



Targeting Human Mast Cells Expressing G-Protein-Coupled Receptors in Allergic Diseases

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The G-protein-coupled receptors (GPCRs) are the largest known group of integral membrane receptor proteins and are the most common targets of pharmacotherapy. Mast cells (MCs) have been reported to play an important role in allergic diseases, such as urticaria and bronchial asthma. There is an increasing body of clinical evidence that MCs are recruited into allergic reactions by non-IgE-dependent mechanisms. Human MCs are activated and secrete histamine in response to neuropeptides, such as substance P and somatostatin, mediated by a GPCR, MRGX2. The microenvironment surrounding MCs in their resident tissues is likely to contain multiple factors that modify antigen-dependent MC activation. MCs express various GPCRs, and since the function of human MCs is modulated by various GPCR ligands, such as adenosine and sphingosine-1-phosphate, which are present in high levels in the bronchial alveolar lavage fluid of asthmatic patients, the GPCRs expressed on MCs may play an important role in human allergic diseases. The GPCRs expressed on MCs may serve as drug targets for the treatment of allergic diseases.

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