

PROBE 418-1 Applied on Mouse Brain (Stroke Model)

- Intended use:** Measurement of rCBF (regional Cerebral Blood Flow) without opening the skull. A typical application is occlusion of MCA (middle cerebral artery).
- Equipment:** PROBE 418-1 Master probe with Microtip MTB 500-OL120
PeriFlux System 5000 with PF 5010 laser Doppler Perfusion Monitoring Unit (or **PeriFlux System 4000**) and **PeriSoft for Windows**
- To be used with:** **Stroke model kit 418:** Loctite 4161 (87604151), Insta-set accelerator (87601518), Syringe (87200052), Plastic tips (87200053).

Instructions

Before starting, make sure that the instrument is connected to a computer with **Perisoft for Windows**.

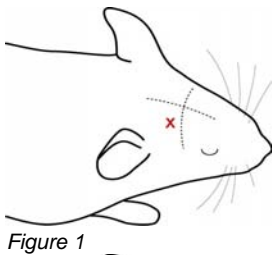


Figure 1

1. Find the location.

A location is chosen according to the type and size of the animal, the model used, etc. Figure 1 shows a location approximately 2 mm posterior and 6 mm lateral to bregma. (See papers by M. A. Moskowitz).

2. Make the incision.

It is convenient to use a pair of scissors to remove/open a flap of skin, see Figure 2. Scrape the skull clean using a scalpel. Make sure the area is clean and dry using cloth and Q-tips.

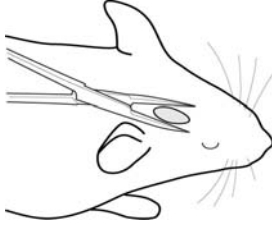


Figure 2

3. Prepare the accelerator.

Spray the accelerator (Insta-set) into a small cup, fit a plastic tip onto the syringe and aspirate a small amount of fluid.

4. Attach the microtip, Figures 3 and 4.

Method 1 (When the exact measurement site is known)

The microtip fiber will be fixated to the skull with glue. Use the syringe, prepared as above, to apply a drop of the accelerator fluid onto the skull to speed up the curing process. Apply a small drop of glue to the microtip and place it at the measurement site perpendicularly. Hold the microtip steady until the glue is cured (about 30 sec.). Add another drop of glue and secure it with a drop of the accelerator to strengthen the fixation. Wait a couple of minutes to let the glue cure completely.

Method 2 (Finding a suitable measurement site)

If you do not know exactly where on the skull to place the microtip, start **PeriSoft for Windows** for monitoring of the perfusion values. Connect the microtip to the master probe 418-1 (step 5 below). Place a drop of glue on the skull. Position the microtip in the glue and carefully move the tip around to look for the site which gives the highest signal. After selecting a measurement site, apply a drop of accelerator with a syringe on top of the glue to secure it. Hold the microtip steady until the glue is cured (about 30 sec.). Add an extra drop of glue around the tip and cure it with a drop of accelerator to strengthen the fixation. Wait a couple of minutes to let the glue cure completely.

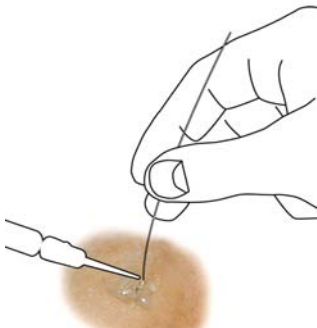


Figure 3



Figure 4

5. Connect the microtip to the master probe.

Insert the end of the microtip into the connector on PROBE 418-1. Push until it stops and tighten the connector screw slightly. Then push the microtip in fully into the connector and tighten gently once more, see Figure 5.



Figure 5

6. Record rCBF.

When the microtip is attached to the skull and connected to the master probe, recording of the rCBF can start. Turn the mouse upside-down before the operation and record continuously during the procedure. Arrange the microtip fiber so that it is not squeezed or bent sharply.

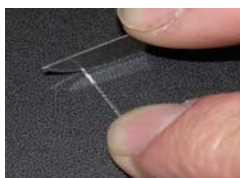


Figure 6

Removing the microtip from the skull

After the measurement, remove the microtip from the skull by cutting with a pair of scissors close to the point of attachment. To enable repeated use of the microtip, use a scalpel or a very sharp knife to make a clean and sharp 90 degree cut, Figure 6.

Caution! Never insert the cut end into the probe connector.

For further information, please consult Perimed AB.

