

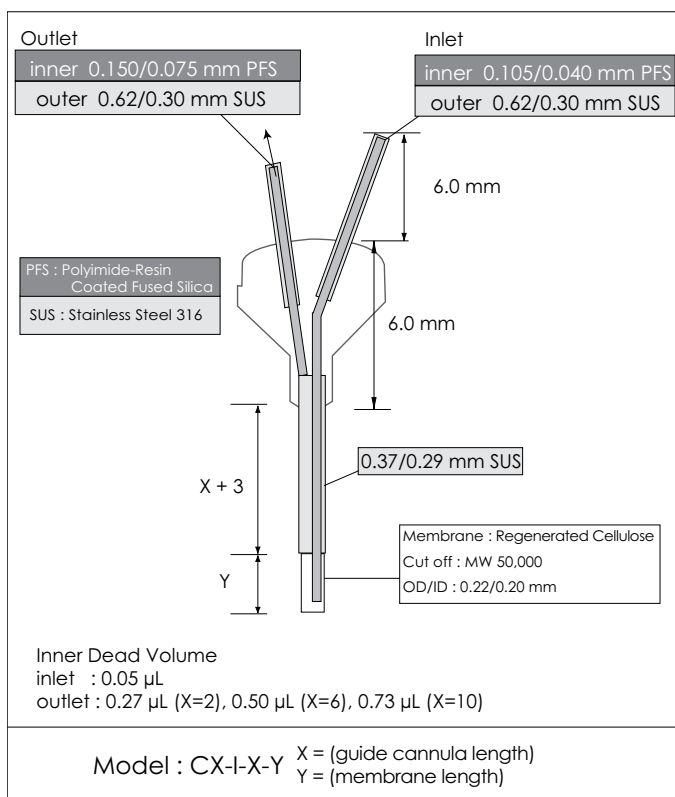


Eicom Microdialysis Probe Model CX-I-X-Y

AD11-0316

- All Eicom products are for animal research purpose only.
- Keep the probe away from physical shock.
- Inlet needle is longer than outlet needle.
- Dura must be broken prior to insertion into the brain.

CX-I-X-Y Probe



Probe Check

- Inject distilled water using a 1 or 2 ml disposable (plastic) syringe. Connect the syringe to the inlet (longer needle) of the probe using Bion tubing (JB-30). The probe may become clogged or damaged if you initially flush with a salt solution. We recommend using distilled water for the initial probe flush. Do not connect tubing to the outlet of the probe during flushing. Please confirm there are no leaks from the probe membrane. After flushing for several minutes (it is not necessary to flush for an extended period of time) the membrane may "sweat" or appear wet this is normal, not due to damage or a clog.
- If no flow is observed via the outlet needle, soak the probe in distilled water for a few minutes and repeat instructions in item 1. After confirming the distilled water flow from the outlet, please remove the probe from plastic sheath and confirm no leaking.

- We test each probe for defect/leaking prior to shipping. If you find a defective probe after following the above steps Eicom will replace the probe at no charge. We do not guarantee probes after insertion to animals.

Perfusing Solution

We recommend using a non-buffered CSF Solution because phosphate buffer solutions may precipitate calcium phosphate and can result in clogs.

Removing Air Bubble

- If there is an air bubble in the probe, please remove it. Because the air bubble will cover the active membrane site and keep the perfusate away. This will result in a lower recovery rate. The air bubble should be removed before study. If it is small, it will disappear in case of in vivo study but may not in vitro.
- Perfusate needs to be degassed before use.
- To remove the air bubble, please introduce a big air to the inlet and flush out. Do not connect outlet tubing at this time. The big air bubble will trap and remove a small air bubble.

Connecting Outlet

- Confirm neither leaking or air bubbles are present in the membrane. Set the flow rate on the syringe pump. A standard flow rate is 1-2 μ L/min. A high flow rate coupled with a long outlet tubing can result in damage of the probe membrane.
- Connect Teflon tubing (model JT-10) or other tubing to the outlet. A long tubing length (more than 150 cm) can cause leaking of the membrane or the liquid swivel due to the induced high pressure. If you use tubing longer than 150 cm, please avoid using flow rates higher than 2 μ L/min. Polyethylene tubing can cause confounding peaks when analyzing samples using HPLC with electrochemical detection.

Cleaning Probes and Storage

Remove the probe from the system and flush with distilled water to wash out salts. Then put the probe in the distilled water and place at 4°C for storage. Keep the membrane wet to prevent it from shrinking. Keep the probe away from physical shock.

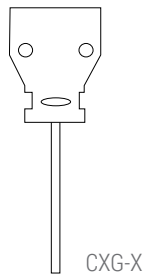
Cleaning Lines (Teflon, FEP tubing)

Bacteria generation and protein pollution of tubing can be a cause of low recovery rates, especially in the outlet tubing. In order to avoid this problem, wash the lines with 50 times diluted commercial kitchen bleach (chlorine) in pure water. Perfuse the solution into the lines (not the probe) and leave it for at least one hour, then thoroughly rinse with water.

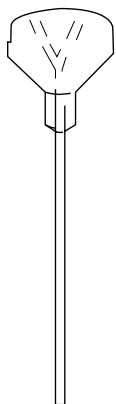
CXG-X

(X: shaft length in mm)

Shaft 0.40 mm ID/0.50 mm OD

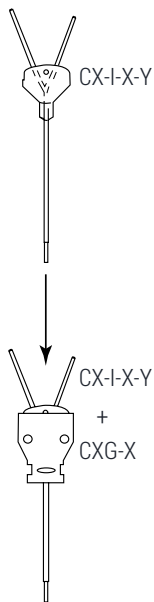


CXD-X



After stereotaxic implantation of the guide cannula (CXG-X), insert the dummy cannula to prevent infection and tissue growth into the guide.

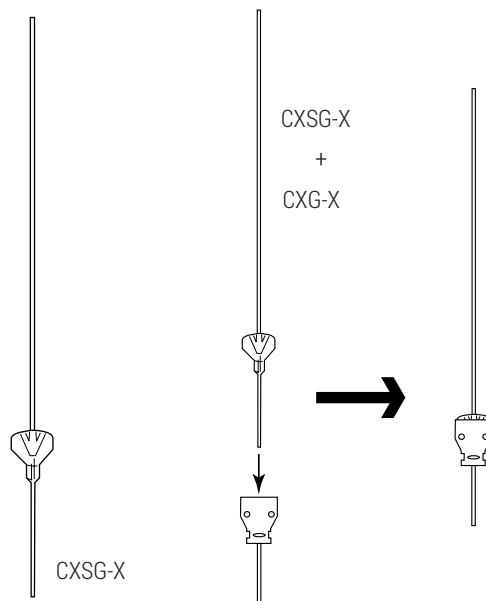
CXD-X



Gently insert the dummy cannula into the guide cannula fixed with dental cement to the skull.

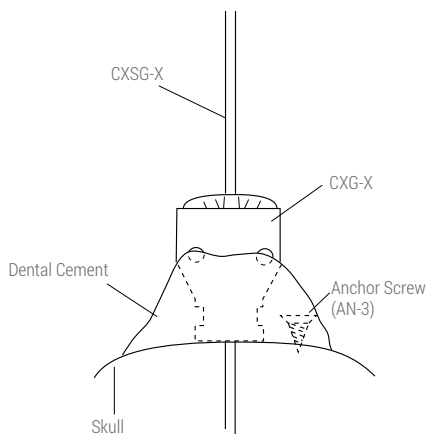
CXSG-X Stereotaxic Apparatus Adaptor

(X: shaft length in mm)



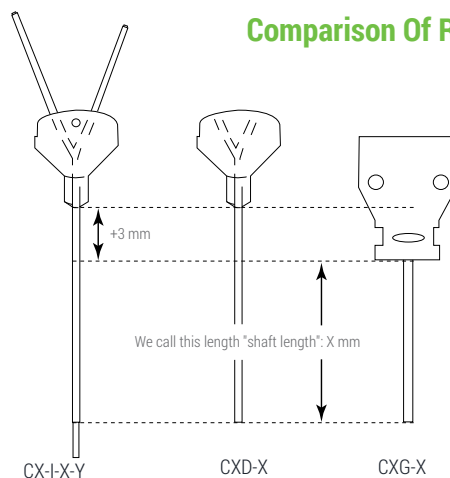
Attach the longer side of the CXSG-X needle to the electrode holder of the stereotaxic manipulator.

Implant Of Guide Cannula



To ensure proper adhesion, the dental cement needs to be mounted up to the height of the holes on the guide cannula (CXG-X). The body of the guide cannula is made of polyurethane.

Comparison Of Real Shaft Length



Microdialysis Probe (CX-I-X-Y) and dummy cannula (CXD-X) have a 3 mm longer shaft length than the guide cannula (CXG-X) when the X values are constant. This length is referred to as the "shaft length".



Technical Data

In Vitro Recovery Rate Conditions:

| | |
|-------------------------------|----------------------------|
| Membrane Length | 1, 2 or 3 mm |
| Perfusate | Ringer's Solution |
| Perfusate Flow Rate | 0.5, 1, 2 or 3 μ L/min |
| Temperature Of Outer Solution | 30°C |

100% Recovery = 1×10^{-6} M of analyte in Ringer's Solution

Flow-rate: 0.5 μ L/min (% recovery)

| Substance | Membrane Length (mm) | | |
|----------------|----------------------|------|------|
| | 1 mm | 2 mm | 3 mm |
| Acetylcholine | 22.7 | 37.9 | 50.8 |
| Choline | 28.0 | 44.6 | 60.1 |
| Norepinephrine | 21.7 | 34.7 | 39.6 |
| DOPAC | 20.9 | 33.0 | 38.2 |
| Dopamine | 22.7 | 36.5 | 41.9 |
| 5-HIAA | 22.9 | 35.3 | 41.2 |
| HVA | 20.0 | 31.4 | 36.0 |
| 3-MT | 21.2 | 33.3 | 36.8 |
| 5-HT | 24.5 | 37.7 | 44.7 |

Flow-rate: 2.0 μ L/min (% recovery)

| Substance | Membrane Length (mm) | | |
|----------------|----------------------|------|------|
| | 1 mm | 2 mm | 3 mm |
| Acetylcholine | 6.9 | 11.2 | 16.5 |
| Choline | 8.1 | 14.3 | 20.0 |
| Norepinephrine | 6.7 | 10.4 | 12.9 |
| DOPAC | 6.6 | 10.0 | 12.0 |
| Dopamine | 7.2 | 11.2 | 14.1 |
| 5-HIAA | 7.2 | 10.8 | 13.0 |
| HVA | 6.1 | 9.4 | 11.4 |
| 3-MT | 6.6 | 10.4 | 12.9 |
| 5-HT | 7.6 | 11.9 | 14.5 |

Flow-rate: 1.0 μ L/min (% recovery)

| Substance | Membrane Length (mm) | | |
|----------------|----------------------|------|------|
| | 1 mm | 2 mm | 3 mm |
| Acetylcholine | 13.0 | 22.8 | 30.3 |
| Choline | 15.6 | 27.7 | 36.5 |
| Norepinephrine | 11.5 | 20.4 | 23.3 |
| DOPAC | 10.9 | 18.4 | 22.9 |
| Dopamine | 12.4 | 22.1 | 26.5 |
| 5-HIAA | 10.4 | 19.4 | 24.0 |
| HVA | 11.2 | 17.1 | 21.6 |
| 3-MT | 11.5 | 18.8 | 23.9 |
| 5-HT | 12.7 | 21.4 | 27.1 |

Flow-rate: 3.0 μ L/min (% recovery)

| Substance | Membrane Length (mm) | | |
|----------------|----------------------|------|------|
| | 1 mm | 2 mm | 3 mm |
| Acetylcholine | 4.7 | 8.7 | 11.6 |
| Choline | 5.3 | 10.3 | 13.8 |
| Norepinephrine | 4.6 | 6.8 | 9.2 |
| DOPAC | 4.7 | 6.7 | 8.8 |
| Dopamine | 5.0 | 7.5 | 9.9 |
| 5-HIAA | 5.1 | 7.1 | 9.1 |
| HVA | 4.3 | 6.3 | 8.1 |
| 3-MT | 4.6 | 6.9 | 9.0 |
| 5-HT | 5.3 | 7.9 | 10.3 |

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