

Title: Brain Injection in Mice – Surgical Procedure, Pre- and Post-Op Care  
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## **Brain Injections**

### **Surgical Specifications:**

- This surgical procedure can be performed on mice weighing a  $\geq 20$  grams.

### **Preoperative Care:**

- The mouse is examined on the day of surgery to ensure it is in good health.
- The mouse is anesthetized with isoflurane gas and carprofen is administered as an analgesic.
- Ophthalmic ointment is applied to eyes.

### **Surgical Preparation:**

- Fur is removed at the surgical site with electric clippers.
- The skin at the surgical site is disinfected with alternating applications of 70% ethanol and chlorhexidine solution.
- The mouse is moved to a laminar flow bench and is placed in ventral recumbency with the head secured and leveled on a digital mouse stereotaxic unit.

### **Surgical Procedure Description:**

- A midsagittal skin incision is made on the scalp.
- The skin is retracted laterally and the underlying skull is cleared of fascia.
- Bregma is identified and the exposed skull surface is scored.
- The digital stereotaxic coordinates are set to zero directly over bregma.
- A hole is drilled in the skull at the predetermined coordinates.
- A sterile injection needle is lowered through the hole to the predetermined z coordinate and the injectate is delivered and the needle is held in place  $\sim 1$  min or more before being retracted.
- Bupivacaine is applied topically to the incision site, and the skin incision is closed around the cannula with non-absorbable suture and tissue adhesive.

### **Postoperative Care:**

- Warm sterile saline is administered subcutaneously.
- The mouse is placed in a clean, warm cage and is monitored frequently until ambulatory.
- Mice are individually housed until study termination