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# Mast Cell - Glia Dialogue in Chronic Pain and Neuropathic Pain: Blood-Brain Barrier Implications

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## Abstract

Mast cells and microglia, working singly and in partnership, produce proinflammatory agents which play key roles in a wide array of nervous system disorders. Such neuroinflammatory settings may compromise integrity of both the blood-nerve barrier and blood-brain barrier (BBB) and blood-spinal cord barrier. While both belong to the innate immune system mast cells are far more ubiquitous, are resident in peripheral nerves and the central nervous system, and can influence blood-nerve barrier characteristics. Mast cells, being near the perivasculature especially within the dura, on the brain side of the BBB, are strategically located to play havoc with the BBB. Mast cells and glia are endowed with homeostatic mechanisms/molecules which come into play following tissue damage. These include the N-acylethanolamine family, especially N-palmitoylethanolamine, which is posited to be a key player in maintaining cellular homeostasis against external stressors provoking, for example, inflammation. This review is intended as an overview covering the pathobiology of neuroinflammation in the context of mast cells and microglia, their role in BBB integrity, and therapeutic perspectives in targeting these cells to preserve BBB function.

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