



OCCUPATIONAL HEALTH RECOMMENDATIONS

March 12, 2015

Request for Veterinary Verification and Consultation: Version 220, January 29, 2016

Request for Significant Change: Version 221, May 16, 2016

To: Edwin Rubel
From: Judy Cashman
Re: IACUC Protocol Number: 2048-02
Title: "Development, function, and regeneration of the auditory system"

A. Animal information

Zoonoses

1. Please refer to the Occupational Health Program Recommendations sheet for persons working with mice, rats, gerbils, and chicken or chicken embryos.

Lab Animal Allergies

2. Laboratory animal allergies (LAAs) can be a risk to anyone working in the animal laboratory environment. Please see the following resources for information about LAAs and preventing respiratory exposures:

Laboratory animal allergy (LAA) pamphlet at the following link:

<http://www.ehs.washington.edu/forms/rbs/LAAPamphlet.pdf>.

EH&S guidance on voluntary respirator use:

<http://www.ehs.washington.edu/ohsresp/index.shtm#voluntary>

NIOSH information on preventing asthma in animal handlers:

<http://www.cdc.gov/niosh/docs/97-116/>

B. Health, Safety, and Exposure information

Hazard Awareness Training

1. Before starting research, all employees must receive documented hazard awareness training. See [Section 7 of the Lab Safety Manual](#) for more information.
 - a. Inform both male and female employees about the reproductive and teratogenic risks when there is a potential for exposure to hazardous agents in the work area. Persons who have questions or concerns about their reproductive or obstetric health risks should talk with their healthcare provider (HCP) or with the EHC HCP (206-685-1026) prior to working with potentially hazardous agents.
 - b. Pregnant women and women who are considering becoming pregnant should be aware of the risks associated with biological, chemical, radiological, and other hazardous agents during pregnancy.
 - i. For considerations and information (including definitions) see the [EH&S Guidance About Workplace Hazards Impacting Reproduction and Development](#) (<http://www.ehs.washington.edu/ohsreprohaz/reprohazguidance.pdf>).

- ii. For Pregnancy Categories of drugs used, refer to the US FDA listings (on the [Micromedex website](#)).
- c. Inform employees that immunocompromised* individuals may be at increased risk of illness, or may experience more severe illness should an exposure incident occur when working with biohazardous agents.

Inform staff that if they have questions or concerns about their health in relation to work with biohazardous agents, they are strongly encouraged to contact the UW Employee Health Center (EHC) at 206.685.1026 for a confidential medical consultation.

*An immunocompromised status may result from immunosuppressive therapy (chronic steroid use, chemotherapy for cancer, immune modulators, radiation therapy and others), diabetes mellitus, cancer, malnutrition, pregnancy, acquired immune deficiency syndrome (AIDS), and chronic alcoholism.

Safe handling of Sharps

2. If sharps are used, there must be a procedure for safe handling and disposal of these:
 - Sharps containers must be in close proximity to where sharps are being used.
 - No re-capping, shearing or bending of needles.
 - Used sharps must be disposed of as soon as feasible.
 - Re-usable sharps must be managed in such a manner to prevent accidental injury.
 - If razor blades are re-used, they must be secured in a highly visible area. Scalpels can be mounted on handles with needle drivers rather than by hand.
 - For use of microtome, review the [Lab safety manual weblink re: microtome safety](#).
 - Change sharps containers promptly when the fill line is reached.
 - Retractable needles would provide the greatest safety for the administration of agents and for blood draws.
 - a. Here is a link for information about these permanently attached needle/syringe combinations: http://www.bd.com/ca/safety/products/injection/syringes_needles/.
 - b. Here is a link for retractable blood collection systems: <http://catalog.bd.com/bdCat/viewProduct.doCustomer?productNumber=367323>.

If you have questions, contact the EH&S Occupational Health Nurse at 206-221-7770. Please also check this [Safe Needle website link](#) (safeneedle.org) for injury prevention tips.

Personal protective equipment (PPE)

3. The PI must provide laboratory coats, chemically resistant gloves and eye protection for laboratory personnel handling hazardous agents or chemicals. Safety goggles should be worn when there is a risk of splash/splatter situations, particularly with use of corrosive disinfectants, etc. Refer to the information in the [EH&S Lab Safety Manual](#). Contact the EH&S Industrial Hygienist at 206-543-7388 for questions.

Laboratory safe practices

4. Please review and follow the Basic Lab practices as outlined in the Lab Safety Manual, Section 2 A. Hands should be thoroughly washed with soap and water upon completion of tasks, after glove removal, and before eating, drinking, etc.

Symptom Development

5. Instruct employees that they must contact the UW EHC (206-685-1026) if they develop signs or symptoms consistent with exposure to any hazardous agents used in the research setting. Instruct employees that if they see their personal health care provider

(HCP) with symptoms, they should inform the HCP of the agents they are working with or any other agents to which they may have been exposed. They must inform the UW EHC after being treated by their HCP.

Post exposure plan

6. Follow the link to the [EH&S Exposure Poster](#) for instructions about how to respond to a Biological, Chemical, or Radiological Exposure Incident. Contact the Employee Health Center (EHC ph 206-685-1026) as soon as possible after administering first aid. 'Exposure incident' means a specific eye, mouth, other mucous membrane, nonintact skin or parenteral contact with hazardous agent.
 - a. Examples of nonintact skin include skin with dermatitis, hangnails, cuts, abrasions, chafing, or acne.
 - b. Parenteral contact occurs when mucous membranes or skin is pierced by a needlestick or other sharps injury.

C. Biological agents

1. Ensure and provide documented hazard awareness training for personnel working with biological agents. Follow guidelines as discussed with the EH&S biosafety officer and outlined in the Biological Use Authorization letter (BUA sent separately).
2. Inform staff that immunocompromised individuals may be at increased risk of illness, or may experience more severe illness should an exposure incident occur. (See B.1.c.)
3. Personnel working with human cells or cell lines, human blood, body fluids, or tissues, must comply with the University's Bloodborne Pathogens (BBP) Program as mandated by the State of Washington Industrial Safety and Health Act (WISHA). Please review the [BBP Program information](#) on the EH&S website.

D. Chemical agents

1. The chemicals listed in the table below are considered hazardous and require the practices outlined in the attached *Chemical Use Guidelines* document. Please note that you must provide documented hazardous awareness training to your staff. For assistance with chemical safety, please contact EH&S at 206-543-7388.
2. This review table is supplemental and lists hazardous agents that staff must be trained to use. It does not take the place of reading the safety data sheets (SDSs) and/or drug inserts, and providing hazard awareness training to staff working with chemical agents.

Chemical Agents Table	
Chemical (EH&S guidance for SOPs)	Hazard
BrdU (bromodeoxyuridine) Follow the link to the EH&S guidelines for BrdU use in the lab setting . Incorporate these guidelines in the standard operating procedure (SOP) for your lab.	Possible mutagen. May be harmful if absorbed through the skin or if inhaled. Targets the immune system.
<u>Isoflurane anesthetic gas</u> See the attached EH&S guidelines for anesthetic gas use to implement in the standard operating procedure (SOP) for your lab. For anesthetic gas use ensure capture or exhaust	Teratogen (causing harm to the unborn child) and affects the nervous, muscle, and blood systems.

Chemical Agents Table	
Chemical (EH&S guidance for SOPs)	Hazard
of vapors (F/air canister with halogens, etc.)	
Amsacrine, cisplatin, vinorelbine Review the online EH&S guidelines for antineoplastic use to implement in the standard operating procedure (SOP) for your lab. Personnel working with this agent must read the safety data sheet (SDS) and receive hazard awareness training.	Possible teratogen, mutagen and reproductive hazard, may exhibit a target organ effect, or may be harmful if absorbed through skin or if swallowed.
For Toxins of Biological origin, review the online EH&S Toxins of Biological Origin guidelines . For questions contact EH&S: 206-221-7770. 1. <u>TTX (tetrodotoxin) via disk implantation</u> Personnel working with TTX must read the safety data sheet (SDS) and receive hazard awareness training (see section B of this document). -- 2. <u>DT (diphtheria toxin) via disk implantation</u> See the elements of the EH&S DT SOP Template , to apply in your lab's SOP where gaps might exist. This template has been recently updated and has key information not contained before.	1. Tetrodotoxin is very toxic by inhalation, in contact with skin and if swallowed, and targets the nervous system and skeletal muscles. Signs and symptoms of possible exposure should be reviewed, as these can occur within less than an hour of exposure. Review the following link for more information on TTX symptoms: http://emedicine.medscape.com/article/818763-clinical . 2. DT is a potent and lethal toxin. In addition, exposure or contact via inhalation or oral/ ingestion can cause local irritation at site, and fever. 3. Update immunization for diphtheria (Tdap or Td) by calling the Employee Health clinic (206-685-1026). Booster is recommended every 10 years (or within 5 yrs if exposure incident occurs).
Cholera toxin B subunit The B subunit is non-toxic to cells and possesses no intrinsic adenylate cyclase activity. However see 2 nd column (to the right) for hazards to train employees and provide hazard controls.	May be harmful by inhalation, in contact with skin and if swallowed, and is irritating to the eyes and to the respiratory system. Sodium azide (buffer) may react with lead and copper plumbing to form highly explosive metal azides. Follow <i>Chemical Use Guidelines</i> .
Carvedilol, fluspirilene, fluoxetine, fluvoxamine, paroxetine, phenoxybenzamine, raloxifene, ractopamine, tamoxifen Follow the <i>Chemical Use Guidelines</i> in reconstitution, weighing, and other preparation of these agents.	These agents may be carcinogens, sensitizers, reproductive hazards, teratogens, and/or harmful via other routes of exposure.
Proparacaine eye drops	May cause sensitization by skin contact. Preg.category C.

Chemical Agents Table	
Chemical (EH&S guidance for SOPs)	Hazard
<p>Kanamycin, amikacin, neomycin, tobramycin, gentamicin</p> <p>See below for injectable drugs – must use pharmaceutical or prepared form of drug.</p>	<p>Teratogen. Possible sensitizer. Organ specific toxic hazards (see SDS for each agent).</p>
<p><u>For listed injectable agents</u> pharmaceutical forms of the drug must be used.</p> <p>(including SR buprenorphine, atropine, Beuthanasia, ketamine, xylazine, neomycin, kanamycin, gentamicin, butorphanol, buprenorphine, carprofen, heparin, vinorelbine, pentamidine, amikacin, streptomycin, tobramycin, and other injectable drugs)</p> <p>While a chemical fume hood is not required for these pharmaceutically prepared drugs, please ensure that staff wears appropriate PPE (ex. safety eyewear for possible splash) and follows procedures for safe handling and disposal of sharps.</p>	<p>Many of these agents are mutagenic, carcinogenic, reproductive and/or teratogenic hazards, organ specific toxicants, or highly toxic (health hazard rating of 3 or 4 on HMIS scale; 1-2 on GHS rating system).</p> <p><i>Note that if you use anything other than a pharmaceutically prepared agent, you must provide a statement to the IACUC explaining the reason.</i></p>
<p>Paraformaldehyde (<u>fixing agents</u>)</p> <ol style="list-style-type: none"> 1. Personnel working with fixing agents must read the MSDSs/ SDSs, follow procedures in the Chemical Use Guidelines document for safe use (prepare in chemical fume hood, appropriate PPE, etc.) and receive hazard awareness training. 2. Ensure that SOPs are in place for use of fixing agents. Sample SOPs can be obtained from the EH&S website: http://www.ehs.washington.edu/manuals/lsm/examplesoplincs.shtml 	<p>Rated highly toxic, may cause sensitization via skin contact, may cause heritable changes, and may be carcinogenic.</p>
<p>DMSO (dimethyl sulfoxide), used as diluent for certain agents.</p> <p>Follow your lab's SOP and the <i>Chemical Use Guidelines</i>; include the following points:</p> <ul style="list-style-type: none"> • Do not breathe vapor and avoid contact with DMSO solutions. • Ensure you choose appropriate chemically resistant gloves when working with DMSO and compounds dissolved in DMSO. These can be nitrile or double nitrile; change them often and immediately if they become contaminated. • Do not use latex gloves as DMSO dissolves latex. 	<p>Possible mutagen, or teratogen (causing harm to the unborn child) or a reproductive hazard. DMSO affects the eyes and skin and is readily absorbed; it can also cause contaminants on the skin or in solution to be readily absorbed through the skin.</p>

Chemical Agents Table	
Chemical (EH&S guidance for SOPs)	Hazard
<p>Other agents: Ethanol aka ETOH, Dimethylacetamide aka DMA, PROTO X (and PROTO 1, 2 etc.), drugs identified with Cell Death inhibitors screen (bax channel blocker, pifithrin (PFT)-alpha, UCF-101, FUT-175, Z-LLF-CHO, Leupeptin. 3-MA and D-methionine), cepharanthin(e), drofenine, hexamethylene amiloride, methiothepin, tacrine, drugs identified with Timtec library screen (ST001973, ST052198, ST014647, ST070285, metergoline ester),</p> <p>Follow <i>Chemical Use Guidelines</i>. Review the SDSs for hazards and exposure control recommendations.</p> <p>Also, for unknown exposure control information, (ex., if experimental BPN small molecules do not have SDS), or if giving agent via oral gavage, follow the <i>Chemical Use Guidelines</i> in preparation of the agent.</p>	<p>Serious skin, eyes, and lung hazard; also target specific organs (depending on the agent). Some of these agents may also be possible teratogens etc. (review the SDS or drug insert).</p>
<p>CO2 gas</p> <p>For use of CO2 please review the EH&S information on compressed gas cylinders. There is a template for safe use of compressed gas standard operating procedure which your lab can use.</p>	<p>Hazards associated with compressed CO2 gas include oxygen displacement and possible frostbite if gas is rapidly released, as well as the physical hazards associated with high pressure systems. Special storage, use, and handling precautions are necessary in order to control these hazards.</p>

E. Potential radiological hazard

1. Follow this link to the [guidelines from EH&S Radiation Safety](#) (ph 206-543-0463) and apply this guidance in the SOP for your laboratory when using radionuclides such as 14C-2-deoxyglucose. Review the SDSs for these agents, and provide hazard awareness training for staff who work with them.
2. Use of lasers must follow guidelines from the EH&S Radiation Safety Office (ph 206-543-0463). See also the Laser safety section of the [Radiation Safety manual](#).

Please attach a copy of these recommendations to your protocol. Personnel listed on this protocol must read this information. Call the EH&S Occupational Health Nurse with any questions, at 206-221-7770, or email: OHnurse@uw.edu.