

Guidelines for Working with Carcinogens

In January 2005, the U.S. Department of Health and Human Services released an updated report on cancer-causing agents. The DHHS listing (attached) includes 58 “known” human carcinogens and 188 substances “reasonably anticipated” to be human carcinogens. Several of the chemical substances found on this list are found in University laboratories. PIs and laboratory supervisors must take precautions to prevent carcinogen exposures to personnel and releases to the environment. This guideline promotes the safe use of carcinogens through the recognition, evaluation and control of exposures in all laboratories at the University of Pittsburgh.

- 1. Recognition:** Laboratory supervisors and PIs should review their protocols and chemical inventories to identify chemical carcinogens. When chemical carcinogens are recognized in a lab, distinctive labeling shall be used to identify the special hazards associated with that material. Lab personnel should be trained on proper techniques for safely handling and storage of chemical carcinogens.
- 2. Evaluation:** Personal exposures to any hazardous chemicals, including carcinogens are dependent on the:
 - quantity of chemical,
 - concentration in air or in solutions,
 - duration of exposure,
 - physical or chemical properties of the carcinogen,
 - potential for exposure via inhalation, ingestion or skin absorption.
 - availability and use of feasible control measures.

Each of these points should be considered for an effective evaluation.

- 3. Control** of carcinogen exposure should always follow a hierarchy for implementation:
 - Engineering controls such as chemical fume hoods, local exhausts or scavenger systems are highly recommended.
 - Administrative controls, including written procedures for carcinogen use and disposal, substitution of less hazardous substances and reduced carcinogen quantities.
 - Personnel protective equipment (PPE) including lab coats, gloves, aprons, respirators, eye and face protection.

Laboratory practice has demonstrated that even the most hazardous chemicals can be handled safely if the health risks are understood and exposures are controlled. Good planning, proper facilities, defined work practices and adequate training are key issues to keep researchers safe when working with chemical carcinogens in the lab.