# **Standard Procedure Data Input Form**

## **Procedure Type**: Survival Surgery

**\* Name of the procedure or surgery**: Headplate Implant

**\* Species**: Mice, Rats

**\* Will administering this procedure cause any more than momentary pain and distress?** Yes

*If yes,*

 i. Identify expected symptoms from administering this procedure (for example: weight loss, develop lesions due to an open tumor):

Potential post-operative complications include weight loss, anorexia, wound infection, neurologic damage, pain.

 ii. Identify criteria under which animals will be removed from research:

Weight loss of greater than 20%, serious post-op infections, pain that cannot be controlled with appropriate analgesics.

**\* Surgery Type:** Major

**\* Describe the surgical procedure:**

After standard surgical preparation, once a surgical plane of anesthesia has been confirmed via absence of pedal reflex, a 1cm scalp incision is made and the skin resected. Connective tissue on the skull is pulled away with sterile forceps or a sterile scalpel blade, and the skull surface is wiped down with sterile gauze to remove debris and moisture. The entire skull and the margins of the incision are covered with a thin layer of cyanoacrylate. The headplate is then placed in the appropriate position on the skull, and cemented into place with either dental acrylic or cyanoacrylate. An accelerant (e.g. ZipKicker) may be used to cure the cyanoacrylate. Black dental acrylic is used to cover the outside of the headplate to block light when imaging. The dental acrylic is allowed to dry for 5-10 minutes. Duration of this procedure is approximately 30 minutes.

**\* Describe how the animals, surgeon and instruments will be prepared for aseptic surgery:**

**Animal preparation:**

* Scalp hair is removed with clippers or a depilatory (e.g. Nair).
* The incision site is treated with 3 applications of both betadine and 70% isopropanol.
* The mouse is placed in a stereotaxic device with non-rupture earbars, with a feedback regulated heating pad and probe to maintain the animal’s temperature at 37.5deg.
* The cornea is protected with sterile ophthalmic ointment.

**Surgeon preparation:**

* Face mask and cap are donned making sure all hair is covered by cap and mask.
* If using surgical gloves, sterile glove pack is opened. If using alternative method, autoclaved gloves or exam gloves to be disinfected are available.
* Hands are scrubbed from finger tip to elbows using the provided surgical scrub brush and betadine located on shelf by pre-op sink.
* Hands are dried with sterile towel if major surgery, paper towel if minor.
* If sterile gown is indicated, it is donned at this time.
* Sterile gloves, either packaged surgical gloves, autoclaved nitrile exam gloves or HP-PA treated gloves are donned. See TeACS SOP *"Sterile Glove Donning".*

**Instrument preparation:**

* All surgical instruments and implants are pre-sterilized by autoclave or ethylene oxide.
* A hot bead sterilizer is used for re-sterilization if necessary.

**Select the substance administration procedures to be used:**

**Alternatively, if you cannot find the procedures in the list above, describe each substance and the step-by-step procedure to be used:** (include route, dose, volume, concentration, and whether substance is pharmaceutical grade):

**Describe post-operative care and monitoring** (immediately post-operative and daily thereafter)**:**

Following completion of the surgical procedure, mice will be allowed to recover on a heated pad until they are upright and active. Mice will then be monitored for 3 days post-surgery, following ACS SOP “[Surgery Pre- and Post-Operative Care](https://teacs.uoregon.edu/content/surgery-pre-and-post-operative-care)”, including daily weighing and examination for any signs of pain, distress or discomfort, such as reluctance to move about, decreased appetite and/or water consumption, weight loss more than 10% of its post-operative weight, hunched posture, dehydration, increased respiration, self-mutilation, or irritation around the surgical site. If any of these signs are observed, we will follow the standard T[eACS veterinary care standard operating procedures for sick or moribund animals](https://teacs.uoregon.edu/content/animal-sickinjury-emergencies).

Administration of carprofen both before surgery, and post-operatively as needed, serves to reduce pain. Additional post-operative injections of carprofen is only indicated in a minority of cases (<10%) when animals show irritation or behavioral signs indicating pain. Subcutaneous delivery of saline during surgery speeds the recovery from anesthesia and improves the animal’s level of activity in the several hours post-surgery, presumably by helping to maintain fluid balance.

***Attach any supporting documents as appendices to this document.***