A STUDY ON INHIBITORY EFFECT OF ULINASTATIN ON LUNG INJURY ACTIVITIES
OF GRANULOCYTAL ELASTASE

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An injured lung model was prepared in male golden hamsters weighing 130 - 150 g by administering a single dose of elastase from human sputum (Elastin Products Co., USA) via the trachea, and the inhibitory effect of an elastase inhibitor ulinastatin (Miracid\textsuperscript{R}, Mochida Pharmaceutical Co., Japan) on the lung injury was assessed in vivo with this model.

MATERIALS AND METHODS
Assessment of the effect of ulinastatin on elastase-induced lung injury was conducted in (1) a group of animals whose lungs were pretreated with a mixture of 100 \( \mu \)g (0.4 Sachar's unit) of elastase and 3000 units of ulinastatin (which is equivalent to four times the dose which inhibits 100 \( \mu \)g of elastase at the rate of 50% in vitro) several minutes after mixing and (2) a group of animals pretreated with 30000 units of ulinastatin injected over a period of 20 sec into the peripheral vein five minutes before injection of 100 \( \mu \)g of elastase. Twenty-four hours after the injection of the drugs into the lung, the animal was anesthetized and the lung was removed. The lung tissues were examined under a light microscope.

RESULTS AND DISCUSSION
It has been pointed out that elastase causes acute hemorrhage and degradation of elastic fibers and other alveolar septal components\textsuperscript{1,2}, and it was also reported recently that ulinastatin strongly inhibits the activity of granulocytal elastase in vitro\textsuperscript{3}. We tried to show that this drug could inhibit the lung tissue injury effect of granulocytal elastase in vivo. Histological changes are shown in the panels, below.
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(A) is a control; (B) shows the result of treated with elastase, demonstrating marked hemorrhage; (C) is a section treated with a mixture of elastase and ulinastatin. Although granulocyte infiltration is evident, there is no sign of hemorrhage; (D) is a section treated with elastase following pretreatment with ulinastatin.

The results clearly demonstrate that ulinastatin inhibits the lung tissue injury effect of granulocytal elastase in vivo.

REFERENCES