

G protein-coupled receptors function as cell membrane receptors for steroids

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Video Byte

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Abstract

G protein-coupled receptors, or GPCRs, are cell membrane receptors that bind to various molecules. Upon binding, GPCRs are known to undergo structural changes, which activates them for signaling between cells, but only recently have researchers begun to understand the functions and pathways of GPCRs in animals. Extensive evidence suggests that animal steroids, including estrogen, activate GPCRs. The receptor GPER1, for example, facilitates estrogen signaling but may also play a neuroprotective role, making it an attractive drug target. In insects, the hormone 20E binds to GPCRs to signal molting and metamorphosis. Understanding how to disrupt this signaling could lead to precision chemicals that control pest insects. Much work remains to map out the numerous hormone pathways orchestrated by GPCRs. Future and ongoing studies could help scientists develop pharmaceuticals that tap into these pathways to improve human health and productivity.