REPRODUCTIVE AND DEVELOPMENTAL HAZARDS

These guidelines apply only to chemicals. Information on biological and radioactive materials, which may be reproductive and developmental hazards, is not included in these guidelines.

Many factors can affect reproductive health and the ability to produce healthy children for both men and women. The objective of these guidelines is to ensure that students and staff working in research laboratories understand that these factors might include exposure to chemicals, which are reproductive and developmental toxins. Reproductive toxins include chemicals that affect reproductive capabilities. These are chemicals that can cause menstrual dysfunction, impaired fertility, feminization or masculinization, or inability to maintain a pregnancy. Developmental toxins include chemicals that can cause adverse effects on the developing fetus that may occur anytime from conception to sexual maturity. The effects may include spontaneous abortion, structural or functional defects, low birth weight or effects that appear later in life. The key consideration with reproductive and developmental toxins is that exposures during a critical period may result in long-term health effects.

The State of California has a comprehensive list of chemicals known to cause reproductive and developmental toxicity, which is regularly updated. The link to that list can be found at the end of this document. The following are examples of suspected or confirmed reproductive and developmental toxins that are commonly used in laboratories: acrylamide, antineoplastic drugs, chloroform, carbon disulfide, dimethylformamide, ethylene glycol monomethyl (and ethyl) ethers and ethylene oxide.

Precautions

The University strives to keep student and staff exposures to all chemicals as low as possible. By following the precautions outlined below, students and staff can reduce their exposures to chemical reproductive and developmental toxins.

- Review the Safety Data Sheet (SDS) prior to using a new chemical to understand the hazards and routes of exposure of the material.
- Evaluate whether you can change the process to eliminate the use of highly-hazardous materials or substitute with a less hazardous compound.
- Ensure that established standard operating procedures are followed and there are plans in place for accidents/spills.
- Use a fume hood and other engineering controls to minimize inhalation exposures to hazardous materials.
- Wear proper personal protective equipment, which at a minimum includes exam style nitrile gloves, safety glasses and a lab coat. Additional personal protective equipment may be necessary depending on the material and process.
- Prevent accidental chemical ingestion or contamination by never eating, drinking, applying cosmetics or making other hand to mouth contact in the laboratory.
- Wash hands with soap and water after handling chemicals and before leaving the laboratory.

In addition to the basic precautions that should be undertaken when handling all hazardous materials, when protecting reproductive health, researchers may want to consider using administrative controls. Examples of administrative controls would include postponing procedures that may pose developmental risk until after the pregnancy or using job rotation to reduce exposures.

Pregnancy Declaration

All communications (written and verbal) used to identify and reduce reproductive health risks are confidential unless EHS is directed otherwise by the staff member or student initiating the communication.

When a staff member or student wishes the University to evaluate their work environment, they should complete the reproductive health questionnaire at the end of these guidelines. Once this form is submitted to EHS, an evaluation and health risk assessment of the work area will be performed based on the information provided on the questionnaire. Upon completion, EHS will provide a copy of the evaluation, along with recommendations for controlling exposures, to the staff member or student. EHS also recommends that this evaluation be shared with the staff or student's personal physician, who can then determine what, if any, additional restrictions or limitations are necessary.

More information regarding the effects of chemicals can be found below:

- List of chemicals known to the State of California to cause cancer and/or reproductive and developmental toxicity: https://oehha.ca.gov/proposition-65
- OSHA's page on Reproductive Hazards: https://www.osha.gov/SLTC/reproductivehazards/hazards.html
- Reproductive Health and The Workplace: https://www.cdc.gov/niosh/topics/repro/
- The Effects of Workplace Hazards on Female Reproductive Health: http://www.cdc.gov/niosh/docs/99-104/

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Reproductive and Developmental Health Hazard Questionnaire

The purpose of this voluntary questionnaire is to help identify if any chemical reproductive or developmental hazards are present in your work area, the extent of your potential exposures to them and control methods to help prevent or minimize exposures. Please submit the completed form to ehs@yale.edu. Once received, EHS will contact you to discuss the information on the form and, in most cases, will set up a time to conduct a site visit of your work area. Please contact your Safety Advisor or call 203-785-3550 with any questions.

Name:	Date:
NetID:	Department:
Phone:	Email:
PI/Supervisor:	
Do you prefer the results of this evaluation: ☐ be shared with your PI/Supervisor ☐ remain confidential	
What type of personal protective equipment do you wear while handling chemicals? (Select all that apply) ☐ Exam style nitrile gloves ☐ Utility grade glove: specifically_____ ☐ Safety glasses ☐ Chemical goggles ☐ Faceshield ☐ Lab coat ☐ Flame resistant lab coat ☐ Other:_____	
Describe how chemicals are stored in your laboratory:	
Have you had any spills or unintentional exposures recently? ☐ Yes ☐ No (if yes, describe below)	
Do you have concerns about materials used by (or processes carried out by) other researchers who work near you? ☐ Yes ☐ No (if yes, describe below)	
Do you have any specific health or safety concerns about your work? ☐ Yes ☐ No (if yes, describe below)	
Approximately how many hours do you work each week? What percentage of that time do you spend working in the laboratory (include time spent at your workstation/ desk if inside the laboratory): What percentage of that time do you spend working in your office or at your desk workstation outside of the laboratory:	

List the chemical materials you are currently using or anticipate you might use during pre-preconception period or pregnancy. Continue on a separate page if needed.

Chemical	Concentration	Physical State (solid, liquid, gas)	Quantity per use (i.e., 10 ml)	Frequency and duration of use (i.e., 3x/day for 20 mins each time, 1x/week for 10 mins)	PPE used (fume hood, other local exhaust ventilation, etc.)

Once EHS has reviewed the questionnaire and completed its review, any comments or recommendations will be listed below. You will be provided with a copy of this form once the review is complete.

FOR EHS USE ONLY	
Staff/Student Name:	
Personal protective equipment:	
Exposure/engineering controls:	
Chemical handling and work practices:	
Housekeeping and chemical storage:	
Other comments:	
Completed by:	Date:
Copies to: ☐ Affected staff/student ☐ PI/Supervisor ☐ Other: _____	