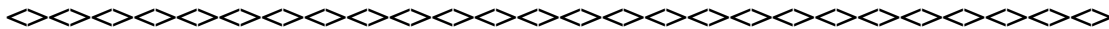


List of Anesthetic, Analgesic and Tranquilizer Drugs Frequently Used With the Common Laboratory Species.

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Definition of Abbreviations Used in the Drug List.

Abbreviation	Meaning
SC	Subcutaneous injection
IM	Intramuscular injection
IV	Intravenous injection
IP	Intraperitoneal injection
PO	Given By Mouth
Epi	Epidural space in the Lumbar region
q4h.	Repeat every 4 hours
NSAID	Non-steroidal Anti-inflammatory Drug
MAC	Minimum Alveolar Concentration; the alveolar concentration of a gaseous anesthetic required to block the response to a specified painful stimulus.
SID	Once a day
BID	Twice a day
QID	Four times a day
"to effect"	given until the desired effect is reached, not administering the whole calculated dose.

1. Indicates beneficial for mild pain.
2. Indicates beneficial for moderate pain.
3. Indicates beneficial for extreme pain.

Rodents: Chemical Restraint/Anesthesia/Analgesia

Agent	Dosage	Comments
Acepromazine	0.5-1.0 mg/kg IM .	Preanesthetic; causes seizures in Gerbils. See combination with Ketamine.
Acetaminophen (Tylenol Syrup)	1-2 mg/mL drinking water.	Analgesia for all rodents.(1)
Acetylsalicylic Acid (Aspirin)	50-100 mg/kg PO q4h.	Analgesia(1)/NSAID: Guinea pigs.
	100-150 mg/kg PO q4h.	Rats, gerbils, hamsters.(1)
	120-300 mg/kg PO .	Mice; lower doses can be given q4h.
Alpha-Chloralose	55 mg/kg IP .	Non-survival anesthesia; 8-10 hrs.
Atipamezole (Antisedan)	1.0-2.5 mg/kg IP .	Mice: Medetomidine reversal.
Atropine	0.05-0.10 mg/kg SC .	All; some rats possess serum atropinesterase.
	0.4 mg/kg SC,IM .	Gerbils, hamsters, mice and rats.
	0.1-0.2 mg/kg SC, IM .	Chinchillas and guinea pigs.
Buprenorphine (Buprenex)	0.05-2.5 mg/kg SC, IP q6-12h.	Analgesia (2-3) Mice
	0.05 mg/kg SC q8-12h.	Chinchillas, guinea pigs.
	0.1-0.2 mg/kg SC q8h.	Gerbils
	0.5 mg/kg SC q8h.	Hamsters
	0.1-0.5 mg/kg SC, IP, IV , q6-12.	Rats

Rodents: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Butorphanol (Torbugesic)	0.2 mg/kg IM q2-4h.	Analgesia (2-3). Chinchillas
	1-5 mg/kg SC q2-4h.	Rats, mice gerbils, hamsters, and guinea pigs.
Carbon Dioxide (CO ₂)	80% CO ₂ ± 20% O ₂ Time: ~120 sec.	Short acting anesthetic. Rats.
	Time: ~30 sec.	Guinea pigs.
Chloral Hydrate	200-300 mg/kg IP of a 10% soln.	Non-survival anesthesia. Minimal effect on cardiovascular system and on baroreceptor reflexes. Rats
	400 mg/kg IP of 10% soln.	Mice
Chloral Hydrate + Pentobarbital + MgSO ₄ (Equithesin)	(CH) 176 mg/kg + (P) 40 mg/kg + (M) 87 mg/kg [4.0 mL/kg IP]	Cocktail is made up in EtOH, propylene glycol and water.
Carprofen (Rimadyl)	4 mg/kg SC q24h.	Analgesia (1-2)/ NSAID. Chinchillas.
	5-10 mg/kg PO	Rats; Can be given in combination with Buprenorphine (0.05 mg/kg).
Diazepam (Valium)	3-5 mg/kg IM	Sedative; Rats, mice, hamsters, gerbils, guinea pigs.
Flunixin meglumine (Banamine)	1-3 mg/kg SC q12h.	Analgesia (1-2) / NSAID. Chinchillas
	2.5 mg/kg SC q12-24h.	Rats, mice, hamsters, gerbils, and guinea pigs.
Glycopyrrolate (Robinul)	0.01-0.02 mg/kg SC .	Pre-anesthetic; anticholinergic; all rodents.

Rodents: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Halothane	2-5% induction; 0.25-3.0 % maintenance.	All rodent species; MAC = 1.0%
Ibuprofen (Advil)	7-15 mg/kg PO q4h. 10-30 mg/kg PO q4h. 0.2 mg/mL in drinking water (20 mg/mL syrup in 100 mL water).	Analgesia (1-2) ; NSAID. All rodent species. Rats Mice, rats. (Be aware that water intake during daylight hours may not allow for sufficient consumption.)
Inactin	80 mg/kg IP .	Anesthesia (thiobarbiturate); rats.
Isoflurane	2-5 % induction; 0.25-4.0% maintenance.	Anesthetic of choice; all rodent species; MAC= 1.28 %.
Ketamine (Ketaset, Vetalar)	22-44 mg/kg IM . 22-64 mg/kg IM . 40-60 mg/kg IM .	Ketamine alone gives poor muscle relaxation. Mice; rats; light to heavy sedation depending on dose. Guinea pigs; for heavy sedation can give up to 44-200 mg/kg (marked individual variation). Chinchillas and Hamsters: heavy sedation 40-150 mg/kg; Gerbils: heavy sedation 70-200 mg/kg.
Ketamine(K) + Acepromazine(A)	(K) 40 mg/kg + (A) 0.5 mg/kg IM .	Anesthesia; All rodents.
Ketamine(K) + Diazepam(D)	(K) 20-40 mg/kg + (D) 1-2 mg/kg IM .	Anesthesia; Chinchillas and guinea pigs.
Ketamine(K) + Medetomidine(M)	(K) 50-75 mg/kg + (M) 1.0 mg/kg IP .	Mice; anesthesia for minor procedures, use the higher dose of Ketamine in females; (M) reversal with atipamezole.

Rodents: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Ketamine(K) + Xylazine(X)	(K) 20-40 mg/kg + (X) 2.0 mg/kg IM .	Guinea pigs; light anesthesia.
	(K) 35-40 mg/kg + (X) 408 mg/kg IM .	Chinchilla; anesthesia.
	(K) 50 mg/kg + (X) 2.0 mg/kg IP .	Gerbils; anesthesia.
	(K) 80-100 mg/kg + (X) 5-10 mg/kg IP .	Mice; anesthesia.
	(K) 40-95 mg/kg + (X) 5-10 mg/kg IM, IP .	Rat; anesthesia.
Ketoprofen (Ketofen)	(K) 80 mg/kg + (X) 5.0 mg/kg IM, IP .	Hamster; anesthesia.
	1-3 mg/kg IM q12h. 5.0 mg/kg IM, SC q24h.	Analgesia(2); NSAID Mice
Medetomidine (Dormitor)	0.1-0.5 mg/kg SC, IM, IP .	Sedation; see Ketamine for combination.
Methoxyflurane (Metofane)	3% induction; 0.4-1% for maintenance.	Easy anesthetic to use (belljar for induction, nose cone for maintenance); MAC= 0.22-0.30.
Meperidine (Demerol)	20 mg/kg SC, IM q2-3h.	Analgesia(2); all rodents.
Midazolam (Versed)	1-5 mg/kg IM, IP .	Pre-anesthetic; sedative; rats and mice higher dosage.
Morphine	2-5 mg/kg SC q2-4h.	Analgesia(2-3); all rodents.
Nalbuphine (Nubain)	4-8 mg/kg IM q3h.	Analgesia(2-3) Rats, mice, gerbils, hamsters.
	1-2 mg/kg IM q3h.	Guinea pigs.
Nalorphine	2-5 mg/kg IV .	Narcotic reversal; all rodents.

Rodents: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Naloxone (Narcan)	0.01-0.10 mg/kg SC, IP.	Narcotic reversal; all rodents.
Oxymorphone	0.2-0.5 mg/kg SC, IM q6-12h.	Analgesia(2-3); all rodents.
Pentobarbital (Nembutal)	30-45 mg/kg IP.	Anesthesia; marginal analgesia; autonomic depression; administer diluted in sterile saline (<10 mg/mL). Guinea pigs and chinchillas.
	45-50 mg/kg IP.	Rats.
	50-90 mg/kg IP.	Mice, gerbils, hamsters.
Piroxicam (Feldene)	3.4-20.0 mg/kg PO.	Mice; Analgesia(1-2); NSAID.
Propofol (Rapinivet)	7.5-10.0 mg/kg IV.	Anesthesia; induction. Rats
	12-26 mg/kg IV.	Mice
Tiletamine/ Zolazepam (Telazol)	20-40 mg/kg IM.	Anesthesia; rats, chinchillas.
Telazol(T) + Xylazine(X)	(T) 20-30 mg/kg + (X) 10 mg/kg IM, IP.	Anesthesia; hamsters, gerbils.
Tribromoethanol (Avertin)	125 mg/kg IP (2.5% soln). (0.015 mL/gm.) 225-300 mg/kg IP (1.25% soln.).	No longer available commercially. Anesthesia; mice; store carefully. Anesthesia; rats, mice, gerbils. Use for only one survival procedure. Lower concentration (1.25%) less likely to cause peritonitis.
Urethane	1.0-1.2 gm/kg IP.	Non-survival anesthesia; long acting (>6 hrs.); carcinogen. Mice, rats.
	1.5 gm/kg SC, IP, IV.	Guinea pigs. (10-25% soln.)

Rodents: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Xylazine (Rompun)	1-3 mg/kg IM (4-8 mg/kg high dose).	Sedative; rats.
	4-8 mg/kg IM, IP (10 mg/kg, high dose).	Sedative; mice.
	3-5 mg/kg IM.	Sedative; guinea pigs.
Yohimbine (Yobine)	0.5-1.0 mg/kg IV.	Xylazine reversal; all rodents.

Rabbits: Chemical Restraint and Anesthetic Agents

Agent	Dosage	Comments
Acepromazine	---	See Ketamine, Ketamine/Xylazine, for combinations
	0.5-1.0 mg/kg IM	Preanesthetic Dose
	0.75-1.0 mg/kg IM	Sedative/Tranquilizer dose
	1-5 mg/kg SC, IM	Preanesthetic; lower end of dose range preferred.
Alpha-Chloralose, 1% Solution	120 mg/kg IV 80-100 mg/kg IV	Use in acute preparations only
Atipamezole (Antisedan)	0.001 mg/kg SC, IP, IV	Medetomidine reversal
Atropine	0.1-3.0 mg/kg SC 0.8-1.0 mg/kg IM	Many rabbits possess a serum atropinase
Butorphanol (Torbugesic, Stadol, Torbutrol)	0.1-0.5mg/kg IV q4h	
Diazepam (Valium)	5-10 mg/kg IM	Can be given with Ketamine or Fentanyl for anesthesia.
	1-5 mg/kg IM, IV	As preanesthetic or tranquilizer
Enflurane (Ethrane)	To effect	Anesthesia; MAC= 2.9%
Glycopyrrolate (Robinul-V)	0.01- 0.02 mg/kg SC	Preanesthetic
Halothane (Fluothane)	3-4% for induction, 0.5-2.0% for maintenance	Inhalant anesthetic
Isoflurane (Aerrane)	3-5% for induction, 1.5-1.75% for maintenance	Inhalant anesthetic of choice; MAC= 2.05%
Ketamine (Ketaset, Vetalar)	---	Ketamine combinations follow.
	15-20 mg/kg IV 20-50 mg/kg IM	60 minutes of sedation
Ketamine/Acepromazine Combination	(K) 40 mg/kg/ (A) 0.5-1.0 mg/kg IM	Surgical anesthesia
Ketamine/ Diazepam Combination	(D) 0.2-0.5 mg/kg IV , then (K) 10-15 mg/kg IV .	Produces deep sedation; follow with Isoflurane to effect for anesthesia.
	(K) 20-30 mg/kg plus	Follow with Isoflurane for anesthesia

(D) 1-3 mg/kg **IM**

Rabbits: Restraint and Anesthesia (cont.)

Agent	Dosage	Comments
Ketamine/Xylazine	--- (K) 10 mg/kg and (X) 3 mg/kg IV (K) 30-40 mg/kg and (X) 3-5 mg/kg IM	Anesthesia; may result in bradycardia; (K)/(D)/Isoflurane combination preferable.
Ketamine/Xylazine/ Acepromazine	(K) 35 mg/kg + (X) 5 mg/kg + (A) 0.75 mg/kg IM	Surgical anesthesia 45-75 min.
Ketamine/Xylazine/ Butorphanol	(K) 35 mg/kg + (X) 5 mg/kg + (B) 0.1 mg/kg IM	Surgical anesthesia 60-90 min.
Lidocaine	(1.5%) 0.4 mL/kg (10%) Topical to glottis	Epidural anesthesia Facilitates intubation
Medetomidine (Dormitor)	0.25 mg/kg IM 6 mg/kg IV to effect	Sedation Induction
Medetomidine/ Ketamine	(M) 0.35 mg/kg IM + (K) 5 mg/kg IV	Anesthesia; surgical depth ~ 19 min.
Nalorphine (Nalline)	1-5 mg/kg IV	Narcotic reversal
Naloxone	0.01-0.10 mg/kg IM or IV	Narcotic reversal
Pentobarbital (Nembutal)	25-30 mg/kg IV	Anesthesia; given to effect; sedative pre- anesthetics reduce dosage to 15-20 mg/kg IV
Propofol	10 mg/kg IV	Light anesthesia for 5-10 min.
Sevoflurane	To effect	Anesthesia; MAC= 3.7%
Thiopental (Pentothal)	25-30 mg/kg IV	Ultra short acting barbituate; given "to effect".
Tiletamine/Zolazepam (Telazol)	3 mg/kg IM	Not recommended in rabbits as may cause renal tubular necrosis.

Rabbits: Restraint and Anesthesia (cont.)

Agent	Dosage	Comments
Xylazine (Rompun)	1-5 mg/kg SC or IM	Preanesthetic; tranquilizer. Potent muscle relaxant. See Ketamine for combination.
Yohimbine	0.2-1.0 mg/kg IM or IV	Xylazine reversal

Rabbits: Analgesics

Agent	Dosage	Comments
Acetaminophen (Tylenol)	200-500 mg/kg PO 1-2 mg/mL in drinking water.	
Acetaminophen/ Codeine	1 mL elixir/100 mL drinking water	
Acetylsalicylic Acid	20 mg/kg PO sid. 100 mg/kg PO q4h.	Non-steroidal anti-inflammatory
Buprenorphine	0.01-0.05 mg/kg SC IV q6-12h. 0.02-0.1 mg/kg IV or SC q12h.	Analgesia
Butorphanol (Torbugesic)	0.0-0.5mg/kg SC, IM, or IV q2-4h.	Analgesia
Carprofen (Rimadyl)	2.2 mg/kg PO q12h.	NSAID
Fentanyl	0.0074 mg/kg IV	Analgesia

Rabbits: Analgesics (cont.)

Agent	Dosage	Comments
Fentanyl Patch	1/2 patch per medium-sized rabbit(3kg) x 3 days	Post-operative analgesia
Flunixin meglumine (Banamine)	1.1 mg/kg SC, IM q12h or BID	NSAID
Ketoprofen	1-3 mg/kg IM q12-24h	Musculoskeletal pain; NSAID
Meperidine (Demerol)	10(5-25) mg/kg SC, IM, or IV q2-3h	Analgesic
Nalbuphine (Nubain)	1-2 mg/kg IM, IV q4-5h	Analgesic
Oxymorphone	0.05-0.20 mg/kg SC, IM q8-12h.	Analgesic

C = cat, D = dog
 NSAID = Nonsteroidal anti-inflammatory drug
 Analgesia 1 = mild pain
 Analgesia 2 = moderate pain
 Analgesia 3 = severe pain

Cat and Dog: Chemical Restraint and Anesthetic Agents

Agent	Dosage	Comments
Acepromazine	0.05-0.20 mg/kg IM, IV, or SC.	Lowers the seizure threshold and blood pressure.
Atipamezole (Antisedan)	0.001 mg/kg SC, IP, IV	Medetomidine reversal
Atropine	0.02-0.04 mg/kg IM, IV, SC.	Used as pre-anesthetic in combination with a sedative or tranquilizer.
Butorphanol (Torbugesic, Stadol, Torbutrol)	0.10-0.40 mg/kg IV, IM (dog) 0.05-0.2 mg/kg IV,IM (cat)	Analgesia for about 4 hrs. Analgesia for 2-3 hrs.
Butorphanol/ Acepromazine comb.	(B) 0.3 mg/kg + (A) 0.03 mg/kg IM or SC.	
Diazepam (Valium)	0.1-0.25 mg/kg SC, IV	Can be combined with Ketamine or Oxymorphone for anesthesia.
Diazepam(D)/ Oxymorphone(O) comb.	(D) 0.02 mg/kg + (O) 0.02-0.05 mg/kg IV or IM.	Watch for bradycardia; use for short procedures. Use low dose for cats.
Enflurane (Ethrane)	To effect	Anesthesia; MAC= 2.9%
Glycopyrrolate (Robinul-V)	0.05-0.1 mg/kg SC, IM, IV.	Preanesthetic: dries salivary secretions and supports heart rate.
Halothane (Fluothane)	3-4% for induction, 1.0-1.5% for maintenance	Inhalant anesthetic; MAC=0.87% for dogs; MAC=0.82% for cats; may cause hypotension, myocardial depression, and dysrhythmias.
Isoflurane (Aerrane)	3-5% for induction, 1.5-1.75% for maintenance	Inhalant anesthetic of choice; MAC= 1.28% for dogs; MAC=1.63% for cats.

Cat and Dog: Chemical Restraint and Anesthetic Agents (cont.)

Agent	Dosage	Comments
Ketamine (Ketaset, Vetalar)	15-20 mg/kg IV (D) 20-50 mg/kg IM (D) 4-10 mg/kg IV (C) 10-20 mg/kg IM (C)	60 minutes of sedation
Ketamine/Acepromazine Combination	(K) 4-8 mg/kg IM + (A) 0.1-0.2 mg/kg IM	Give IM for 20-60 minutes of sedation; give Ace. 15 minutes prior to Ketamine; give IV for short anesthetic duration.
Ketamine/ Diazepam Combination	(D) 0.1-0.2 mg/kg IV , + (K) 1.0-2.0 mg/kg	Produces sedation for 10 min. for induction; follow with Isoflurane to <i>to effect</i> for anesthesia.
Ketamine/Xylazine Combination	(K) 3-7 mg/kg IV or (K) 7-10 mg/kg IM + (X) 0.1-0.8 mg/kg IV	May result in bradycardia; (K)/(D)/Isoflurane combination preferable.
Ketamine/ Medetomidine Combination	(K) 5.0 mg/kg IV or 5-10 mg/kg IM (D) (K) 7.0 mg/kg IM (C) (M) 0.01-0.08 mg/kg IM	Given IM, 20-35 min. duration in dogs; 30-60 min. duration in cats; duration shorter for IV administration.
Lidocaine	(2.0%) 1 ml/5 kg EPI (10%) Topical to glottis	Epidural anesthesia; Facilitates intubation; Nerve blocks and Line blocks use 1-2%.
Medetomidine (Dormitor)	0.01-0.08 mg/kg IM 0.001-0.005 mg/kg IV	Sedation. See Antisedan, reversal agent; alpha-2 agonist with fewer adverse side effects than Xylazine.
Nalorphine (Nalline)	(C)1 mg/kg IV, IM, SC (D)5 mg/kg IV, IM, SC	Narcotic reversal
Naloxone	0.2-0.4 mg/kg IV, IM, or SC.	Narcotic reversal
Propofol (Rapinovet)	6.6-8.8 mg/kg IV 2.2-4.4 mg/kg IV	Light anesthesia for 5-10 min. Dose with premedication.

Cat and Dog: Chemical Restraint and Anesthetic Agents (cont.)

Agent	Dosage	Comments
Sevoflurane	To effect	Anesthesia; MAC= 2.1-2.4% for dogs; MAC=2.6% for cats; reacts with soda lime to form a nephrotoxic compound.
Thiopental (Pentothal)	25-30 mg/kg IV	Ultra short acting barbituate; given "to effect". Decrease dosage if animal is premedicated.
Tiletamine/Zolazepam (Telazol)	7-15 mg/kg IM 2.2-4.4 mg/kg IV	Can be used for induction for short procedures; enhanced by alpha-2 agonists and opioids.
Xylazine (Rompun)	0.1-0.5 mg/kg IV, IM	Preanesthetic; tranquilizer. Potent muscle relaxant. See Ketamine for combination.
Yohimbine	0.05-0.1 mg/kg IV	Xylazine reversal

Cat and Dog: Analgesics

Agent	Dosage	Comments
Acetaminophen (Tylenol)	(D) 15 mg/kg PO q 8h	NSAID Toxic in cats
Acetylsalicylic Acid	(C) 10 mg/kg PO q 48h (D) 10-20 mg/kg PO q 12h	NSAID
Buprenorphine	(C) 0.005-0.01 mg/kg SC, IM q 12h (D) 0.01-0.02 mg/kg SC, IM q 12h	Analgesia (2-3) Analgesia (2-3)

Cat and Dog: Analgesics (cont.)

Agent	Dosage	Comments
Butorphanol	(C) 0.4 mg/kg SC, IM q 6h	Analgesia (2-3)
	(D) 0.2-0.4 mg/kg SC, IM q 6h	Analgesia (2-3)
Carprofen (Rimadyl)	2.2 mg/kg PO q12h.	NSAID Analgesia (2)
Etodolac (Etogesic)	4.5-6.8 mg/kg PO sid	NSAID
Fentanyl	(D) 0.04-0.08 mg/kg SC, IM, IV q 1-2h	Analgesia (2-3)
Fentanyl Patch	(C) 3-5 kg, 25 µg/hr patch per for 3 days	Post-operative analgesia. Analgesia (2-3) Clip hair, alcohol swab and tape patch in place.
	(D) 5-15 kg, 25 µg/hr 15-35 kg, 50 µg/hr 35-60 kg, 75 µg/hr patch per for 3 days	Apply 24 hours before painful event.
Flunixin meglumine (Banamine)	(C) 0.3-1 mg/kg SC, IM q 24h	NSAID Analgesia (1-2)
	(D) 1-2 mg/kg SC, IM q 24h	Use no longer than 3 days Can cause GIT ulcers and hemorrhage
Ketoprofen	(D) 1-3 mg/kg IM q 12-24 h	NSAID; Musculoskeletal pain
Meperidine (Demerol)	(C) 2-10 mg/kg SC, IM, or IV q2-3h	Analgesia (2-3); action lasts only 1-2 hours.
	(D) 6-10 mg/kg SC, IM, or IV q2-3h	

Cat and Dog: Analgesics (cont.)

Agent	Dosage	Comments
Morphine	(C) 0.1 mg/kg SC, IM q6-7h	Analgesia (3) Use with caution in cats.
	(D) 0.25-5.0 mg/kg SC, IM q 4-6h	
Nalbuphine (Nubain)	(D) 0.5-2 mg/kg IM, IV q 3-8h	Do not use in cats. Analgesic
Oxymorphone	(C) 0.5-1.5 mg/kg SC, IM, IV q 8-12h	Analgesic (3)
	(D) 0.22 mg/kg SC, IM, IV q 8-12h	

Primates: Chemical Restraint and Anesthetic Agents

Agent	Dosage	Comments
Acepromazine	0.5-1.0 mg/kg PO, SC, IM	Pre-anesthetic; tranquilizer
Atipamizole (Antisedan)	0.15-0.30 mg/kg IV	Medetomidine reversal
Atropine	0.04 mg/kg SC, IM, IV	Pre-anesthetic; reduces salivation and bradycardia.
Diazepam (Valium)	0.5-1.0 mg/kg PO 0.25-0.50 mg/kg IM, IV	Sedative; give in small amount of food or drink 30-60 min. prior to anesthesia; prolongs recovery. Reduces seizures; muscle relaxer during anesthesia.
Fentanyl	5-10 ug/kg IV bolus 10-25 ug/kg/hr. continuous infusion IV	Use prior to Isoflurane anesthesia Use with Isoflurane anesthesia
Glycopyrrolate (Robinul)	0.005-0.010 mg/kg IM, SC	Pre-anesthetic; reduces salivation and bradycardia. Lasts longer than atropine.
Ketamine (Ketaset, Vetalar)	10-15 mg/kg IM 25-30 mg/kg IM	Medium-sized primates; 20 minutes of immobilization. Surgical anesthesia for smaller and New World primates; 20 min. duration; for minor procedures only.
Ketamine(K)/ Acepromazine(A)	(K) 4 mg/kg + (A) 0.04 mg/kg IM	Anesthesia for minor procedures only.
Ketamine(K)/ Diazepam(D)	(K) 15 mg/kg + (D) 1.0 mg/kg IM	Anesthesia for minor procedures only.

Primates: Restraint and Anesthesia (cont.)

Agent	Dosage	Comments
Ketamine(K)/ Medetomidine(M)	(K) 5.0-7.5 mg/kg + (M) 0.033-0.075 mg/kg IM	Anesthesia; use higher doses for smaller primates; for minor procedures only.
Ketamine(K)/ Xylazine(X)	(K) 10 mg/kg + (X) 0.5 mg/kg IM	Anesthesia for minor procedures only.
Medetomidine (Domitor)	0.05-0.10 mg/kg PO 0.10 mg/kg SC, IM	Induction; can be followed by Ketamine. Dosage for Squirrel Monkeys
Naloxone	0.01-0.05 mg/kg IM, IV	Narcotic reversal
Propofol	2.5-5.0 mg/kg IV bolus, followed by infusion of 0.3-0.4 mg/kg/min.	Intubation and ventilatory support suggested.
Thiopental (Pentothal)	25 mg/kg IV to effect	Anesthesia
Tiletamine/Zolazepam (Telazol)	2-6 mg/kg IM (1-20 mg/kg IM)	Anesthesia; cataleptoid. For species other than Macaques wide range of doses.

Primates: Analgesics Categories: 1. Mild pain 2. Moderate pain 3. Severe pain

Agent	Dosage	Comments
Acetaminophen (Tylenol)	5-10 mg/kg PO q6h.	Analgesic/ NSAID; anti-pyretic.
Acetylsalicylic acid (Aspirin, Ecotrin)	5-20 mg/kg PO q4-6h. 100 mg/kg PO SID 325 mg (5 gr.) PO QID	Analgesic/ NSAID; anti-pyretic.

Primates: Analgesics (cont.)

Agent	Dosage	Comments
Buprenorphine (Buprenex)	0.01 mg/kg IM, IV q12h. 0.005-0.01 mg/kg IM, IV q6-12h.	Analgesia (2); most useful of the opioid agonist-antagonists.
Butorphanol (Torbugesic, Stadol)	0.1-0.2 mg/kg IM q12-48h. 0.01 mg/kg IV q3-4h.	Analgesia (2); Do Not give during anesthesia due to Respiratory Depression.
Carprofen (Rimadyl)	2-4 mg/kg PO, SC q12-24h.	Analgesic (1+2)/ NSAID
Fentanyl patch (Duragesic)	4-8 ug/kg/hr., change patch q72h.	Analgesic (2+3); do not cut patch.
Flunixin meglumine (Banamine)	0.3-1.0 mg/kg SC, IV, IM q12-24h.	Analgesic (1+2)/ NSAID
Ibuprofen (Advil)	20 mg/kg/day PO 1% solution, sub-gingival irrigation.	Analgesic (1)/ NSAID Periodontitis
Ketoprofen (Ketofen)	5 mg/kg IM q6h.	Analgesic (2)/ NSAID
Ketorolac (Toradol)	15-30 mg/animal IM,PO	Macaques, baboons; Analgesic (2)/ NSAID
Meperidine (Demerol)	2-4 mg/kg IM q3-4h.	Analgesic (2+3); Narcotic; sudden death reported in healthy animals; Squirrel monkeys require 8 mg/kg.
Midazolam (Versed)	0.1-0.5 mg/kg IM	In lemurs prevents Ketamine-induced seizures.
Morphine	1-2 mg/kg PO, SC, IM, IV q4h.	Analgesic (2+3); Narcotic.

Primates: Analgesics (cont.)

Agent	Dosage	Comments
Nalbuphine (Nubain)	0.5 mg/kg IM, IV q3-6h.	Analgesic (2+3)
Oxymorphone	0.03-0.2 mg/kg SC, IM, IV q6-12h. [0.075 mg/kg q6h.: New World Primates] [0.15 mg/kg q6h.: Old World Primates]	Analgesic (2+3)

Pigs: Chemical Restraint/Anesthetics/Analgesics

Agent	Dosage	Comments
Acepromazine	0.1-0.2 mg/kg IM.	Tranquilization. Facilitates catheter placement. (See combination with Ketamine)
Aspirin	10-20 mg/kg PO q12h.	Analgesia; anti-inflammatory; antipyretic; enteric coated (Ecotrin).
Atipamezole (Antisedan)	0.38 mg/kg IM	For medetomidine (Dormitor) reversal.
Atropine	0.04 mg/kg SC, IM, IV.	See detomidine combination. Pre-anesthetic; bradycardia and hypersalivation.
Azaperone (Stresnil)	2-8 mg/kg IM.	Sedation; immobilization.
Buprenorphine (Buprenex)	0.05-0.10 mg/kg IM, IV q8-12h.	Analgesia.
Butorphanol (Torbutrol; Torbugesic)	0.1-0.3 mg/kg IM, IV q8-12h.	Analgesia. See detomidine, ketamine for combinations.
Carprofen (Rimadyl)	2 mg/kg PO bid.	NSAID; relieves pain of osteoarthritis.
Detomidine (Dormosedan (D)/ Butorphanol (B)/ Midazolam (M)/ Atropine (A).	(D) 0.125 mg/kg + (B) 0.3 mg/kg + (M) 0.3 mg/kg + (A) 0.06 mg/kg IM.	Anesthesia; reverse with Naloxone and Yohimbine; can also reverse with Flumazenil, if needed.
Diazepam (Valium)	0.5-10.0 mg/kg IM. 0.5-1.5 mg/kg IV.	Sedation.

Pigs: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Flumazenil (Romazicon)	1.0 mg per 10-15 mg of midazolam IV .	Midazolam reversal.
Flunixin meglumine	0.5-1.0 mg/kg SC, IV q12-24h.	Analgesia; Anti-inflammatory.
Glycopyrrolate (Robinul-V)	0.005-0.010 mg/kg SC, IM, IV .	Pre-anesthetic; bradycardia and hypersalivation.
Halothane	4-5% induction, 1-2% maintenance.	Anesthesia; MAC=1.25; Malignant hyperthermia may follow halothane anesthesia in some strains of swine.
Isoflurane	4-5% induction, 1-2% maintenance.	Anesthesia; MAC=1.45; rapid induction and recovery; little effect on hepatic enzymes.
Ketamine (Ketaset, Vetalar)	5-20 mg/kg IM .	Sedation; immobilization. Poor muscle relaxation; poor visceral analgesia; rough recovery; use with other agents.
Ketamine (K)/ Acepromazine (A)	(K) 10-20 mg/kg + (A) 0.05-0.5 mg/kg IM .	Anesthesia.
Ketamine (K)/ Diazepam (D)	(K) 7 mg/kg + (D) 0.5 mg/kg IV . (D) 1-2 mg/kg IM , then (K) 12-20 mg/kg IM .	Sedation. Short-term anesthesia; prolong with (K) 2-4 mg/kg IV prn (as needed).
Ketamine (K)/ Xylazine (X)	(X) 2.2 mg/kg IM followed by (K) 12-20 mg/kg IM .	Short-term anesthesia; prolong with (K) 2-4 mg/kg IV prn (as needed). Anesthesia induction; follow by Isoflurane or Halothane for maintenance.

Pigs: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Ketamine (K)/ Xylazine (X)/ Butorphanol (B)	(K) 11.0 mg/kg + (X) 2.0 mg/kg + (B) 0.22 mg/kg IM .	Anesthesia.
Ketoprofen (Ketofen)	1-3 mg/kg IM q12h.	Anti-inflammatory; analgesic; antipyretic.
Medetomidine (Dormitor)	0.005-0.01 mg/kg IM q8h.	Alpha-2 agonist; sedation; analgesia. Reversed with Atipamezole (Antisedan)
Meperidine (Demerol)	2-10 mg/kg IM, SC q4h.	Analgesia.
Midazolam (Versed)	0.1-0.5 mg/kg IM .	Sedation See combination with Detomidine.
Morphine	0.2 mg/kg IM,SC q4h.	Analgesia; <20 mg total.
Naloxone	4 mg total dose IV .	Narcotic reversal.
Nitrous Oxide	At 2:1 with Oxygen	At equal volumes with oxygen (1-2 L/min) for Isoflurane induction.
Pentazocine (Talwin-V)	2 mg/kg IM q4h.	Analgesia.
Phenylbutazone (Butazolidin)	4-8 mg/kg PO q12h.	Anti-inflammatory; analgesic (especially musculoskeletal); antipyretic.
Propofol	2.5-3.5 mg/kg IV .	Short acting anesthetic; respiratory depression may occur.

Pigs: Chemical Restraint/Anesthesia/Analgesia (cont.)

Agent	Dosage	Comments
Tiletamine/ Zolazepam (Telazol)	4-6 mg/kg IM .	Sedation; immobilization. Poor muscle relaxation; rough recovery.
Tiletamine/ Zolazepam (T) + Ketamine (K) + Xylazine (Z).		[Reconstitute Telezol (500 mg) with 2.5 ml Xylazine (100 mg/ml) and 2.5 ml Ketamine (100 mg/ml) instead of water; mix contains 50 mg/ml each of the active drugs.]
	0.006-0.013 ml/kg IM .	Tranquilization; sedation.
	0.020-0.026 ml/kg IM .	Prior to induction; surgical anesthesia.
	0.022-0.044 ml/kg IM .	Induction; maintain with 0.022 ml/kg IV prn.
Telazol (T) + Xylazine (X)	(T) 2 mg/kg + (X) 2 mg/kg IV .	Rapid induction.
	(T) 6 mg/kg + (X) 2.2 mg/kg IM .	Anesthesia.
Xylazine (Rompun)	0.1-0.2 mg/kg IM q6h.	Analgesia.
	0.5-3.0 mg/kg IM .	Sedation; tranquilization.
Yohimbine (Antagonil)	0.125-0.3 mg/kg IV .	Xylazine reversal.