Acute Probe User Guide

Before each use

Each probe is supplied with an individual impedance test-certificate corresponding to its unique ID-number – keep a record of which probe you use each time so you can track this alongside your individual animals.

Over time, dust and other particles will settle on your probe and you should remove these prior to use in an animal.

1. Immediately before each use, briefly rinse the probe shank(s) in isopropyl alcohol followed by distilled water immediately.
2. Remove any excess liquid either by carefully blotting the probe shank(s) with a Kim-wipe / absorbent swab. Alternatively, the probe shank(s) can be rinsed with sterile saline solution.

After each use

During use your probe will become fouled with brain tissue and related fluids – it's essential to clean your probe following each use in an animal so as to not transfer material between animals and to reduce infection risk.

1. Securely mount your probe into a moveable stand so that you can soak the probe shank(s) in a heated magnetic stirrer bath.
2. For cleaning we recommend using Trypsin 10X (Cat.# T2610 from Sigma-aldrich) diluted 1:10 in distilled water - soak the probe shank for a few hours at 35 degrees Celsius, ideally in a magnetic stirrer bath. Use 1:5 dilution if more aggressive cleaning is required.
3. Rinse well with distilled water to remove any enzyme solution.
4. Return the probe to its shipping tray and allow it to air-dry.
5. If you're using a multi-shank probe and the shanks become stuck together, carefully blot any excess liquid using a Kim-wipe / absorbent swab. Additionally, a **gentle** puff using a commercial air-duster can also assist, however, do not blow on the probe using your mouth as you'll contaminate the probe!

N.B. As an alternative to Trypsin, some people use Tergazyme (Cat.# Z273287, Sigma-Aldrich) 1% in distilled water at around 60 degrees Celsius, again in a magnetic stirrer bath.

Working with DiD / DiI dyes

Where it is desired to mark the track of a probe shank(s) within the brain, the fluorescent lipophilic dyes, DiI (Cat.# 42364 Sigma-Aldrich) or DiD (Cat.# D7757 Invitrogen) can be used (dissolve in ethanol 96% to make 10% solution).

- Securely mount the probe under a bench-top magnifier or low-power microscope. Orient the back-side of the probe uppermost; i.e. the non-electrode side of the shank(s) – electrodes will be visible as dark-coloured rectangles / squares. To apply dye, use a precision micro-brush to apply a thin coat of dye to the back-side of the shank(s) to be marked.

- Alternatively, briefly dip the probe shank into the dye solution and allow it to dry.

In practice there is little to no difference between these two methods in terms of performance. Painting the back-side of the probe is the 'traditional' approach although in our experience, electrode performance is unaltered by dye-coating.

- For removal and cleaning, following the enzymatic cleaning steps outlined earlier, alternately rinse your probe with isopropyl alcohol followed by distilled water until you have removed the dye (how long this takes depends on how much you applied originally) - if you have any stubborn / sticky dye then you can use a small (clean!) brush to aid with careful removal of the dye, again under a bench-top magnifier or low-power microscope.

Working with Dura-Gel

Cambridge NeuroTech Dura-Gel cures in place to form a cushioning, self-healing and resilient barrier over exposed craniotomies and thereby acts as a dural-substitute where a durotomy has been performed or as a protective layer over intact but exposed dura. It is biocompatible, reduces the possibility of inflammation, reduces cerebrospinal fluid leakage, reduces humidity loss from the craniotomy, and remains soft for a period of weeks to months, thereby allowing microelectrode penetration with minimal force.

For use in acute or head-fixed animals, Dura-Gel allows for multiple penetrations with our probes and can remain in place for extended periods of time (weeks to months). Should it be necessary to replace the Dura-Gel, it can be

removed with a blunt spatula and a fresh mix applied to the exposed craniotomy. We recommend allowing 24 hrs between application and first penetration of the Dura-Gel with a probe, to ensure complete curing of the gel, particularly at the tissue interface; penetration prior to this period carries an increased risk of gel residue fouling on your probe, for which there is no satisfactory remedy.

Warranty Information

To enable us to rapidly assess damage in transit and initiate replacements please open probes within **2 weeks** of receipt and run an impedance test in 0.9% saline.

Warranty is void after **6 months** of storage or after first use.

Storage

Place the air-dried silicon probe back in original packaging. Store in a cool, dry, and secure place.

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