

CRO services for COPD

Chronic obstructive pulmonary disease (COPD) is currently the fourth leading cause of death worldwide. COPD is characterized by chronic inflammatory cell infiltrate and by permanent destruction and enlargement of peripheral airspace of the lung. Current treatments for COPD fail to reverse long-term lung dysfunction largely because chronic inflammatory network as well as alveolar repair is still irrepressible. Novel therapeutic strategies are being investigated and developed, such as inhibition of chronic inflammatory networks, regulation of remodeling, promotion of regeneration and so on.

Porcine pancreatic elastase (PPE)-induced pulmonary emphysema model is characterized of loss of elastin and inflammatory responses in the lung, and widely used to investigate the efficacy of various therapeutic agents on inflammation, elastin repair, alveolar regeneration and so on.

SMC, a Tokyo-based biotech company also known as the leading nonclinical CRO for nonalcoholic steatohepatitis (NASH), provides pharmacology study service of PPE-induced emphysema model in mice. Our expertise in inflammation/fibrosis is now experienced in COPD R&D.

PPE-induced pulmonary emphysema model

Animal:

- Female C57BL/6J (7- to 8-week-old)

Porcine pancreatic elastase-administration:

- Intratracheal injection

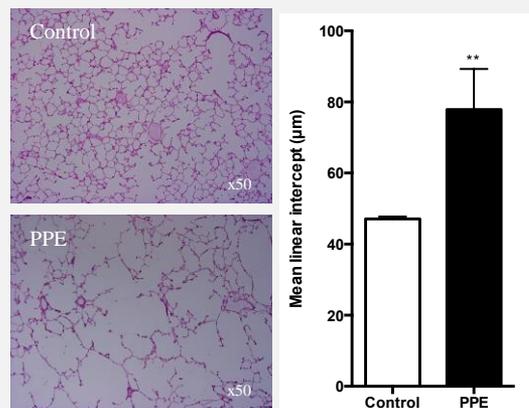
Major endpoint:

- Histology on lung tissue (mean linear intercept)

Additional endpoints:

- Cytological analysis in bronchoalveolar lavage fluid
- Cytokine ELISA in bronchoalveolar lavage fluid
- Semi-quantitative RT-PCR for molecular markers
- Immunohistochemical analyses for molecular markers
- Emphysematous distribution and injury (micro-CT)

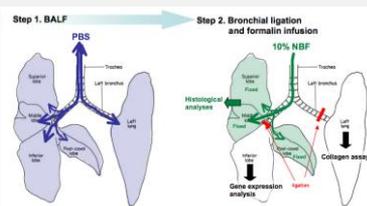
Histological analysis



Simple method of estimating severity of pulmonary emphysema using HE-stained sections at day 21.

Mean linear intercept is widely used to estimate the extent of alveolar destruction.

Sampling technique



After BALF collection, left and inferior lobe bronchus are ligated to avoid leakage of the instilled fixative.

Then, three fixed lobes (for histological analyses) and two unfixed lobes (for gene expression analysis and collagen assay) are harvested from each mouse.



For more information, please contact us below.

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