Cytosolic and Mitochondrial Calcium Transient During the Release of Histamine Induced by Beta-1,3-Glucan in Bone Marrow Mast Cells

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The present study examined whether beta-1,3-glucan (BG)induces histamine release and the role of calcium transients in histamine release. C57 black mouse bone marrowmast cells were challenged with BG subsequently, histamine contents and calcium transients were measured by spectrofluorometric assay and fluorescent confocal microscopy. BG-induced histamine release from mast cells occurred in a time- and dose-dependent manner. Pretreatment with IgEinhibited BG-induced histamine release in a dose-dependent fashion. BG-induced histamine release was influenced by calcium-free conditions; A23187-induced histamine release decreased significantly. TMB-8, an intracellular calcium antagonist, dose-dependently inhibited the histamine release under these conditions. These findings suggest that BG-induced histamine release may be attributable to calcium transients.

Key word : Mast Cell, Calcium, Histamine, Beta-Glucan