Standard Operating Procedure

Chloro-Deoxyuridine (CldU)

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.
Refer to instructions for assistance.

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** ☐ Process ☒Hazardous Chemical ☐ Hazardous Class

**Purpose**

(State the procedure the specific chemical is used for in lab/the purpose of the chemical)

**Physical & Chemical Properties/Definition of Chemical Group**

Chemical Name: 5-Chloro-2’-Deoxyuridine (CldU)

CAS#: [50-90-8](http://www.chemicalbook.com/CASEN_50-90-8.htm)

Class: **Reproductive toxin**

Molecular formula: C9H11ClN2O5

Molecular weight: 262.65g

Form: solid; no distinctive odor

Solubility: Some solubility in water or saline

Volatility: Stable dark and heat/humidity for 3 months at temperatures below 60°C. Sunlight causes discoloration. Frozen aqueous solutions exposed to UV result in formation of debrominated dimmer. Photooxidation occurs in air/light. CldU is hydrolyzed at the N-glycosyl bond, this rate increases at alkaline pH. Flammability restrictions do not apply.

Other: Laboratory operations should be conducted in a fume hood

CldU is a probable combustible compound. CldU is cytotoxic, teratogenic, and mutagenic.

It is not carcinogenic; it is a topical antiviral agent and is useful in the treatment of neoplasms and sensitizes tissue to X-rays.

**Potential Hazards/Toxicity**

Toxic Effects: CldU is a toxic substance.

Acute Effects: Wheeze and cough, shortness of breath, burning in the mouth,

 throat, or chest.

Chronic Effects: Reproductive disorders and genetic alterations. CldU is incorporated into tissue DNA in place of thymidine in animals. CldU-substituted DNA replaces normal DNA and chromosomal proteins are altered through: chromosome lengthening, chromatid breakage, and changed sister chromatid exchange frequencies. Meiosis and mitosis are affected.

Carcinogenic Effects: CldU is suspected to be a carcinogen resulting in heritable genetic damage. It is harmful to the unborn child.

Mutagenic/Teratogenic Effects: CldU is not mutagenic—Ames test; but CldU is mutagenic—micronucleus and sperm abnormality assay. CldU is a strong teratogen in rodents.

Systemic effects: CldU integrates into DNA and affects the colon, stomach, bone marrow, and spleen.

**Personal Protective Equipment (PPE)**

Wear double nitrile gloves, full-length lab coat, and safety glasses/face shield in addition to long pants and closed-toe shoes.

Always wash hands after removing gloves following handling CldU.

**Engineering Controls**

Always handle CldU inside a certified chemical fume hood or a ducted biosafety cabinet.

**First Aid Procedures**

Skin & Eye Exposure: Skin: remove contaminated clothing and wash skin with soap and water; avoid rubbing and increases in temperature. Seek medical attention promptly. Eye: rinse immediately with copious amounts of running water for at least 15 minutes. Seek attention of a licensed Ophthalmologist promptly.

Ingestion: Drink lots of water/milk. Induce vomiting. Seek medical attention (refer

 gastric lavage).

Inhalation: Remove rapidly to clean air. Administer rescue breathing if necessary

 and call emergency services. Seek medical attention if needed.

**Special Handling and Storage Requirements**

* Whenever feasible, procedures with the potential for producing CldU aerosols should be conducted with a certified chemical fume hood.
* Needles used for CldU injection will be disposed of in approved sharps containers immediately following use.
* Needles used for CldU injection should never be bent, sheared, or recapped.

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Clean areas where CldU has been handled by adding water, followed with a soap and water wash.

No waste streams containing CldU shall be disposed of in sinks or general refuse. Extra CldU is considered as hazardous chemical waste. Absorbent materials (e.g., associated with spill cleanup) grossly contaminated shall be disposed of as hazardous waste.

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure**

*(Add specific description of procedure.)*

**Note:** Any deviation from this SOP requires written approval from PI.

**Documentation of Training** *(signature of all users is required)*

* Prior to conducting any work with Chloro-deoxyuridine, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

**Principal Investigator SOP Approval**

Print name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approval Date:

I have read and understand the content of this SOP:

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| **Name** | **Signature** | **Date** |
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