

STANDARD OPERATING

SOP #412.12
Rodent Surgery
Effective 12/2

- d. Surgical instruments, gloves* and other paraphernalia may be used on more than one animal. Items used on **multiple animals** must be carefully cleaned and disinfected between animals. One method commonly employed is the hot-bead or glass-bead sterilizer ("Germinator"). Prior to use in the next/subsequent surgery, surgical items are cleaned with sterile water and the tips re-sterilized using a hot-bead sterilizer. Instruments should then be cooled prior to handling animal tissue. **Alternating sets of instruments** is another way in which to allow adequate time for instruments to be exposed to a disinfectant or sterilant solution.

***Sterile surgical gloves may be worn in multiple surgeries except when sterile technique has been compromised.**

4. INTRAOPERATIVE AND POST OPERATIVE MONITORING AND CARE.

- a. **Monitoring of the animal** during surgery is critical. Evaluation of anesthetic depth is usually of first importance. Techniques for monitoring **anesthetic depth** vary somewhat with the agent used. A quiet animal that does not move when a painful stimulus is applied is the most certain indicator of adequate anesthesia. However, the zone between quiet and too quiet is very narrow in rodents. Depth of anesthesia will be monitored via inter-digital pinch, palpebral/eye blink reflex, and depth and rate of respiration.
- b. Maintaining **body temperature** is next in importance. A warm water blanket or hot water bottles provides supplementary warmth without being too hot. Bubble wrap may help a small rodent maintain body temperature. During long surgeries, warmed sterile fluids (saline or lactated Ringer's solution) should be provided. These can be administered subcutaneously or intravenously. Any tissues exposed for extended periods during surgery should be kept moist with these same warmed solutions.
- c. **Closure of body cavities** is typically accomplished in at least **two layers**, with an absorbable inner layer(s), and a nonabsorbable skin layer, or absorbable subcuticular layer. A continuous pattern is used to close the inner layer, while the outer skin/layer is closed with a simple interrupted pattern. For external closure, skin wound edges should **first** be approximated with nonabsorbable suture material, to eliminate skin edge tension, before tissue adhesive is applied. Note - If clinical or

Patient. This provision ensures that when an animal has recovered from anesthesia, it can move away from the heat source. Warmed fluids can be administered subcutaneously or intravenously to ensure that the animal is adequately **hydrated**. Over hydration is not generally a problem in animals with normal kidney function.

- e. Signs indicative of **postoperative complications** that require resolution include the following: lack of activity/inquisitiveness, labored or abnormal breathing, unkempt appearance, increased or decreased movement, self-mutilation, abnormal posturing, dehiscence of surgical site, redness or swelling around the surgical site.
- f. **Postoperative observations** must include a documented daily post-operative observation for 3 days after surgery and a daily observation of the general condition of the animal and surgical site until sutures or staples are removed at 10-14 days. For procedures involving the use of surgical glue and/or subcuticular sutures only, the animals should be observed for a minimum of 10 days.

Polypropylene (Prolene®)	Nonabsorbable. Inert.
Nylon(Ethilon®)	Nonabsorbable. Inert. General external closure.

* The use of common brand names as examples does not indicate a product endorsement.

NOTE: Suture gauge selection: Use the smallest gauge suture material that will perform adequately. **Cutting and reverse cutting needles:** Provides edges that will cut through dense, difficult to penetrate tissue, such as skin. **Non-cutting, taper point or round needles:** Have no edges to cut through tissue; used primarily for suturing easily torn tissues such as the peritoneum or intestine.

IV. HELPFUL CONSIDERATIONS

1. Be aware that much rodent research is performed within human medical centers and that implants or instruments can contaminate rodents with human pathogens if improper technique is used.
2. Techniques that are important and often difficult to perfect:
 - a. Touch only "prepped" areas with instruments and hands.
 - b. Keep operating fields draped.
 - c. Do not let catheters or implants become contaminated.
 - d. Use sterile solutions.
 - e. Disinfect the tops of containers of solutions.
 - f. Use sterile technique to access implanted catheters.
3. If instrumentation or equipment should be handled for multiple surgeries, it should be sanitized prior to use and handling should be minimized to prevent cross contamination (e.g. microscope and stereotaxic equipment)
4. Aseptic surgical procedures in rodents are ethically and scientifically justified to ensure the uneventful post-operative recovery of the patient animal, and the highest level of data integrity, uncomplicated by intercurrent pathologies.

Approved:

Date: