Mycobacterium tuberculosis infected over ten million people in 2017, killing 1.3 million. The disease primarily affects the lungs, causing inflammation of the pleura, mucus buildup, and excessive coughing. The infection can be active or latent. While there are currently antibiotics to prevent infection and help the infected survive tuberculosis, it is very difficult to cure fully. Patients must be diagnosed quickly and receive extensive treatment in order to guarantee full recovery. A major concern is the continuous evolution of antibiotic resistant strains. AIDS patients, diabetics, and other sufferers of immunocompromising disease are at particular risk. In addition to the aforementioned factors, research links certain genes with susceptibility to the bacterial disease. Lab research done on mice with varying relevant genotypes can show the correlation between the specific genes and the disease. In this experiment, three different strains of mice will be studied, two that are historically susceptible, and one that is predicted to be more resistant to the disease. The infection and host's resistant ability can be measured through blood tests quantifying the mouse's interferon-gamma levels, which is an activator released in a specific T-cell response to the body first recognizing tuberculosis bacteria. Another blood test will test for another T-cell response only released in the active patients in order to differentiate between active and latent forms of the infection. Observing susceptible genotypes could guide future research towards who to focus on and what aspects of their immune response need to be most assisted.

Themes:

Check (highlight) the most applicable theme according to the abstract.

| Innovation and Technology | Health and Wellness | Culture and Society | Sustainability and Conservation |

Comments: Generally well-communicated. Do you have any anticipated results? Consider re-reading and editing to improve flow. All the best at MURC!