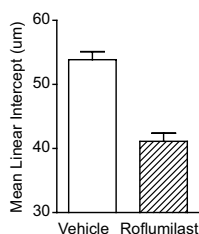
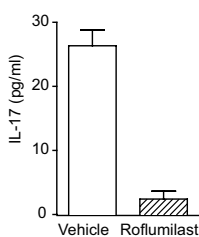
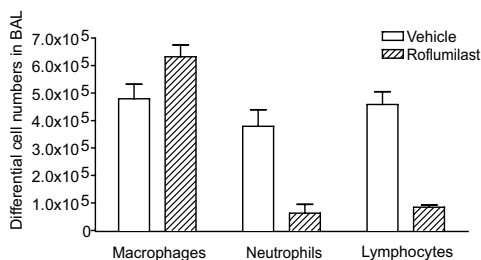


Chronic Obstructive Pulmonary Disease:

Conservative estimates place chronic obstructive pulmonary disease (COPD) as the world's fifth most prevalent disease. Emphysema, a component of COPD, is characterized as the dilation of airspaces distal to the terminal bronchiole due to the destruction and irreversible loss of alveolar septa resulting in restricted airflow. The vast majority of individuals with emphysema have a history of smoking, however, only a small proportion of smokers develop emphysema. Clearly, additional environmental and genetic factors have a substantial influence on disease development but the cellular and molecular mechanisms underlying the disease appear to share cellular and molecular pathways. Many mechanisms of disease development have been postulated, including the infiltration of inflammatory cells and an imbalance between proteases (such as elastase) and protease inhibitors. Analysis of lung lavage fluid from smokers and patients with emphysema reveals an increased proportion of inflammatory cells, such as macrophages and neutrophils, capable of secreting tissue-damaging proteases. COPD can be modeled in mice by alternate exposure to LPS or elastase. LPS serves as an inflammatory agent recruiting proinflammatory neutrophils and monocytes, whereas elastase acts to directly weaken the integrity of the lung parenchyma, together culminating in pathologic and physiological changes characteristic of COPD in humans.



Experimental readouts:

- Lung function studies (compliance, resistance, elasticity, total lung volume)
- Histological analysis
- Determination of cellular infiltrate into the airways
- Measurement of disease biomarkers
- Quantitative PCR analysis of tissue cytokines and chemokines

Duration:

20-31 days dependent upon experimental readouts

Service Package I is available alone, or in combination with Service Packages II and III

Service Package I

- Administration of test compounds
- Initiation of disease model
- Histological analysis

Service Package II

- Lung function
- Determination of cellular infiltrate into airways

Service Package III

- Quantitative PCR analysis of tissue cytokines and chemokines

Our scientific project managers can provide expert advice and guidance for all of your efficiency studies.

Please contact us for customized Service Packages
info@preclinbiosystems.com