

PROBE 407-1 with Mini Holder Applied on Rat 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 407-1 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 407: Loctite 4161 (87604151), Insta-set accelerator (87601518), Syringe (87200052), Plastic tips (87200053), Rod (13-00284-01), Probe holder (93-00085).

Instructions

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



Figure 1

1. Make the incision.

Use a scalpel to make the incision, Figure 1.

2. Clean the site.

Carefully scrape the exposed skull clean with the scalpel. Dry the surface with cloth and Q-tips. A hemostatic forceps can be used to hold the incision open during the preparations, see Figure 2.



Figure 2

3. Reduce skull thickness.

If the weight of the rat is more than 300 gram, it is recommended to reduce skull thickness for better laser Doppler signal quality. Thin the skull using a drill until a thin sheet of bone remains (observe the increasing redness), see Figure 3. The diameter of the thinning should be > 7 mm to accommodate the probe holder. Make the thinning flat and even so that the position of the probe holder can be adjusted to find the optimal measuring site.

Note! Adding a few drops of water to the skull reduces the risk of damage to the underlying cortex due to friction-induced heat.



Figure 3

4. Attach the probe holder, Figure 4.

Caution! Follow this procedure carefully and avoid any glue on the probe tip, as this may damage the probe.

- I Insert the probe into the probe holder and place it on the skull. Move the probe in the thinned area until the point with the highest perfusion signal is found. Mark the spot and remove probe and probe holder. Separate the probe from the holder.
- II Fit the probe holder onto the rod provided in the Stroke Model kit.
- III Spray a small amount of accelerator (Insta-set) into a cup. Fit a plastic tip onto the syringe and aspirate a small amount of fluid.
- IV Fit a plastic tip onto the glue bottle and add a small amount of glue (Loctite 4161) around the rim of the probe holder.
- V Place the probe holder on the measuring site, press gently and put a drop of accelerator around the rim. Hold until it is secured. Apply a string of glue around the probe holder and add another drop of the accelerator to strengthen the fixation. Wait until the glue is cured.
- VI Remove the rod by rotating it carefully. Insert the probe into the holder all the way down to the bone. The probe tip must not exert any pressure on the brain, or the blood flow may be affected.

5. Record rCBF.

When the probe holder has been glued to the skull and the probe has been inserted, recording of the rCBF can start. Turn the rat upside-down before the operation and record rCBF continuously throughout the procedure.



Figure 4

For further information, please consult Perimed AB.

