

# 活体动物全细胞记录技术及其应用

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活体动物全细胞记录技术不仅可以用于研究感觉系统对自然刺激（如视觉系统的光刺激、听觉系统的声音刺激等）反应的特性和规律，还可以较准确地记录细胞的突触电位（包括阈下反应），实现EPSP和IPSP的相对分离，并实现活体细胞胞内灌流，从而进一步研究感觉信息的处理机制。本文较为详细地介绍了在活体动物上进行全细胞记录的方法，包括一些技术细节和关键仪器设备的选取原则，举例说明了该技术在视觉系统研究和体感系统研究中的应用，并讨论了这一方法在神经科学中的应用前景。

## IN VIVO WHOLE-CELL RECORDING TECHNIQUE AND ITS APPLICATION

In vivo whole-cell recording technique can be used not only to study the properties of response to natural stimulus in sensory system, such as light for visual system and sound for auditory system, but also to study the mechanism of sensory information processing, because a cell's synaptic potential, including subthreshold response, can be recorded accurately, and the cell's EPSPs and IPSPs can be separated relatively. This technique, including how to choose some major instruments, is described in detail. The results illustrate its application in visual system and somatosensory system. The prospect of this technique in neuroscience is also discussed.

### 关键词

活体动物(In-vivo); 全细胞记录(Whole-cell recording); 电流钳(Current clamp); 视皮层细胞(Visual cortical neuron); 体感皮层细胞(Barrel cortical neuron)