

OPIOID Analgesia for Adult Rodents SOP Buprenorphine

Purpose: To provide pain relief of moderate to severe pain in mice and rats. Moderate to severe pain may be caused by surgical procedures such as major laparotomy (entering the abdominal cavity), thoracotomy (entering the chest cavity), spinal and orthopedic procedures, etc.

Policy: Pain should be appropriately treated based on signs of pain in the rodent and the likelihood that the procedure will cause pain. When possible, pain should be treated pre-emptively (before the cause). The use of multi-modal analgesia (using multiple drugs) maximizes the benefits of analgesia for procedures anticipated to cause moderate to severe pain. These include but are not limited to the addition of local anesthetics and NSAIDs. Investigators should be consulted prior to treating rodents involved in research. Contact the veterinarian to determine the best form of analgesia for a particular animal.

Responsibility: Those persons listed on an approved Animal Care Committee protocol who are responsible for procedures, surgeries, and post-procedure monitoring.

Materials: Buprenorphine injectable (0.3 mg/ml) (Temgesic[®], Buprenex[®])
Hypodermic needles (25 or 27g, 1/2" or smaller) – needles that are permanently attached to the syringe and have no "hub" will reduce the amount of drug that is "wasted" and left in the hub
1 cc syringes (tuberculin syringes will allow more accurate dosing)
Sterile multi use vial for diluted solutions
**Vials can be purchased from Omega 1-877-271-6228 (Richmond, B.C.)
Sterile pyrogen-free water for injection

Dilutions: Buprenorphine can be diluted with sterile water.

For mice or small rats, dilute injectable solution 1:20 in a sterile vial giving 0.015 mg/ml.

(Example: Dilute 0.5 ml buprenorphine with 9.5 ml sterile water)

For larger rats, dilute 1:10 for injection in a sterile vial giving 0.03 mg/ml.

(Example: Dilute 1 ml buprenorphine with 9 ml sterile water)

**Discard diluted solutions after one month.

Procedure:

1. Weigh animal(s) to be treated.
2. Dose for rats is 0.01-0.05 mg/kg every 6-12 hours as needed. Dose for mice is 0.05-0.1 mg/kg every 6-12 hours as needed.
3. Dilute buprenorphine as described to provide accurate volume of 0.05 ml or more.
4. Example doses:

Weight of Rat	Buprenorphine diluted 0.03 mg/ml (0.01 mg/kg dose)
250 g	0.08 ml
350 g	0.12 ml
450 g	0.15 ml
550 g	0.18 ml

Weight of Mouse	Buprenorphine diluted 0.015 mg/ml (0.05 mg/kg dose)
25 g	0.08 ml
35 g	0.12 ml
45 g	0.15 ml
55 g	0.18 ml

5. Administer buprenorphine injectable solution subcutaneously in the scruff (loose skin on dorsal neck) using a 25 or 27g needle.

Side effects of buprenorphine may include sedation and pica (eating bedding or other foreign objects) at high doses. Animals receiving any opioid drug should not be hypothermic. Buprenorphine is a controlled drug that requires a Health Canada exemption to purchase and use (refer to the Policy and Procedures section on the Animal Care Centre website for more

information regarding applying for the exemption:
http://www.animalcare.ubc.ca/policies_and_procedures.html).