

RULES FOR WORKING IN A BIOCHEMISTRY LABORATORY

There are two major concerns to be considered when working in a biochemistry laboratory. First is safety: this can never be overemphasized. General guidelines for safety are discussed below. The second is efficiency in the laboratory work. Although the latter very much depends on the individuals doing the experiments, there are general rules students are advised to follow:

1. keep the benches and shelves clean and well-organized
2. avoid contaminating the chemicals; use only clean glassware and spatulas; label glassware in use,
3. plan your experiments before starting to carry them out,
4. pay attention to others in the laboratory.

SAFETY IN THE LABORATORY

Students working in a biochemistry laboratory must always be aware that the chemicals used are potentially toxic, irritating and flammable. Such chemicals are hazards, however, only when they are mishandled. Students who come to the laboratory session must have a complete understanding of the laboratory procedures to carry out and be familiar with both the physical and chemical properties of chemicals and reagents to be used. Since the carelessness on the part of one student can often cause injury to other students, one must have a special concern for the safety of classmates. Students must be familiar with general safety practices, facilities and emergency action.

I. Safety rules in general

1. Do not work alone in the laboratory.
2. Unauthorized experiments are not allowed.
3. Eating, drinking and smoking in the laboratory are strictly prohibited.
4. Become familiar with the location and the use of standard safety features in the laboratory. The laboratory is equipped with fire extinguishers, eye washes, safety showers, fume hoods and first-aid kits. Any question regarding the use of these facilities should be addressed to your instructor.
5. Special care for eye protection is required. Safety glasses must be used when certain procedures are being carried out. The instructor will call the students' attention to those procedures. The use of contact lenses is not recommended, since they reduce the rate of self-cleansing of the eye.

ii. Special safety rules

1. While heating a solution one should make sure not to overheat it; therefore, vigorous mixing of the solution by shaking or stirring is required. The mouth of the glassware containing the solution to be heated should never be pointed toward anyone.
2. Handling of strong acids and bases requires special attention. When diluting concentrated acids, the acid should be poured into the water and never the opposite.
3. The pipets should never be filled with solutions of toxic substances, biological fluids, strong acids and bases by mouth suction. Use either automatic pipets or pipet pumps.
4. Volatile liquids and solids that are toxic or irritating should be handled under fume hoods.
5. While handling flammable liquids such as ether, alcohols, benzene, naked flame (burners, matches) must not be in use. The above liquids must not be stored near radiating heat sources, such as the laboratory oven.
6. Before using electrical appliances, make sure they are grounded.
7. Flasks with flat-bottoms or thin walls should not be dessicated.
8. Before leaving the laboratory, electrical equipment should be turned off, and gas burners extinguished. No tap water should be left running.

iii. Rules to follow in the case of accidents and injuries

Chemical splatters into the eye. First the eyelid should be opened by using the thumb and the pointing finger. Then, by using the eye wash kit, the eye should be rinsed with large amounts of water. When an acid or alkaline solution gets into eye, the eye should be rinsed with 1 % NaHCO_3 or 1 % boric acid, respectively. The victim should be taken to the doctor as soon as possible.

Burning. The burned spot on the skin should not be treated with water; rather, a special bandage should be used. See doctor if necessary.

Poisoning. Prompt medical treatment should be obtained.

All injuries and accidents must be reported to the instructor.