Welcome to the Department of Biochemistry and Molecular Biology
Department of Biochemistry and Molecular Biology

Chair: Dr. Surinder Batra

Administrator: Amy Dodson
Department Budget, Grant submissions, HR, Visas, new hires

Office: Karen Hankins is responsible for students

Colleen Johnson is responsible for purchasing, publications and travel.

Jeanette Gardner is responsible for grant accounting, repairs, and special projects.

April Busch is responsible for grant accounting.
Biochemistry and Molecular Biology Safety Seminar

Each individual must act as their own Safety Officer. Employees/Students are responsible for reporting any actual or potential safety hazard to their supervisor or the Safety Office at 402-559-7315. For information, access the UNMC safety office web site at

http://info.unmc.edu/safety_office.htm

BMB Safety and Equipment Committee:

    Dr. Laurey Steinke, Chair
    Dr. David Klinkebiel
    Dr. Kishore Challagundla
    Dr. Melissa Teo-Fitzgerald
    Dr. Armen Petrosyan
    Jeanette Gardner

Research Resources Manager (Campus-wide position, office in DRC One):

    Julie Sommer
General Emergency Procedures Information

Emergency Maps and Procedures for the building are present next to the elevators.

Alarms in the DRCs are flashing lights and announcements. Fire/Tornado drills are periodically conducted on campus. All UNMC personnel are expected to respond to any alarm activation including drills.

e2Campus security system: The University will send text messages and or e-mails and/or pages to subscribed students and employees in the case of an extreme emergency on campus. Sign up by going to Employee Self Service (Med Center) then to Emergency Notification.

Code Silver: Active shooter on campus.
If you are in the area where the event occurs:
1. Call 911 and Security Dispatch at 9-5555
2. Identify yourself and your exact location
3. Describe what is happening
4. Describe the suspect
5. Answer the dispatcher’s questions

If you are in the building where the event occurs:
1. Clear corridor, warn others and help others escape
2. Do whatever is necessary to survive the situation
3. Move everyone into rooms that lock from the inside
4. Barricade doors, turn off lights and close curtains and blinds
5. Silence any noise making devices and make plans on what to do if shooter enters.
Tornado Emergency Procedures

Know the difference between a “Watch” and a “Warning”:

**WATCH** – The weather conditions are “right” for severe weather. Listen to developing weather and be prepared to move. This can last several hours.

**WARNING** - The weather conditions are “The tornado is here”. You need to take shelter. Wait until an all clear is given, or the warning has expired to leave the safe area. A warning usually last for thirty minutes or less.

The Safety area for the DRC 7th floor is by the 7th floor service elevators. The Safety area for BCC is the bathrooms in the knowledge transfer centre.

The Biochemistry office has a weather alert radio in the office.

An announcement for the building will be made over the intercom system by Security—remember, after hours or on the weekend this system may be slow.

Do not use the elevators or the glass stairways during a Tornado.
Fire Emergency Procedures

The DRCs and BCC have thick concrete between each floor. Any break into that concrete is “fire caulked” with a substance which expands in the heat and does not allow the fire to spread. So, only the floor with the alarming device, one floor above and one below is asked to evacuate in a fire. The rest of the building is notified that there is an emergency.

• If a message tells you to leave the building, you must do so. Meet with your lab in its designated area.
• Do not use the elevators, even if they remain in operation.
• If you are not asked to evacuate, you may leave if you wish. If you choose to stay inside, you need to stay in your current area.
• Follow instructions.
• Do not re-enter the building until you have been given the “all clear.”
• Security has access to an evacuation chair which can be used to evacuate people down the stairs. The stair towers are built to withstand fire for two hours.
Fire Emergency

Do not use Door Stops - The only way to hold a smoke barrier or hazardous area door open is by a device arranged to automatically close.

R – Rescue or Remove those in danger.
A – Alarm/Alert by pulling fire pull station and calling 9-5555.
C – Confine the fire by closing all doors and windows.
E – Extinguish or Evacuate the fire if possible without endangering yourself.

Fire Extinguisher Types: (located by each end of the hallways)

Class A - ordinary combustibles, which contain water
Class BC - Flammable or Combustible liquids or Electrical which contain carbon dioxide
*Class ABC – Flammable or Combustible liquids or Electrical which contain ammonium phosphate powder or halon.

P – Pull - the pin from the extinguisher.
A – Aim – the nozzle of the extinguisher at the base of fire.
S – Squeeze – the handle to discharge the contents of the extinguisher.
S – Sweep – the agent back and forth over surface of the fire until it is fully extinguished.
Under the Microscope: The budget process
Chancellor Jeffrey P. Gold, M.D., talks with Deb Thomas, senior associate vice chancellor for business and finance, about the 2015-16 budget process.
Safety Information on the Web

At UNMC, the safety and security of students, faculty, staff and patients is one of our foremost concerns. This concern goes beyond physical security — as a medical, research, and educational institution, we also are held to the highest standards for environmental, laboratory and information security. Every member of our community is integral to ensuring these standards are met and upheld. The menu to the left links to the departments, policies and tools governing safety.

If you have a security incident, please call 9-5111 immediately to reach the Campus Security Dispatch. If you have a campus emergency, please call 9-5555.

Emergency Numbers
- Security: 9-5111
- Fire: 9-5555
- Medical Emergency: 9-5555
- Biohazard Spill: 9-5555
- Blood/Body Fluid Exposure: 9-6824
- Chemical/Radioactive Spill: 9-6356
- Chemical/Radioactive Exposure: 9-5555
- HIPAA/Privacy Breach: 9-7700
- Information Security Breach: 9-7700
- Post-Exposure Guidance: 9-6824
- Veterinary Emergency (work hours): 9-4034
- Veterinary Emergency (after hours): 9-5111 (ask for Veterinarian on Call)
Personal Safety

Policy 5.2: UNMC identification badges must be worn at the work location during work hours.

Do not allow people to follow you up the elevator or through a locked door. Do not “swipe through”.

If you see someone who doesn’t belong, let someone in authority know.

If someone without access is coming to visit, you must meet them in the lobby and escort them upstairs.

The presence of children in the building is tightly regulated. Read the policy if you have a child.

Don’t wear gloves into the hallways or elevators. If you are carrying something that requires a glove, make sure you have a glove-free hand for doors. Better yet, if you are carrying something that looks dangerous to a lay person, put it in a box. If it is in a plastic box, you don’t need to worry even if you drop it.

Do not answer the phone wearing gloves.

Samples, chemicals and laboratory equipment belong in the service elevators, not the main elevators.
General Safety Rules for the Laboratories

- Keep the laboratory and work area clean and well organized.
- Organize and wrap electrical wire where possible. Do not run cords by water!
- Each person must have a lab coat, and there should be extras in lab to wear when your coat is in the laundry. Lab coats are laundered by the department. Put your labeled coat in the holder in 7033 to be washed.
- Wear closed-toe shoes and tie back long hair. Wear goggles when working with or around hazardous chemicals.
- Ensure that equipment you use is in good working order and is safe to operate.
- Dry ice will crack laboratory sinks and thus must not be placed in the sink.
- Personal items such as eyeglass cases and purses are not to be placed on work surfaces where contamination is possible. Please keep these items in lockers, office, and the kitchenette.
Daily Safety Actions for the Laboratories

Daily action plan for each lab

• Keep the sinks clear of dirty dishes and clean.

• Empty lab containers of used chemicals.

• Make sure the eye wash station is not obstructed.

• Clean and disinfect work surfaces and equipment with an approved low-level disinfectant after completing a procedure.

• Use your fume hood with the sash as low as possible. Remember to shut the sash when you are done, and always at the end of the day.
How do I know if something is hazardous?

Signs on the doors.

1) Hazards Present
2) Fire Diamond
   - Health-Blue
   - Flammability-Red
   - Chemical Reactivity-Yellow
   - Special conditions-White
   0=No Hazard, 4=Severe risk

What personal protective equipment do you need?

What kind of gloves should you wear?

Does this chemical need to be used in a fume hood?

You find the answers on the Chemical and Radiation Safety Office Web Site.

Material Safety Data Sheets MSDS

(There are safety issues not covered by MSDS, such as infectious viruses or bacteria, blood, human cells.)
Safety Information on the Web

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DEPARTMENT OF CHEMICAL & RADIATION SAFETY

Chemical and Radiation Protection
Our compliance programs protect those on campus as well as the environment.

Chemical Safety Office
The UNMC Chemical Safety Office, working in conjunction with the campus Chemical Safety Committee, establishes policies and procedures for the safe acquisition, use, storage and disposal of chemicals on campus.

The Chemical Safety Office also advises campus chemical users on best practices and helps the university community comply with federal, state and local environmental protection laws.

Radiation Safety Office
The UNMC Radiation Safety Office, along with members of the Radiation

Reference Materials
- DOT Inspection 2014
- EPA/RCRA Corrective Action
- Complete Letter
- DOT/FAA Inspection 2013
- Reply from State to UNMC Response Letter June 2013
- Signed Response to X-Ray Inspection June 2013
- UNMC X-Ray Inspection Notice of Noncompliance May 2013
- State Inspection on UNMC Radioactive Materials Broad Scope License 3/14/2013
- DOT/FAA Inspection 2011 Closeout
- DOT/FAA Inspection 2011

Recent Updates
Scroll down to find MSDS

Or, look in the quick links for “safety data sheets”
Safety rules regarding food and drink

- Do not eat, drink, use cosmetics or apply lip balm while in the lab.
- Do not remove or put in contact lenses in the lab. Wearing contacts while working with or around hazardous chemicals or fumes is particularly dangerous. Make sure you have goggles.
- Department microwaves for food are located in DRC 7049, 7005, and by 7073.
- Refrigerators used to store food needs to be labeled “for food only”. Refrigerators and freezers used to store food must be clean and well-organized. The Departmental refrigerator is located in DRC 7049.
- Neither food microwaves or refrigerators may be in the lab.
- Covered food and drink may be placed on small tables in the hallways. Please keep them neat and organized.
- Clean up after yourself.
Safety while moving materials

- Do not carry chemicals across hallways--use a rubber acid carrier located in DRC 7037 or a cart with a secondary container.

- When moving items in the building, use the service elevators.

- Gas cylinders must be secured at all times by chains. The tops should be on when not in use. When moving a cylinder, please use the handled carrier located in DRC 7033S.

- Keep all chemicals labeled and in secondary containers at all times.

- Keep accurate inventories of toxic or hazardous materials. Lists are located in each lab and are updated once a year. These lists can also help when making laboratory signs. Please ask your lab where the list is kept.

- Keep out the amount of chemical you are going to use, not the whole container. It is easier to clean up a small spill, instead of a large one.
Chemical Spills on YOU—what to do

Emergency shower and eye wash stations:

• Know where the closest eyewash and emergency shower are located. A person should be able to make it to the eyewash station in 15 seconds.

• These areas should be clear at all times. Don’t pile dirty glassware in front of the eyewash station!

• Please remember to flush your eyewash stations for at least 5 minutes once a week. This keeps fresh water available in the event that it needs to be used and will help identify any problems with the station in between tests.

• If you should need to use the emergency showers stay for 20 minutes. They are located in the hallways and some bathrooms.

Note that formaldehyde, xylene and dichloromethane need exposure monitoring. Talk to your PI if you are in the presence of these chemicals.
Chemical Spills

In case of spills:

• Restrict access to the area of the spill.

• Identify the spilled material, the amount, and level of hazard.

• Contact proper people for cleanup. This could be yourself or the spill team that needs to deal with the level of hazard.

• **Small spill** is defined as an incidental release of hazardous materials where the hazardous material does not pose a threat to human health or the environment and can be absorbed, neutralized or otherwise controlled at the time of release by employee in the immediate release area. Complete a green tag and call Chemical Safety to pick up the bagged spill residue.

• **Large spill** is defined as a release of hazardous material that poses a threat to human health or the environment and cannot be absorbed, neutralized or otherwise controlled at the time of release. Call dispatch at 9-5555.
Chemical Disposal

• Many chemicals can be flushed down the sink, and many cannot. See the Chemical safety web site. Just because you did it in another lab does not mean the rules are the same here.

• Universal Waste like batteries that use lead, acid, nickel cadmium (rechargeable), button batteries (from watches, timers and calculators) and lithium batteries, mercury lamps or bulbs, and fluorescent tubes must be green tagged and sent to Chemical Safety. Alkaline batteries can be put into the regular trash or a special recycling container.

• Radioactive Waste is any material with detectable radioactivity above background levels. Items should be yellow tagged and called in to Radiation Safety.

• All empty, plugged or unused aerosol cans (WD-40, air adhesive) must be green tagged for Chemical Safety to pick up. You can either mail the top copy to Chem safety or go online to ask for pick up.

• All used chemicals should be stored in compatible secondary containment. The lids must be closed at all times except when adding waste. Make sure they are properly labeled with full chemicals names (no abbreviations).

• Waste containers can be bought from General Supply. When chemical collection containers are full, or haven’t been added to recently, they should be tagged with a green chemical collection tag and chemical safety called for pick up.
Biohazard Disposal

• Biohazardous waste (infectious waste) is defined as material of biological origin capable of producing an infectious disease in humans or animals and includes at a minimum blood, body fluids, discarded sharps and inoculated culture media.

• Biological organic waste disposal cans (red containers): When the container is full, tie the bag shut by twisting the bag and making a half knot. Do not use “rabbit ear” tying. The lid should fit on the container. Put the container out in the hallway and environmental services will replace with an empty one.

• Extra empty red biological hazardous cans are located in room DRC1 7033S.
When the container is ready for disposal, it is closed by:

1. Pulling all edges of the bag together and twisting into a single braid, similar to wringing a towel. **NOTE: DO NOT COMPRESS WASTE, as sharps may be present!**

2. Tying in a single knot, pulling tight.

3. Securely placing the lid on the container before transport to the pickup location.
Sharps

• No pipette tips are allowed in the regular trash cans. Pipettes, pipette tips, and serological pipettes must be placed in lined boxes or cans, then, when ¾ full, sealed and placed in the biohazardous waste.

• Remember not to overflow your used pipette box by your tissue culture hood. Seal the old box up and get a new box.

• Make sure that there is a plastic bag inside the pipette box so that the box doesn’t weaken or leak.

• Broken glass is put in a bag, in a box, sealed, and marked with “Broken Glass.” Put the box in the hallway. Special boxes for this use are available from General Supply-- numbers 124139, 124140, and 124141. Other boxes may be used.

• Sharp Containers: Includes razor blades, needles, lancets, or anything that can puncture the skin. These items are put in a box, sealed, and marked with “Sharps” and the box with the biohazardous waste. DO NOT ATTEMPT TO RECAP NEEDLES!
Recycling

- Recycle all paper in any form of any thickness in the blue paper containers. This includes catalogs and hardbound books, but not napkins, paper towels or any other food services paper.

- Green combined plastic/aluminum containers are spread throughout the building. Plastic #1-6 are accepted and this can include items from the labs, as long as they are clean (rinsed). Plastic silverware can be recycled. Wipe it off on your napkin. Media bottles can be recycled with their caps as long as there is not a rubber seal inside the cap. Rubber seals need to be removed and placed in the trash.

- Cardboard boxes must be broken down by the lab and put in the hallway for recycling.

- There are recycling containers for pens and alkaline batteries in the BMB Office.

- Melanie Stewart is UNMC’s sustainability manager.
Shared Equipment and Areas

• Please leave the equipment and area in better condition than you found it.

• All users MUST sign the user log on all pieces of equipment with cost centers and PI name.

• Keep the following rooms locked at all times: DRC 7017 (centrifuge), 7023 (darkroom), 7025 (iodination), and 7038 (shared room) and shared rooms in BCC.

• Report any broken equipment to the person in charge of the equipment.

• For BMB equipment, instructions are placed next to the equipment and are also available on the departmental website. For Eppley equipment ask for instruction from the person in charge of the equipment (on the wall inside common rooms). Plan ahead, it may take some time to get onto their schedule.

• Milli-Q Water: You MAY NOT leave the Milli-Q system while water is being dispensed. Floods are expensive, dangerous, and lead to angry neighbors.
Mercury Spill

- Mercury affects the central nervous system and with prolonged exposure can cause brain damage.

- The Chemical Safety Office would like all mercury equipment like thermometers to be removed from the labs and replaced with alcohol ones.

  Small Spill during working hours ext. 9-6356
  Call Spill Team – if large amount – Ext. 9-5555
  Cordon off area to prevent migration of contamination
Ethidium Bromide (EtBr)

- Poison
- Harmful if swallowed
- Fatal if inhaled. Use only in a well-ventilated area.
- Suspected of causing genetic defects-intercalating agent. Generally thought not to be directly mutagenic but its metabolites are.
- Avoid contact with skin.
- Handle with gloves. (Nitrile) Use proper glove removal technique (turn inside out, don’t touch gloves outer surface with bare skin.) Wash and dry hands.
- Paper towels, pipettes, gels and gloves used with ethidium bromide MUST be disposed of in a biohazard (red) bin.
- Note the special instructions by the gel doc and follow them, however, don’t presume that other people are following them. Wash your hands when you leave this room.
Liquid Nitrogen

- Can injure by causing cold burns and frostbite or kill by asphyxiation or by the explosion of poorly designed LN2 containers.

- Make sure the storage area is well ventilated.

- If vials are stored submerged in liquid nitrogen, they may explode when warmed.

- Appropriate protective equipment: insulated gloves, boots, waterproof apron and face masks.

- The -80° freezers are also cold enough to cause frost-bite. Use gloves and bring an ice bucket to carry your samples. Don’t keep the doors open.
Cell Culture

Main hazard is from infectious agents carried by the cells or from the components of the culture medium. Remember, cells and sera may carry viruses or mycoplasma. There are documented cases of serious laboratory-acquired infections (e.g., hantavirus, lymphocytic choriomeningitis virus, adenovirus, lentivirus) from tissue, primary cell cultures and tumor cells taken from, or transplanted into, rodents.

Aerosols and any process that may produce aerosols (centrifugation, vortexing, sonication etc.) can spread infection and should be contained.

The extensive safe use of continuous cell lines indicates that there is little risk from routine cell culture.

Appropriate protective equipment: lab-coat, gloves, and (depending on the culture and conditions) eye-protection. Recommend that all subculture, or other procedures involving the manipulation of bulk cells, should be performed in a Class II Biosafety Cabinet (BSC) with a HEPA filter versus a laminar flow hood.

Note: Handling clinical specimens including blood and tissue samples requires completion of special training.

Required Training

- Yearly safety competency modules in Laboratory Safety or General Safety
- And, if appropriate:
  - Formaldehyde or formalin safety module
  - Annual Radiation training
  - IBC General Biosafety Training
  - Bloodborne Pathogens and infectious disease training
- More as assigned to you. Notification via e-mail
Injuries

Band-Aids/first aid supplies are kept in the main office and in some labs.

Tell someone (supervisor/office) if serious injury has occurred.

Go to the Emergency room for serious injury.

Fill out incident report (available in office or in Emergency room).

When to fill out an Incident report:

1. Either did or could have resulted in injury or illness to an employee, volunteer, student or visitor at any UNMC locations.
2. Either did or could have caused damage to UNMC property.
3. Might otherwise result in a claim against UNMC.
Ice Machine

Please keep the mat by the ice machine. (Room 7033 NOT)

Be careful when scooping ice, and when placing the scoop back on the bench make sure you shake off loose ice back into the bin. Although it is only water, water on the floor is a hazard

Be aware when entering the room that there is a possibility of water on the floor.

Inform Jeanette of spills on the floor.

Fill out incident report if you slip. (available in office).

Dry ice is also in this room. Bring gloves and a hammer if you need dry ice-it is delivered in large blocks. Dry ice can cause frostbite-do not handle it with bare hands.
Freezer Alarm System

• All -80 and -140 freezer in the department are on an alarm system. The computer will call the numbers that have been set-up until someone puts the password and ID in.

• Each person listed on the freezer has a unique pin for the first number entered. The second is departmental—3456.

• If a robot calls your lab, get a person who is listed on the lab freezer contact list.

• A list of departmental freezers is located behind Jeanette’s desk for emergency transfer.
Glassware

Washing:
- Do not stack or pile glassware in the sink. You must have one clear sink in your lab for hand washing.
- Rinse all glassware of any significant chemical residue and the area around the sink of all chemicals and gels. Some chemicals and solvents pose an inhalation hazard, especially when heated with warm water.
- If Glassware washer falls behind, please start washing the dishes in your lab.

Autoclaving:
- If you have items to autoclave, preplan and have them ready for the Biochemistry “grouped run” schedule
- The Biochemistry “Grouped” run schedule is at 11:00 a.m., each MWF. Please have items ready for pickup by 10:15 a.m. all labs on 7th floor are checked.

Decontamination and Sterilization Facility is located in DRC 4033. Atiim Jones is in charge. He can be reached at 9-8310 or by his cell: 402-972-5835 contact for pickup at special times if necessary.
Laboratory Safety Key points

- Safety is YOUR responsibility.
- If you have questions, consult the Biosafety Protocol for your lab.
- When in doubt, ask your mentor or an experienced lab member.
- Enjoy your time in BMB!