



UPPSALA
UNIVERSITET

Department of
Medical Biochemistry
and Microbiology, IMBIM

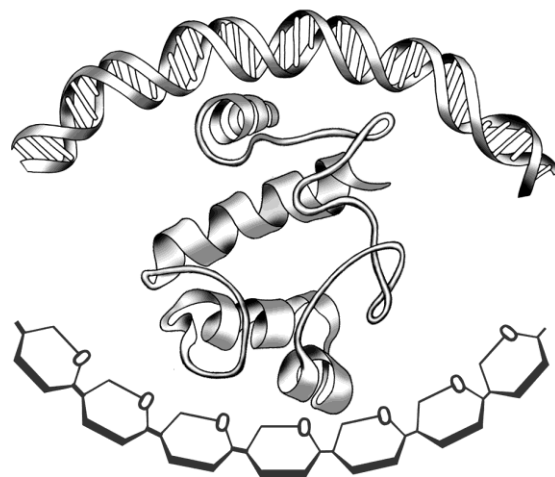
HANDBOOK

Before you start your practical lab work, you have to take a web course in laboratory safety: [Web course in laboratory safety](#)

Before a newcomer starts working in the lab, he/she must study this document carefully, get additional information from the group leader and the safety/corridor representative and sign the form that the introductory information has been received.

August 2021

IMBIM



WELCOME TO THE DEPARTMENT OF MEDICAL BIOCHEMISTRY AND MICROBIOLOGY (IMBIM)

| | |
|---|-----------|
| <u>Welcome to IMBIM</u> | <u>3</u> |
| <u>Responsibility list</u> | <u>4</u> |
| <u>Useful general information A –Z</u> | <u>5</u> |
| <u>Lab routines</u> | <u>8</u> |
| <u>General lab routines A-Z</u> | <u>8</u> |
| <u>SPECIFIC RULES AND ROUTINES</u> | <u>10</u> |
| • <u>Chemicals</u> | <u>10</u> |
| • <u>Hazardous Chemicals</u> | <u>11</u> |
| • <u>Liquid nitrogen and dry ice</u> | <u>12</u> |
| • <u>Radioactive substances</u> | <u>12</u> |
| • <u>Microorganisms</u> | <u>14</u> |
| • <u>Instrument and equipment</u> | <u>15</u> |
| • <u>Cell cultures</u> | <u>15</u> |
| • <u>Waste</u> | <u>16</u> |
| • <u>Control of export of dual-use items and technology</u> | <u>18</u> |
| <u>IN CASE OF ACCIDENTS</u> | <u>19</u> |
| • <u>Fire</u> | <u>19</u> |
| • <u>Spills</u> | <u>20</u> |
| • <u>Emergency numbers</u> | <u>21</u> |
| <u>Warning symbols</u> | <u>22</u> |
| <u>Map of BMC</u> | <u>24</u> |
| <u>“Newcomer's information - delivered and received“</u> | <u>26</u> |

WELCOME TO IMBIM

This “Handbook“ is intended to help all staff at IMBIM to learn the general rules and working routines at IMBIM. The text outlines some rules but cannot be regarded as a complete list. It is the responsibility of every individual to plan her/his work in a safe and clean way without causing danger, harm or disturbance to other people or the environment within or outside the lab. Compliance with these rules will also minimize other types of administrative and technical problems. Do not hesitate to ask others in the lab, primarily your group leader, if you need to discuss any details. This must be done before you start your experiment, or before you order new chemicals.

Introduction of new co-workers, responsibility

The leader of each research group is responsible for ensuring that the work within the group is conducted in a safe manner and according to the rules at IMBIM. The group leader must introduce all new group members to the routines and rules at IMBIM. In the case of graduate students, it is assumed that the thesis advisor fulfils this function. Furthermore, the group leader and the safety/corridor representative must check that the new co-worker has understood the rules and routines. **To stress this issue, the newcomer, the group leader and the safety/corridor representative must all sign the last page of this handbook “Newcomer's information - delivered and received“, stating that the information has been read and understood (this before the newcomer starts working in the lab), see page 26.**

For safety reasons, and to prevent damage of expensive equipment, it is necessary that you contact the person responsible for each instrument to obtain proper instructions before starting to use it. The name of the person responsible for the instrument is posted at, or close, to the instrument.

Registration

You must register at the Administration (C8:322b) where you will receive all necessary information about IMBIM, the Biomedical Center (BMC), entry card, keys etc.

News about IMBIM

Information for personnel is posted on the bulletin board in the C8:3 corridor and on our web page www.imbim.uu.se. Internal information (board minutes, environmental issues, teaching documents etc) is available after login at Medarbetarportalen, also called MP.

Additional information about BMC can be found at: www.bmc.uu.se

The International Faculty and Staff Services, IFSS, provide information to international researchers, lecturers, doctoral students and administrative staff at Uppsala University on issues such as working conditions, residence and work permits, registration, social security and more. They also organise a range of activities, read more at www.uu.se/joinus.

Leaving the department

Before you leave the Department, complete the form “Leaving IMBIM”, return your keys and entry card to the reception and the form to Veronica Hammar. Based on the agreement with your group leader, you have to clear out all lab material etc. from your working area, cold room, freezers etc. Notebooks should remain at the department, although you are free to take photocopies of your own data.

ADMINISTRATIVE STAFF

The administrative staffs have their offices in corridor C8:3 and their work are mainly divided as follows:

| | |
|-----------------------------------|---|
| Education | Eva Engström - Pharmacy Programme, Biomedical Laboratory Sciences Programme and Medicine Programme Laia Caia Puigsubira - PhD education (Scientific Presentation and Introduction to Scientific Research) Susanne Lundgren - Biomedicine Programme, Medicine Programme Maria Salomonsson - Infection biology, Medical research och Innovative medicine |
| Information, PhD Program at IMBIM | Veronica Hammar |
| Finance | Malin Strömbom, Malin Rask |
| HR | Rehné Åkerblom |

RESPONSIBILITY LIST

| | |
|--|--|
| Radiation safety officer at IMBIM | Dorothe Spillmann, 4367 |
| Radiation safety officer at BMC | Sviatlana Yahorava 070-425 04 23 |
| Union Safety Officer (Skyddsombud) | Eva Andersson, D9:3 Karin Hjort, D7:3 Veronica Hammar C8:3 Anna Olsson, D11:3 (parental leave) Åke Lundkvist, 4555 |
| Genetically modified microorganisms | Malin Strömbom, 4468 |
| Trade union representative (Arbetsplatsombud) | ST-ATF |
| Instruments | Lars-Erik Hermansson, 070-683 20 74 |
| General maintenance | BMC technicians |
| Chemical safety officer | Eva Andersson, 4157 |
| Fire protection inspector | Eva Andersson, 4157 |
| Environmental representative | Eva Andersson, 4157 |

BMC service/Technicians/Lab technicians

Mail and package handling, gas supply, waste boxes and stored equipment is delivered to IMBIM by the BMC technicians. To get in contact with BMC technicians, send an e-mail to teknisktstod@bmc.uu.se.

Eva Gottfridsson takes care of the student's course lab, purchase office supplies, ordering from pharmacy, ordering ethanol, phone: 47166 53.

USEFUL GENERAL INFORMATION FROM A - Z

Cleaners

To make the cleaner's job easier, please keep the floors free from unnecessary items, electrical cords etc. Place waste bins in accessible areas (i.e. not hidden in the far corner under a desk) and avoid wearing your outside shoes within the building. Bikes may not be parked inside BMC.

Damage/Theft

In the event of damage or faults in the power or water supply, central heating, ventilation or sewage, send a maintenance request (felanmälan) to [Akademiska Hus](#). For emergency or after hours call 010 - 557 24 00. If something has been stolen, call the police (114 14) and inform Daniel Skogehall, BMC Manager, daniel.skogehall@bmc.uu.se.

Defibrillators

There are eleven defibrillators (for defibrillation after cardiac arrest) at BMC, you will find the closest ones in C8:3 corridor (outside administration) and in "Navet" (ground floor).

Discrimination and sexual harassment

At the department there is a zero-tolerance policy towards sexual harassment or discrimination of any kind. If you notice such behavior, or is the victim of it, you should contact someone you trust, the personnel coordinator, Rehné Åkerblom or the Head of the Department. They are bound by professional secrecy. The Equality group at the department is working for the prevention of discrimination at the department.

Electronics/Instruments

Lars-Erik "Lasse" Hermansson (electronics engineer) has his office in room C11:301b. **Inform Lasse if the electronic equipment is not working properly.** He improves, repairs and adapts electronic equipment according to the needs of the researcher. He is also responsible for the department's inventory of equipment. Contact Lasse if you need to buy new equipment, there might be some equipment in the storage that is not in use. Broken electronic equipment is taken care of by Lasse. It is important that Lasse has the possibility to separate the waste (hazardous materials) from the spare parts.

Email

To strengthen the University's identity, email sent from Uppsala University should have a clear and uniform design and contain an email signature. Name, Uppsala University and phone number is the minimum requirement. The following recommendations have been set up regarding how the email signature can be styled: [Email - Uppsala University](#).

[Revised Procedures for managing e-mails adopted](#) June 7, 2021 – everyone has to read and follow:

Environmental work at IMBIM

We are all responsible for how we influence the environment. If everyone takes their responsibility, it will be easier to achieve the goals set up for Uppsala University. You will find some useful information here: about [the University's environmental work and support](#) in the day-to-day work in form of [procedures and guidelines](#).

IT/Computers

If you have questions or need some help, contact IT department by sending an e-mail to: helpdesk@bmc.uu.se. All programs used at the department must have registered licenses. You are not allowed to connect any private computer to the Uppsala University network.

You are responsible for storing and backing up your digital data with relevant periodicity and in a safe manner. In addition, all research groups are responsible for having procedures and policies to facilitate secure handling of data within the group and how data is secured and maintained when a group member leaves. For storage of both personal data and group data the file server Argos is recommended. A local TimeMachine backup can be used as a rapid complement. Detailed information on IT security (“IT-information”) is available at IMBIMs internal web page on “Medarbetarportalen”.

Contact BMC-IT (helpdesk@bmc.uu.se), if your group needs help with keeping your data safe.

Lunchroom

You will find lunchrooms in C8:1 and “Navet”, which is shared with other departments. It is equipped with refrigerator, freezer, coffee machine, dishwasher and microwave ovens. You may use cups, glasses etc. kept in this room. After use put the utensils in the dish washing trays. Food kept in the refrigerator should be marked with your name and date.

Mail

You will have your own mail box in your corridor. Arriving post is sorted at 10.00 in IMBIM’s post room in D9:3. Outgoing post can be left in the post room (emptied daily around 15.30) or directly to the BMC mail room C6:0. **Pre-printed envelopes (which are not for private use) cannot be mailed in ordinary street mailboxes.** For internal mail, the large brown reusable envelopes are to be used. Post these in the assigned shelf (“internpost”) for collection at 9.30. Internal post can be sent to all the departments as well at the central administration at Uppsala University, the Swedish University of Agricultural Sciences and the University Hospital/Akademiska sjukhuset. Envelopes are stored in the post room.

Medarbetarportalen

Uppsala University shared Information about rules and procedures can be found at Medarbetarportalen, also called MP, www.mp.uu.se.

Upload your photo at MP (or ask Veronica to do it for you), so our web page will show all research groups with photos. Log in at MP – click “my profile page” (up in the right corner) – “Edit profile” – upload your photo. At the same time: Upload you CV, publications (Diva), personal presentation, links etc (optional)

Photocopiers/Printers/Faxes

There are printers in each corridor. The machine in D9:303a has high printing capacity. The fax is located in IMBIM post room in D9:3, 018 - 471 46 73.

Storage/Office supply

Each group has its own storage space at A10:0, “Plastförrådet”. Office supplies are stored in B9:003b, “Arkiv X”.

Teaching

IMBIM has a policy to share teaching duties and to give teachers, researchers and PhD students a chance to develop important pedagogic skills and to integrate current research findings in all programmes and courses. More information on how teaching tasks are organized is available at our group area at Medarbetarportalen. All newcomers at IMBIM are strongly invited to contact either Dorothe Spillmann (Dorothe.Spillmann@imbim.uu.se; 471 4367), director of undergraduate education and/or Tanel Punga (Tanel.Punga@imbim.uu.se; 471 4672), director of studies third cycle.

Telephone

From all phones you can call within Sweden - dial 00 and then the number. Work-related overseas calls can be ordered from the university operator, dial 987. Phone number to personnel at BMC can be found at www.bmc.uu.se/kontakt. A telephone directory for Sweden is at www.eniro.se or www.hitta.se.

Web page

Veronica Hammar is the webmaster for the IMBIM web page www.imbim.uu.se.

To reduce the amount e-mails all information about IMBIMs' six seminar series, the seminars will only be displayed in the calendar/kalendarium at IMBIM website. You can easily connect the IMBIM calendar with your calendar by:

1. Go to IMBIM calendar at IMBIM website
2. click "more events"
3. click "subscribe to calendar" and follow the instructions, then all the seminars and IMBIM activities will be displayed in your calendar.

Work-related health issues

Previa, the occupational health organisation, has medical check-ups for work related injuries and other problems, phone 0771 – 23 00 00, www.previa.se.

Guidelines for admission to Uppsala University premises (downloaded from the decision with reference number UFV 2005/2166)

Access to UU's premises

Guidelines for access to all premises where Uppsala University conducts education and research. University premises that are used for cultural purposes or representation are also covered by these guidelines.

University premises are not to be considered as open to the public (the definition of public includes children, wives, husbands and others). The basic rule is that only students who are admitted to an undergraduate-, graduate- program or PhD studies (first- second and third cycle students) as well as employees and other persons working in Departments have access to the University premises. Other persons do not have access to the corridors, classrooms and other spaces without special permission.

Under special circumstances the public will have access to University premises used for cultural purposes or representation, such as University libraries, University museums, gardens establishments and cafes / restaurants. At lectures and seminars that have been announced to the public, conferences, concerts and so-called Open House event, the public can also have access to educational facilities.

Smoking is not allowed within BMC!

Pets are not allowed within BMC!

LAB ROUTINES

NOTE! Before you start your practical lab work, you have to take a [Web course in laboratory safety](#).

You will be assigned a lab bench and a writing desk. Please leave all common workspaces clean after use. In each corridor there is a list of the person in charge of the different instruments/common service areas. Each person working in a lab will be provided with a lab coat or other protective clothing and will have a designated storage place for personal belongings. **The lab coat should be used during laboratory work.** During the practical instructions, you will be informed about "your" corridor's special routines, safety and order.

New co-workers/students are not allowed to perform laboratory work outside office hours until they have gained enough experience.

When you leave the lab at the end of the day close the windows, switch off the lights, and **close the doors**. Instruments that should run overnight **must be marked with your name and date**.

GENERAL LAB ROUTINES FROM A - Z

All injuries

ALL work related injuries are to be reported to one of the Departmental Safety Officers, "skyddsombud" (Eva Andersson D9:3, Veronica Hammar C8:3, Karin Hjort D7:3 and Anna Olsson D11:3 (parental leave)) to the group leader and to the Head of the Department. They will together decide what further action should be taken. For preventive reasons, incidents that might have led to injuries should also be reported.

Autoclaving

The central-dishwashing unit is located in D9:1 and run by Susanne Jansson and Gunilla Engström, phone 471 45 69, BMC service. They also provide autoclaving service. Lotta Lillrank, phone 471 40 40, is responsible for the overall administration at the unit.

The autoclaving service is provided Monday to Friday. For the same day autoclaving service it is good to know that: Liquids are autoclaved at 11.30. Dry stuff like tips, tube etc at 07.00 and 12.00

All material to be autoclaved **must be marked** with your name and department/corridor. Some corridors have their own smaller autoclaves.

Centrifuges

The large centrifuges must be booked on their respective lists. IMBIM has one common ultra-centrifuge located in B11:3, contact person is Lasse Hermansson.

Culture media

Use Virkon to decontaminate the cell culture media before pouring it into the sink or discard media containing cells **into a can** before putting it into the infectious waste (yellow boxes with WHITE LABEL together with UN3291 and "Infectious Substance" label). Cell culture media containing antibiotics needs to be handle according to antibiotics they contain. **Ampicillin, penicillin, chloramphenicol and erythromycin** containing media can be poured out in the sink, after the cells have been killed. Media containing **gentamycin, neomycin, streptomycin, tetracycline and puromycin** should be autoclaved before the media can be poured down the sink. **Kanamycin** needs to be autoclaved in an acidic environment (pH 1-2). Media containing antibiotics, regardless of type could be discarded **into a can** before putting it into the infectious waste (yellow boxes with WHITE LABEL together with UN3291 and "Infectious Substance" label) without prior treatment.

Dish washing routines/Glassware handling

All dirty glassware has to be emptied, rinsed well, and all labels or tapes have to be removed before placing the goods on the small dishwashing carts. The vessels used for soaking glass pipettes used in microbial work is recommended to be washed and re-filled with new VIRKON solution once a week and contaminated glassware from microbial work must be disinfected with Virkon and rinsed carefully before being placed into the general dishwashing trays. Broken glassware should be disposed of in special boxes, see page 17 Waste.

Fume hoods

Check carefully that the fume hood works before starting the work. Fume hoods have automatically regulated ventilation and door position.

General ventilation

After 6 pm weekdays and during weekends the ventilation runs at a lower rate. If you work after office hours, press a button labelled 'ventilation' in the corridor. The ventilation will then be on for two hours as indicated by a light on the button.

Ice machines - There are ice machines in B9:310b, B11 318b, D9:305b, A8:205A, D11:305a and D7:314b

Laboratory animals

Work with laboratory animals must be done in the animal facility at BMC and only after special permit from the Animal experiment committee has been granted. Entrance to this facility is allowed only after participation in a special course given annually at BMC.

Microwave oven

Never microwave a solution in a bottle with a lid on. When you take out the solution from the microwave let it cool down a bit before you put on the lid or shake the bottle.

Purchasing routines

Usually one person in each group is responsible for ordering chemicals and other lab accessories. Write in the order book the type, quality, manufacturer etc. of the item that is required. Make the order before the stock is totally finished! **Remember to order in the name of your group leader and give the reference code 465 for all invoices.**

Mailing address: Uppsala universitet, IMBIM, Box 582, 751 23 Uppsala

Delivery address: Uppsala universitet, IMBIM, Husargatan 3, 752 37 Uppsala.

Invoices should be addressed to: Uppsala universitet, Invoices, Box 148, reference code, e.g. 465VEH, 751 04 Uppsala. When you order something from a supplier outside Sweden following invoice address shall be given to the company: Uppsala University, IMBIM, reference code, e.g. 465VEH, Box 582, 751 23 Uppsala,

Water

The tap water in BMC is only partly demineralised, and should not be used for final rinsing of glassware. The "pure water" (pw-tap) distributed within BMC has a quality making it suitable for almost all application when clean water is needed.

Video camera

Cameras for photographing DNA-gels are found in B9:3, B11:3, D7:3, A9:3 and D11:3.

SPECIFIC RULES AND ROUTINES

WORKING WITH CHEMICALS

Chemicals pose a potential threat to our health and to the environment. Included in the term chemicals are all proteins and other bioactive substances we use in our work. All chemicals in use or stored at the department should be registered in the [KLARA \(Uppsala universitet\) \(port.se\)](https://port.se). Each group or corridor has separate registries and password for reading the information in KLARA which should be distributed to everyone working in the group or corridor. KLARA contain safety data sheets for all registered chemicals. Knowledge about potential dangers is essential if you want to minimize the risks of working with chemicals. Information on safety of specific chemicals and how to protect yourself and your colleagues is provided in material safety data sheets (MSDS). You should read the information and evaluate risks when planning your work, once adverse events happen it is too late. The risk evaluation should include whether you need to use protective goggles, thick rubber gloves, a fume hood, and whether your solvents are easily ignited etc. Before start working you should also consider if you need special arrangements for the waste you produce.

Important rules:

Before you start your lab work, you have to make a risk analyses. The documentation should clearly show how the identified risks can be addressed in order to be eliminated or reduced.

Support in the work with risk management in laboratory work.

Chemicals, stored or in use, must be listed in the KLARA register and noted with date (yymmdd).

All containers of chemicals must be labelled with the receiving date.

Every lab group has established informal rules. Do not introduce a new procedure before discussing it with the group.

Ask around among your senior colleagues about established routines.

Never pipette by mouth.

Do not eat or drink in the laboratory.

Wash your hands frequently.

Use a lab coat. Leave this coat in the lab when you leave for e.g. a coffee break or similar.

You must use eye protection when handling acids or bases. Contact lenses should not be used when you work with chemicals.

Use all possible UV-protections, especially for your eyes, when handling UV light. UV-shield, glass or mask, gloves and lab-coat are recommended to block the UV radiations.

If you use gloves for protection, do not keep them on when you open doors etc.

If you think you need an aspiration filter mask, consider doing your work in a fume hood.

All chemicals must have correct and actual warning labels

Benches should be kept clean and tidy.

The labels "toxic", "very toxic" and "extremely toxic" should be taken seriously and tells you that this chemical is not to be left as dust around the balance. The label indicates that even microgram amounts can be lethal.

If the balance is surrounded by powder, how do you know that this is not a chemical belonging to the class "extremely toxic"? You should always clean up around the balance after use regardless if you have handled sodium chloride or potassium cyanide.

You must always label all bottles and beakers with the proper chemical name of the content and relevant pictogram.

Solutions no longer in use should be pour out or send for destruction, for more information check with Uppsala vatten.

https://www.uppsalavatten.se/globalassets/dokument/foretag/151203_restriktioner_flytande_avfall.pdf

You should minimize the amount of inflammable chemicals stored in the open laboratory environment. Up to 10 litres of inflammable solvents (Swedish Brandklass 1, 2a, 2b and 3) may be stored in the open laboratory space for each corridor. Larger volumes, up to 50 litres, must be stored in specially designed ventilated and fire protected cupboards

Do not store corrosive or caustic solutions on shelves at or above eye level.

COMMON HAZARDOUS CHEMICALS

All of the chemicals below should be treated with care and be handled in the fume hood.

The use of **PMSF** (Phenylmethylsulfonyl fluoride) is not allowed within our department. As replacement the less toxic and more stable Pefablock SC (Roche applied science) is recommended.

Chloroform can cause irritation to the skin, eyes and throat. Inhalation of high doses of chloroform causes dizziness and sickness, which can lead to unconsciousness, and at the worst death. It is also hepatotoxic and a suspected carcinogen.

Phenol has a corrosive effect on the skin and the eyes and the vapour can give rise to severe lung damage. If someone has poured phenol on her/his skin, first flush with a large amount of water, then apply PEG 400.

Acrylamide is a colourless, odourless powder or white crystals. In the lab you most often handle it in liquid form. It can cause burns in the respiratory tract, drowsiness, affect the central nervous system etc.

Formamide is a colourless, faintly yellow liquid. It is hazardous if it gets in contact with your skin or if you inhale it. Some symptoms are: burns in the respiratory tract and skin, and dizziness. It may cause spleen and liver damage and allergic reactions. It may also cause foetal damage.

Ethidium bromide should be replaced by **Gelred**, which is a "non-toxic" replacement. Ethidium bromide intercalates between adjacent base pairs in DNA. The chemical is a potential carcinogen. If used at all should be bought as pre-made solutions or tablets. To use dry powder is strictly forbidden.

It is strongly recommended that **Jodopax** is replaced by another substance, like **Virkon**. You are not allowed to pour Jodopax into the sink. Jodopax solutions must be collected and sent for destruction.

Poisons Information Center 08-331231 or 112 ask for Poisons Information Center

Head safety officer at

BMC

mario.izquierdo@bmc.uu.se

Mario Izquierdo

Chemical coordinator at Uppsala University

7774

Annie Engström

HANDLING OF LIQUID NITROGEN AND DRY ICE

Handling of liquid nitrogen is potentially hazardous, mainly due to the severe freeze injuries that might occur if drops e.g. hit the eyes. Therefore, whenever pouring liquid nitrogen, it is mandatory to wear a protective shield for your face or tight protection goggles.

Further, do not pour liquid nitrogen into any type of thermos. They are usually not made to resist very low temperatures, and might crack and implode. This might be really dangerous both for you and others in the vicinity. Never try to store liquid nitrogen or solid CO₂ in an airtight vessel. Whatever temperature you place the vessel in, nitrogen will evaporate and build up a pressure inside the vessel, which might cause an explosion.

RULES FOR WORK WITH RADIOACTIVE SUBSTANCES

Registration

In order to work with radioactive isotopes at IMBIM you are first required to take a radiation safety course. In addition, you have to familiarize yourself with the procedures in the lab. You must go through the working routines with the person responsible for the radiation areas within the lab.

Ordering and storage of Isotopes

Before ordering, check the supply of isotopes. The isotopes must be stored in the specifically designed labs in A9:3, B11:3, D9:3 or D9:4, in the properly marked refrigerators/freezers. You are not allowed to store radioactive isotopes in unmarked lab areas.

At the isotope lab at IMBIM you are only allowed to work with ³²P, ³⁵S, ¹⁴C or ³H: maximum of 18 MBq (0.5 mCi) for ³²P and ¹⁴C and 90 MBq (2.5 mCi) for ³⁵S and ³H, respectively. Higher activities of radioisotopes have to be handled in the BMC radioisotope lab in the cellar (B3:019a).

Book-keeping

Purchase of radioisotopes must be filed in each group. A form to register ins and outs is attached on the doors of the respective refrigerator/freezer. Use of isotopes must be signed in the logbook to be found at the respective area.

Dosimeters and Monitoring

Dosimeters are to be used with work involving strong β-emitters (e.g. ³²P). You receive them from the safety representative. Dosimeters are checked regularly.

All working space used for radioactive isotopes must be regularly checked by wipe-tests¹ (¹⁴C, ³⁵S, ³H) or Geiger-counters (³²P) - make sure that the Geiger counter is of the right sensitivity class for the isotope you intend to monitor.

General working practices

- Use lab-coat, gloves and, whenever advisable, protective goggles. Take off potentially contaminated gloves as soon as possible to avoid contaminating door-handles etc.
- The benches and working area must be coated with bench-coat (plastic coated absorbent paper, plastic towards lower side). Change the bench coat when contaminated.
- Prepare yourself for the experiment - make sure you have all items you require. Go through your protocol to ensure that you have everything.
- Label special waste containers for solid and liquid waste.
- All vessels (also sample tubes!) containing radioactivity shall be marked with isotope-labelling tape. - Indicate isotope, amount, date, and name.
- Use disposable vessels as much as possible. If glassware must be used, pre-wash the vessel yourself in the special decontamination area and leave it in the dishwashing basket only when you have confirmed that it is contamination-free.
- Monitor the working area before and after work. Sign the logbook.
- Clean up afterwards. This includes also pipettes, centrifuges etc!
- Never work with open wounds on your hands or arms!
- Wash your hands after handling radioactive material.

Shielding

- The best protection against strong β^- emitters is distance. Your fingers are most at risk. Work as rapidly as is safely possible.

³²P should be handled behind a 10-15 mm-thick Plexiglas shield.

¹⁴C and ³⁵S do not require shielding unless the material is in dry form.

³H requires no shielding.

Accidents

Minor spills must be cleaned up immediately - use equipment designed for use with radioactive material and disposable adsorbents only; clean with a moist tissue from the outside towards the inside of the contaminated area, exchange the bench-coat, perform a wipe-test on both the bench and floor and ensure that contamination is not spread.

Inform the radiation officer, Sviatlana Yahorava 070 425 0423 and Dorothe Spillmann, 4367 about the accident.

Radioactive waste

Always separate active and inactive waste to avoid unnecessary disposal procedures or storage.

Separate active waste according to the isotopes involved:

Weak β^- -emitters (³H, ¹⁴C and ³⁵S) are to be placed into separate waste containers if possible.

³²P is always to be placed in separate waste containers.

¹ For wipe-test, dip a $\approx 4 \text{ cm}^2$ filter paper in 70% ethanol. Briefly drain off excess alcohol and swab an area of $\approx 100 \text{ cm}^2$. Transfer the paper to a 20-ml counting vial and let it dry. Add 5-6 ml scintillation cocktail and shake thoroughly. Incubate in the dark for 15 min to avoid chemiluminescence. Count for 5 min in the appropriate channel. Subtract background counts obtained with a clean filter paper treated in the same way. Record the result. A scintillation counter can be found in B11:3 and D9:4.

All handling of radioactive waste has to be done as carefully as possible and with appropriate shielding.

Solid and liquid waste (e.g. hybridization solutions, "HiSafe 3"-vials, protective gloves, test tubes, protective paper) goes into the yellow box, which must be filled with absorbent grains to prevent leakage. Each filled box must be clearly marked with content and activity (see separate section "WASTE"). Indicate your name, department and phone number. Washing solutions from hybridizations can be poured out into a marked sink. Scintillation waste is placed in boxes in a well-ventilated hood. Make sure that caps are fastened tightly. Mark the carton as "RISKAVFALL".

Yellow boxes with radioactive waste are brought to C6:022b, Tuesdays at 3.00-3.30 pm, the BMC Radiation Officer is here, at other times you need a special activation of your entrance card to get in - this is provided by the Radiation Officer upon request.

RULES FOR WORK WITH MICROORGANISMS

Laboratory work with genetically modified microorganisms (GMM), like bacteria, fungi, viruses or protozoa, requires permission from "Arbetsmiljöverket". Depending on the potential hazard to health and environment such work is classified as no or negligible hazard ("F"-activity) or low risk ("L"-activity, BSL2). Work with high-risk pathogens (safety level 3) has to be done in the BSL3 lab In A9:3 (see separate instructions), plasmid cloning and work with E. coli and yeast is considered as "F"-activity, whereas work with replication competent viruses is classified as "L"-activity or higher. For more information, how to classify your own work see [Start - Arbetsmiljöverket \(av.se\)](#).

It is important to know that the group leader is responsible for the work carried out with a GMM in his/her laboratory. Each GMM used in the group has to be classified according to its potential hazard to health and the environment. The documentation from such risk assessments has to be archived.

- Work with live microorganisms is only allowed in the specifically designated area, or preferably, room in each corridor.
- **A lab coat is mandatory** when working with microorganisms.
- Mouth pipetting is strictly forbidden.
- Used glass pipettes should be placed in buckets with disinfectant (Virkon etc.).
- Contaminated glassware or plastics that will be reused must be disinfected before being sent to the washing department. Disinfection is normally done by submerging or filling the flask, beaker etc. with an active Virkon solution or a 1% SDS solution for approximately 30 min. Contaminated solutions should be similarly disinfected before being poured out into the sink. Follow the local rules adapted to each corridor.
- Media and other solutions contaminated with fungi or bacteriophages should be autoclaved before disposal.
- Disposable contaminated material of risk class 1 and 2 (agar plates, tubes, tips etc.) must be collected in a yellow Infectious waste box. WHITE LABEL together with UN3291 and "Infectious Substance" label on the box. If you have anything that is pathogenic, you have to eliminate the pathogenicity before sending it to waste. Waste bins to freezer room C8:005b provided with waste declaration. Make sure that the outside of the waste bins are clean and free from spots and/or splashes of unknown origin before they leave the department.

- After completion of your work; i) clean the working area with 70% ethanol; ii) wash your hands.

Antibiotics in culture media

There are special rules for media that contain antibiotics (see p. 7). Find out the precise routine in the cell lab where you are working.

In case of an accident:

For example, a spill of large volumes of medium, the liquid should be absorbed and the area extensively cleaned with an active Virkon solution. Vermikulit, which can be obtained from the BMC shop in B1:0 and B1:021b/B123b (The doors are marked with a yellow sign and you can use your IMBIM key. Be careful to lock the door!), is excellent for absorbing contaminated liquids. During the decontamination period, appropriate measures to seal-off the contaminated area should be taken.

WORK WITH INSTRUMENTS

For security reasons, and in order not to damage expensive equipment, it is necessary that you contact the person responsible for each instrument to obtain proper instructions before starting to use it. The name of the person responsible for the instrument is posted at or close to the instrument. The logbooks must be filled in correctly when an instrument is used.

Instruments shall be cleaned thoroughly after usage. Inform the responsible person **immediately** if there has been a problem with the equipment you have used.

Observe that for some equipment/working areas you are obliged to receive a 'driver's licence' from the responsible person and to sign in the logbook after completion of your work.

WORK IN THE CELL CULTURE ROOM

Do not enter the cell culture room with outdoor shoes!

Disinfect the hood with 70% ethanol before and after your work.

Use the highest airflow when you are working in the hood.

All work material (pipettes, boxes, dishes etc) is to be stored in a special cupboard. Take out what you require and put everything back after use. Observe, that all items placed inside the hood will disturb the airflow and reduce the proper functioning of the sterile bench.

Mark all your medium bottles/culture plates with name and date. If you have any infection in your cell culture, immediately remove infected cultures, disinfect the culture vessel before discarding, clean the incubator and inform your colleagues. Use Virkon for disinfection.

After your work is done, remove all items from the hood and disinfect with 70% ethanol the working area including the suction tubing.

Used glass pipettes are placed in 10 L buckets nearby the hoods.

Turn off the gas and vacuum if used.

Turn off the microscope and put on the dust cover.

Dirty glassware and empty pipette boxes are to be sent back to the dishwashing department. Find out the dishwashing rules in the cell lab that you are using.

Order new material before it runs out.

Pasteur pipettes and other sharp objects are collected in yellow box for Infectious waste. Close and mark full waste boxes and transport them to their final storage place (see **Waste**). Make sure that the outside of the waste bins are clean and free from spots and/or splashes of unknown origin before they leave the department.

There might be additional rules in the cell lab you are using.

The department has designated cell culture rooms for work with viruses (BSL2 and BSL3) since special rules apply for this type of work. Only persons with authorization are allowed to work there.

WASTE

Waste has to be handled according to quality and risk type

We must follow strict regulations for handling of our waste. It is advisable that each group or corridor appoint a Swedish speaking person responsible for proper handling of waste and for obtaining the most recent information regarding waste. The information is mainly in Swedish. Login for more information at BMC web page

<https://www.bmc.uu.se/Environment+%26+Safety/Waste/?languageId=1>

Household like combustible waste (paper, towels etc.)

2 waste basket types –little round one in the office or a large 60 liter square shaped one usually placed under the lab sink.

Waste is collected by the cleaning staff.

Yellow boxes are intended for separate handling including a separate transport from BMC. They can be used for three different types of waste. All yellow boxes have to be labelled in a special way and in some cases provided with a document for transportation.

Type 1 - Cutting/puncturing Non Contaminated and Chemically Contaminated waste. WHITE LABEL.

Lab. related waste such as gloves, pipette tips, broken lab.glass, pasteur pipettes, Eppendorf tubes, etc. Waste with chemical contamination but with no visible chemical residues.

Metallic cutting/puncturing –**always** Type 2! Waste bins to freezer room C8:005b provided with waste declaration. Make sure that the outside of the waste bins are clean and free from spots and/or splashes of unknown origin before they leave the department.

Type 2 - Infectious waste. WHITE LABEL together with UN3291 and “Infectious Substance” label on the box.

Infectious waste and genetically modified organisms of risk class 1 and 2. Examples are agar plates with bacteria, small amount of bacterial cell cultures with and without antibiotics, all human samples, contaminated work material (gloves, discarded needles, scalpels etc).

If you have anything that is pathogenic, you have to eliminate the pathogenicity before sending it to waste. Waste bins to freezer room C8:005b provided with waste declaration. Make sure that the

outside of the waste bins are clean and free from spots and/or splashes of unknown origin before they leave the department.

Type 3- Animal & Human by-products (AHBP). WHITE LABEL(if infectious, together with UN3291 and “Infectious Substance” label on the box).

Biological tissue of less than 1 kg a part, or disposables soaked with blood or pus. In cases parts weighing more than 1 kg please contact Mikael Olsson.

Decide whether the waste is infectious or not and put the right label on.

The boxes shall be placed in freezer room of **Animal & Human by-products C8:003b** provided with waste declaration. Make sure that the outside of the waste bins are clean and free from spots and/or splashes of unknown origin before they leave the department.

Chemical waste

Leftovers or outdated chemicals in original bottles or boxes are taken care of by Ragn-Sells regularly each month. You find information and chemical labels at the web page <https://www.bmc.uu.se/miljo-och-sakerhet/>. Ragn-Sells sort, pack and take away the waste as well as complete the transportation documents. It is forbidden to put any chemical waste inside or outside the waste room. All possible questions regarding chemist sorting, hazardous waste questions, we now refer to the following email address: FA.Uppsala@ragnsells.com. Our customer number is 403595.

Mixtures of waste produced during your work should be put in a properly labelled glass or plastic can. The label should contain information of composition of the waste, an estimate of the percentage of each component, percentage of water, pH, your name and phone number. The plastic should be of a quality suitable for the chemicals.

At regular intervals the waste containers should be emptied or sent away.

Do not collect waste in bottles used for food or drinks.

Do not use small bottles and never put pipette tips etc. in the liquid waste.

Do not collect solvents that can be poured out in the drain.

Eva Andersson (D9:3) can assist with advice.

Office paper

Office paper to be recycled is put in white containers marked “Kontorspapper”.

Newspaper

Newspaper to be recycled is put in blue containers marked “Tidningar”.

Batteries

Used batteries can be disposed in the bucket in IMBIM post room, in the “Recycling station” in your corridor or at Godsmottagningen.

Used empty gas flasks for fire boys.

The **small** ones (52g) must be punctured before sending to waste. Work in a fume hood and make a hole in the flask by a punch or similar tool. This procedure will also show why you should use all of the gas in the container before discarding. Put in **Type 2- Cutting/puncturing_Chemically Contaminated waste**.

Put the empty **big** ones (190g) in the container for metallic waste in the “Recycling station” in your corridor or in the garbage room D0:0.

Glass waste.

Glass to be recycled (mainly bottles) must be well emptied and clean. Remove all markings and labels in a proper way. Put in containers for colored "färgat" or clear "ofärgat" glass in the

“Recycling station” in your corridor or in the garbage room in D0:0. Laboratory glassware can unfortunately not be recycled (because of its high melting point) and should therefore be handled as sharp waste.

Plastic waste.

Emptied, dry and clean plastic packaging, soft and hard, is placed in receptacle for plastic recycling in the “Recycling station” in your corridor or in the garbage room in D0:0.

Packaging (plastic and glass) labeled with pictograms for “Acute toxicity” (The Skull and Cross bone), “Hazardous to environment” (Fish and tree) or “Serious health hazard” (Exploding lung) must NOT be recycled but left as chemical waste according to these routines.

Waste fractions at BMC.

| | |
|---|---|
| Batteries | Plastic packaging |
| Combustible waste | Refrigerators/freezers and large appliances |
| Electrical waste and electronic equipment | Scrap metal |
| Glass packaging | Newspaper and recycling paper |
| Metal packaging | Corrugated paper and board |
| Paper packaging | Laboratory waste |
| Bulky waste – Mixed materials | Compost waste |
| | Bulky waste - Wood and wooden chips |

Control of export of dual-use items and technology

According to the Council Regulation (EC) No 428/2009, dual-use items must be subject to effective control if exported from the European Community.

The overall goal is to prevent strategically sensitive products from falling into the wrong hands or being used incorrectly. The regulations apply to munitions and dual-use products, including knowledge that can be used to develop, produce or use dual-use product.

If a product or technology is subject to export control you must apply for a permit or subsequently report that you have used a general export permit. For information and general routines and regulations, see export control at Uppsala University

<https://mp.uu.se/en/web/info/stod/sakerhet/exportkontroll>

The list of products relevant for IMBIM includes chemical substances, pathogens and genetically modified material and technical equipment. Contact persons at IMBIM are Eva Andersson (chemicals), Åke Lundkvist (GMM) and Malin Rask (brokering of equipment).

IN CASE OF ACCIDENTS

IN CASE OF FIRE

NOTE! There is a course in fire safety several times each year, which is mandatory for all staff at IMBIM. For information see Medarbetarportalen or contact Veronica Hammar

There are several repeating signals from the alarms announcing fire.

Instructions may follow in the loud speakers. The fire alarm at BMC is sectioned to alert only where the fire incident has occurred. Only the corridors where the alarm sounds must be evacuated

In each corridor there is fire emergency equipment: foam extinguishers and CO₂-fire extinguishers. The latter type is used if electrical equipment is on fire. There are also fire blankets in each corridor. You should know where the fire extinguishers are located.

In case of a larger fire you must do the following:

SAVE

first of all those in imminent danger. Make sure nobody is left in the lab.

SOUND THE ALARM

by (breaking the glass and pressing the alarm button), call the fire department (018 112) and meet up on arrival.

when the operator replies be prepared to answer the following questions:

- location of fire (BMC house and floor)
- if there are any people at risk
- who is calling
- from where you are calling

Sounding the fire alarm automatically alerts the fire brigade.

WARN

others who are threatened by the fire.

EXTINGUISH

the fire if it is possible.

ESCAPE

When the fire department is notified, evacuate the lab.

Close the doors to prevent fire and smoke from spreading.

Escape through the nearest escape route and go to assembly point (where everybody must go immediately in order for a roll-call).

Corridor A9:2 and A9:3 – North field.

All the other corridors at IMBIM – The carpark opposite entrance D11.

See map page 24.

Do not use an elevator!

When the fire brigade has arrived they take over the command for evacuation and notify when it is safe to enter the building again.

WHAT DO YOU DO IF YOU GET CHEMICALS INTO YOUR EYES?

The general do's and don'ts listed below might require some additions specific to the lab you work in, depending on the kind of work done there, the equipment used, the location of the space etc. Lenses are not allowed during lab work.

ALWAYS USE EYE-PROTECTION (GLASSES, SCREEN) WHEN WORKING WITH DANGEROUS MATERIAL.

Alkali is more hazardous than acid!

IF YOU SPILL OR SQUIRT ANYTHING INTO YOUR EYES, DO THE FOLLOWING:

- * Hurry to the nearest eye-shower equipment!
- * Yell for help!!
- * Keep your eyes open!
- * Do not rub your eyes with your hands!
- * Flush your eyes for 5-10 minutes. If you have NaOH in your eyes, flush for a longer time!
- * Go to the eye-clinic, entrance 70 (ground floor, see accompanying sketch), which is staffed during workdays 7.30 to 16.30 (Mo-Tue) 7.30 to 16 (Fri). At other times, go directly to the ward 85G or to casualty, entrance 60.

Colleagues

- * Help the victim to the eye wash equipment.
- * Help direct the flow of water and hold the eyes open during the flushing.
- * Arrange transport to the hospital.
- * Phone the hospital.
- * If possible, apply (drop wise) sterile physiological eyewash solution to the injured eye during transport to the hospital
- * Take the victim to the eye-clinic, entrance 70 (ground floor, see accompanying sketch), which is staffed during workdays 7.30 to 16.30 (Mo-Tue) 7.30 to 16 (Fri). At other times, go directly to the ward 85G or to casualty, entrance 60.

TELEPHONE NUMBERS

| | |
|---------------------------------|--|
| Hospital (Akademiska sjukhuset) | 018 611 00 00 |
| Eye-clinic (direct phone) | 018 611 51 31 (7.30 to 16.30) or 018 611 00 00 |

Spillage and decontamination of chemicals

Spillage of dangerous chemicals are potentially hazardous to human health and the environment and present an increased risk of accident if the leak is not immediately addressed and effectively disposed of in a safety-conscious manner.

Decontamination equipment

Any part of the University that handles chemicals must provide its own equipment for handling lesser spills. This equipment should include, for instance, absorption materials (such as vermiculite) and protective clothing. It is recommended to store decontamination equipment on a movable cart.

Decontamination of larger spills and spills of an unknown nature

When dealing with more extensive spills or when the type of spilled chemical is unknown, employees should refrain from decontaminating the spill themselves. Close the door to the room containing the spill and take measures to ensure that no unauthorized personnel enter, for instance by labelling the door.

Please contact RELITA AB 0771 - 10 35 00. The number are manned 24 hours a day. English speaking personnel shall be available to handle calls. Provide as much information as possible on the materials to be decontaminated. Personnel shall be on-site and positioned to assist within two hours of a request. The company can also provide transportation of decontaminated materials.

IMPORTANT PHONE NUMBERS

| | |
|---|-------------------------------------|
| Fire department and ambulance and police | 112 |
| Toxic chemicals - hot line | 112 or 08 33 12 31 |
| Akademiska hospital | 018 611 00 00 |
| Eye clinic. | 018 611 51 28, 018 611 00 00 |
| Uppsala University | 018 471 00 00 |
| Akademiska hus (trouble with the building, electricity, water or sewerage) | 010 557 24 00 |
| Suspicion of crime or thefts The police and send an e-mail to Daniel.Skogehall@bmc.uu.se | 018 471 25 00 114 14 |
| Securitas Surveillance | 018 471 25 00 ----- |

If you have any comments or changes to this Handbook, please contact Veronica Hammar, 4444.

WARNING SYMBOLS/VARNINGSSYMBOLER

Toxic/Giftigt



Danger to health/Hälsofara



**Harmful or irritant/
Hälsoskadlig, irriterande**



Corrosive/Frätande



Flammable/Brandfarligt



Gas cylinder/Gas under tryck



Oxidizer/Oxidierende



**Biohazard/Biologisk fara,
smittrisk**



Explosive/Explosivt



Read the label!



Environment danger/Miljöfaror

**Dangerous for the
environment/Miljöfarligt**

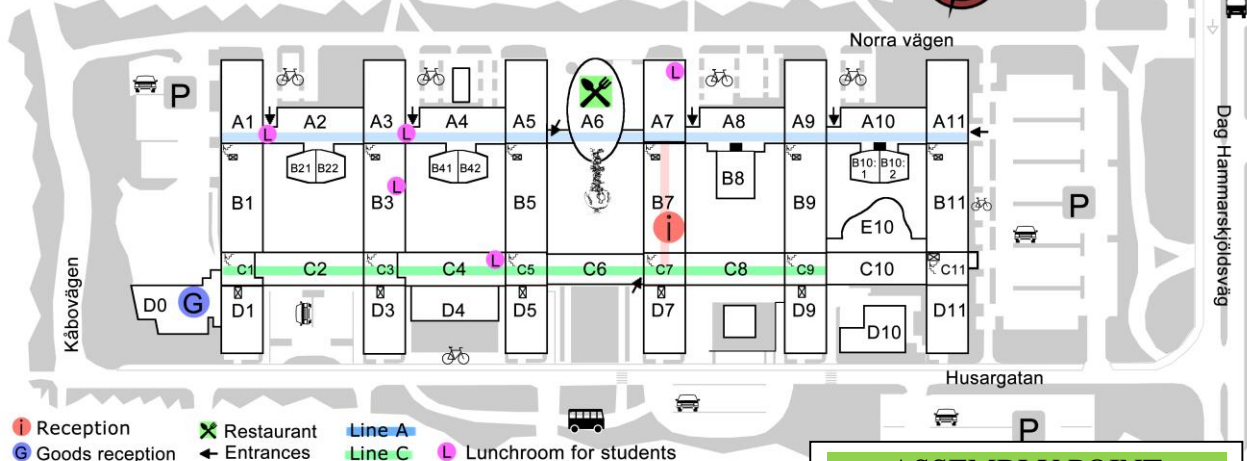


Flammable liquids
Mycket brandfarligt (F)
Brandfarlig vätska (Fo)



BMC

ASSEMBLY POINT
NORTH FIELD

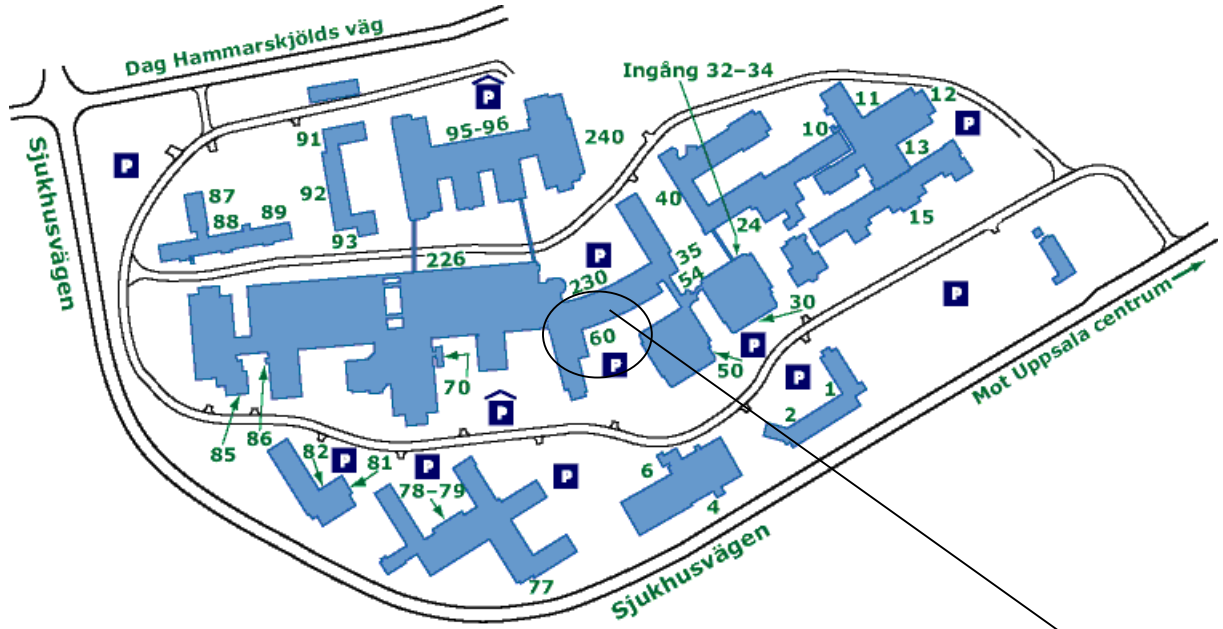


- i Reception
- G Goods reception
- X Restaurant
- ← Entrances
- Line A
- Line C
- L Lunchroom for students

ASSEMBLY POINT
THE CARPARK OPPOSITE
ENTRANCE D11

Map of University Hospital, Uppsala Akademiska Sjukhus

Phone No. 018 611 00 00



Emergencies - entrance 60

INTRODUCTION OF NEWCOMER – INFORMATION delivered and received

NOTE! BEFORE YOU BEGIN TO WORK IN THE LAB, YOU NEED TO:

- Read the **IMBIM Handbook** carefully

- Complete the **online course on laboratory safety**, takes about 10-15 minutes
<https://mp.uu.se/web/info/anstallning/kompetensutveckling/interna/laboratoriesakerhet>
Only applies to lab workers

- Obtain additional information about rules and regulations **and protection and safety devices** from the group leader and/or the safety representative/corridor responsible in your corridor

When the above is done, **certify and sign as instructed below, make a copy and submit to Veronica Hammar.**

I have obtained and understood all information given in the IMBIM Handbook, the online course on laboratory safety and by my group leader and safety representative/corridor responsible.

.....
Date

.....
Newcomer name

.....
Newcomer signature

The IMBIM Handbook has been discussed with the newcomer and the protection and safety devices have been demonstrated.

.....
Date

.....
Group leader

.....
Date

.....
Safety representative/corridor responsible

NOTE! Make a copy of this page and submit to Veronica Hammar, C8:322b BEFORE YOU START TO WORK IN THE LAB OR WITHIN YOUR FIRST WEEK.