



POSTER PRESENTATION

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Expression of a prostaglandin D₂ receptor, CRTh2 (chemoattractant receptor-homologous molecule expressed on Th2 cells) on human mast cells and potential relevance in allergic diseases

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Background

Prostaglandin D₂ (PGD₂) has long been implicated in allergic diseases such as asthma by contributing to bronchoconstriction, vasodilation, and vascular permeability. Recently, cloning of a second novel PGD₂ receptor CRTh2, led to a greater understanding of the physiological and pathophysiological implications of PGD₂. PGD₂ signaling through DP1 and CRTh2 (DP2) mediates different and often opposite effects in many cell types of the immune system. Although mast cells (MC) are the largest source of PGD₂ in the body, there is lack of information about their expression and the role of PGD₂ receptors.

Materials and methods

CRTh2 transcripts and protein expression in two human mast cell lines, HMC-1 and LAD2, and two primary cultured human MC, cord blood-derived MC (CBMC) and peripheral blood-derived MC (PBMC), were examined using RT-PCR and flow cytometry. Expression of CRTh2 in MC from human nasal polyps was examined using immunohistochemistry. Intracellular calcium mobilization after treatment with the CRTh2 specific agonist, 15R-15-methyl PGD₂ was measured using Fluo-4NW calcium assay kit.

Results

RT-PCR and flow cytometry showed that human MC express CRTh2. About 35% of tissue MC in nasal polyps

expressed CRTh2. The CRTh2 specific agonist induced a dose dependent intracellular calcium mobilization in human MC.

Conclusion

Human MC express functional CRTh2. Regulation of MC mediator release and positive feedback recruitment of MC through CRTh2-mediated signaling may play an important role in allergic diseases.

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