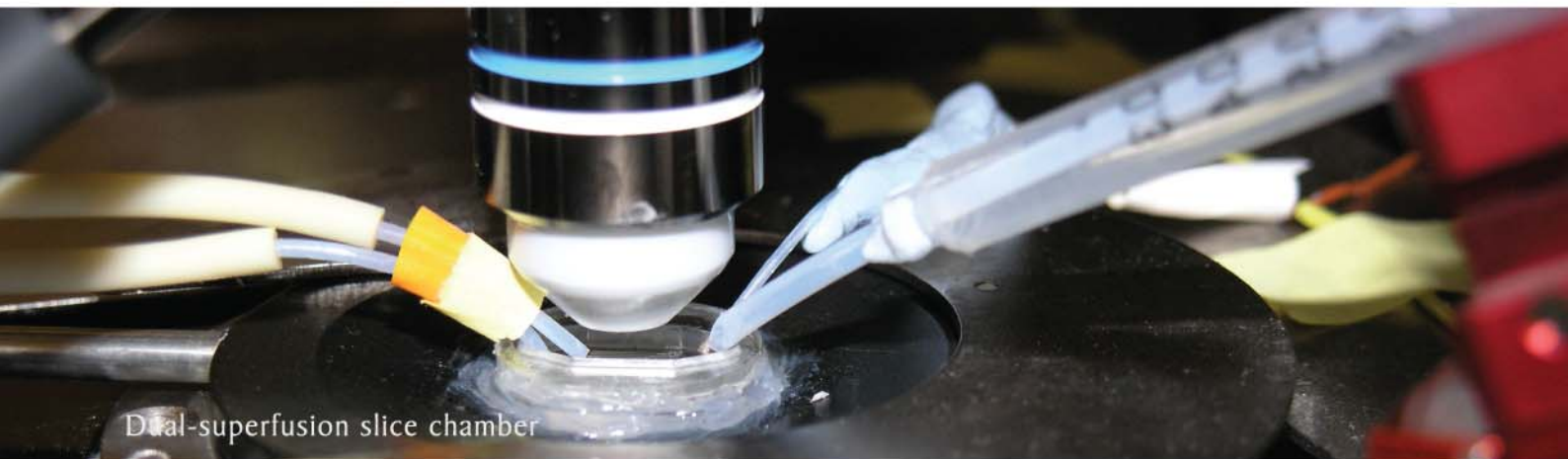
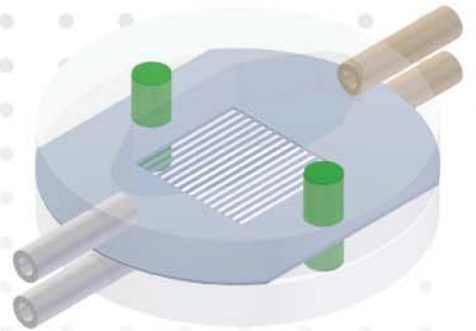


Dual-superfusion slice chamber

A novel approach to maintain better oxygenation and nutrition of submerged slice preparations combined with visualization of cells and their processes.



Dual-superfusion slice chamber

For more information, please contact: hajos@koki.hu
or visit our Web site at: www.superte.ch, www.femtonics.eu or www.exasol.hu

Dual-superfusion slice chamber

A novel approach to maintain better oxygenation and nutrition of submerged slice preparations combined with visualization of cells and their processes.



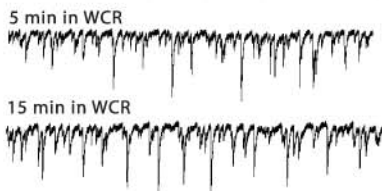
To achieve the improved recording conditions, slices are placed on a mesh and the bath solution (i.e. aCSF) is perfused below and above the submerged slices simultaneously with the same flow rate.

Advantages:

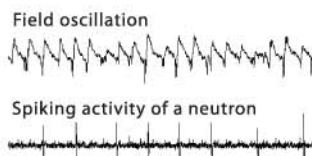
- oxygenation and nutrition is accomplished from both sides of the slices, hence cells are maintained in a more uniform environment (in contrast to conventional slice chambers, where slice are placed on a glass cover slip, i.e. oxygen diffuses only from the upper surface)
- thicker slices can be used (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

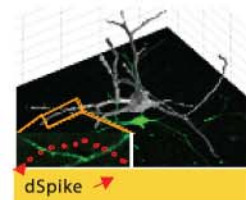
Maintaining spontaneous or pharmacologically-enhanced synaptic activities



Inducing network oscillations



Combining electrophysiological recording with two-photon imaging



Publications:

- Hájos N, Ellender TJ, Zemankovics R, Mann EO, Exley R, Cragg SJ, Freund TF, Paulsen O. Maintaining network activity in submerged hippocampal slices: importance of oxygen supply. *Eur J Neurosci*. 29:319-27. (2009)
- Hájos N, Mody I. Establishing a physiological environment for visualized in vitro brain slice recordings by increasing oxygen supply and modifying aCSF content. *J Neurosci Meth*. 183:107-13. (2009)

Laboratory:

- 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.