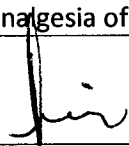




SOP #: 601.01

Title: SOP - Analgesia of Laboratory Animals
Approvals: _____

Attending Veterinarian 

Date: 10/11/12

Assistant Director LAR 

Date: 10/11/12

1. Purpose

1.1 To describe methods of mitigating pain by administration of analgesic medications

2. Responsibility

2.1 Principal Investigators, Co-Investigators, laboratory staff, ACF personnel.

3. Definitions

3.1 Analgesia: the relief of pain

4. Guidelines

4.1 A procedure which would be expected to be painful if it was done on humans must be considered painful to the animal.

4.2 When there is a question of whether or not a procedure is painful, the animal should receive the benefit of analgesia.

4.3 Analgesia should be provided at appropriate dose and frequency to control pain.

4.4 Analgesics are often administered before signs of pain are clearly evident. Preoperative or intra-operative administration of analgesics enhances post-surgical analgesia. Isoflurane, provide minimal analgesia once the animal has regained consciousness, so analgesic administration before anesthetic recovery is strongly recommended.

4.5 Rodents are nocturnal animals, and are frequently housed in groups of nearly identical animals. These two factors make diagnosis of mild to moderate pain challenging. Weight loss is frequently monitored in animals at risk for ongoing pain. Pre-emptive treatment of pain before signs of pain are obvious is recommended.

4.6 In some instances, use of analgesic drugs could interfere with the experimental design. Withholding of analgesics must be clearly explained and justified in the IACUC application.

4.7 Note that all of the analgesic doses are approximations and must be titrated to the animal's strain, age, sex and individual responses. Doses will also vary depending on what other drugs are being administered concurrently.

4.8 Commonly Used Analgesics:

Drug Name	Dose (mg/kg) & Route	Frequency	Notes
Buprenorphine	Rats: 0.02-0.5 SC or IP Mice: 0.05 – 2.5 SC or IP	Used pre-operatively for preemptive analgesia and post-operatively every 6-12 hour	For major procedures, require more frequent dosing than 12 hour intervals. High doses of buprenorphine may lead to pica behavior in rats.
Butorphanol	Dog: 0.1 – 0.5 SC Rodents: 1-5 SC	Used pre-operatively for preemptive analgesia and post-operatively every 4-6 hour	Narcotic agonist/antagonist for shorter acting analgesia

4.9 Non-steroidal anti-inflammatory drugs (NSAIDs) may also be used with caution, for their analgesic effect. The NSAIDs have several side-effects related to their pronounced anti-prostaglandin (anti-cyclooxygenase and in some cases lipooxygenase) activity. This is peripheral with most drugs (COX-1 and COX-2 inhibitors), but is primarily central with acetaminophen (COX-3 inhibitor). These effects can alter immune function, platelet function and can cause gastrointestinal ulceration. In addition, the NSAIDs all have the potential to cause nephro- and hepatotoxicity. This is variable among species.

4.10 The use of a specific analgesic will be discussed with the Attending Veterinarian before the animals study protocol is submitted for IACUC review and approval.

5. References

5.1 Carpenter et al: "Exotic Animal Formulary" Second Edition - 2001 WB Saunders Company