NEW Microwave Brain Fixation System

Cat. MMW-05 (5kW)

General

In neurochemical studies of the brain, it is of great importance to accurately measure neurochemical events in vivo.

However, it is difficult to perform reproducible measurement of these events because rapid postmortem changes occur in the brain concentrations of metabolites and neurotransmitters.

With the NEW Microwave Brain Fixation System by Muromachi, a living mouse or rat is positioned inside the applicator and, in less than 1 second, the microwave beam stops all brain chemistry at the level present in the living animal.

Measuring brain chemistry in-vivo is possible!

Prior to analysis of:

- Phosphorylated proteins
- Acetylcholine, Serotonin, Endorphins
- Prostaglandins, Catecholamines
- C-AMP, C-GMP, GABA, DOPA

NEW features:

- Improved usability - touch screen
- Air-cooled (no water circulation)
- CE-certified
- Absolute safety - negligible leakage

Ugo Basile: more than 10,000 citations
Various techniques have been developed to **prevent post mortem changes**. One of the more common method is cooling or freezing by immersion of the decapitated head in liquid Nitrogen or cooled Freon to **inactivate enzymes** involved in the metabolism of these compounds. **Cooling is not fully effective in preventing post-mortem changes** as the time required to freeze deep structure of the brain may range from 10 - 90 seconds; post mortem changes will occur during this period.

An alternate method is microwave heating to inactivate enzymes.

The microwave method has several advantages over cooling or freezing:

- The enzymes in the whole brain can be completely inactivated in a very short time
- The brain can be dissected easily and reproducibly at room temperature

Microwave fixation system must be such as to satisfy the following criteria:

1. Can elevate the temperature of brain up to 75-90°C as rapidly as possible by effectively focusing microwave energy on the head of an animal
2. Will give the same results from animal to animal
3. The apparatus should be easily and safely used since personnel not experienced in microwave technology will use it
4. Muromachi Microwave Fixation Systems are safely designed, so that the microwave leakage will not exceed 1 mW/cm²

Bibliography