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Running title: Chemokines in neuropathic pain

The importance of chemokines in neuropathic pain development and opioid analgesic potency

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Abstract

The treatment of neuropathic pain resulting from nervous system malfunction remains a challenging problem for doctors and scientists. The lower effectiveness of conventionally used analgesics in neuropathic pain is associated with complex and not fully understood mechanisms of its development. Undoubtedly, interactions between immune and nervous system are crucial for maintenance of painful neuropathy. Nerve injury induces glial cell activation and thus enhances the production of numerous pronociceptive factors by these cells, including interleukins and chemokines. Increased release of those factors reduces the analgesic efficacy of opioids, which is significantly lower in neuropathic pain than in other painful conditions. This review discusses the role of chemokines from all four subfamilies as essential mediators of neuron-glia interactions occurring under neuropathic pain conditions. Based on available data, we analyse the influence