UNIL | Université de Lausanne
CIG (Centre Intégratif de Génomique)

GENERAL INSTRUCTIONS

concerning rules of behaviour and security within the GENOPODE of the University of Lausanne.

1. GENERAL RESPONSABILITY

Any person causing negligent or voluntary damage to the GENOPODE building or its inventory will be held legally responsible for it (Code of Obligations 321e).

The CIG management cannot be held liable for the loss or theft of personal effects (money, clothes, etc.)

2. USE OF THE GENOPODE

2.1 Standard opening hours

From Monday to Friday: 6.30 a.m. to 6.30 p.m.

- External doors: closed on Saturdays, Sundays and public holidays.
- Internal doors leading to the stairwell: closed except when an advance request is addressed in anticipation of a seminar or class situated between the 3rd and 5th floors.

2.2 Access outside standard opening hours

Only the holders of keys or access cards have access to the building outside standard working hours, i.e.:

- Professorial and assistant teaching staff, administrative and technical staff, researchers and doctoral students.

Note: each group leader defines the sectors accessible to their co-workers. The general secretarial office organizes the distribution of keys and access cards.

2.3 Recommendations

a) Office windows and doors should be closed and the lights switched off during work-breaks (this is particularly important during the lunch breaks and in the evenings). In the laboratories, it is recommended to keep personal items of value under lock and key. Computers should be attached with security devices.

b) No light should be left needlessly on. Each and every person is responsible for switching any unnecessary lights (corridor, hall, WC, empty rooms, etc.) off when not in apparent use. Clear indications ("Do not switch off ") must be displayed by the users on every electrical appliance which has to remain switched on outside of normal working hours (also see **Security** chapter). Computers, photocopiers, etc. must also be switched off nightly and during weekends.

c) Special waste containers are provided for paper, expanded polystyrene, aluminium, used batteries or cardboard recycling. The staff are expected to follow the relevant sorting and recycling instructions for each type of waste (please refer to the "waste sorting and waste treatment procedure" document).

2.4 Restriction

a) There is no access to the building for anyone without specific authorization. Children may not enter the building without being accompanied by an authorized adult.
b) It is forbidden to eat, smoke or drink in the auditoriums, and laboratories (also see **Security** chapter).

2.5 Billposting

Requests for events, exhibitions or aperitifs should be made to the Direction of the CIG

2.6 Events, displays, social gatherings

Prior permission must be sought for each event, display or social gathering to be held in the main hall of the GENOPODE. All requests must be addressed to the CIG management.

2.7 Car and two-wheeled vehicles parks

Users of the GENOPODE must conform to the rules of the University of Lausanne concerning traffic circulation and the parking of vehicles.

3. SECURITY AND HYGIENE

Overview

The instructions, rules and guidelines mentioned below are but a synopsis of the current legislation applicable. Consequently, they should not be treated as exhaustive. The aim of this document is to summarize the principal security rules inherent to our activities. It should permit all GENOPODE users to effect an auto control of the security and hygiene measures pertaining to their own specific case and then take the necessary steps to fill any gaps in their knowledge of security and hygiene procedures; It does not dispense GENOPODE users of the obligation to familiarize themselves with official documents relating to any particular issue or problem arising. The CIG staff must contact the different people in charge mentioned in this document in order to keep informed of all new procedures.

Official documents (laws, orders, decrees, authorizations, ...) relating to particular work-domains (narcotics, animals, radionuclides, toxins, ...) can be requested from the safety coordinator of the CIG.

Introduction

The security guidelines presented below are extracted from the current laws applicable and the recommendations of different expert work-groups and committees.

3.1 Responsibility

Within the CIG, the overall co-ordinator for security issues is

Carlos Luzolo (phone number: 3951)

A person responsible for security issues is also appointed on every floor of the building. Their names appear on the emergency phone numbers list displayed in each laboratory.

Person with responsibility for:

- "chemicals": **Carlos Luzolo** (phone number: 3951)
- "biologicals": **Bernard Thorens** (phone number: 3981)
- "radioactivity": **Fabienne Lammers** (phone number: 4136)
- "animal house": **Mathieu Piguet** (phone number: 3912)

a) The group-leaders are responsible for ensuring that the official security directives are applied within their groups. They must also:

   - Regularly remind and update their colleagues about the security rules and ensure they are aware of the correct behaviour to adopt in case of emergency.
   - Ensure that new collaborators receive security instruction.
   - Ensure that students receive security instruction.
   - Periodically organize various exercises on the measures to take in case of fire (alarm, intervene, save, evacuate, ...)

b) Everyone has, within the framework of their own work domain, an obligation to undertake the necessary security measures, inform the other collaborators and ensure the agreed standards of comportment are applied.

c) In the event of an accident, the University of Lausanne, a Faculty, a section, an institute director, a group leader, a person in charge of a research project, a research collaborator (assistant, post-doc, student) can be held liable.

3.2 General Recommendations

a) A list of emergency phone numbers and summary of the correct behaviour to adopt in case of fire or accident is displayed in each lab and on every notice board.
b) All GENOPODE users have an obligation to inform themselves of the behaviour to adopt in case of emergency and of the recommended procedures concerning first aid (location of showers, of blankets, etc.), evacuation (fire extinguisher, alarm release mechanism, location of urgent phone numbers, location of exits, assembly point).
c) Anti-fire doors are equipped with a magnetic mechanism that controls their automatic closing in case of emergency.
d) It is recommended not to engage in work carrying any element of personal risk before ensuring that you are not alone (in particular outside of standard working hours).
e) If an experimental procedure (agitation, kinetic studies, HPLC, etc.) has to be conducted during the absence of surveillance (evenings weekends etc), the relevant apparatus must carry a clearly visible sign, stating “Do not switch off”, and indicating the time period concerned. The nature and risks of any substances used must accompany it. Moreover, the person directly in charge of the equipment has to be informed.

3.3 Elementary security rules

a) Wearing a lab coat made of a weakly flammable material (cotton) is strongly recommended during all laboratory activities.
b) Wearing security glasses is strongly recommended in places where the projection of objects or liquids could occur. The wearing of medical glasses instead of security glasses is allowed.
c) Wearing gloves and/or masks is obligatory during any activity involving the manipulation of radioactive, toxic aerosol, corrosive and/or irritating materials.
d) It is forbidden to orally aspirate liquids with a pipette or any similar instrument.
e) It is forbidden to eat, drink or smoke in the laboratories. Food and drink may not be stored in the laboratories. It may only be kept in the fridges specifically designated for this use.

f) It is forbidden to transit between the place of work and the building's public places (restaurants, cafeteria, class rooms, etc.) while wearing an overall, gloves or any other protecting item. These must be removed before leaving the laboratory area.
g) Access to exit ways and balconies must always be kept free. The alarm button, showers, blankets, eye-rinsing taps must always be accessible.
h) Wearing sandals or open shoes is not authorized in the laboratories.
i) Roller-blading, cycling, skating or any other rapid means of locomotion are forbidden in the building, Walk, don't run!

3.4 Work with chemicals and other pollutants

Those working with dangerous products (chemicals, radioactive and biological products, etc.) must take every measure necessary for their own protection, for the protection of others and for the protection of the environment. Chemicals must be stored, handled, recycled or disposed of appropriately.

Storage of chemicals

Generalities: the members of each laboratory must inform themselves about how to store any dangerous products that they employ. The necessary containers can be obtained by contacting Carlos Luzolo, who is also responsible for questions of chemical waste elimination for the CIG. The elimination of radioactive waste substances must be done according to the procedures stipulated by the person responsible for "radioactivity" within the CIG (Fabienne Lammers 4136, Frederic Preitner 4143).

- The chemicals-storage cupboards must be ventilated. At least one watertight recipient must be in place (on the lowest shelf) to retain any material which could drop or leak from the chemical containers stored.
- A maximum of 15 litres of solvents, held in individual bottles of not more than 3 litres volume is permitted to be stored per bench (only the maximal capacity of each bottle is taken into account).
- The maximum volume of flammable solvents per lab is100 litres. These must be stored in the ventilated cupboards designated for this purpose.
- Any other solvents with a tendency to form peroxides under the effect of light, (e.g. diethyl ether), should be kept in opaque containers that are stored in darkness.

- Strong oxidants (peroxides, perchlorates, nitric acid, chlorine, bromine, iodine, etc.) must be kept well apart from flammable liquids.
- Reducing agents such as alkaline and alcalino-muddy metals, as well as their alloys should be kept in gas- and waterproof containers. Hydrides, silanes and other flammable substances should be kept in airproof containers and may require storage under inert atmosphere or in an appropriate liquid.
- Acids and bases must not be stocked in the same cupboards.
- Acids – **except** acetic acid which has a flash point at 40°C – must not be stocked in cupboards containing flammable substances.
- The ordering, stocking or use of narcotics or their chemical precursors are subject to legislation; this includes the law on narcotics and psychotropics (LStup), the ordinance on narcotics and psychotropics (OStup) and the ordinance on chemical precursors (OPréc). All such items must be stored in a locked cupboard.
- Gas cylinders must be attached to a sturdy support, in such a way as to protect them from the risk of fall. (A table is not generally considered an adequately sturdy structure). The reserve stock of gas cylinders within the laboratory must not exceed 20% of those in use. The rest must be stocked in suitable premises.
- The gas cylinder flow regulators may only be used with the appropriate gas for which they were made.
- Never move a gas cylinder with his flow regulator.

Note: each user of equipment and of chemicals must scrupulously conform to the manufacturers' and/or suppliers' recommendations.

3.5 Working with animals

The rules listed below concerning experimentation with animals are a synopsis of the currently applicable laws, orders, decrees, etc. All work of this nature requires authorization by the competent authority.

Generalities: Every person intending to work with animals must undergo suitable training and must first contact the person in charge of the CIG animal house (Mathieu Piguet).

a) Elementary security and hygiene rules for "animal" work

* Only authorized people can access the animal houses.
* It is obligatory to wear an overall and a cap (charlotte) specific to the animal house when on the premises.
* It is obligatory to wear overshoes in the animal house.

* **Because of the risk of contamination, it is forbidden to enter the central animal house if one has been in contact with other mice or if one has entered in another local containing mice, 72 hours ago.**

* Wearing glasses is recommended in order to protect from the risk of projections (litter, urine, etc.). The wearing of medical glasses instead of security glasses is authorized.
* Wearing gloves and a mask is obligatory for all activity involving animal manipulation.
* Anyone entering the premises must wash their hands with an antiseptic soap, both upon entering and upon quitting the animal house.
* All working surfaces in the area must be carefully cleaned before and after the experimental phase (disinfection).
* During cleaning procedures in the animal house, every cage item can be cleaned by hand, but their chemical disinfection is an obligatory step.
* All animal carcasses must be incinerated.
* It is forbidden to eat, drink or smoke in the laboratories and the animal houses.
* It is forbidden to enter public places (restaurants, cafeteria, class rooms, etc.) wearing an overall, gloves or any other protecting item.

3.5.1 ANIMAL FACILITY

Whoever wishes to have access to Animal Facility must ask permission from:

●Mathieu Piguet and his PI

The animal facility door is always locked by key when no personnel is inside.

All entries in the animal facility must…

● be done within the « lighting hours » (7h – 19h) in order to not disturb the them.
● be documented in the interaction binder (the red binder in the animal facility).

4.6 Main rules of Radiosafety at the CIG

The use of radionuclides is governed by the federal law on radioprotection (LRaP) and by the ordinance on radioprotection (ORaP). The present document provides an extract of these rules and does not exempt users from familiarizing themselves with all sections of the LraP and ORaP.

Article 1: General rules

General and experiment-specific authorizations: Users needing to work with radionuclides at the CIG must first receive an accreditation and a badge access to a controlled zone (4039.1 and 5016.1), upon completion of a radiosafety training with a certified radioprotection expert (see Emergency Phone Numbers Table). Users must also receive prior approval for each new radionuclide.

Unauthorized people are legally considered as public and must be accordingly protected from the irradiations. They do not have access to the controlled zones.

Authorized users: An expert will instruct every new radionuclide user on the appropriate work and storage places as well as on specific radioprotection procedures, according to the particular radiation and dose for which the user seeks authorization.

Article 2: Hygiene rules

Each controlled zone dedicated to the use of radionuclides (laboratories 4039.1 and 5016.1) is equipped with devices to avoid active and passive contamination (elbow action taps and soap dispensers, watertight absorbent paper, etc.) and with radiation detectors (surface contamination monitor and Geiger-Müller counters).

Personal protection: The wearing of protective clothes (e.g. labcoat, closed shoes), gloves and glasses is mandatory within controlled zones.

Working areas: The benches must be covered with an appropriate protective absorbent paper (with the waterproof layer facing down) to be changed whenever it gets contaminated.

Control: Working surfaces, instruments or material as well as the user's hands, clothes, etc. should be regularly monitored for contamination during a working session.

Article 3: Rules for accessing the controlled zones

Location: The manipulation of radioactive doses > 1 LA (see the table below) must be performed within controlled zones, using appropriate protection screens in order to limit and control radiation exposure. The controlled zones (laboratories 4039.1 and 5016.1) are clearly delimited and sign posted by the pictogram “danger: radioactivity”; security instructions are clearly displayed. Access to the controlled zones is strictly limited to authorized persons.

Training and access: Each new user receives the "*Radiosafety at the CIG*" guide. Once trained by an expert, new users must sign the statement that they have fully understood the instructions and agree to abide by the rules

and regulations. This attestation must be validated by the signatures of (1) the group leader and (2) one expert (see Emergency Phone Numbers Table).

Upon submission of a completed document, the campus card of the new user will be validated for access to the controlled zones. This access is strictly personal and the card is not transferable. Lending the card to an unauthorized colleague or any other violation of the rules herein will be reported to the PI and in case of recidivism would void the controlled zones access of the offender.

Article 4: Working procedures

Ordering of radionuclides: Orders can be signed either by an expert or by the user's PI. An expert should be consulted prior any order exceeding 1 mCi (37 MBq) of any authorized radionuclide (see the table below) in order not to reach the maximal authorized dose that can be stored at the CIG (100 LA).

User sign-up: Before starting an experiment, each user must log his name/lab ID and the radionuclide used, on the logsheet provided at the entrance to the controlled zone (blank logsheets can be printed from the cig server: ciggen/cig/Share folder/Radioactivité/*Sign-up sheet C-lab*).

Radionuclide record: For each new radionuclide batch a dedicated logsheet must be printed (from the cig server: ciggen/cig/Share folder/Radioactivité/*Radionuclide batch logsheet*) and displayed in the controlled zone. Upon each sampling of a radionuclide the experimenter must log the quantity on the logsheet. Once a batch is finished or expired, it must be disposed of in the appropriate bin and the related *Radionuclide batch logsheet* given to the person in charge of the waste disposal (see below: Radioactive waste person in charge).

Radioprotection during radionuclide handling: Non-sealed sources should be handled behind radionuclide-specific protection shields (e.g., lead screens for I125 and Plexiglas screens for P32, see table below).
Source storage: Every radioactive source must be stored in a fridge or freezer located in one of the controlled zones.
Contamination control: As a last control before leaving the controlled zones, users must perform a final contamination check with the contamination monitor to ensure that the benches and any item to be taken out of the laboratory (pipettes, labcoat, pens…) is non-radioactive, i.e. reads <50cps.
In case of emergency or accident: follow the procedure described in the laboratories. You'll also find there the emergency phone numbers (e.g. Firemen, police, ambulance, UNIL rescuers: **115** or **from a mobile phone: +41 21 692 2000**)

Article 5: Individual dosimetery

People exposed to radiations at work must monitor their personal radiation exposure levels using dose monitoring procedures ("*mesures de tri*") appropriate for the radionuclides used, as indicated by an expert (e.g. monthly urine samples and individual dosimetry for P32, see table below).

Article 6: Radioactive waste and contaminated objects

An expert manages waste elimination and has the authority to instruct and oversee the role of users in the safe packaging, storage and disposal of radioactive waste generated at the CIG.

Containers: Prior to any radionuclide manipulation, the experimenter must ensure the presence of appropriate trash containers to safely collect radioactive waste generated during the experiment. Radioactive liquids – except water used to wash hands and contaminated objects – must be collected in appropriate trash bottles, not poured into the sinks. Waste items must be disposed of according to the radionuclide they contain, into the dedicated waste bins clearly labeled with the radionuclide name. Mixed ^{3}H / ^{14}C waste must be trashed in a specific ^{3}H / ^{14}C bin.

Radioactive waste elimination:

- **Controlled zones**: The person in charge of the elimination of the waste on each floor (see below: Radioactive waste person in charge). periodically collects the "*Radionuclide batch logsheets*" and fills the "*CIG_decay_calculation.xltx*" (same folder). This calculation sheet will be saved in the "*Wastes (+year)*" folder as backup. The wastes will be carefully labeled and stored in room 1058.

- **CIG**: An expert eliminates the wastes stored in room 1058 according to the 100xLE limit for monthly disposal of radioactive waste into the regular trash. Every waste eliminated will be logged in the file "*Radioactive waste elimination (+year)*" (ciggen/cig/Share folder/Radioactivité/Wastes (+year)).

Non-radioactive waste: Before elimination, the non-radioactive waste must be checked with the contamination monitor. A non-contaminated waste (< 50 cps on the contamination monitor and/or < LL (see table below)) must be disposed of in the regular trash.

Article 7: Control of monitors

User's duty: Before using a contamination monitor, users must control the battery level of the device. A weak battery will lead to false readings and must be recharged/replaced immediately.

Expert's duty: Every year, the contamination monitoring devices must be checked by an expert with the reference Sr90 and the values reported on the logsheet next to each device. If the deviation is too big, it has to be sent for calibration at IRA (CHUV-Lausanne).

Practical information pertaining to the use of radionuclides at the CIG

β- : Plexiglass screen, NOT lead ;
γ : Lead screen

1 mCi = 37 Mbq

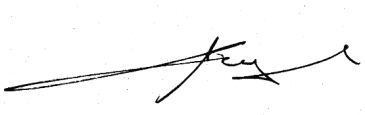
Radionuclides Radiation, E_{max}	Period	Dosimetry	Licensing Limit **(LA)** Max dose for use **out of C Lab**	Clearance Limit (**LL**) (**= not radioactive**)
H-3 β- : 18.6 keV	12.32 years	No	100 MBq = 2.7 mCi	0.1 MBq = 2.7 μCi
C-14 β- : 156 keV	5700 years	No	9 MBq = 240 μCi	1 kBq = 0.027 μCi
P-32 β- : 1.71 MeV	14.26 d (~2 weeks)	Urine° Badge/Ring*	2 MBq = 54 μCi	1 MBq = 27 μCi
S-35 β- : 167 keV	87.5 d (~3 months)	No	40 MBq = 1 mCi	0.1 MBq = 2.7 μCi
I-125 γ : 35.4 keV	59.4 d (~2 month)	No	0.7 MBq = 18.9 μCi	0.1 MBq = 2.7 μCi

° Mandatory
* If requested by an expert

Radioactive waste person in charge:

- 4th floor: Fabienne Lammers (4136)
- 5th floor (I125): Wanda Dolci (3989)
- 5th floor (P32/S35): David Gatfield (4110)
- 5th floor (H3/C14): Frédéric Preitner (4143)

These new directives are approved by



The Director
Alexandre Reymond

Date: Lausanne, le 21 mai 2019

I, the undersigned. Declare that I have received, read and understood the *General Instructions concerning rules of behaviour and security within the GENOPODE of the University of Lausanne*

I commit myself to respect these instructions.

Surname: ……

First Name: ……

Place and date: …….

Signature: …….

The original is to give to the secretariat office for filling in the personal file