

Beck's laboratory safety instructions

General

- In case of emergency, scream for help, and report by calling the phone number – 03-640 **8222**. **Use your judgment to decide if you can handle the problem or need to evacuate immediately.**
- If you are not sure about anything – ask before you do. For any malfunction or problem report immediately to the lab manager Gil.
- Proper clothing – long pants, closed shoe. Robe is required to avoid transferring toxic materials outside the lab.
- Unauthorized people are not to be left alone in the lab.
- Know where the fire extinguishers are located. In the wet-lab, it is located near the sink and in the x-ray room near the interior door. There are additional ones in the corridors of the nano-center.
- Know where the first aid kits are located – in the wet lab, near the Acta, in the x-ray room near the UPS station and tools, and another one is located in the nano dining room.
- Do not work with malfunctioning equipment.
- Know where the nearest emergency exit is located for each lab in the building. Wet-lab: middle window; X-ray: door to the patio behind the x-ray generator; student room the window behind the table.
- In case of a fire getting out of control, if possible, disconnect the electrical power using the main switch. In the X-ray room, it is located inside the room behind the computers; Wet-lab in the nano-center corridor behind the dining room.
- A defibrillator is located behind the dining room.

Wet-lab specific

- Specific safety gear is located in the corridor near the wet-lab underneath the centrifuge. It contains thermal insulating gloves (for cold such as liquid nitrogen and hot such as removing things out from the autoclave), spill jacket, respirator.
- When using liquid nitrogen, use the specific container and avoid direct contact with your body parts. Make sure the room is aired to avoid suffocation.

- Work with gloves when using toxic and dangerous material. Before leaving the lab, dispose of the gloves.
- Don't eat, smoke, or drink hot drinks inside the lab.
- Lock the door if you are out of the lab for more than 10 min.
- Working with dangerous material is only permitted during working hours (8-18) and with another person present in the lab.
- Use an eye shield when working with dangerous material such as strong acids or strong bases.
- Use a mask when working with dangerous powders such as sodium azide.
- Use headphones while working with the sonicator device.
- Make sure the window is open for air circulation.
- Try to avoid transferring dangerous material in unsealed containers. If needed, use a secondary bucket to avoid spill in case the container is broken during the transfer.
- Don't place glass bottles on high shelves.
- Broken glass and sharp needles should be stored in a specific container.
- Don't pour water into acids. Always Add Acid (AAA) to water.
- Don't smell materials.
- Keep your workplace clean and tidy.
- Write down on each new tube you are using: your name, date of preparation and content
- Use dangerous material only inside the chemical hood and make sure the hood is functional prior to using it.
- If a chemical gets splashed into your eye, immediately wash for at least 15 min with eyes open and call 8222.
- If a large amount of dangerous materials is spilled over your clothes use the shower in the corridor outside the wet-lab. Take off all your clothing and scream for help.
- Don't autoclave closed bottles.
- Know the location of fire alarm button – near the wet-lab corridor.
- Don't throw chemical or biological waste to the sink. Use specific containers for specific waste. Make sure you are using the right container. Don't throw different kinds of waste into the same container.
- Read the specific MSDS when working with a new material you never worked with before. If this is a new material to the lab, read and print a copy of its MSDS to keep in the lab. The MSDS folder is located on the shelf in front of the sink in the wet-lab.

X-ray specific

- Only an authorized person can use the x-ray machine. Authorization is given by Prof. Roy Beck alone.
- You are not required to be “radiation personnel” to normally operate the system.
- You need to be classified as “radiation personnel” if you are aligning the optics and operating the x-ray when the override key is turned on.
- Make sure all doors are shut before operating the safety shutter. When all shielded-doors are shut, the indicator will turn green near the computer.
- When the x-ray is operating yellow and red lights are turned on.
- When the shield-doors are shut the outside red light will turn on.
- Do not open the X-ray shielded-doors while operating the x-ray. Close the x-ray shutter before opening these doors.
- The override key should not be present during normal operation. If you see the key, immediately contact the lab manager (Gil) and return it to him.
- Do not place unused samples, food or unneeded liquids inside the x-ray table.
- The x-ray generator produces a dangerous high voltage. The presence of the cooling system nearby presents a safety challenge. In case you see leakage from the cooling system or other liquids nearby the electrical system, immediately shut down the x-ray generator.
- Make sure all vacuum gauges are at their lowest pressure value, and that the water cooling system is at the set temperature of 20 °C before operating the x-ray generator.
- Make sure there is enough chilling liquid in the cooling system and that the two vacuum pumps are working properly.
- Make extra care to check the pressure gauges after changing the slits position.
- The Pilatus detector is connected to a dry air system at low flow. Make sure all the lights are green when operating the detector and the gas is flowing according to its gauge.

x-ray alignment

When using the override key additional safety measure must be taken into consideration including:

- Work slowly and plan ahead what you are about to do.
- Lock the x-ray lab’s doors.



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- Only those that are classified as “radiation personnel” can be present. Pregnant women should not be present.
- All these persons need to wear radiation monitor tags and rings.
- Avoid opening the shielded doors as much as possible.
- Make sure to use additional shields such as lead clay and paper to screen unwanted radiation leakage.
- Use the Geiger counter to monitor the area you are about to place your hand in.
- In case you suspect that you were exposed to radiation from the x-ray machine, immediately contact the safety unit at 8222 and report to Prof. Roy Beck and Gil Rahamim.

I _____, ID number: _____, read the specific safety instructions, understood them and will operate accordingly.

Signature: _____ date: _____