TEMPLE UNIVERSITY
A Commonwealth University
Environmental Health & Radiation Safety (EHRS)

Standard Operating Procedure (SOP) –**Bromodeoxyuridine** (BrdU)

Principal Investigator:_____ Room & Building #:_____

Department:_____ Phone #_____

Date:_____

Location(s) Covered by this SOP.

Building	Lab #
_____	_____
_____	_____

Note: This SOP must be customized for each lab using BrdU solid and/or BrdU solution. Insert a copy (either hard or electronic) into your chemical hygiene plan.

Note: This SOP must be reviewed on an annual basis or whenever changes are made to its use and/or location.

A. USE & PROCEDURE

Use this section to describe the process or circumstances of use, including the chemical name (IUPAC), common name, CAS #, concentration and quantity. Attach experimental protocol or written lab specific procedures.

B. GENERAL INFORMATION

- All BrdU work must be conducted in a certified fume hood or ducted Biosafety Cabinet (BSC).

- For any work conducted outside of a ducted BSC or fume hood, a full-face particle respirator type N100 must be used. Contact EHRS at 2-2520 to be fit tested.
- Individuals planning a family or pregnancy can contact EHRS to schedule counseling.
- All workers must meet the training requirements listed in the training section of this SOP prior to using any BrdU.

C. POTENTIAL HAZARDS

- BrdU is an odorless white powder with a melting point of 191-194◦ C.
- LD50 Oral: 8400 mg/kg (rat)
- BrdU is a toxic substance.
- BrdU may cause genetic defects.
- BrdU is suspected of damaging fertility or the unborn child.
- Consult your Safety Data Sheet (SDS) for additional information.

D. PERSONAL PROTECTIVE EQUIPMENT (PPE)

- The level of skin and eye protection should be selected based on the potential for splashing and other forms of exposure.
- Always wash hands after removing gloves following handling BrdU.

- Minimum potential for splash & exposure:
  - Double pair of chemical resistant gloves (Change gloves frequently and immediately replace with new gloves when gloves become contaminated).
    - Nitrile
  - Protective clothing shall be worn to prevent any possibility of skin contact with BrdU.
    - Lab coats
    - Closed toed shoes
    - Long pants
    - Long sleeved clothing
  - Safety glasses, goggles or face shields shall be worn during operations in which BrdU might contact the eyes (e.g., through vapors or splashes of solution).
    - Safety glasses with side shields or chemical splash goggles - Must meet ANSI/OSHA specifications.
- When using or transferring large quantities or when using in systems under pressure.
  - Chemical splash goggles - Must meet ANSI/OSHA specifications.
  - Full-face particle respirator type N100 (if not working in a BSC or fume hood or if hood's sash is not in the down position).
  - Double pair of chemical resistant gloves (Immediately replace with new gloves when gloves become contaminated).
    - Nitrile
  - Chemical resistant apron/smock/lab coat
  - Protective Clothing
    - Impervious sleeves
    - Closed-toed shoes

NOTE: Personnel using respirators must be enrolled in the University's Respiratory Protection Program.

INSERT ADDITIONAL PPE AS NECESSARY:

E. ENGINEERING CONTROLS

- All operations involving BrdU (powder, granules, and solution) must be conducted in a certified ducted Biological Safety Cabinet or a properly operating and certified chemical fume hood.
- If using BrdU powdered form outside of a fume hood or BSCs, a full-face particle respirator type N100 must be worn. In order to wear a full-face particle respirator, one must be medically cleared, fit tested and trained. Contact EHRS at 2-2520 to schedule fit testing.
- Syringes used for BrdU injection should be safety engineered type (self-sheathing syringes, luer-lock syringes, etc.).
- Safety Shower and Emergency eyewash should be easily accessible within the immediate work environment in areas where BrdU is used.
  The nearest safety shower station is located at : _____
  The nearest safety eyewash is located at : _____
- Laboratory rooms must be at negative pressure with respect to the corridors and external environment.
- Laboratory/Room doors must be kept closed at all times.

INSERT ADDITIONAL ENGINEERING CONTROLS AS NECESSARY:

F. SPECIAL HANDLING PROCEDURES & STORAGE REQUIREMENTS

- Laboratory-specific written procedures are required for BrdU. Attach procedures to SOP.
- Keep container closed at all times. Open containers of BrdU should never be permitted.
- Once mixed into an aqueous solution, BrdU should then be transferred into a sealed bottle. This will prevent volatilization, spillage, and accidental contamination of the environment.
- Store in a cool, dry, well-vented area away from incompatible substances.
- Use the smallest practical quantities for the experiment being performed.
- Transport BrdU-containing solutions in secondary containment.

INSERT ADDITONAL HANDLING & STORAGE REQUIREMENTS AS NECESSARY:

G. TRAINING REQUIREMENTS

- The Principal Investigator (PI) must provide lab specific training to all laboratory workers specific to the hazards (physical and health) involved in working with the substance, work area decontamination and emergency procedures. In addition, the PI must review and provide a copy of the SDS and this SOP to any lab worker prior to working with any of the materials covered by this SOP.
- The PI must ensure that all lab personnel have attended the required training and/or refresher training.
- Personnel working with small rodents are required to complete IACUC mandated trainings.

H. DESIGNATED AREAS

- Designated area(s) for use and storage of BrdU must be established. This may be specific work benches, BSCs or chemical fume hoods.
- All chemicals must be in secondary containment with proper signage.
- Signage is required for the container, designated work area and storage locations. Signage must follow the Safety Data Sheet (SDS). Sign wording must state the following. “DANGER, POSSIBLE MUTAGEN, TERATOGEN HAZARD”.
- Access to the designated areas shall be limited to trained and knowledgeable personnel.

INSERT LOCATION OF DESIGNATED AREA(S):

I. SPILL PROCEDURES

- Spills-General Instructions
  - Notify others of the spill and keep spill area confined.
  - Review SDS.
  - Don appropriate PPE (double nitrile gloves, splash goggles, face shield and lab coat).
  - Extinguish all ignition sources.
  - Collect all spilled material and clean up material and place into an appropriate waste container.
  - Call EHRS at 215-707-2520 during office hours to report the spill.
  - Call Page operator at 215-707-4545 after office hours to report the spill.
- Minor Spills-Liquid

- Neutralize and/or absorb freestanding liquid with an appropriate absorbent included in a chemical spill kit, vermiculite, sand, etc. and absorbent pads.
- Place clean up items in appropriate waste container
- Wait 10 minutes and wash spill area with soap and water.

- Minor Spills-Solid
  - Wet paper towels or absorbent pads and gently place on top of the powder to avoid creation of dust.
  - Carefully wipe up the area and place clean up material into an appropriate waste container or double lined bag. Label the bag/container with contents.
  - Wait 10 minutes and wash spill area with soap and water.
- Major Spills-Liquid & Solid
  - Evacuate room or immediate area.
  - Call EHRS at 215-707-2520.
  - Post signs at entrances/exits notifying others of spill.
  - Provide assistance and information to spill responders.

INSERT LOCATION OF BrdU SPILL KIT:

J. FIRST AID/ EXPOSURES

- General Instructions
  - Obtain SDS.
  - Contact Campus Police at 1-1234 if immediate medical assistance is necessary.
  - Notify Supervisor.
  - Notify EHRS at 215-707-2520 during office hour and Page operator at 215-4545 after office hour.
  - Seek medical assistance after any accidental exposure.
- Inhalation
  - Remove exposed individual to fresh air.
  - Seek medical attention.
- Skin/Body Contact
  - Remove clothing and rinse body in emergency shower for at least 15 minutes.
  - Seek medical attention.
- Eye Contact
  - Immediately rinse eyeball and inner surface of eyelid for at least 15 minutes.
  - Seek medical attention.
- Ingestion
  - Seek immediate medical attention.

INSERT LOCATION OF NEAREST STUDENT HEALTH, EMPLOYEE HEALTH AND HOSPITAL

K. DECONTAMINATION PROCEDURES

- All work areas, lab benches, equipment (glove boxes, hoods) and glassware where BrdU is prepared and/or administered should be cleaned immediately following each task completion utilizing a detergent/water solution.

INSERT ADDITIONAL DECOMTAMINATION PROCEDURES

L. WASTE DISPOSAL

- Unused BrdU solutions and powders must be disposed of only through EHRS.
- Syringes and needles used for BrdU injection should be disposed of in an approved sharps containers. Needles should never be bent, sheared, or recapped.

INSERT ADDITONAL WASTE DISPOSAL

M. PRINCIPAL INVESTIGATOR CERTIFCATION

I certify that I have read and understand the requirements of this Standard Operating Procedure (SOP) and that I agree to fully adhere to its requirements.

Principal Investigator Name:_____ Title:_____

Signature:_____ Date:_____