all connection threads!!

After connecting the gas cylinders, all connections opened during the exchange must be checked for leaks (e.g. control spray).

Bottle valves (main valves) may only be opened or closed by hand. If the bottle valve cannot be opened or closed tightly by hand, the pressure bottle must be classified as defective and must not be reused.

Markings on gas cylinders must not be removed, changed or damaged. Rooms in which gas cylinders are located must be marked.

With uncontrolled gas leakage

- **Alarm according Fire Safety Regulations**
- **Close gas supply**
- **Gaszufuhr schließen**
- **Ventilate rooms well and bring gas bottle outdoors.**

No gas bottles may be stored in the laboratory area (also no reserve bottles).

The delivery of full and empty gas cylinders must be carried out by the collection and delivery service.

The connection of the gas bottles to the devices must be carried out by a specialist.

The gas bottles must be secured against falling over and set up so that there is no direct heat.

The gas bottles must be set up freely (no boxes - avoidance of mixtures which can ignite) and as close as possible to the associated device.

The gas bottles must not be completely emptied, but should still have a residual pressure when they are dispensed.

In the case of oxidizing gases (e.g. oxygen), the fittings of the bottles must be kept free of grease, which is indicated by clearly legible, durable stops.

In all cold rooms that do not have adequate ventilation, no substances may be used that can form ignitable gas-air mixtures.

15 Rules for the handling of radioactive substances

The laboratories must be equipped in accordance with the Radiation Protection Act (StrSchVO) and approved by the authorities.

In each of the rooms a **washbasin for handwashing only and a second one must exist. The latter is used for decontamination of objects, but not for cleaning the hands.** This is to be pointed out with sign.

Paper towels should be kept ready and used as needed. After that, they should be treated like radioactive waste.

At least one radiation protection officer must be appointed. Its tasks are defined in § 31 StrSchVO. The operating and behavior regulations drawn up by the radiation protection officer must be observed.

Only people whose presence is absolutely necessary may be in the rooms with Type B or C workplaces.

Occupationally exposed persons are to be checked physically (radiation protection examinations, wearing dosimeters on the trunk).

All containers for the storage and transport of radioactive materials as well as for the collection and storage of radioactive waste must be labeled with the radiation warning sign in accordance with Appendix 10 of the StrSchVO and the note "RADIOAKTIV".

If necessary, shields (made of lead, lead- or plexiglass-windows) must be used.

The radioactive substances must be stored before and, if necessary, after use so that they are only accessible to authorized persons (locking the refrigerators, locking the rooms).

If radioactive substances or samples must be kept refrigerated, this must be done in a lockable refrigerator that serves only this purpose. Such a refrigerator must be marked on the outside with the radiation warning sign.

For working with radioactive substances, the usual work coat of the official clothing is sufficient as protective clothing. This must be kept in such a way that radioactive contamination of the street clothing is excluded.

At least once a working day, measurements are to be carried out in the laboratories with regard to any radioactive contamination.

Those working in the radionuclide laboratories must check themselves at least before leaving the company for possible radioactive contamination.

Records must be kept of these measurements. If necessary, decontamination measures must be taken.

The radioactive materials may only be transported outside the area of the radiation area by specially instructed persons or by other persons under the supervision of the radiation protection officer or a person who has been authorized to do so.

There are to maintain adequate information and whenever so required by the competent authority and competent institutions and organs of the accident and made available to the occupationally exposed personnel of the operation over

- Storage and consumption of radioactive materials,
- the results of medical and physical checks,
- the results of the contamination controls,
- Radiation incidents and accidents,
- Storage and disposal of radioactive waste.

Laboratory equipment is decontaminated in a two-stage process that includes fat-loving (lipophilic) and water-loving (hydrophilic) substances.

Step 1: Decontamination by wiping with cellulose that has previously been moistened with a surface disinfectant (e.g. surface biosurfactant, microcide or 70% alcohol).

Step 2: Decontamination by wiping with cellulose, which has previously been moistened with lukewarm, aqueous soap solution (e.g. liquid soap, PicoClean), then rubbing the device dry with fresh cellulose.

16 Rules for dealing with UV-radiation

When using UV-radiation, precautions must be observed (please follow guidelines of the operation manuals, e.g. closed slipcase in digesters, use appropriate eye protection).

17 Regulations for handling strong magnetic fields

When using strong magnetic fields (e.g. atomic absorption spectrometer with Zeeman generator) access restrictions must be observed, namely for

- Persons in accordance with the Maternity Protection Act
- Persons with implants like pacemakers
- Persons with metal implants

Ferromagnetic objects (tools, fire extinguishers) are not to be kept in the danger zone.

Attention: Devices with electronic components (magnetically coded cards, clocks) are destroyed in the high field area.

18 Regulations for handling liquid nitrogen

No permanent workplaces may be set up in the cold laboratories and walk-in cold rooms.

In all laboratory rooms in which Dewar vessels filled with liquid nitrogen are used for deep-freezing, the number of these vessels per laboratory must be limited to one piece. The use of these Dewar is permitted only if no manipulation operations (filling of liquid nitrogen, pouring of samples, etc.) are performed and these vessels may only be used for freezing of samples.

These Dewar vessels must be installed in the laboratory so that the design prevents them from tipping over. The Dewar containers must be closed with the exception of the input or removal process for materials.

When the warning lamp lights and the warning siren of the O₂ monitoring system sounds, leave the room immediately.

19 For instructions on handling Dewar vessels, see link.

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/arbeitnehmerinnenschutz/>

20 Regulations for dealing with poisons



The persons authorized to order poisons is responsible for the supply, internal transport, storage, use, removal, documentation and disposal.

Toxins must be stored in a lockable, labeled and fixed cupboard, box, ice box or freezer. The key must be kept in a secure place.

The administration of the poisons such as subsequent procurement, new procurement and withdrawal is to be recorded with the date and signature in the poison book, which can also be kept electronically. Preferably, the person entitled to receive the poison and the poisoning center should be listed in the poison book with telephone number.

An inventory of the poisons is to be determined annually and entered with possible shrinkage.

The withdrawal, use and disposal can be delegated by the poison beneficiaries to appropriate staff, where he continues to bear full responsibility.

When working with ethidium bromide and acryl amide, the workplaces must be marked and labeled, as well as their waste.

21 Tools for work

Operating instructions must be available on site for all devices where there is a danger of hazard.

In accordance with § 35 ASchG, operating instructions from the manufacturer or distributor must be observed. The staff must be instructed about the content of the operating instructions. These operating instructions are to be followed.

The protective devices on the equipment must not be removed or rendered ineffective; the residual risk of the device (see operating instructions) must be taken into account.

There must be no electrical equipment inside refrigerators, in which liquids are stored, which can cause explosive air mixtures, unless they are explosion-proof in accordance with the relevant ÖVE safety regulations.

The doors of the safety cupboards for flammable liquids must be kept closed.

If toxic or very toxic flammable liquid substances (or preparations) are stored in the safety cabinet in accordance with ChemG, these must be accommodated in a separate lockable compartment within the safety cabinet, whereby the cabinet's own ventilation must be effective within this compartment.

A maximum of 5 liters of flammable liquids of hazard class I per workplace, but 20 liters of hazard class I per room, may be kept in stock in the laboratories. With regard to the hazard class, the provisions of the Act applying to flammable liquids.

The flammable liquids should already be delivered in such containers that decanting in the individual laboratories is not necessary.

Flammable liquids may only be filled into other storage containers in the laboratories from safety vessels. The content of these containers may not exceed 10 liters, they must be unbreakable, and if they fall over, the design must make it impossible to leak. Empty containers must not be kept in laboratory rooms.

22 Refrigerators and freezers

In refrigerators and freezers, only closed containers with a content and name tag may be placed. These are to be checked at least once a year for their necessity and, if not used, disposed. Refrigerators, where toxins are stored, shall be marked and keep closed. The storage of food (food and drinks) with chemicals is strictly prohibited!

23 Waste reduction and disposal

The amount of waste can be reduced by only using the amounts of substances in tests that are absolutely necessary. Reactive residues such as alkali metals, peroxides, hydrides are to be properly converted into less hazardous substances.

Chemical waste is to be collected and disposed of in closed containers.

Radioactive waste is to be collected in the appropriate tons and the amount is to be recorded. Waste from the tissue culture experiments are to be collected in orange bag and disposed in the appropriate waste bins located at the courtyard. Pointed and sharp objects (Pasteur pipettes, needles, etc.) are to be collected in the yellow / red buckets provided and also disposed of in the orange waste bins.

If you have any questions, the waste officers are available in-house or

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/abfallwirtschaft/>

24 Injury measures

Give first aid and if necessary further measures - such as medical care - are to be initiated. The immediate supervisor must be informed of the incident. Every occupational accident must be documented with an accident report in the sense of occupational safety.

<https://intranet.meduniwien.ac.at/allgemeines/mein-arbeitsplatz/facility-management/arbeitnehmerinnenschutz/>

- **Zentrum für Pathobiochemie und Genetik**

- **Name:**
-
- **SV-Number:** **Date of Birth:**
-
- **Nationality:** **PLZ, Place:**
-
- **Address:**
-
- **Phone-Nr.:** **E-Mail:**
-
- **Date of Entry:** **Date of Leave:**

I hereby confirm receipt of the general laboratory regulations which can be found also:

<https://www.meduniwien.ac.at/hp/pathobiochemie-und-genetik/schnellinfo/sicherheitsrichtlinien-fuer-das-zentrum/>

I agree to follow the instructions and safety regulations.

My direct supervisor informed me on further detailed work instructions.

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- **Date:** **Signature:**