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[Lab. of Pharmacology]

**Peritoneal mast cell hyperplasia in rats after IgE antibody-antigen interaction.**

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Peritoneal mast cell (PMC) hyperplasia was investigated in rats after evoking IgE antibody-antigen reaction. Rats were immunized with antigen and then passively sensitized with monoclonal IgE antibody before antigen challenge. A significant increase in the number of PMC was observed 3 weeks after the antigen challenge in the peritoneal cavity, although histamine content of the mast cells was decreased significantly. In rats without prior immunization, these changes were not observed. Stimulation with compound 48/80 or calcium ionophore A23187 did not affect the number of mast cells. This model may prove to be a useful tool for studying the mechanisms of mast cell hyperplasia and recruitment of mast cell precursors *in vivo*.

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[Lab. of Pharmacology]

**Effect of theophylline on the production of interleukin-1  $\beta$ , tumor necrosis factor- $\alpha$ , and interleukin-8 by human peripheral blood mononuclear cells.**TOMOAKI YOSHIMURA, EISEKI USAMI, CHIKAKO KURITA, SHINO WATANABE, TOSHIYA NAKAO,  
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We investigated the immunological effects of theophylline on peripheral blood mononuclear cells (PBMC), by examining the production of interleukin-1  $\beta$  (IL-1  $\beta$ ), tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) and interleukin-8 (IL-8) when PBMC were stimulated with lipopolysaccharide (LPS) or recombinant human IL-1  $\beta$  (rhIL-1  $\beta$ ). Both IL-1  $\beta$  and TNF- $\alpha$  production was suppressed in a dose-dependent manner by theophylline. In contrast, IL-8 was not affected by theophylline. Suppression of the production of these cytokines by therapeutic levels of theophylline suggested that this drug might have anti-inflammatory and immunosuppressive effects.

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[Lab. of Pharmacology]

**Effect of cyclophosphamide on lymphokine production in MRL/lpr.Yaa mice.**

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We examined the pathological, serological and immunological characteristics of MRL/lpr.Yaa (MRL) mice compared with that of Balb/c mice and the suppressive effect of cyclophosphamide (CP) on the mice. MRL mice spontaneously developed a massive lymphadenopathy characterized by hypergammaglobulinemia, the presence of several autoantibodies, and autoimmune disease. Administration of CP to MRL mice ameliorated nephritis, and suppressed production of autoantibodies and the accumulation of abnormal T cells. Moreover, CP significantly elevated the production of lymphokines which were lower than Balb/c mice in steady state. These results suggested that an abnormality of T cell function may contribute to the autoimmune pathogenesis of MRL mice and that CP probably ameliorates autoimmune disease by improving the T cell functions.