THE UNIVERSITY OF TOLEDO	Department of Laboratory Animal Resources
	Guideline
	Rodent Buprenorphine Dilution

Buprenorphine is an effective analgesic to manage pain in rodents. Because of the concentration of standard buprenorphine solutions, it is difficult to accurately measure doses in a 1ml syringe for administration to rodents. Thus, it may be safer and more precise to use a diluted solution if sterile technique, labeling and shelf life precautions are followed.

Materials

- ✓ 1ml Buprenorphine (0.3 mg/ml)
- ✓ 9ml sterile saline or sterile water for injection
- ✓ 10ml sterile syringe with needle
- ✓ Sterile empty glass vial
- ✓ 0.2 millipore filter [filter optional]

Instructions for making a 1:10 solution = 0.03 mg/ml

1. Using aseptic technique, add 9ml sterile saline and 1 ml of buprenorphine to a sterile glass vial. Gently shake several times to mix.
2. Label the vial with the following information:
    a. "Buprenorphine HCl dilution [0.03 mg/ml]"
    b. A unique identification number for controlled substance tracking purposes
    c. Expiration date*
    d. Date prepared
3. *Expiration date of diluted buprenorphine is the earliest expiration date of the individual components or 6 months, whichever is soonest.
4. Storage – Buprenorphine is light sensitive. Always store in dark place and protect from light. This is a controlled substance and should be secured and logged accordingly.
5. Always use aseptic techniques when preparing and handling injectable medications.
6. If original buprenorphine container is a glass ampule, a sterile filter may be used for drawing up the buprenorphine to remove any possible glass shards.

Dosage

1. Mouse dose: 0.05-0.2 mg/kg SC.
    a. A 25g mouse would receive 0.04-0.17ml of diluted buprenorphine solution.
2. Rat dose: 0.01-0.05 mg/kg SC.
    a. A 250g rat would receive 0.08-0.42ml of diluted buprenorphine solution.

Reference

Effects of Time and Storage Conditions on the Chemical and Microbiologic Stability of Diluted Buprenorphine for Injection. JM DenHerder, et al. Journal of the American Association for Laboratory Animal Science. 2017. 56(4): 457–461.