

Mast Cells in the Rat Carotid Body

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The carotid body (CB) is the main peripheral arterial chemoreceptor in mammals that registers the oxygen and carbon dioxide levels in blood, and responds to their changes by adequately adapting the cardiovascular and respiratory homeostasis. The basic morphofunctional unit of the CB called 'glomerulus' consists of two juxtaposed cell types: chemosensory neuron-like type I or glomus cells, and type II or sustentacular cells, the latter being supporting glial-like cells. The purpose of this study was to determine the presence and distribution of mast cells in the rat CB by using staining techniques with Toluidine blue and Bismarck brown. In particular, the mast cells were predominantly located in the interlobular connective tissue of the CB and were closely associated with blood vessels, but they were not found within the cell clusters. A few were observed in a close association with the islands of cells, and they were related to the sustentacular cells. Thus, the mast cells are not directly associated with glomus cells and probably do not functionally determine chemosensory properties. It is likely that mast cells are involved in the regulation of the blood supply within the CB by acting on small blood vessels.

Key words: carotid body, mast cells, blood vessels, toluidine blue, Bismarck brown