Dual-superfusion slice chamber

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To achieve the improved recording conditions, slices are placed on a mesh and the bath solution (i.e. aCSF) is perfused below and above the submerged slices simultaneously with the same flow rate.

Advantages:
- oxygenation and nutrition is accomplished from both sides of the slices, hence cells are maintained in a more uniform environment (in contrast to conventional slice chambers, where slice are placed on a glass cover slip, i.e. oxygen diffuses only from the upper surface)
- thinner slices can be used (up to 650 μm)
- stable recordings in slices kept in the dual-superfusion chamber can be maintained for longer time
- visualization of cells is not compromised

Examples for use of the dual-superfusion slice chamber

Maintaining spontaneous or pharmaco-logically-enhanced synaptic activities

Inducing network oscillations

Combining electrophysiological recording with two-photon imaging

Publications:

Labors:
- Laboratory of Network Neurophysiology, headed by Norbert Hájos, Ph.D., Institute of Experimental Medicine, Hungarian Academy of Sciences
- Laboratory of Drug Research, headed by Prof. E. Sylvester Vizi, Institute of Experimental Medicine, Hungarian Academy of Sciences
- Department of Neuroscience and Engineering, headed by Balázs Rózsa, Ph.D., Femtonics Ltd.