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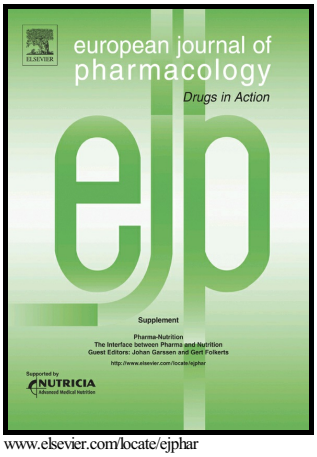

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Pattern recognition receptors in chronic pain: mechanisms and therapeutic implications

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Abstract

For the individual, it is vital to promptly detect and recognize a danger that threatens the integrity of the body. Pattern recognition receptors (PRRs) are several classes of protein families originally classified as receptors detecting exogenous pathogens. PRRs are also capable of recognizing molecules released from damaged tissues (damage-associated molecular pattern molecules; DAMPs) and thereby contribute to danger recognition. Importantly, it is now evident that PRRs, such as toll-like receptors (TLRs) and receptors for advanced glycation end products (RAGE), are not only expressed in peripheral immune cells but also present in neurons and glial cells in the nervous system. These PRR-expressing cells work in concert, enabling highly sensitive danger recognition. However, this sensitiveness can act as a double-edged sword. Accumulated evidence has led to the hypothesis that aberrant activation of PRRs may play a crucial role in the pathogenesis of pathological pain. Indeed, numerous studies employing gene deletion or pharmacological inhibition of PRRs successfully reversed or prevented pathological pain in experimental animal models. Furthermore, a number of preclinical studies have shown the therapeutic potential of targeting PRRs

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