The model of arthritis induced by superantigen in mice.

Hiroichi Nagai*, Yuko Takaoka, Hiroyuki Kamada, Hiroshi Mori

Subcutaneous injection of Staphylococcal enterotoxin B (SEB) produced by Staphylococcus aureus, caused severe arthritis in DBA/1J mice which had been previously immunized with bovine type II collagen. The severity of this arthritis was dose-dependent and prolonged joint inflammation with erosion of bone was observed. Anti-type II collagen antibodies were detected in the serum of arthritic mice. Effector T cells against type II collagen were also detected by means of delayed type hypersensitivity in the skin. Moreover, a significant decrease in the ratio between T cells and B cells and an increase in the ratio between CD4+ cells and CD8+ cells were observed in spleen cells from arthritic mice. Prednisolone suppressed the induction and development of clinical signs of the arthritis in mice.

Antiallergic effect of ZCR-2060: antihistaminic action.

Tooru Abe, Takeshi Omata, Kenji Yoshida, Toshihiro Matsumura, Yugo Ikeda, Yoshihide Segawa, Kazuo Matsuda, Hiroichi Nagai*

The antihistaminic effect of 2-[2-(4-(dimethylamino)-1-piperidinyl)ethoxy]benzoic acid maleate (ZCR-2060), a newly synthesized antiallergic agent, was investigated. ZCR-2060 selectively antagonized histamine-induced contraction of isolated guinea pig ileum and trachea. 3H-Mepyramine specific binding to membranes from guinea pig lung and brain was markedly inhibited by ZCR-2060 concentration-dependently. ZCR-2060 significantly inhibited the histamine-induced cutaneous reaction in rats, and its action was long-lasting. Thiopental-induced sleep and spontaneous ambulatory activity in mice, however, were unaffected by ZCR-2060 even at higher doses. ZCR-2060 is a potent, selective and long-acting histamine H1-receptor antagonist with no side effect.

Antiallergic effects of ZCR-2060: effect on allergic cutaneous reactions and rhinitis models in mice and rats.

Tooru Abe, Takeshi Omata, Kenji Yoshida, Yoshihide Segawa, Kazuo Matsuda, Hiroichi Nagai*

The antiallergic action of 2-[2-(4-(dimethylamino)-1-piperidinyl)ethoxy]benzoic acid maleate (ZCR-2060) was investigated in mice and rats. ZCR-2060 markedly inhibited passive cutaneous anaphylaxis, histamine-, compound 48/80- and calcium ionophore A23187-induced cutaneous reactions, and IgE-mediated biphasic skin reaction. The antigen- and histamine-induced nasal vascular permeability increase in rats were clearly inhibited in a dose-dependent fashion by ZCR-2060. Moreover, ZCR-2060 significantly inhibited antigen-induced anaphylactic histamine release from rat peritoneal mast cells and carrageenin-induced paw edema in rats.