ImmunoTools IT-Box-Cy55M-Award 2013

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The role of CB_2 receptor ligands in the control of allergic inflammatory responses

Eosinophils play a key role in allergic diseases such as bronchial asthma and atopic dermatitis. A prominent feature of these diseases is the accumulation of eosinophils in inflamed tissue induced by several chemoattractants like prostaglandin (PG) D_2 or eotaxins. After discovery of the endocannabinoid system and investigation of several endogenous and synthetic ligands, evidence has accumulated that cannabinoids, especially CB_2-receptor ligands may play a major role in mediating inflammatory responses. Elevated levels of 2-AG (CB_1-CB_2 agonist) were found in tissue of allergic inflammation mouse models, suggesting possible involvement in leukocyte recruitment.

We will focus on eosinophil migration to the lung in mouse models of allergic asthma. Eosinophil progenitor cells will be isolated out of the bone marrow of BALB/c mice and differentiated to mature murine eosinophils. Isolated cells will be cultured in media containing rm G-CSF and rm Flt3L to favor differentiation of granulocyte progenitors. After a switch to rm IL-5 containing media and further cultivation, mature eosinophils will be harvested, treated with various CB receptor agonists/antagonists and finally injected into eosinophil depleted Δdbl-GATA-1 knockout mice, where the eosinophil migration to the lung will be assessed, or used for in-vitro chemotaxis and adhesion assays using rm CCL11 and rm CCL5.

ImmunoTools IT-Box-Cy55M for Robert Frei includes 55 recombinant cytokines

rm EGF, rm Eotaxin / CCL11, rm FGF-a / FGF-1, rm FGF-b / FGF-2, rm FGF-8, rm Flt3L / CD135, rm G-CSF, rm GM-CSF, rm GRO-a / CXCL1, rm GRO-b / CXCL2, rm IFNgamma, rm IL-1alpha, rm IL-1beta, rm IL-2, rmIL-3, rm IL-4, rm IL-5, rm IL-6, rm IL-7, rm IL-9, rm IL-10, rm IL-11, rm IL-13, rm IL-15, rm IL-16, rm IL-17A, rm IL-17C, rm IL-17F, rm IL-19, rm IL-20, rm IL-21, rm IL-22, rm IL-25 / IL-17E, rm IL-27, rm IL-31, rm IL-33, rm IP-10 / CXCL10, rm LIF, rm MCP1 / CCL2, rm M-CSF, rm MIP-1α/ CCL3, rm MIP-1β / CCL4, rm MIP3α / CCL20, rm MIP3β / CCL19, rm NGF-beta, rm PDGF-AA, rm PDGF-BB, rm RANTES / CCL5, rm sCD40L / CD154, rm SCF, rm SDF-1α / CXCL12a, rm SDF-1β / CXCL12b, rm TNFα, rm TPO, rm VEGF DETAILS