

Study of the effects of nintedanib ethanesulfonate on bleomycin-induced murine pulmonary fibrosis model



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Introduction

Idiopathic pulmonary fibrosis (IPF) is a refractory disease that progresses from alveolar damage and inflammation to interstitial fibrosis. In this study, we confirmed the progress of the pathological condition of pulmonary fibrosis model in mice and investigated the effect of IPF therapeutic agent nintedanib ethanesulfonate (ofev).

Study design

Materials

- Animal
Male ICR mice, 10 weeks old
(Japan SLC, Inc.)
- Food
Pellet chow MF (Oriental yeast Co., Ltd.)

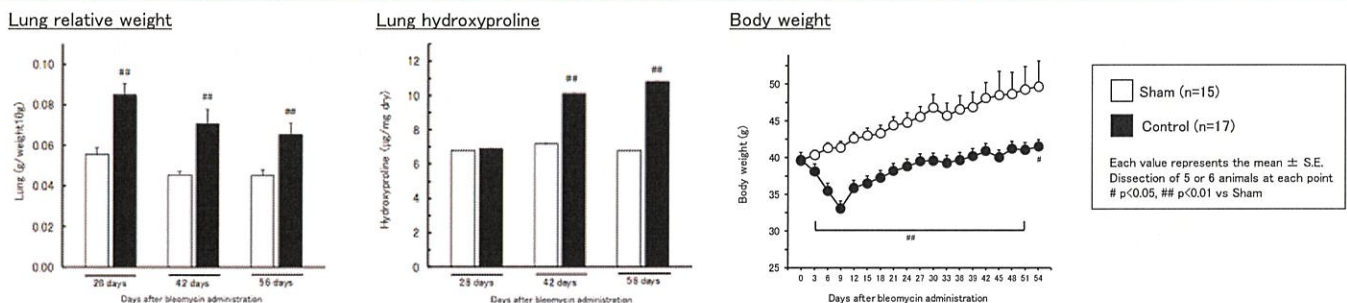
All of the experiments were conducted in accordance with the guide for the animal care and use of laboratory animals of Shiga Laboratory, NISSEI BILIS Co., Ltd.

Methods

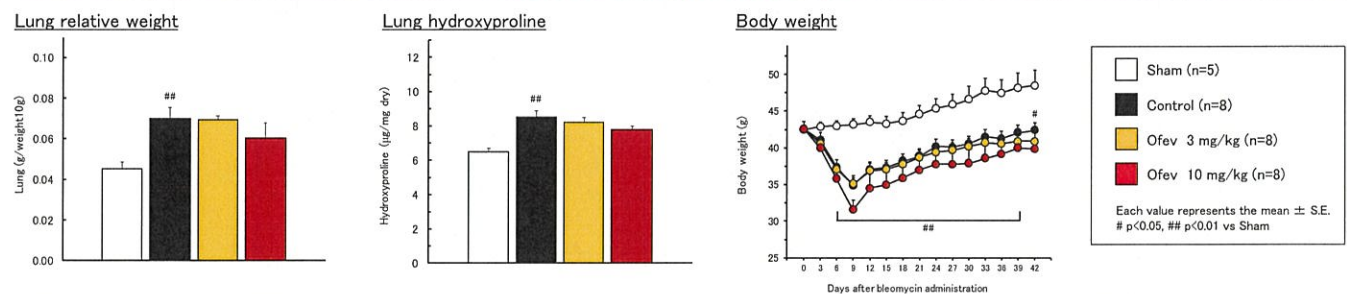
Bleomycin was intravenously administered to 10 weeks old male ICR mice for 5 days. To confirm the progress of the pathological condition, the mice were euthanized after 28, 42 and 56 days of initial administration of bleomycin, lungs were collected and weighed. The lung hydroxyproline (HP) content and fibrosis area were measured, and histopathological examination were performed. Ofev was administered to mice by gavage at 3 and 10 mg/kg once a day for 42 consecutive days.

Results

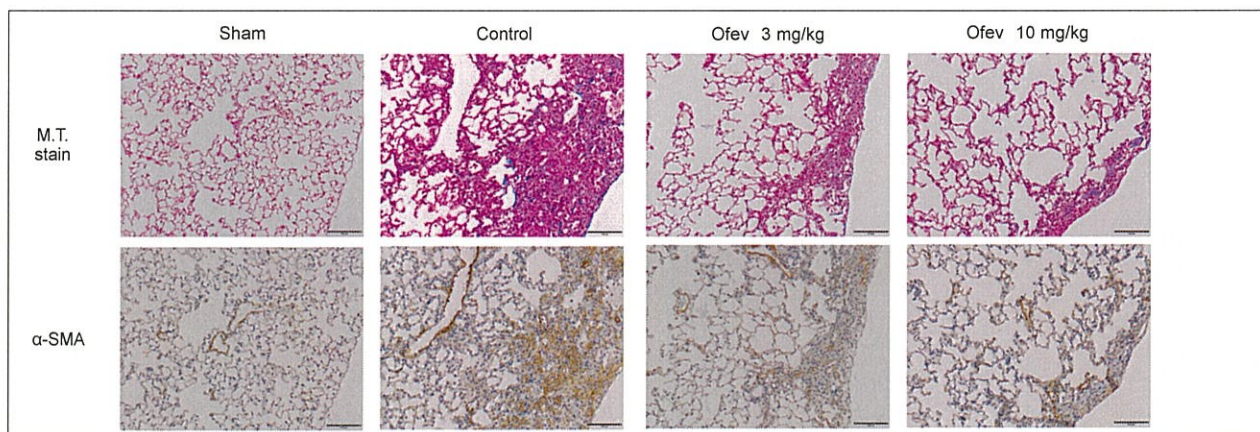
Confirmation of pathological condition of pulmonary fibrosis model



Effect of IPF therapeutic agent ofev



Histology of the lungs (Bar: 100 μ m)



Conclusion

- Increases in relative lung weight and lung HP content were noted in mice given bleomycin for 5 consecutive days intravenously.
- The formation of fibrotic lesions was confirmed and increases in the fibrosis regions were observed over time, histopathologically.
- In addition, orally administration of ofev at 10 mg/kg/day to mice for 42 days, suppression tendency of increase in lung relative weight and lung HP content was confirmed.