**Brain Injections**

**Surgical Specifications:**

* This surgical procedure can be performed on mice weighing a ≥ 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 ~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