SOLUTIONS FOR MICROSCALE MEASUREMENTS

Unisense microsensors in neuro-research

Real time monitoring of \(O_2\), NO, \(H_2S\), pH, Redox, \(H_2\) or \(N_2\) or temperature in your sample.

- Measure oxygen consumption rates by \(pO_2\) depth profiles
- Monitor oxygen in brain slices preparations
- Record oxygen tissue supply
- Perform kinetic analyses and study enzymatic processes
- Determine local variation of oxygen demand
- Evaluate NO production, pH gradient, \(H_2S\) concentration etc.

Take advantage of microsensor tips with diameters less than 10 \(\mu\)m and perform real time measurements directly in your sample. Regardless of you are measuring NO metabolism in tissue samples, oxygen consumption in brain slice cultures, or oxygen partial pressure the Unisense microsensors will provide you with an accurate and reliable research tool. Due to the very small sensor tips the Unisense microsensors can be applied in a non-destructive manner enabling in vivo measurements e.g. through a cranial window in mice and rats. The microsensors have a fast response time allowing you to obtain reliable \(pO_2\) measurements over time under different treatment conditions or changing activity states.

Using the MicroProfiling System you can complete microprofiles with extreme positioning accuracy and high spatial resolution. The microprofiles can be performed manually operating the micromanipulator by hand, or automatically controlling a motorstage via your PC. The sensor signal is logged using SensorTrace Suite software, a software solution that also allows you to visualize and analyse your obtained data. The MicroProfiling System can be built into a glove box for experiments that require specific gas compositions and you can get the analog sensor signal for integration with existing data logging instruments.
Selected microsensor applications:

A. Composite picture showing an oxygen microsensor inside brain tissue. Courtesy of Dr. Jeff Thompson. B. Composite picture showing an APOX microsensor inside brain tissue. The APOX sensor is a specialized microsensor that measures both oxygen partial pressure and action potential. Courtesy of Dr. Jeff Thompson. C. pH measurements in a mouse brain. D. Oxygen consumption in cell suspension measured by MicroRespiration System.

Recent papers in which Unisense microsensors are used: