



Department of Laboratory Animal Resources

Guideline

Rodent Analgesia Recommendations

Rodent Pain Level and Analgesia Recommendations

Pain level	Examples	Recommended Analgesia	Length of treatment
Mild	<ul style="list-style-type: none"> – Vascular cutdown / catheter implantation – Subcutaneous implant – Vasectomy – Skin biopsy 	Bupivacaine ¹ on the incision + Meloxicam ² or Buprenorphine ³	One dose One dose
Moderate	<ul style="list-style-type: none"> – Simple laparotomy – Intra-peritoneal implant – Craniotomy – Ovariectomy – Castration 	Bupivacaine on the incision + Meloxicam or Buprenorphine	48 hours 48 hours
Moderate-severe	<ul style="list-style-type: none"> – Laparotomy with major organ manipulation or removal – C-section – Organ transplant – Thoracotomy (intercostal approach) – Vertebral/Spinal surgery – Middle cerebral artery occlusion 	Bupivacaine on the incision + Buprenorphine + Meloxicam	48 hours 48 hours
Severe	<ul style="list-style-type: none"> – Orthopedic procedures – Cecal ligation and puncture – Bone cancer models – Thoracotomy (sternal approach) 	Bupivacaine on the incision + Buprenorphine + Meloxicam	72 hours 72 hours

1 Bupivacaine is the recommended local anesthetic agent. Lidocaine is an acceptable alternative.

2 Meloxicam is the recommended non-steroidal anti-inflammatory drug.

3 Buprenorphine is the recommended opioid drug for rodent pain.

Please contact the Attending Veterinarian to discuss using alternative drugs and treatment schedules.

RAT Analgesic Formulary

Agent	Dose	Route	Frequency	Duration
Bupivacaine 0.25%	1-3 drops	topically on the skin incision prior to closure (wound clips or skin sutures)	Once	One dose lasts 4-8 hours

Meloxicam	1 mg/kg	SC	Once every 24 hours	<ul style="list-style-type: none"> – Mild pain: 1 dose – Moderate pain: every 24 hours for 48 hours – Severe pain: every 24 hours for 72 hours
SR-meloxicam	4 mg/kg	SC	Once	Lasts up to 72 hours
Buprenorphine	0.01-0.05 mg/kg	SC	Once every 8-12 hours	<ul style="list-style-type: none"> – Mild pain: 1 dose – Moderate pain: every 12 hours for 48 hours – Severe pain: every 8 hours for 72 hours
SR-buprenorphine	1.0-1.2 mg/kg	SC	Once	Lasts up to 72 hours

MOUSE Analgesic Formulary

Agent	Dose	Route	Frequency	Duration
Bupivacaine 0.25%	1-2 drops	topically on the skin incision prior to closure (wound clips or skin sutures)	Once	One dose lasts 4-8 hours
Meloxicam	5 mg/kg	SC	Once every 24 hours	<ul style="list-style-type: none"> – Mild pain: 1 dose – Moderate pain: every 24 hours for 48 hours – Severe pain: every 24 hours for 72 hours
Buprenorphine	0.05-0.2 mg/kg	SC	Once every 8-12 hours	<ul style="list-style-type: none"> – Mild pain: 1 dose – Moderate pain: every 12 hours for 48 hours – Severe pain: every 8 hours for 72 hours
SR-buprenorphine	0.5-1.0 mg/kg	SC	Once	Lasts up to 72 hours

References

ACLAM position statement. “Guidelines for the Assessment and Management of Pain in Rodents and Rabbits”, www.aclam.org.

Flecknell P. Laboratory Animal Anaesthesia, 4th ed., 2016.

University of British Columbia Species-Specific Considerations <https://animalcare.ubc.ca/conducting-your-research/rodent-anesthesia-and-analgesia/species-specific-considerations>

University of Pennsylvania Mouse Anesthesia and Analgesia Recommendations <https://www.spandidos-publications.com/var/MouseAnesthesiaAnalgesiaRecommendations.pdf>.