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[Lab. of Pharmacology]

**The effect of SM-8849 on experimental arthritis in mice.**

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The effect of a novel thiazole derivative, SM-8849, on experimental arthritis in mice was studied. SM-8849 reduced the incidence and severity of type II collagen (CII)-induced arthritis in mice, as assayed by clinical observation and histopathological studies. This drug inhibited CII-induced delayed type hypersensitivity (DTH) but not humoral antibody to CII in arthritic mice. SM-8849 inhibited T cell dependent reactions including superantigen-induced arthritis, superantigen-induced T cells with CD25 expression and sheep red blood cell (SRBC)-induced DTH reaction. SM-8849, however, had not effect on the production of humoral antibody forming cells in the spleen of mice immunized with SRBC. These results indicate that inhibition of CII-induced arthritis by SM-8849 is mainly due to the inactivation of T cells that are related to DTH reaction.

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[Lab. of Pharmacology]

**Role of mast cells, eosinophils and IL-5 in the development of airway hyperresponsiveness in sensitized mice.**

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In order to study the role of mast cells and IL-5 in allergen-induced airway hyperreactivity (AHR) in mice, airway responsiveness in WBB6F<sub>1</sub>-W/W<sup>\*</sup> mice (mast cell deficient mice) and the effects of anti-IL-5 monoclonal antibody (NC-17) on AHR in Balb/c mice were studied. Three inhalation of antigen caused an increase in leukocytes and IL-5 in bronchoalveolar lavage fluid (BALF), and AHR to acetylcholine in Balb/c and WBB6F<sub>1</sub>-+/+ mice. In WBB6F<sub>1</sub>-W/W<sup>\*</sup> mice, antigen inhalation resulted in increases in leukocytes and IL-5 in BALF but did not result in AHR. NC-17 inhibited the antigen-induced eosinophilia but did not affect AHR. These results suggest that mast cells play a role in the onset of AHR, but not in the production of IL-5 and eosinophilia.

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[Lab. of Pharmacology]

**The effect of mesoporphyrin on experimental arthritis in mice.**

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The effects of mesoporphyrin, a novel porphyrin derivative, on type II collagen (CII)-induced arthritis in mice were studied. Mesoporphyrin reduced the incidence and severity of CII-induced arthritis in mice, as assayed by clinical observation and histopathological studies. Mesoporphyrin inhibited CII-induced delayed type hypersensitivity (DTH) in arthritic mice. Superantigen-potentiated collagen-induced arthritis and sheep red blood cell-induced DTH reaction were clearly inhibited by mesoporphyrin. Moreover, the superantigen-induced CD25 expression on T cells was inhibited by mesoporphyrin. These results indicate that mesoporphyrin inhibits CII-induced arthritis by inhibiting the activation of T cells.