

Application Note

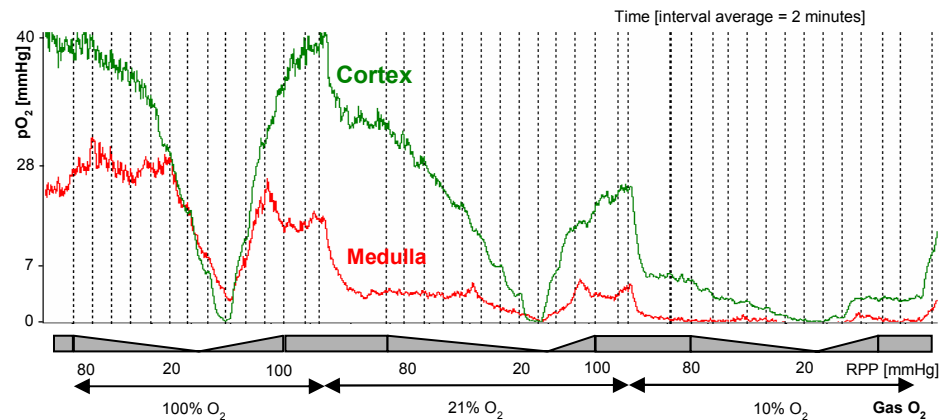
Kidney: Response to Changes in Renal Perfusion Pressure

In this application, the OxyLite tissue pO_2 /temperature monitor was used to monitor cortical and medullar kidney oxygenation in the anaesthetised rat. An inflatable cuff was placed around the suprarenal aorta, below the junction of the superior mesenteric artery. Renal perfusion pressure (RPP) was monitored using a pressure transducer. Two combined micro probes (diameter 350 μ m) measuring oxygen tension (pO_2 [mmHg]) and temperature were inserted into the renal tissue, to 2 mm depth (cortical region) and to 4 mm depth (outer medullar region). The animal was spontaneously breathing pure oxygen, air, or 10% oxygen in nitrogen as indicated.

The extra-corporal control system changed mean RPP in a stepwise fashion in 2 minute intervals. The RPP was reduced from 100 mmHg to 20 mmHg in steps of 10 mmHg as graphically indicated. Immediately after reducing pressure, RPP was restored in steps of 20 mmHg.

The figure below shows a continuous read out of tissue pO_2 in the cortex and medulla of the kidney. A decrease and subsequent increase in partial oxygen pressure was observed following the stepwise reduction and increase of RPP.

This experiment clearly demonstrates the sensitivity of the OxyLite in real-time and continuous tissue pO_2 monitoring.



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