

皮下侵害受容器の神経薬理学における最近の進歩

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Recent Advances in Neuropharmacology of Cutaneous Nociceptors

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ABSTRACT Cutaneous nociceptors are peripheral receptive endings of primary sensory neurons activated by noxious stimuli. Nociceptors detect and signal the presence of tissue-damaging stimuli or the existence of tissue damage. In this short review, we will focus on the molecular mechanism of maintenance, activation, inhibition and sensitization in cutaneous nociceptors. Neurotrophic factors are essential to the development of nociceptors during embryogenesis. Recent evidences have indicated that nociceptors in the adult are maintained by either nerve growth factor (NGF) or glial cell line-derived neurotrophic factor (GDNF). A selective activator of nociceptors is capsaicin, natural product of capsicum peppers. Recently, the receptor for capsaicin (the vanilloid receptor 1: VR1) has been cloned, identified and characterized. VR1 seems to play an important role in the activation and sensitization of nociceptors. In contrast, peripheral endogenous cannabinoids such as anandamide are novel candidates for mediators that inhibit the excitation of nociceptors. Intracellular messengers and the mechanisms of signal transduction in nociceptors have also been studied. Our recent evidences demonstrate that an activation of both cAMP- and cGMP-second messenger systems is required to induce the sensitization of nociceptors. Such emerging evidences reviewed here would make a significant contribution to further understanding of the molecular mechanism of nociceptors.

抄録 皮下侵害受容器の機能に影響を及ぼすことが明らかとなった神経栄養因子、カプサイシン受容体、カンナビノイドおよびセカンドメッセンジャー系に関する最近の知見を、著者らの実験データを交えながらまとめた。