

# TROUBLESHOOTING CANNULA ISSUES

This guide helps researchers identify and overcome Tube Calibration errors due to obstruction in the FX adapter, y-tubing and cannula, and/or inappropriate cannula selection.

### **CLEANING FX ADAPTER & CANNULA**

High Tube Resistance (Rt) errors may be caused by pathway obstruction/blockage in the FX adapter, y-tubing and/or cannula.

Please ensure that these components are cleaned regularly. At a minimum, cleaning should be performed at the end of each day of experimentation, ideally between subjects. To clean the FX adapter and y-tubing, please follow the instructions below:

- 1. Remove the FX adaptor from the module and disconnect the y-tubing from the FX adapter
- 2. Allow the FX adapter, y-tubing and cannula to soak in warm soapy water for 5 minutes

**NOTE:** Alcohol should not be used on acrylic components as they will degrade over time.

- 3. Thoroughly clean all pathways with a narrow cotton tipped wooden swab
- 4. Dry all components with compressed air.

**NOTE:** Water droplets may cause pathway obstruction, and could lead to failed calibration and excluded datasets.

5. Visually inspect all pathways to ensure they are free from obstruction

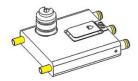


Figure 1. FX adapter with nebulizer mount indicating surfaces in need of vacuum grease

 Before reconnecting the y-tubing to the FX adapter, please apply vacuum grease to the ports and o-rings outlined in *yellow*, Figure 1

## **CANNULA SELECTION**

High Rt errors may also be due to inappropriate cannula selection, as Rt is significantly impacted by the internal diameter of the cannula used. Please see Table 1 for more details and contact technical support for additional information regarding characterized cannula options available.

Table 1: Recommended cannula size per species

Species	Cannula Size
Neonate Mice	19G to 21G
Mice	18G Beveled tip
Hamsters	16G Blunt tip
Rats	14G Blunt tip
Guinea Pigs	14G Blunt tip
Ferrets	Custom-made 3.5 mm-ID cannula
Rabbits	Custom tracheal cannula

## **CONTACT INFORMATION**

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