

Aims:

The purpose of this study was to characterize the influence of temperature and stimulus intensity on flavoprotein autofluorescence in rat hippocampal slices.

Methods:

Experiments were performed in hippocampal slices of adult male Wistar rats. Slices of 400 μm of thickness were maintained in submerged recording chamber, through which oxygenated ACSF was perfused (2 ml/min). Synaptic activation was being made by bipolar stimulating electrode (10s stimulus train 20Hz) placed in hillus of the dentate gyrus (Mossy fibers). FAD signals were detected by cooled 12-bit CCD-camera (RETIGA2000R).

Results:

Our findings demonstrate that FAD autofluorescence signals were significantly decreased at higher temperature. The data confirmed that FAD autofluorescence signals showed smaller light intensity in different layers of CA3 under the same conditions at 36°C compared to 26°C.

Our data approved that under defined conditions FAD fluorescence signals have risen during stimulation.

Keywords:

Mitochondria, FAD autofluorescence, temperature, stimulus intensity, hippocampus, rat.