

Dr. Otoupalova Receives NIH K12 Award to Study Post-Tuberculosis Lung Damage

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Dr. Otoupalova has been awarded an NIH-sponsored K12 Career Development Award through the Deep South Center to investigate mechanisms of chronic lung damage following tuberculosis. Tuberculosis remains a significant public health challenge in the United States, particularly in the Deep South, where disparities in healthcare access and comorbid conditions contribute to a disproportionate disease burden.

Notably, up to half of tuberculosis survivors develop post-tuberculosis lung disease (PTLD), characterized by persistent respiratory symptoms, impaired lung function, and increased long-term morbidity and mortality. Dr. Otoupalova's research focuses on oxidation-specific epitopes (OSEs)—molecules generated during infection-driven oxidative stress—and their role in shaping immune responses and promoting fibrotic remodeling in the lung. Her work will integrate analyses of patient cohorts with advanced mechanistic studies, including in vitro immune profiling and spatial transcriptomics, to define how OSEs and IgA-mediated immune responses interact with macrophages to drive fibrosis.

By elucidating these pathways, this project aims to uncover novel mechanisms linking infection to chronic lung disease and identify potential therapeutic targets to prevent or mitigate long-term pulmonary damage after tuberculosis. This work has the potential to significantly advance understanding of post-infectious fibrosis and improve outcomes for vulnerable populations in the Deep South and globally.