Protocol for Survival Animal Surgery Procedures

This protocol will be followed by investigators wishing to perform survival surgical procedures to animals (i.e., adrenalectomy, gonadectomy, other organ removal).

1. Animals (typically, rats and mice) obtained from commercial source (i.e., Hilltop Animals for rats).
2. Animals received and housed in Thiel's animal quarters (AC-410 and AC-416). The rooms meet federal guidelines concerning environment and care of the animals.
4. Surgical Procedure:
   a. Animals will be anesthetized with either 0.5-0.7 ml/kg SC rat cocktail (1.5 ml ketamine (100 mg/ml) and 1.5 ml Xylazine (20 mg/ml). Standard sterile surgical preparation and procedures will be utilized. Body temperature will be maintained with hot water pads or bottles wrapped in a towel.
   b. When the animal is no longer responsive to tail or hind paw pinch, a minimal mid-line incision will be made to gain access to abdominal cavity (for adrenalectomies and ovariectomies) [for other organ removal a minimal mid-ventral incision will be made to gain access to abdominal cavity, for orchietomies, a midline incision of the scrotum will permit exposure of the testes]. Hemostasis will be controlled with ligatures. Level of anesthesia will be monitored and supplemented as necessary.
   c. After removal of the specified organs, the incision site (skin and deeper layers) will be closed in a single layer using absorbable suture.
   d. Animals will then be placed in temperature controlled, individual cages with bedding for recovery. Recovery is signified by alertness of the animal and normal mobility.
5. After recovery, animals returned to animal housing in cages that are labeled regarding treatment.
6. During the post-operative period, animals will be monitored daily for signs of pain and distress, as well as infection (an extremely rare occurrence in postoperative rats). Signs of pain and distress include lethargy, guarding the affected area, restlessness, labored breathing, self-mutilation, lack of interest in food and water, lack of grooming, vocalization, difficulty urinating, weight loss, piloerection and changes aggressive or withdrawal behavior. Animals displaying distress will be given Butorphanol 0.05-2 mg/kg SC as an analgesic every 4-6 hours until signs of distress resolve. Animals displaying mild distress will be administered acetaminophen in their water. Oral (tetracycline or enrofloxacin in drinking water) or injectable antibiotics (enrofloxacin 5-10mg/kg q12h IM) will be administered if indicated. Injectable analgesics and antibiotics offer greater control of dosage than oral, but will subject the animals to additional stress and so will be used only if necessary or if the animal is not consistently drinking. Dr. N. G. Despo will be responsible for post-operative care. Animals will be observed daily. Medication will be used upon advice from the Thiel's veterinarian, Dr. Dean Eichstadt. Any animal whose distress cannot be resolved by the above means will be euthanized.
7. Animals to be euthanized will be given a lethal injection of Euthasol (sodium pentobarbital, >80 mg/kg IP). Death will be signified by the sustained cardiac arrest.
8. At the termination of experimentation, animals will either be housed in Thiel's animal facilities for future use or euthanized by method given in item 7 above.
9. Euthanized animals will be reserved in cold storage until being transported to the incinerator facilities of the Greenville Veterinary Clinic, operated under the direction of Dr. Dean Eichstadt, Thiel's veterinarian. Animals will be placed in a double sealed garbage bag, moved from the animal quarters by the least public route at non-peak hours, placed in a Thiel or private vehicle of
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Thiel personnel and transported directly to the Greenville Veterinary Clinic. Timing of delivery will coincide with time of operation of the incinerator operation.

10. Surgeries will be performed by Dr. N. G. Despo or by students closely supervised by Despo. In all cases of surgery, Despo will be administering the aforementioned drugs.