

**University of Toledo Institutional Animal Care and Use Committee  
Rodent Pain Level and Analgesia Recommendations**

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

**Rat Analgesic Recommendations**

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"> <li>- Mild pain: 1 dose</li> <li>- Moderate pain: every 24 hours for 48 hours</li> <li>- Severe pain: every 24 hours for 72 hours</li> </ul>
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"> <li>- Mild pain: 1 dose</li> <li>- Moderate pain: every 12 hours for 48 hours</li> <li>- Severe pain: every 8 hours for 72 hours</li> </ul>
SR-buprenorphine	1.0-1.2 mg/kg	SC	Once	Lasts up to 72 hours

### Mouse Analgesic Recommendations

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"> <li>– Mild pain: 1 dose</li> <li>– Moderate pain: every 24 hours for 48 hours</li> <li>– Severe pain: every 24 hours for 72 hours</li> </ul>
SR-meloxicam	4 mg/kg	SC	Once	Lasts up to 72 hours
Buprenorphine	0.05-0.1 mg/kg	SC	Once every 8-12 hours	<ul style="list-style-type: none"> <li>– Mild pain: 1 dose</li> <li>– Moderate pain: every 12 hours for 48 hours</li> <li>– Severe pain: every 8 hours for 72 hours</li> </ul>
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](http://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>.