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High-resolution respirometry hippocampal slices

OROBOROS INSTRUMENTS

Analysis of respiratory capacity in brain tissue preparations: high-resolution respirometry for intact hippocampal slices

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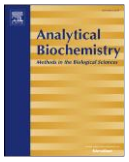

Evaluation of mitochondrial respiration in hippocampal slices from two different rodent species (rat and mouse) through high-resolution respirometry

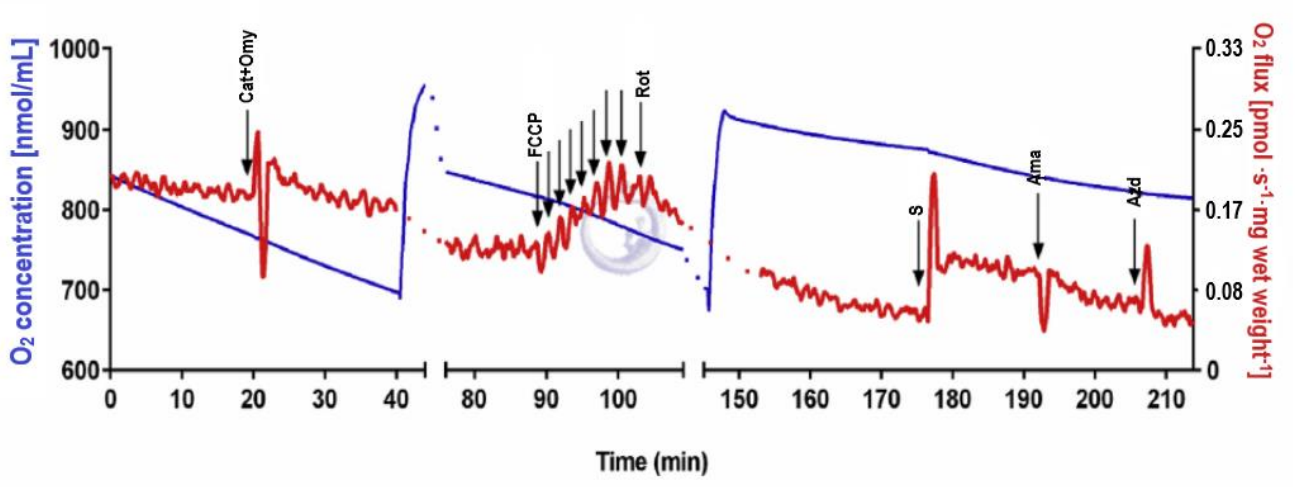

Figure 1. Representative respirometric trace. O_2 concentration (blue line; nmol/mL) and O_2 flux normalized for tissue wet weight (red line; [pmol·s^{-1}·mg wet weight^{-1}]); the arrows indicate the moment of titration of each substrate and inhibitor: carboxyatractyloside (Cat) and oligomycin (Omy), FCCP (added stepwise), rotenone (Rot), succinate (S), antimycin A (Ama), and sodium azide (Azd).

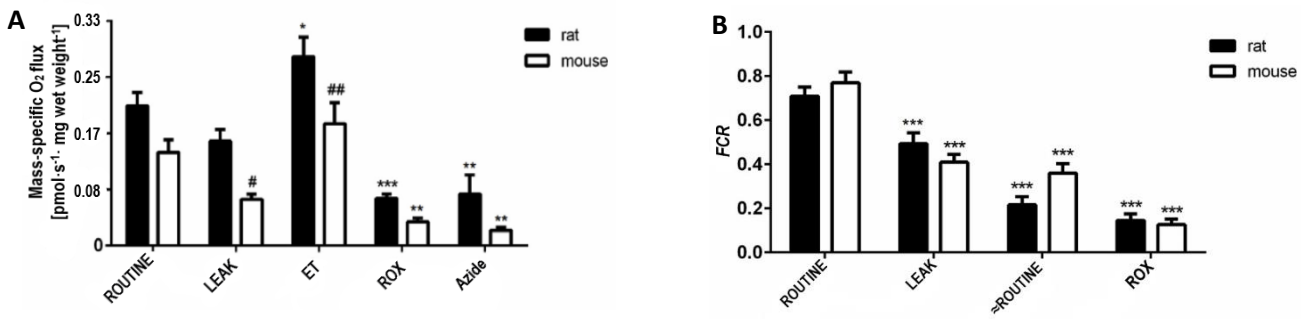

Figure 2. A) Specific flux per wet weight and **B) Flux control ratios** (*FCR*) determined for mouse and rat hippocampal slices. Values represent mean ± S.E.M. *p < 0.05, **p < 0.01, ***p < 0.001 for comparison to ROUTINE in **(A)** and **(B)**; #p < 0.05, ##p < 0.01 for comparison between rodent species. *ROUTINE respiration corrected for LEAK respiration* (*free ROUTINE activity, ≈ROUTINE*).

This methodology can be a useful asset for assessment of mitochondrial function in a preparation closer to the physiological state and valuable for other applications, such as the study of energy substrates in the brain

Reference: Dias C, Lourenco CF, Barbosa RM, Laranjinha J, Ledo AM (2018) Analysis of respiratory capacity in brain tissue preparations: high-resolution respirometry for intact hippocampal slices Analyt Biochem 551(22):43-50.

Text and figures slightly modified based on the recommendations of the COST Action MitoEAGLE CA15203. Doi:10.26124/mitofit:190001.v6