[*Science*, **287**, 2013-2017 (2000)] [Lab. of Pharmacology]

Prostaglandin D_2 as a Mediator of Allergic Asthma.

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The role of PGD_2 in allergic asthma was investigated by the generation of mice deficient in the PGD receptor (DP). Sensitization and aerosol challenge with ovalbumin induced increases in the serum concentration of IgE in DP-KO mice similar to wild type mice. However, the concentrations of Th2 cytokines and the extent of lymphocyte accumutation in the lung of DP-KO mice were greatly reduced compared with those in wild type mice. Moreover, DP-KO mice showed only marginal infiltration of eosinophils and failed to develop airway hyperreactivity.

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CD47 Engagement Inhibits Cytokine Production and Maturation of Human Dendritic Cells.

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Upon encounter with bacterial products, immature dendritic cells (iDCs) release proinflammatory cytokines and develop into highly stimulatory mature DCs.uIn the present study, we show that human monocyte-derived DCs functionally express the CD47 Ag, a thrombospondin receptor. Intact or F(ab')2 of CD47 mAb suppress bacteria-induced production of IL-12, TNF-α, GM-CSF, and IL-6 by iDCs. The inhibition of IL-12 and TNF- α is IL-10-independent inasmuch as IL-10 production is down-modulated by CD47 ligation counteracts the phenotypic and functional maturation of iDCs. We conclude that following exposure to microorganisms, CD47 ligation may limit the intensity and duration of the inflammatory response by preventing inflammatory cytokine production by iDCs and favoring their maintenance in an immature state.

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Effects of Sho-seiryu-to (Xiao-Qing-Long-Tang) on Experimental Allergic Reactions.

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Effects of Sho-seiryu-to (TJ-19) on experimental allergic reactions were studied. TJ-19 inhibited IgE-dependent biphasic cutaneous reaction in mice and biphasic increase in nasal airway resistance in guinea pigs. Although TJ-19 inhibited histamine-and TNF-α-induced cutaneous reactions in mice, it did not affect allergic histamine release from cells. In contrast, TJ-19 did not affect type II, III and IV allergic reactions.

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Effects of Luteolin, Quercetin and Baicalein on Immunoglobulin E-mediated Mediator Release from Human Cultured Mast Cells.

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The effects of luteolin on IgE-mediated allergic mediator release from human cultured mast cells were investigated and compared to those of baicalein and quercetin. The three compounds inhibited the release of histamine, leukotrienes, PGD_2 and GM-CSF in a concentration-dependent manner. Luteolin and quercetin inhibited Ca^{2+} influx, PKC translocation and PKC activity. Luteolin and quercetin also suppressed the activation of ERKs and JNK. Luteolin is a potent inhibitor of human mast cell activation through the inhibition of Ca^{2+} influx and PKC activation.