



Laboratory Standard Operating Procedure for:

Streptozocin

Principal Investigator (PI) Approval is Required Prior to Performing this Procedure

Description

This standard operating procedure outlines the handling and use of streptozocin. Review this document and supply the information required in order to make it specific to your facility. In accordance with this document, laboratories should use appropriate controls, protective equipment, and disposal techniques when handling streptozocin.

Streptozotocin is an antineoplastic antibiotic produced by *Streptomyces achromogenes* variant or by synthesis. A nitrosourea used mainly in the treatment of islet-cell tumors of the pancreas.

Synonyms: streptozotocin, streptozotocin, STZR, STZ, antineoplastic nitrosourea/cytotoxic/antibiotic.

Potential Hazards

- May cause CANCER.
- Possible respiratory sensitizer.
- May be harmful to the fetus/ embryo.
- Inhalation, skin contact and/or ingestion may produce health damage.

SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- The killing action of antineoplastic drugs used for cancer chemotherapy is not selective for cancerous cells alone but affect all dividing cells. Acute side effects include loss of appetite, nausea and vomiting, allergic reaction (skin rash, itch, redness, low blood pressure, unwellness and anaphylactic shock) and local irritation. Gout and renal failure can occur.

EYE

- Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.

SKIN

- The material is not thought to be a skin irritant (as classified using animal models). Abrasive damage however, may result from prolonged exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
- Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
- Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

Engineering Controls

- Use of chemical fume hood is required for all tasks with potential of aerosolizing streptozotocin.
- Syringes used for STZ injection must be safety engineered (self-sheathing syringes, luer-lock syringes, etc.).
- Animals should be appropriately restrained and/or sedated prior to administering injections and other dosing methods.
- Laboratories and other spaces where handling of streptozotocin occurs must be equipped with an eyewash station.

Work Practice Controls

- Designate areas where streptozotocin are stored or manipulated.
- Decontamination should consist of surface cleaning with water and detergent followed by thorough rinsing. The use of detergent is recommended because there is no single accepted method of chemical deactivation for all agents involved. A plastic backed absorbent pad should be placed under the work area during the process. This should be changed at the end of each procedure or when a spill occurs.

Personal Protective Equipment (PPE)

Personal protective equipment includes a lab coat, eye protection and disposable gloves. Gloves should be changed frequently and be pulled up over sleeves if possible to reduce the likelihood of any exposed skin. Wash hands and arms immediately after working with the substance.

Transportation and Storage

- Keep containers of streptozotocin tightly closed and stored in a well-ventilated place.
- Check SDS for specific storage requirements.
- Streptozotocin is regulated by DOT as a Hazardous Material as well as through IATA Transport of Dangerous Goods.

Waste Disposal

All hazardous chemical agent contaminated waste should be placed in a 5 gallon white pail. The container must be closed except when actively adding waste. The container must be located in the area where hazardous drugs are being used. All items contaminated by hazardous drugs, including gloves, syringes, vials needles, and solution containers must be disposed according to EHS guidelines.

Sharps – place needles, syringes with needles attached and other breakable items into appropriately labeled sharps containers.

Empty stock vials, reagent bottles, etc. – triple rinse with copious amounts of water. Deface label with black magic marker or scraper. Place in a cardboard box for disposal.

Because most spent, unused and expired chemicals/materials are considered hazardous wastes, they must be properly disposed of. ***Do not dispose of chemical wastes by dumping them down a sink, flushing in a toilet or discarding in regular trash containers.*** Contact EHS at (313) 593-0921 for waste containers, labels, manifests, waste collection and for any questions regarding proper waste disposal. Also, refer to EHS's [Hazardous Waste webpage](#) for more information.

Exposures/Unintended Contact



If the employee is in need of emergency medical attention, call 911 immediately.



SWALLOWED

- Seek medical advice.
- If swallowed do NOT induce vomiting, unless directed to do so by medical personnel.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

EYE

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water for at least 15 minutes.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available) for at least 15 minutes.
- Seek medical attention in event of irritation.

INHALED

- If inhaled remove patient from contaminated area.
- Seek medical attention.

Contact OSEH for advice on symptoms of chemical exposure, or assistance in performing an exposure assessment.

Report all work related accidents, injuries, illnesses or exposures to WorkConnections within 24 hours by completing and submitting the [Illness and Injury Report Form](#). Follow the directions on the WorkConnections website [Forms Instructions](#) to obtain proper medical treatment and follow-up.

Complete the [EHS Laboratory Incident and Near-Miss Report](#) form.

TREATMENT FACILITIES:

Midwest Medical Center -- *Campus Employees (including student employees)*

Mon-Fri 7:30 am - 4:30 pm

9301 Middlebelt Road

Romulus, MI 48174

Phone: 734-941-1000

After hours - go to:

Midwest Medical Center

Open 24/7

4700 Schaefer

Dearborn, MI 48126

Phone: 313-581-2600

Henry Ford Medical Center-Fairlane -- *University students (non-life threatening conditions)*

19401 Hubbard Drive

Dearborn, MI 48126

Phone: 313-928-8278

Click [here](#) for additional accident and injury reporting information.

Spill Procedure

- When a spill occurs, ***personal safety should always come first.***
- Alert and clear everyone in the immediate area where the spill occurred.

A **minor (small) chemical spill** is one that the laboratory staff is capable of handling safely without the assistance of safety and emergency personnel. A **major/large chemical spill** requires active assistance from emergency personnel.

Spill Response Steps:

MINOR CHEMICAL SPILL

- Alert people in immediate area of spill.
- Open outside windows, if possible.
- Use proper personal protective equipment (PPE) as indicated above.
- Avoid breathing vapors from spill.
- Confine spill to as small an area as possible.
- **Do not wash spill down the drain.**
- Use appropriate spill kits/sorbents to absorb spill. Collect contaminated materials and residues and place in container. For powdered chemicals sweep carefully to avoid generation of dust or, if appropriate, use moist sorbent pads or wet the powder with a suitable solvent and then wipe with a dry cloth. Contact EHS at (313) 593-0921 for proper disposal.
- Clean spill area with water.

MAJOR CHEMICAL SPILL

Report large chemical spills in corridors or common areas, e.g., hallways, elevators, eating areas, rest rooms, offices, etc., to Public Safety (313) 593-5333 or 911 from a campus phone.

- Attend to injured or contaminated persons and remove them from exposure.
- Alert people in the laboratory to evacuate.

- If spilled material is flammable, turn off ignition and heat sources. Don't light Bunsen burners or turn on other switches.
- Close doors to affected area.
- Post warnings to keep people from entering the area.
- Have person available that has knowledge of incident and laboratory to assist emergency personnel.

Additional Spill Links:

- [Chemical Spill Control Information](#)

Report all emergencies, suspicious activity, injuries, spills, and fires to Public Safety by calling at (313) 593-5333 or 911 from a campus phone. Register with the University of Michigan-Dearborn [Emergency Alert System](#).

Training of personnel

All person are required to attend initial (first-time) training in class (go to <http://www.umd.umich.edu/training/> to register). Refresher training can be completed via [MyLINC](#), the **Comprehensive Laboratory Safety** session (BLS009 or equivalent). Furthermore, all personnel shall read and fully adhere to this SOP when handling streptozocin.

Certification

I have read and understand the above SOP. I agree to contact my Supervisor or Lab manager if I plan to modify this procedure.

Name	Signature	UM ID #	Date

Principal Investigator _____

Revision Date _____