2022 LEAD Capstone Poster Session

Empowering the community through patient-centered infectious disease research

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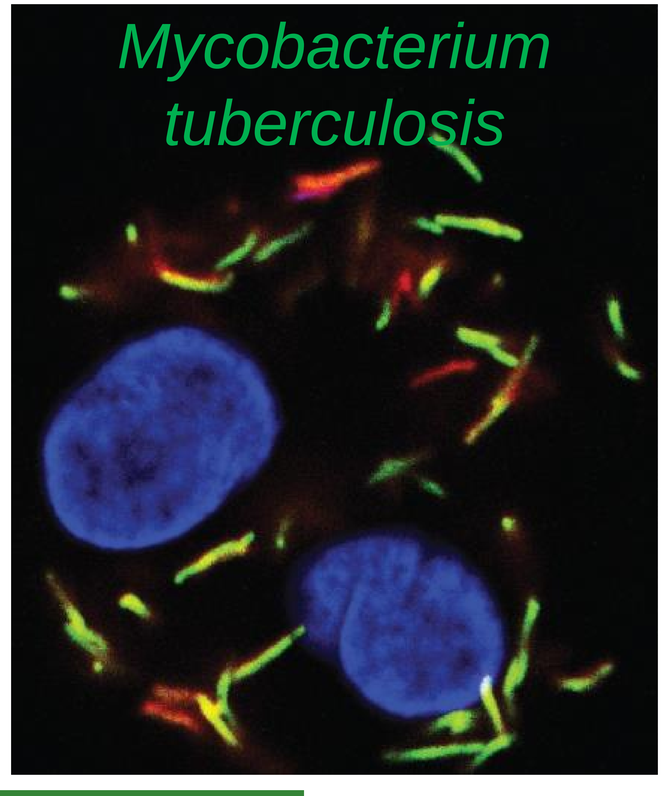

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Abstract

- There is an *unmet need* to develop clinical tools for tuberculosis as it affects one in four worldwide, with much of the burden in Texas passing through Parkland.
- Because of the *gap* in understanding the complex interactions between microbe and host, it is difficult to improve vaccines, diagnostics and therapeutics.
- *If* we understand how *Mycobacterium tuberculosis* and immune responses affect patient outcomes, *then* we can enhance clinical tools for the Parkland community.

Objectives

- identify bacterial determinants of clinical outcomes
- identify immune determinants of clinical outcomes
- engage the Parkland Hospital community in patient-centered infectious disease research
- empower the Parkland patient population by contributing to research in diseases that affect their lives

Background Information

- Every 22 seconds, someone dies from TB.
- Up to 13 million people in the United States have TB.
- TB disproportionately impacts the Parkland patient community due to social economic risk factors.
- Gaps between basic science discoveries and clinical outcomes limit our understanding of pathogenesis.
- Because it is not clear how exposure to the bacterium leads to infection and infection progresses to disease, our diagnostics, therapeutics and vaccines are limited.

Project Plan

recruit and consent patients to collect samples, bacterial strains and clinical information

evaluate antibody and immune cell functions with the clinical bacterial strains

associate patient outcomes with microbial, antibody and immune cell functions to generate hypotheses of mechanisms of disease to test models

providers refer potential patient participants

leverage what is learned about mechanisms of protection and disease to develop better diagnostics, therapeutics and vaccines

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Application of What You Learned at LEAD

- This project
  - requires collaboration across clinical and research realms
  - involves negotiating relationships between UTSW stakeholders and institutions
  - enables cross disciplinary engagement between microbiology, immunology and computational biology
  - aims to inspire trust in research and medicine from the patient community

Proposed Budget

- As part of the first two years the proposed budget includes:
  - 0.1FTE clinical coordinator
  - 0.1 FTE RN phlebotomy services
  - phlebotomy supplies for n=70 draws
  - IRB renewal administrative fees at UTSW and Parkland
- The goal is to generate preliminary data to apply for extramural funding within these two years for further support.

Innovation and Significance

- This project bolsters *Parkland's mission* to advance wellness, relieve suffering, develop and educate.
- This project aligns with *UTSW strategic priorities* of clinical transformation and enhancing basic research.
- Community participatory research reduces health disparities because it empowers individuals to help solve their own medical issues.
- Beyond TB, the many infections from non-tuberculous mycobacteria, fungi and parasites at Parkland provide a wealth of opportunities for education and research.

References

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