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膜片钳方法研究蛙垂体促黑素细胞上腺苷引起的抑制效应的机制

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关键词 膜片钳技术; 垂体; 嘌呤能 P1 受体; α -促黑素细胞激素; 钙通道; 钾通道

摘要 本文介绍用膜片钳方法研究腺苷抑制蛙垂体中叶促黑素细胞激素(α -MSH)分泌的分子电生理机制。研究结果表明,腺苷激活 A₁ 型受体后,通过 4 条途径减少 α -MSH 分泌所需要的钙内流: 1) 激活电压不敏感的钾电导引起的膜电位超级化; 2) 增高延缓外向整流的钾电导引起动作电位时间缩短; 3) 瞬时失活外向钾电流增加引起的细胞兴奋性降低; 4) 抑制 L 和 N 型钙电流的内流。白日咳毒素敏感的 G 蛋白参与腺苷对离子通道的调节作用,究竟是通过直接的偶联还是经过细胞内第二信使的传递尚需进一步证明。我们的结果已排除腺苷酸环化酶系统的途径