

Utarbeidet av AA	Standard operasjonsprosedyre Recommended surgical analgesic protocols for rodents	Versjon: 2,0 Utarbeidet: 27.05.2014 Revidert: 30.10.2014
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Dosages

Systemic analgesics

Drug	Mouse (mg/kg)	Rat (mg/kg)	Duration	Type of drug
Buprenorphine (Temgesic)	0.05-0.1 SC	0.01-0.05 SC	8-12 h	Opioid
Carprofen (Rimadyl)	2-5 SC	2-5 SC	12-24 h	NSAID
Meloxicam (Metacam)	2-5 SC/PO	1-2 SC/PO	12-24 h	NSAID
Morphine	1-2.5 SC	1-2.5 SC	2-6 h	Opioid

Local anesthetics

Drug	Onset	Duration	Rec. dose	Toxic dose
Lidocaine (Xylocain)	1-3 min	20-40 min	2-4 mg/kg	10 mg/kg
Bupivacain (Marcain)	20 min	4-6 hours	1-2 mg/kg	6 mg/kg

Injected in incision site and underlying tissues.

Can be mixed in the same syringe – get the benefits from both drugs.

Dilute for more accurate dosing and realistic volume to infuse at the incision site.

Recommended analgesic protocols for mice and rats

Mild pain

Preemptive (once)		Lidocain/bupivacaine as local infiltration AND Carprofen or meloxicam
Post-surgical	Drug Frequency	Carprofen or meloxicam Once

Mild to moderate pain – option 1

Preemptive (once)		Lidocain/bupivacaine as local infiltration AND Buprenorphine
Post-surgical	Drug Duration	Buprenorphine 1-2 days

Mild to moderate pain – option 2

Preemptive (once)		Lidocain/bupivacaine as local infiltration AND Buprenorphine AND Carprofen or meloxicam
Post-surgical	Drug Duration	Buprenorphine or Carprofen/ meloxicam, or both 1-2 days

Moderate to severe pain

Preemptive (once)		Lidocain/bupivacaine as local infiltration AND Buprenorphine AND Carprofen or meloxicam
Post-surgical	Drug Duration	Buprenorphine 2 days AND Meloxicam (highest dose) 2-3 days
	Drug Duration	AND Morphine for severe pain As needed

Examples of mild, moderate and severe post-surgical pain in mice and rats*

Mild:

- Subcutaneous pump or pellet implantation
- Tail clipping

Moderate:

- Vascular catheterization
- Embryo transfer
- Ovariectomy
- Orchidectomy
- Craniotomy

Severe:

- Orthopedic Procedures
- Thoracotomy
- Organ transplantation
- Major laparotomy procedures

*IMPORTANT CONSIDERATION: This is a guideline for classifying pain categories to common surgical procedures in mice and rats. The classification must be considered against other factors, such as length of procedure, extent of tissue dissection, degree of blood loss, materials implanted, unexpected surgical events, health status, age, strain, and surgeon's experience and skill.