

Surgical Model #: INTRATHE-R Intrathecal Catheterization (ITC) Care and Use Document for Rats

Anesthetic: Sodium Pentobarbital (IP): Rat Dose 50 mg/kg

Analgesic: Buprenorphine (SQ): Rat Dose 0.05 mg/kg

Basic Surgical Procedure Description:

An anesthetized and surgically prepared animal is immobilized in a stereotaxic frame. A 2cm dorsal midline skin incision is made between the base of the skull and first cervical vertebra. Blunt dissection is used to visualize the cisterna magna. A sterile catheter is inserted through a small puncture in the dura and advanced to the middle to lower thoracic region. Catheter stylets are removed and the catheters filled with sterile saline. Internally, catheters are secured into the neck musculature by a single small suture. At exteriorization, catheters are sealed with a stainless steel pin and secured in place with a drop of wound glue. Incision sites are closed with stainless steel wound clips.

Catheter:

Catheter material consists of sterile polyurethane tubing. Insertion length is determined by animal's target size. Access ports are trimmed to 25mm and can be accessed with 27G blunted needles. Fill volume of the catheter is approximately 5 μ L. Maintenance flushing of the catheter is not required.

Quality Control:

Proper catheter placement is verified at the time of surgery by examination of the metal stylet removed from the catheter after insertion. If the stylus comes out bent, the catheter is replaced. During post-operative recovery and on the morning of shipment, animals are observed to ensure they are free of paralysis and other neurological deficits brought about by catheter insertion. Prior to shipment, catheter patency is confirmed via infusion of 20 μ L sterile 2% Lidocaine at a rate of 10 μ L/min for 2 minutes. Only the animals that exhibit transient hind limb paralysis due to the lidocaine injection will be shipped. Checking catheter placement and integrity after completion of studies is recommended.

Compound Administration:

This catheter is useful for the introduction of material (novel test compounds, cells, etc.) but is not designed for sampling Cerebrospinal Fluid. Remove the stainless steel pin and replace with a Hamilton microsyringe. Test article administration via the catheter should not exceed the recommended rate of 10 μ L/min and a total dose volume of 30 μ L. Additional injections may be given after a washout period.

Housing:

It is important to individually house animals in order to minimize chances of catheter disruption by cage mates chewing on one another's catheters.

Model Expectations:

Intrathecal Catheterizations provide access to the subarachnoid space of the spinal column. Catheters are inserted to match the age / size of the animal at surgery. Accordingly, we recommend use of ITC animals as close to receipt as possible. Taconic guarantees catheterized animals arrive intact and patent. With care during use, ITC's have been reported to remain patent for several weeks.