

# Procedures for Working with MPTP OR MPTP-Treated Animals

## I. DEFINITIONS

MPTP is 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine

## II. PRIOR TO BEGINNING WORK WITH MPTP

- A. Prior to initiating work with MPTP, the Principal Investigator (PI) must contact the NIH Occupational Medical Service (OMS, 301-496-4411) to discuss the role of presumptive therapy with selegiline hydrochloride (Eldepryl) and contraindications to the use of the medication. OMS will prescribe the selegiline.
- B. Selegiline is obtained prior to beginning work with MPTP. It must be kept in a secure location which is known and readily accessible to those working with MPTP. It must be regularly checked to ensure it is in its proper place and the use date has not expired.
- C. The PI must send all personnel who intend to work with MPTP to OMS prior to beginning work and annually thereafter for evaluation and determination of their ability to successfully take selegiline.

## III. ACCIDENTS, INJURIES, AND POTENTIAL EXPOSURES

- A. In the event of a recognized percutaneous or mucous membrane exposure to MPTP:
  - 1. Immediately ingest four (4) selegiline HCl 5 mg capsules.
  - 2. Initiate first aid at the worksite:
    - a. Contaminated skin should be washed with copious amounts of soap and water for 15 minutes.
    - b. Contaminated eyes and mucous membranes should be irrigated for 15 minutes, using normal saline or water.
  - 3. Notify the supervisor, if immediately available.
  - 4. Call OMS (301-496-4411) to determine what additional steps are warranted.
    - a. OMS hours of operation are 7:30 am to 5:00 pm, Monday through Friday.
    - b. When OMS is closed, contact the OMS medical staff person on-call by calling 301-496-1211.
  - 5. In the event of a possible exposure to MPTP:
    - 1. Immediately initiate first aid at the worksite as outlined above.
    - 2. Notify the supervisor, if immediately available.
    - 3. Quickly call OMS (see details above) to discuss the incident and determine whether presumptive therapy is warranted.
  - 6. In the event of a spill, evacuate people from the immediate area.
    - 0. If on-campus, contact the NIH Fire Department (911).
    - 1. If off-campus, contact the local Emergency Response System (9-911).

## IV. PERSONAL PROTECTIVE EQUIPMENT & RESPIRATORY PROTECTION

- A. Personal protective equipment must be worn whenever working with MPTP or MPTP-treated animals and their waste within 72 hours of administration.
  - 1. Preparing MPTP solutions. Wear two pairs of chemical-resistant gloves (e.g., nitrile, latex), chemical goggles, and a lab coat.

2. Administering MPTP to animals. Wear two pairs of chemical-resistant gloves (e.g., nitrile, latex), lab coat, wrist-guards, and mucous membrane protection (e.g., chemical goggles and surgical mask).
  3. Entering MPTP-animal room within first 72 hours of administration (prior to cage change). Wear a disposable jump suit, wrist-guards, head and foot covering, two pair chemical-resistant gloves (e.g., nitrile, latex), N-95 disposable respirator, and chemical goggles.
  4. Cage changing. Wear a disposable jump suit, wrist-guards, head and foot covering, double chemical resistant gloves (e.g., nitrile, latex), N-95 disposable respirator, and chemical goggles.
  5. Transporting MPTP-treated animals. Within 72 hours post-injection, wear two pairs of chemical-resistant gloves (e.g., nitrile, latex), lab coat, wrist-guards, and mucous membrane protection (e.g., chemical goggles and surgical mask).
- B. Frequent glove changes are recommended. Change gloves immediately if their integrity has been compromised (e.g., punctured or torn). Always wash hands with soap and water after removing gloves.
  - C. Protective clothing should be removed in the anteroom or immediately prior to exiting any room in which MPTP is in use, if no anteroom is available. Remove garments first, then remove gloves, chemical goggles, and respirator, respectively. Place disposable respirator, gloves, and garments in a medical pathological waste (MPW) box. Wash chemical goggles with a mild detergent and water; thoroughly wash hands, face, and neck. Don animal facility required protective clothing prior to leaving the anteroom or immediately after exiting any area in which MPTP is in use if no anteroom is available.
  - D. For fit-testing prior to wearing an N-95 (or any other respirator), contact the Division of Occupational Health And Safety (DOHS) at 301-496-2960.

## V. TRAINING AND NOTIFICATION

- A. The PI must develop written Standard Operating Procedures (SOPs) and train his/her staff on proper procedures for safely working with MPTP prior to beginning work. For assistance, contact the IC Safety and Health Specialist (301-496-2346).
- B. Prior to administering MPTP to animals, the PI must inform the Animal Facility Manager of the hazards associated with MPTP and MPTP-treated animals and proper safety procedures for caring for these animals.

## VI. MPTP PREPARATION

- A. MPTP must be purchased in hydrochloride or tartrate salt form rather than as free base.
- B. MPTP and MPTP-solutions must be stored in labeled, tightly capped containers. The container must be properly labeled with the identity of the hazardous contents (i.e., MPTP) and the appropriate hazard warning (i.e., neurotoxin). See Appendix 1. The primary container for MPTP must be placed in a sealed, leakproof, unbreakable secondary container, which must also be labeled as described above.
- C. MPTP as received from the manufacturer/vendor in its original undiluted form must be stored in a certified chemical fume hood in a labeled, sealed, leakproof

secondary container. The hood must be posted with an appropriate hazard label. See Appendix 2.

- D. MPTP solutions must be prepared in a certified chemical fume hood. Appropriate personal protective equipment (PPE) must be worn (see section IV.A.1). All work surfaces must be covered with absorbent, plastic-backed, disposable bench paper. If it is not possible to weigh MPTP in a certified chemical fume hood, then:
  1. Tare an empty container with its cap;
  2. In a certified chemical fume hood, transfer an approximate quantity of MPTP into the container;
  3. Cap and weigh the container;
  4. In a certified chemical fume hood, add an appropriate amount of solvent to achieve the desired concentration.
- E. Disposable labware should be used when preparing MPTP solutions. If non-disposable glassware is used, it must be single rinsed in 0.1 N HCl prior to washing. The rinsate must be collected and disposed of as chemical waste.
- F. MPTP solutions must be collected and disposed of as chemical waste. Refer to the NIH Waste Disposal Guide for further information or contact the NIH Environmental Protection Branch (301-496-7990) with additional questions.
- G. When all work with MPTP is complete, carefully remove all bench paper and dispose of in an MPW box. Wipe all surfaces with a 1% bleach solution.

#### VII. **TRANSPORTING MPTP SOLUTIONS**

- MPTP solutions must always be transported in a labeled, sealed, primary container within a sealed, leakproof, unbreakable secondary container. Adequate absorbent material must be placed within the secondary container, around the primary container, to absorb all the solution in the event of a spill.

#### VIII. **ADMINISTRATION OF MPTP**

- A. Animals must be chemically or physically restrained prior to starting the procedure.
- B. Administration of MPTP to rodents must be conducted in a certified chemical fume hood or at a certified down draft table. Both the personnel administering the MPTP, and those in the immediate vicinity of the procedure must wear appropriate PPE (see section IV.A.2).
- C. All work surfaces, except the down-draft table, must be covered with absorbent, plastic-backed, disposable bench paper.
- D. Use only needle-locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe). Used disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated before disposal. After the completion of each injection, immediately place the syringe-needle unit in a sharps disposal container. The sharps disposal container shall be disposed of in an MPW box at the end of each day.

#### IX. **ANIMAL HOUSING**

- A. For the first 72 hours post-injection, the door to each MPTP-animal room must be posted in such a manner that it is clear that the room contains MPTP-treated animals (see Appendix 2). The animal cages must also be properly labeled (see Appendix 3).
- B. For the first 72 hours post-injection:
  1. Rodents:  
Use disposable cages; cover the cages with filter bonnets; place cages in

- a certified chemical fume hood or ventilated rack.
- 2. Large animals (Non-Human Primates and Dogs):  
To minimize the creation of aerosols, line the cage drop pans with disposable, plastic-backed, absorbent pads. Adequately wet excreta with water. Wearing appropriate PPE (see section IV.A.4), carefully remove the pads and place in an MPW box for disposal. If pan liners are not used, adequately wet the bedding with water to keep the dust down. Place bedding in an MPW box, using care not to aerosolize dust from the bedding.
- C. Cage changes should not be performed for the first 72 hours post-injection.
- D. Seventy-two hours after the final MPTP injection, the animals may be transferred to clean, standard caging and the MPTP door signs and cage tags may be removed.
  - 1. Disposable rodent cages must be carefully placed into MPW boxes for disposal, taking care to avoid creation of dusts. Cage change/dumping should be performed wearing appropriate PPE (see section IV.A.4) and using certified local exhaust ventilation (e.g., biosafety cabinet or chemical fume hood). This local exhaust ventilation should be wiped down with detergent and water after use.
  - 2. Dirty cages and racks should be covered with a full drape and moved to the cage wash for immediate cleaning.
- E. The use of special PPE is not required after the animals have been transferred to clean cages (beyond 72 hours post-injection).