Anesthetic & Analgesic Drugs for Mice

Abbreviations:
- IP = intraperitoneal
- PO = by mouth
- mg = milligram
- gm = gram
- SQ = subcutaneous
- q = every
- ml = milliliter
- BW = body weight

Anesthesia

Ketamine (Controlled Substance*)/Xylazine - High Dose

Dosage: Ketamine 120 mg/kg
        Xylazine*** 16 mg/kg

Dose Rate: 0.1 ml/10 gm body weight IP

Volumes: Ketamine 0.60 ml
          Xylazine 0.40 ml
          WFI**  4.00 ml
          Total Volume 5.0 ml

** Sterile water for injection
***Xylazine at a concentration of 20 mg/ml.

Ketamine (Controlled Substance*)/Xylazine - Reduced Dose

Dosage: Ketamine 100 mg/kg
        Xylazine*** 10 mg/kg

Dose Rate: 0.1 ml/10 gm body weight IP

Volumes: Ketamine 0.5 ml
          Xylazine 0.25 ml
          WFI**  4.25 ml
          Total Volume 5 ml

** WFI = water for injection
***Xylazine in this mixture is at a concentration of 20 mg/ml.

Antisedan® (Atipamezole) - Xylazine reversal agent

Dosage: 1mg/kg

Dose Rate: 0.1ml/10g BW (IP or SQ) given following surgery to speed recovery Note: this will only reverse the effect of xylazine, NOT ketamine. Do not give atipamezole until at least 20 minutes after ketamine/xylazine anesthetic administered.

Volumes: Atipamezole (5mg/ml) 0.2 ml
          Sterile Saline     9.8 ml
          Total Volume     10.0 ml at a concentration of 0.1mg/ml

Supplemental Ketamine: (50mg/kg) to extend anesthesia if needed to complete a procedure.

Ketamine 0.5ml (50mg)
WFI 4.5ml
Total 5.0ml (10mg/ml)

Dose: 0.1ml per 20 gm body weight IP
Analgesia

Carprofen
Dose: 5 mg/kg SQ q 24 hours

Meloxicam
Dose: 5 mg/kg SQ q 24 hours x 3

Ketoprofen
Dose: 2-5 mg/kg SQ once

Preparation of diluted ketoprofen:
- Ketoprofen (100mg/ml) 0.1 ml
- Sterile WFI 19.9 ml
- Total Volume 20.0 ml at a concentration of 0.5 mg/ml

Dose rate: 0.1 ml per 10g body weight SQ or IP

Bupivacaine
Maximum total dose: 4 mg/kg given once.

Initial concentration of stock bupivacaine: 2.5mg/ml (0.25% solution).
Dilute with sterile saline for use in mice:
- 3.2 ml bupivacaine
- 6.8 ml sterile saline
- 10.0 ml at a concentration of 0.8 mg/ml

Maximum safe dose of diluted bupivacaine: 0.1ml/20g body weight infiltrated around wound site.

Buprenorphine (Controlled Substance*)
Dose: 0.05 - 0.1 mg/kg SQ q 12 hours.

Preparation of diluted buprenorphine:
- Buprenorphine (0.3mg/ml) 0.15 ml
- Sterile Saline 8.7 ml
- Total Volume 8.85 ml at a concentration of 0.005 mg/ml

Dose rate: 0.1 ml per 10g body weight SQ (delivered dose is 0.05mg/kg)

Ethiqa XR (buprenorphine extended release) – Controlled Substance*
Dose: 0.05 ml per 20 gm mouse (3.25 mg/kg BW) SQ once (do not administer IP)

Concentration of buprenorphine in purchased drug: 1.3 mg/ml.

Buprenorphine SR-Lab (extended release) – Controlled Substance*
Dose: 1 mg/kg SQ once.

Controlled Substance* = Purchase and use of this drug requires a U.S. DEA license.