ATS 2023 Highlights

Respiratory Structure and Function Early Career Professionals

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Get to know members of the RSF Assembly

Is your research clinical, basic science or translational?

Translational Science

Tell us about your research?

I study various aspects of the pathophysiology of COPD, but I have a specific interest in studying the role of cell death and endogenous danger signals, called Damage Associated Molecular Patterns (DAMPs) in COPD. I currently specifically study these DAMPs in the context of COPD co-morbidities and bronchoscopic intervention treatments. My aim is to connect basic science with clinical science to ensure the translational aspect of my studies.

Where do you see yourself in 5 years?

In five years from now I hope that I together with my teams and collaborators have demonstrated the importance of various DAMPs and their receptors in various aspect of the pathophysiology of COPD. Additionally, I hope to have identified ways to clinically use DAMPs as target in the treatment of COPD patients.

What do you find is the major benefit of RSF Assembly Membership?

The RSF assembly creates a perfect platform to engage with fellow researchers and initiate collaborations with them.

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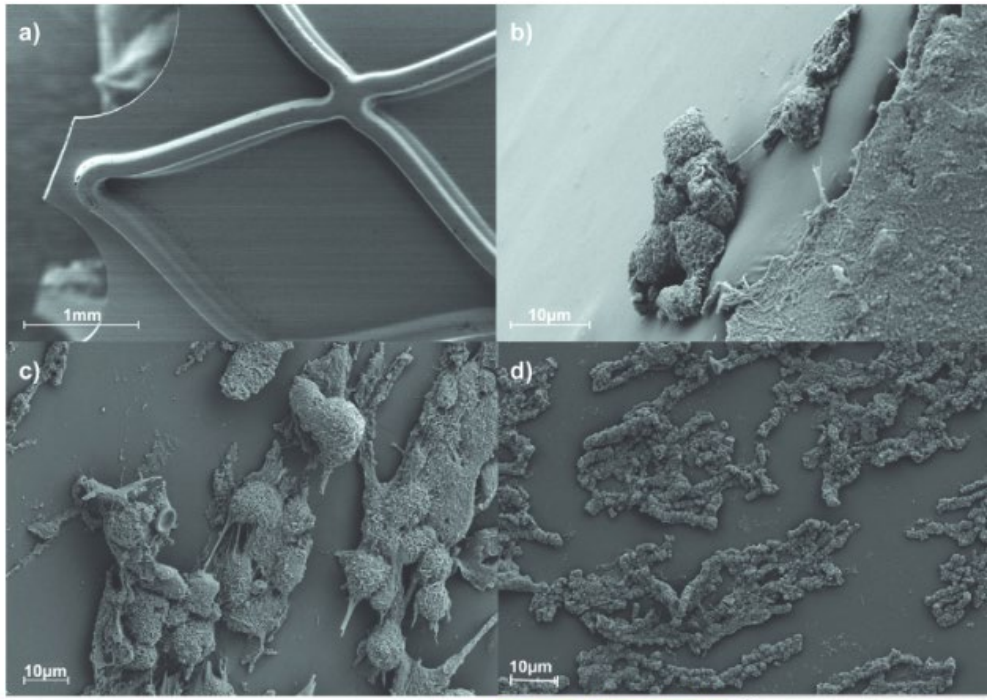

Identification of DAMPs as major constituents of the surface proteome of lung implantable silicone/nitinol devices

Background: Lung implantable devices have been widely adopted as mechanical interventions for a wide variety of pulmonary pathologies. Despite successful initial treatment, long-term efficacy can often be impacted by fibrotic or granulation tissue formation at the implant sites.
Goal: This study aimed to explore the lung-device interface by identifying the adhered proteome on lung devices explanted from patients with severe emphysema.
Methods: In this study, scanning electron microscopy is used to visualize the adhesion of cells and proteins to silicone and nitinol surfaces of explanted endobronchial valves. By applying high-resolution mass-spectrometry, the surface proteome of eight explanted valves is characterized.
Results: Here, 263 unique protein species were identified to be mutually adsorbed on explanted endobronchial valves. Enrichment analyses reveal dominant clusters of functionally-related ontology terms associated with pattern recognition receptor signaling, immune responses, and cell adhesion. Matching results show that damage-associated molecular patterns (DAMPs) are cardinal in the formation of the surface proteome.
Conclusion: This is the first study investigating the composition of the adhered proteome on explanted lung devices. This study indicates that DAMPs are important for developing a protein layer on lung implantable devices, potentially contributing to the development of granulation tissue formation.

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