

Brain Cannulation In Rats And Mice: Dosing And Sampling Instructions

Description Of Cannula

The “guide cannula” is implanted into the injection site. It consists of a threaded cylindrical plastic pedestal molded around a piece of stainless steel or Teflon® tubing that extends below the pedestal. Tubing size is usually 22 gauge for rats and 26 gauge for mice.

The “dummy cannula” is also called a stylet. It is installed to seal the top of the guide cannula and prevent tissue entry into the internal cannula. The dummy cannula has a stainless steel wire that is inserted into the guide cannula tube; its rounded plastic cap screws onto the guide cannula threaded post.

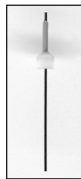
The “internal cannula” is also called an injector or infusion cannula. This item locks onto the top of the guide cannula, which enables it to penetrate to a consistent depth. Fluids transfer from the cannula system to the animal via a stainless steel tube that extends below the guide cannula. If needed, PE 50 tubing can be used with the internal cannula. A precut internal cannula is enclosed with the order.



guide cannula



dummy cannula



internal cannula

Cannula Manipulation

When manipulating the cannula, all procedures should be performed using aseptic technique.

1. Materials

- Appropriate sized syringes (not supplied)
- Blunted 23-gauge needles (not supplied)
- Internal cannula (supplied with the order, autoclave before use)
- PE 50 or 3 French polyurethane tubing (not supplied)

2. Lateral Ventricle Dosing Procedures (IVC/ICV)

- Cut a piece of either PE 50 or 3 French polyurethane tubing. Attach one end of the tubing to the injector. Attach a blunted 23-gauge needle to the other end of the tubing. Load an appropriate sized syringe with compound and attach it to the needle. Fill the tubing and injector with the dosing compound.
- Have one person gently restrain the animal, while a second performs the procedure.
- Unscrew the plastic cap and remove the dummy cannula. The metal stylet should be maintained on a sterile surface.

- Insert the injector all the way down into the guide cannula until the injector locks onto the guide cannula.
- For rats, bolus injection should be limited to a volume of less than 10 μL (5 μL for mice) and should be administered over a period of 15 to 30 seconds (15 minutes for mice). Continuous infusion should be delivered at a rate no greater than 1 μL per minute.
- Remove the internal cannula after dosing and replace the dummy cannula into the guide cannula.

CSF Sampling Procedures (Intracisternal Cannulation)

- Cut a 25” piece of PE 50 or 3 French polyurethane tubing. Attach one end of the tubing to the internal cannula.
- Have one person gently restrain the animal, while a second performs the procedure.
- Unscrew the plastic cap and remove the dummy cannula. The metal stylet should be maintained on a sterile surface.
- Insert the internal cannula all the way down into the guide cannula until the internal cannula locks onto the guide cannula.
- Place a collecting device below the animal cage to allow gravity to assist CSF flow.
- The volume of CSF collected in rats should be limited to 100-150 μL each period. Sampling periods should be at least 8 hours apart.
- Remove the internal cannula after sampling and replace the dummy cannula into the guide cannula.

3. Cannula Maintenance

- Animals should be housed individually to prevent them from damaging each other’s cannula.
- Cage tops with larger spaces in the cage lids should be used to prevent the headpiece from being caught in the cage tops. As an alternative, cage adapters can be used to increase the height of the cage.
- Avoid applying excessive force to the headpiece.

**For additional information, please contact our
Technical Assistance Department at 1.800.338.9680.**



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