Policies and Procedures

SECTION: ARF	NUMBER: 7.05			
CHAPTER: Miscellaneous Experimental Animal Use Policies	ISSUED: 8/2008	REV. A: 5/12/2009	REV. B: 11/2012	REV. C:
POLICY: Bromo-Deoxyuridine (BrDu)	REV. D:	REV. E:	PAGE 1 OF 3	

Purpose

This policy is intended to provide information on appropriate procedures for the use of Bromo-Deoxyuridine (BrDu) and to establish procedures to be followed for laboratory animal care and use. This policy is approved by the Creighton University Institutional Animal Care and Use Committee (IACUC). All investigators will follow this policy unless scientific justification is provided and approved by the IACUC.

Application

Before work with BrDu in animals may begin the IACUC requires that the Principal Investigator (PI) fulfill the following requirements:

- The animal protocol incorporating BrDu must be approved by the IACUC.
- Work with infectious agents, chemical hazards, and recombinant DNA must be approved by the Institutional Biosafety Committee.
- Work with radioactive materials or radiation producing equipment must be approved by the Institutional Radiation Safety Committee.

Working with Bromo-Deoxyuridine (BrDu)

The primary routes of occupational exposure to BrDu include: aerosol exposure, ingestion, accidental injection, and tissue/transplancental absorption. The scientific literature indicates the potential consequences of acute and chronic occupational exposure:

- ***Cytotoxic Effects***: While acute toxic effects appear to be limited, exposure via aerosol inhalation, ingestion, skin absorption, or accidental injection may produce serious sub acute and chronic effects including: skin lesions, anemia, leukocytopenia, thrombocytopenia and inhibition of cell growth; and
- ***Teratogenic and Mutagenic Effects****:* Strong teratogen, exposure may induce abnormalities in micronucleus and sperm nuclei (Bruce and Heddle 1979). Strong teratogenic effects in mice, rats and other mammalian species (National Institutes of Health 1988, Ashman and Davidson 1981). Potential for producing birth defects and other heritable genetic mutations is strongly suspected (Rocchi 2005).

Safe Work Methods

The potential BrDu related health hazards make it imperative that PIs conduct thorough risk assessments and prepare protocols which include standard operating procedures (SOPs) which identify appropriate administrative controls, personal protective equipment (PPE), work methods, engineering controls, and waste disposal procedures for eliminating or sufficiently reducing exposure threat to all staff involved in the affected research.

- ***Administrative Controls***
  - Principal investigators will develop and implement standard operating procedures (SOPs) for preparation and administration of BrDu with minimal potential for exposure.
  - All tasks having potential for occupational BrDu exposure (mixing of doses, dose preparation, administering of injections, etc.) will only be conducted by competent staff who have received appropriate training regarding the specific BrDu-related health and safety risks, SOPs, and procedures to be followed in event of an exposure incident.

- ***Personal Protective Equipment*****:** Staff involved with any tasks where potential for BrDu exposure exists must:
  - Examination gloves.
  - Safety glasses or safety goggles (ANSI Z-87 approved).
  - Lab coat.
  - Wear eye and face protection in combination with a mask when splashing is possible.

- ***Work Methods***
  - Any procedures that create splash potential or aerosolization potential must be conducted chemical fume hood or certified biosafety cabinet.
  - Needles used for BrDu injection will be disposed of (in approved sharps containers) immediately following use.
  - Needles used for BrDu injection must never be bent, sheared, or recapped.
  - Areas where BrDu is prepared and/or administered must be

cleaned immediately following each task completion with soap and water.

- ***Administration of BrDu to animals***
  - Animals receiving injections of BrdU will be handled on an absorbent, plastic lined pad. Injection will take place over a shoe box lined with an absorbent, plastic lined pad and placed immediately in the box.
  - Animals must be appropriately restrained and/or sedated prior to administering injections and other dosing methods.
  - Personnel involved in a procedure involving BrDu are expected to remove their gloves after administration of BrDu. This should be done immediately to prevent contamination of additional surfaces with BrDu.

- ***Waste Disposal***
  - Surplus BrDu must be disposed of as a hazardous chemical.
  - A potentially contaminated pad from the work area or post-procedure animal housing and other non-sharps materials should be disposed of as *Regulated Medical Waste* (RMW) through incineration (National Institutes of Health 1988).
  - Animal carcasses will be disposed following Creighton University Animal Resource Facility (ARF) regular protocol. Since incineration of all animal carcasses is part of ARF regular procedure, no additional measures are necessary.
  - All contaminated sharps waste materials must be placed in proper sharps container and disposed of as RMW.

- **Spills**: Small spills of BrDu should be cleaned with absorbent paper and soap and water. Don appropriate PPE during clean-up, dispose of all waste generated through EHS. For larger spills of BrDu contact the EHS emergency line (546-6404) for assistance.