

温度对神经网络活动的影响

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利用多通道微电极阵列上培养的海马神经元网络, 通过分析28~37°C范围内不同温度时网络自发放电频率、幅度和相邻锋电位时间间隔(Interspike interval, ISI)的变化, 探讨了温度对网络活动的影响。温度升高过程中放电频率、幅度呈不同程度增大的趋势; 小于10 ms的ISI增多, 变化程度随ISI增大呈减小趋势。结果表明体外培养的胎鼠海马神经元的网络活动具有温度敏感性。

Effects of Temperity of Cultured Hippocampal Neuronal Networks

To explore the effect of temperature on the activity of the hippocampus neuron networks of the embryo rat, the neuron was cultured on the Multi-microelectrode arrays (MEA) dish. By analyze the spike rate, spike amplitude and ISI for temperature increasing from 28°C to 41°C, we found that with the temperature increasing from 28°C to 37°C, the spike rate and amplitude raised 21.36% and 6.38% separately; the spike rate and amplitude at 41°C increased 11.78% and 4.89% than the value at 37°C. The ISI changes variously with the temperature raising. These show that the activity of hippocampal neuronal networks is sensitive with temperature.

关键词