



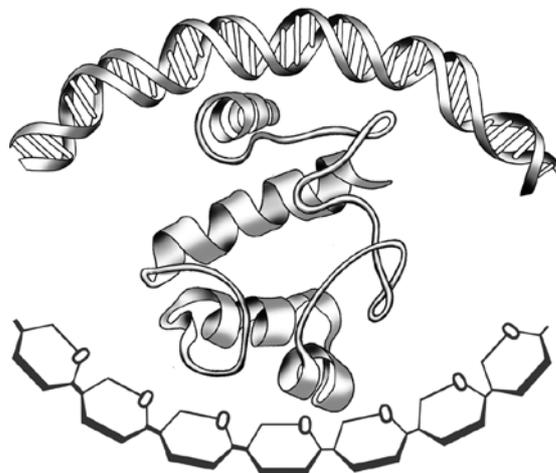
UPPSALA
UNIVERSITET

Department of
Medical Biochemistry
and Microbiology

HANDBOOK

Before the newcomer starts working in the lab or the latest within a week of the arrival, he/she must study this document carefully, get additional information from the group leader and the union safety officer and sign the form that the introductory information has been received.

IMBIM



May 2016

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

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GENERAL INFORMATION

This “Handbook“ is intended to help all staff at IMBIM to learn the general rules and working routines at the Department of Medical Biochemistry and Microbiology (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 or disturbing 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 union officer will check that the new co-worker has understood the rules and routines. **To stress this issue, the newcomer, the thesis advisor and the union safety officer must all sign a form “Newcomer's information - delivered and received“, stating that the information has been read and understood (this before the newcomer starts working in the lab or the latest within a week of the arrival), see page 27. The signed form is filed by Veronica Hammar in C8:3.**

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. The IMBIM board has decided that the working hours for students should not be longer than 08.00 – 18.00 Monday to Friday.

Registration

You must register at the Administration (C8:3) where you will receive all necessary information about IMBIM, the Biomedical Center (BMC), entry card, keys etc. Information for personnel is posted on the bulletin boards in the C8:3 corridor and on our webpage www.imbim.uu.se

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

The International Faculty and Staff Services 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 or talk to Veronica Hammar in C8:3.

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. After consultation with your group leader, you have to clear out all solutions samples 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 staff have their offices in corridor C8:3 and their work is mainly divided as follows:

Education	Eva Engström - Pharmacy Programme, Biomedical Laboratory Sciences Programme and Medicine Programme Alexis Fuentes - PhD Program, Medicine Programme and independent courses and Phd practical teaching Susanne Lundgren - Biomedicine Programme, Master Programme in Medical Research Susanne Tingsborg - Master Programme in Infection Biology
Information	Veronica Hammar
Finance	Malin Strömbom, Malin Rask
Personnel	Rehné Åkerblom

Electronics/Instruments

Lars-Erik "Lasse" Hermansson (electronics engineer) has his office in room A11:3. **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.

IT/Computers

Daniel Johansson, (replacer for Magnus Jansson during his parental leave) C6:3 is in charge of computers, network, software and general IT-matters. Contact him if you plan to buy computers or software. All programs used at the department must have registered licenses. To contact Daniel, send an e-mail to: helpdesk@imbim.uu.se

You are not allowed to connect any private computer to the IMBIM network.

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

Technicians/engineers

Mail and package handling, gas supply, waste boxes, and stored equipment is delivered to IMBIM by the BMC technicians. Eva Gottfridsson, phone: 6653 (070-1679471), takes care of the student's course lab.

Cleaners

To make the cleaner's job easier, please try to 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 are not allowed in BMC.

Damage/Theft

In the event of damage or faults in the electricity or water supply, central heating, ventilation or sewage, call **00 68 32 04** or send a message at www.akademiskahus.se

If something has been stolen, call the Police (00 114 14) and inform Daniel Karlsson, BMC Manager, with an e-mail to daniel.karlsson@bmc.uu.se.

Fire extinguishers

There are at least two types of extinguishers and one fire blanket in each corridor. Fire-escape routes are posted by the fire extinguishers. It is vital that you know the escape routes from your lab.

Assembly points - In case of fire, see map page 25.

Corridor A8:2, A9:2 and A9:3 – North field.

All the other corridors at IMBIM – The carpark next to the sportsground.

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 C8:324b. Outgoing post can be left in the post room in C8:3 (emptied daily at 14.30) or directly to the BMC mail room C6:0. **Pre-printed envelopes (which are not for private use) can not be mailed in ordinary street mailboxes.** For internal mail, the large brown envelopes are to be used. Post these in the marked pigeon hole in C8:324b for collection at 9.00. Internal post can be sent to the departments at the central administration at Uppsala University, Swedish University of Agricultural Sciences and University Hospital/Akademiska sjukhuset. Envelopes are stored in C8:324b.

Photocopiers/Printers/Faxes

There are copying machines in each corridor. The machine in C8:304b has high printing capacity. There are colour printers in A8:2, C8:3, D7:3, D9:3, D9:4 and D11:3.

The IMBM fax is located in C8:324b and it has no. 018 - 471 46 73.

Storage

Each group has its own storage space on the 0-level in BMC. Office supplies are stored in C8:304b.

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 999. 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.

Work-related health issues

Feelgood, the occupational health organisation, has medical check-ups for work related injuries and other problems, phone 00 418 80 10.

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 ideally or the Head of the Department. They are bound by professional secrecy. In the “Jämställhetsplan” there is additional information (in Swedish).

Smoking is not allowed within BMC!

Pets are not allowed within BMC!

GENERAL LAB ROUTINES

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 persons in charge of the different instruments/common service areas. Each person working in a laboratory 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.** Routines for disposal of dirty lab coats will be explained. The locations of the eye and emergency showers will be pointed out as will procedures for work in the fume hood.

New co-workers are not allowed to perform laboratory work outside office hours, especially if it involves procedures that could potentially lead to injuries. The IMBIM board meeting has decided that the working hours for student should not be longer than 08.00 – 18.00 Monday to Friday. Expanded entry hours can be granted when the student has gained experience of lab work at IMBIM. This will be decided after hearing in each case.

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 the name of the user and the date**.

Autoclaving

The central-dishwashing unit is located in D9:1 and run by Catharina Lindberg and Mervi Svensson. They also provide autoclaving service. Göte Swedberg 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 B9:3. Before using this ultracentrifuge contact the responsible person. The centrifuge is locked. To obtain the key for the ultracentrifuge contact Anette Carlsson in B9:3.

Culture media

It is forbidden to pour out antibiotics-containing media for cell or bacterial culture in the sink. The media must be collected and treated with sodium hypochlorite solution (in a fume hood) to destroy the antibiotics. A final hypochlorite concentration of min. 0.1% is needed.

Add sodium hypochlorite solution slowly to the media until colour disappears. The bleach does not react immediately, adding bleach in portions and leaving on stirrer for a while will reduce the amount of bleach used. Use a fume hood. When bleaching is completed pour the solution into the sink in the fume hood. Note: be careful when handling the sodium hypochlorite – it is corrosive and irritant! Other methods could also be used – check with your group.

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 from

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 and rinsed carefully before being placed into the general dishwashing trays. Broken glassware should be disposed of in special boxes (blue banded), 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 B9:306, D9:410, 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. Many people working at IMBIM are allergic to animals. Aerated rooms shall be used for animal experiments and the animals should be transported in filter top cages so that the spread of allergenic material is minimized. Contact Maria Ringvall, responsible officer for animal experiments at IMBIM.

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, FE112, ref: 465 + name of the group leader, 838 80 Frösön. When you order something from a supplier outside Sweden following invoice address shall be given to the company: Uppsala University, IMBIM, ref: 465 + name of the group leader, 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. For more demanding applications there are one MilliQ in D9:308b and D11:305a for limited amounts of further purified water. The quality of the double distilled or Millipore water is not generally higher than the purified water on tap.

Video cameras - Cameras for photographing DNA-gels are found in B9:3, D9:4, D7:3, A9:3 and D11:3.

All injuries

ALL work related injuries are to be reported to one of the Departmental Safety Officers, "skyddsombud" (Inger Eriksson D9:4, Linus Sandegren D7:3, Eva Murén D11:3 or Veronica Hammar C8:3) 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.

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 database. 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:

Make a risk analysis before starting the lab 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.

You should pour out or send for destruction, solutions no longer in use. It is very important that you, before leaving our department, clean out all your chemical solutions.

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 binds to DNA molecules by intercalating between adjacent base pairs. The toxicity has not been thoroughly investigated and the chemical should therefore be treated as a potential carcinogen. Heating gives rise to poisonous and corrosive gases. Should be bought as pre-made solutions or tablets. Dry powder must not be used. **Gelred** can be used as a "non-toxic" replacement for ethidium bromide.

Jodopax: Use of alternative substances should be considered.

Poisons Information Center 00 08-331231 or 00-112 ask for Poisons Information Center

BMC Safety Office

Uppsala university safety officer

4543 Terese Bergfors (Safety Officer)

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 familiarise 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. Access to HOT-lab in B3:0 is given only after permission from the Radiation Safety Officer at BMC, Svatlana Yahorava.

Ordering Isotopes

Before ordering, check the supply of isotopes. Upon receipt of the isotope, leave the by-pack-sheet in the radioisotope folder with an indication where the isotope is stored and if portions (indicate volume) have been removed.

Storage of Isotopes

The isotopes must be stored in the specifically designed labs in A9:3, B9:3 or D9:4, in the properly marked refrigerators/freezers. You are not allowed to store radioactive isotopes in unmarked lab areas. A form to register ins and outs is attached on the doors of the respective refrigerator/freezer. Indicate whenever you put in fresh isotope and whenever you use some. At the end of the year, a complete list of all stored radioisotopes is to be delivered to Dorothe Spillmann who is responsible for isotopes at the Department.

Lab Classification and Limits for Work Exposure and Storage

Work with as small amounts of radioactivity as possible.

In the isotope lab at IMBIM you are allowed to work with maximum:
50 MBq (1.4 mCi) of ^{32}P , ^{33}P , ^{35}S , ^{14}C or ^3H .

Work in the HOT-lab (B3:0) must not exceed 500 MBq (= 14 mCi) per single handling of ^{32}P , ^{33}P , ^{35}S , ^{14}C or ^3H . In the HOT-lab other isotopes can also be used. Contact the radiation officer Svatlana Yahorava for further information.

Book-keeping

Purchase of radioisotopes must be filed in each group. Work in the specifically designed labs in A9:3, B9:3 or D9:4 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. ^{32}P). You receive them from the safety representative. Dosimeters are checked regularly.

All working space used for radioactive isotopes must be regularly checked by wipe-tests (for low β -emitters e.g. ^{14}C , ^{35}S , ^3H) or Geiger-counters (for strong β -emitters) - make sure that the Geiger counter is of the right sensitivity class for the isotope you intend to monitor. 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 D9:4.

General working practices

- Never eat, drink, put on make-up, smoke or take snuff in the lab (this is a general lab rule!).
- Never pipette by mouth!!
- 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.
- Use the fume-hood if there is a risk of volatile components being emitted.
- 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 so that the working space is available for the next user (another general lab-rule!). This includes also pipettes, centrifuges etc!

Shielding

- The best protection against strong β^- emitters is distance. Your fingers are most at risk. Wherever possible, use forceps and work as rapidly as is safely possible.

Strong β^- -emitters (e.g. ^{32}P) should be handled behind a 10-15 mm-thick perspex shield ("Plexiglas"). Don't use lead shields as these will give rise to secondary radiation (Bremsstrahlung!).

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

^3H requires no shielding.

- Never work with open wounds on your hands or arms!
- Wash your hands after handling radioactive material.

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.

Major spills

Ask your closest colleague to help you decontaminate yourself first.

Prevent the spread of contamination: no one is to be allowed to leave or enter the contaminated area without checking that they are free from radiation.

Shield spills emitting strong β^- radiation and keep as much distance as possible between you and the source.

Inform the radiation officer, Sviatlana Yahorava 00 070 425 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 , ^{14}C and ^{35}S) are to be placed into separate waste containers if possible.

^{32}P are to always be placed in separate waste containers.

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

Solid waste (e.g. protective gloves, test tubes, protective paper, "HiSafe 3"-vials) goes into the yellow cartons, which must be filled with absorbent grains to prevent leakage. Each filled box must be clearly marked "RADIOAKTIVT AVFALL" with content and activity. Indicate your name, department and telephone number.

Liquid waste amounts under the ALI_{min} limit can be poured down the specially assigned clearly marked sink (and only there!) by diluting with large amounts of water. Liquid waste above ALI_{min} must be stored to decay (^{32}P , ^{35}S) or rinsed down in aliquots not exceeding the limits. The amount of radioactivity put into the storage container must be registered each time in a logbook.

The maximum dose allowed each time:

^3H : 1 ALI_{min} = 80 mCi = 3000 MBq

^{14}C : 1 ALI_{min} = 2.4 mCi = 90 MBq

^{35}S : 1 ALI_{min} = 2.2 mCi = 80 MBq

^{33}P : 1 ALI_{min} = 1.1 mCi = 40 MBq

^{32}P : 1 ALI_{min} = 0.27 mCi = 10 MBq

A maximum of 10 ALI_{min} per month at the department is allowed. Larger amounts must be absorbed and discarded as solid waste.

Scintillation waste is placed in cartons in a well-ventilated hood. Make sure that caps are fastened tightly. Mark the carton as "RISKAVFALL".

Yellow banded boxes with radioactive waste are brought to C6:0, 22b. On Tuesdays 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 <http://www.av.se/teman/gmm/>.

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 (agar plates, tubes, tips etc.) must be collected in a yellow “Riskavfallskartong” with a lid. Sharp objects are collected in a plastic flask (or similar), before being discarded in the “Riskavfallskartong”. Verify the content of the cardboard box by ticking the appropriate squares.
- After completion of your work; i) clean the working area with 70% ethanol; ii) wash your hands.

Antibiotics in culture media

You are not allowed to pour culture medium containing antibiotics into the sink. It must be collected and treated with sodium hypochlorite solution first (see p. 6). After this treatment, you can pour the medium in the sink. 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 storage room in C4:1 (open 10-10³⁰ and 13-13³⁰), is excellent for absorbing contaminated liquids. During the decontamination period, appropriate measures to seal-off the contaminated area should be taken.

WORK WITH INSTRUMENTS

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.

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.

WORK IN THE CELL CULTURE ROOM

Do not enter the cell culture room with street 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 empty plastic bottles and placed sealed in the Blue waste box for sharp and sticky objects (“stickande/skärande”).

Close and mark full waste boxes and transport them to their final storage place (see **Waste**).

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.

Antibiotics in culture media

You are not allowed to pour culture medium containing antibiotics into the sink. It must be collected and treated with sodium hypochlorite solution first. (see p. 6). After this treatment, you can pour the medium in the sink. Find out the precise routine in the cell lab where you are working.

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 webpage, www.bmc.uu.se/Environment+%26+Safety/Waste/?languageId=1. Notice the distinction between "Riskavfall" and "Laboratorieavfall"

The **blue-banded boxes** "stickande/skärande" are intended only for sharp not contaminated items such as needles and glass. Sharp items should be placed in a plastic bottle within the box. The purpose of the box is that no person should be cut by accident while handling our garbage. Paper, gloves etc. should be put in a standard waste bin. The blue-banded boxes are to be transported to "compactor/komprimator" at D0:0.

Yellow-banded boxes are intended for separate handling including a separate transport from BMC. They can be used for three different types of waste:

1 - Infectious waste and genetically modified organisms (Smittfarligt) are sent to Uppsala Energi for separate burning. Examples are agar plates with bacteria, all human samples etc. If you have anything that is pathogenic, you have to eliminate the pathogenicity before sending it to waste.

2 - Sharp waste (Stickande/skärande) are also sent to Uppsala Energi for direct burning. These boxes are used when needles, pipette tips etc contain small amounts of chemical contamination. Needles and other sharp items should be collected in sealed jars before putting in the box.

3 - Biological waste (Biologiskt avfall) is to be used only for larger animals or big organs. The biological waste is transported to Ultuna for burning.

All yellow boxes have to be labelled in a special way and provided with a document for transportation.

Chemical waste

Leftovers or outdated chemicals in original bottles or boxes are taken care of by Ragn-Sells regularly each month. You find information at the webpage 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. You can call Ragn-Sells for advice free of charge during working hours, phone 00 08 795 45 55. 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 and an estimate of the percentage of each component. 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".

Glass waste

Glass to be recycled (mainly bottles) is put in containers for coloured "färgat" or clear "ofärgat" glass in the garbage room. Laboratory glassware can unfortunately not be recycled (because of its high melting point) and should therefore be handled as sharp waste.

Batteries and electronic waste

Used batteries can be disposed in the bucket in IMBIM post room in C8:3 or in D0:0. Contact Olav before you intend to throw away electrical equipment.

Used empty gas flasks for fire boys 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.

IN CASE OF FIRE

There are several repeating signals from the alarms announcing fire. Instructions may follow in the loud speakers.

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) or call the fire department (00/112).

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

Escape through the nearest escape route and go to assembly point, see map page 25.

Corridor A8:2, A9:2 and A9:3 – North field.

All the other corridors at IMBIM – The carpark next to the sportsground.

Do not use an elevator

Close the doors to prevent fire and smoke from spreading.

If possible meet the fire brigade or make sure that someone does.

When the fire department is notified, evacuate the lab. The meeting place (where everybody must go immediately in order for a roll-call) is at the parking lot at Husargatan. Persons working in the A-line are to go to the open field north of the BMC building.

There is a course in fire safety each year, which is mandatory for all newcomers to IMBIM.

WHAT TO DO YOU DO IF YOU SQUIRT HARZARDOUS 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)	00 611 00 00
Eye-clinic (direct phone)	00 611 51 31 (7.30 to 16.30) or 00 611 00 00

IMPORTANT PHONE NUMBERS

Fire department and ambulance and police	00 112
Toxic chemicals - hot line	00 112 or 00 08- 33 12 31
Akademiska hospital	00 611 00 00
Eye clinic.	00 611 51 28, 00 611 00 00
Uppsala University	00 471 00 00
Trouble with the building, electricity, water or sewerage	00 68 32 04
Suspicion of crime or thefts The police and send an e-mail to Daniel.Karlsson@bmc.uu.se	00 471 25 00 00 114 14
Securitas Surveillance	00 471 25 00 -----

RESPONSIBILITY LIST

Radiation safety officer	IMBIM	Dorothe Spillmann, 4367
" " "	BMC	Sviatlana Yahorava 070-425 04 23
Union Safety Officer (Skyddsombud)		Inger Eriksson, B9:4 Linus Sandegren, D7:3 Eva Murén, D11:3 Veronica Hammar C8:3
Genetically modified microorganisms		Dan Andersson, 4175
Trade union representative (Arbetsplatsombud)		Malin Strömbom, 4468 ST-ATF
Instruments		Lars-Erik Hermansson, 070-683 20 74
General maintenance		Note in the corridor log book! BMC technicians
Handling of chemicals		Eva Andersson, 4257
Fire inspector		Eva Andersson, 4257
Website		Veronica Hammar, 4444

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

WARNING SYMBOLS/VARNINGSSYMBOLER

Toxic/Giftigt



New symbol/Ny symbol



Old symbol/Gammal farosymbol

Danger to health/Hälsofara



New symbol/Ny symbol

Harmful or irritant/ Hälsoskadlig, irriterande



New symbol/Ny symbol



Old symbol/Gammal symbol

Corrosive/Frätande



New symbol/Ny symbol



Old symbol/Gammal symbol

Flammable/Brandfarligt



New symbol/Ny symbol

Gas cylinder/Gas under tryck



New symbol/Ny symbol



Old symbol/Gammal symbol

Oxidizer/Oxiderande



New Symbol/Ny symbol

**Biohazard/Biologisk fara,
smittrisk**



Old symbol/Gammal symbol

Read the label!



Explosive/Explosivt



New symbol/Ny symbol

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



Old symbol/Gammal symbol

**Environment
danger/Miljöfaror**

**Dangerous for the
environment/Miljöfarligt**



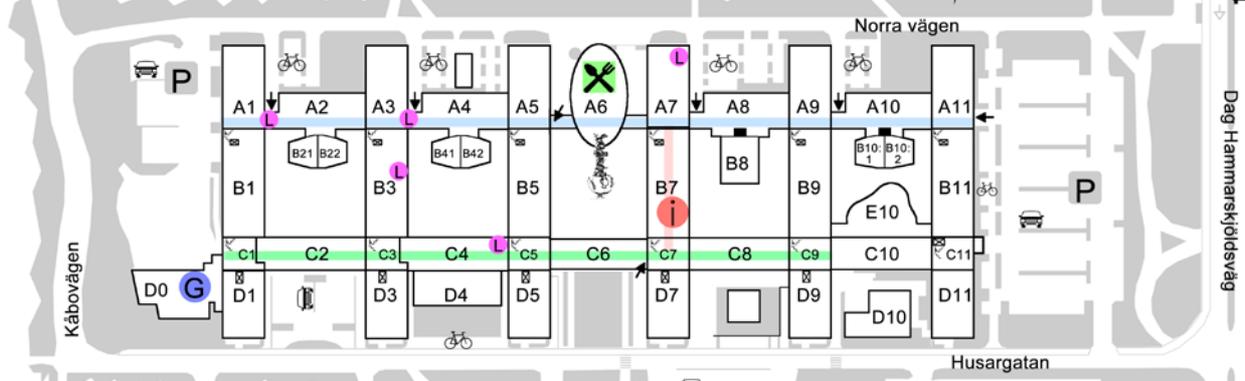
New symbol/Ny symbol



Old symbol/Gammal symbol

BMC

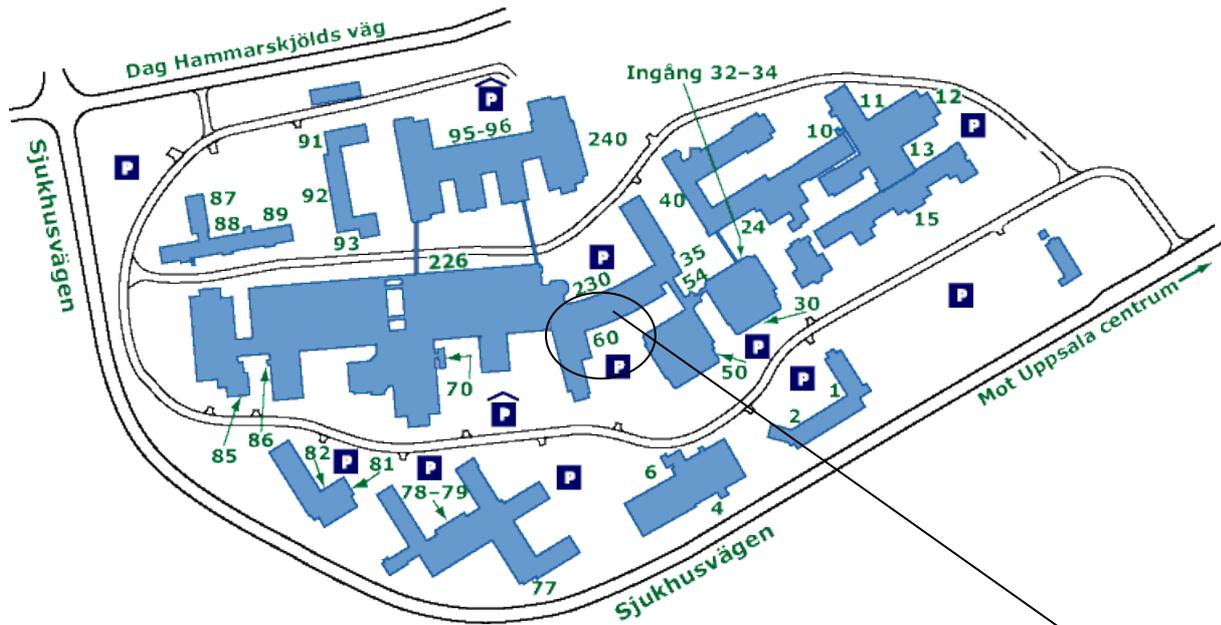
ASSEMBLY POINT
NORTH FIELD



ASSEMBLY POINT
THE CARPARK NEXT TO
THE SPORTSGROUND

Map of University Hospital, Uppsala Akademiska Sjukhus

Phone No. 00 611 00 00



Emergencies - entrance 60

**NEWCOMER'S INFORMATION -
DELIVERED AND RECEIVED**

I have read the IMBIM Handbook. The manual has been discussed with my group leader in the presence of the safety representative. I have been shown the protection and safety devices in the laboratory.

.....
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

Give the signed form to Veronica Hammar, C8:3