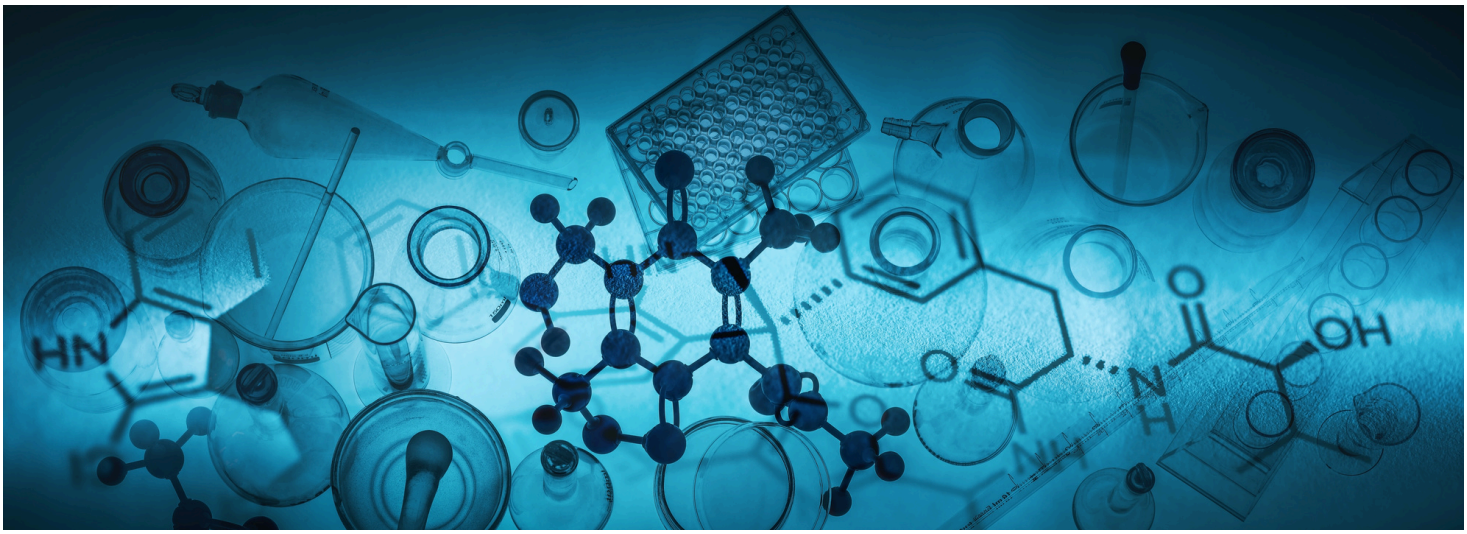
VOLUME 5, ISSUE 4, APRIL 2025

THE MONTHLY DOSE

Official Newsletter of The Mueller Health Foundation



WHAT'S NEW AT THE MUELLER HEALTH FOUNDATION:

At the Mueller Health Foundation, we remain committed to making a positive impact on those affected by tuberculosis, both globally and locally.

As co-leaders of the Coalition for a TB-Free NYC Education Working Group, we have been actively working on a document aimed at dispelling 10 common myths about TB, its transmission, and treatment. This resource is designed to be engaging, easy to understand, and accessible to a broad audience. We are currently moving the draft into the design phase and are excited to share the final version soon.

Stay tuned for updates as we continue our efforts to raise awareness for TB and fight stigma!

LATEST NEWS: SHOWCASING STORIES OF TB SURVIVORS

We at The Mueller Health Foundation continue to be deeply committed to sharing personal stories and giving a voice to TB patients, TB survivors, TB practitioners, and all the friends and family members of the people who have been affected by the disease. We are also proud to continue our support of our new HeroRat Tamasha, who has been trained by APOPO, a charity focused on training rats to detect TB in sputum samples across Africa. APOPO has put together a wonderful collection of success stories from TB survivors, and this month we would like to highlight Abdulrahman's story, a 25-year-old man living in Tanzania:

Abdulrahman, a truck driver, lives in Dar es Salaam with his wife and their three-month-old daughter. His job involves transporting heavy loads to neighboring countries, a demanding profession that requires physical fitness and alertness. Towards the end of his wife's pregnancy, he began experiencing severe health issues, including chest pain, joint soreness, exhaustion, and weight loss, making it impossible for him to work. Concerned about his health, he visited a clinic for a tuberculosis test, but when the results came back negative, he was left confused and uncertain about what to do next. With his wife unable to work and their livelihood at risk, he made the difficult decision to move to his father's house, fearing he might infect his family. While staying there, Abdulrahman received a call from APOPO, informing him that his sample had been sent to the APOPO lab, where trained rats had detected tuberculosis in his sample. With this new TB diagnosis, he immediately began treatment and saw a rapid improvement. Despite his recovery, he faced stigma from colleagues who feared they might contract the disease, with some even suspecting he had HIV. In Tanzania, misconceptions about tuberculosis and HIV are widespread, leading to social isolation and job loss due to stigma. Through APOPO, Abdulrahman learned that tuberculosis is curable and that individuals with HIV can live full and healthy lives with proper treatment. Reflecting on his experience, he acknowledges that he was once uninformed, but his journey not only restored his health but also deepened his understanding of these diseases. To read his full story, please follow the link here: https://apopo.org/what-we-do/detecting-tuberculosis/success-stories/abdulrahman/

For more news, please also take a look at our top 3 picks for **April** in this newsletter, where we highlight novel research findings and news about the prevention and treatment of tuberculosis around the world.

The Mueller Health Foundation

MHF TOP PICKS FOR APRIL

Every month, we at the Mueller Health Foundation like to showcase interesting news and updates in the field of tuberculosis (TB). Below are our top **3** picks for **April:**

1. New Study Reveals Potential Mechanism Behind Natural Resistance to Tuberculosis

A recent study co-led by researchers at The Research Institute of the McGill University Health Centre (RI-MUHC) has uncovered a potential mechanism behind natural resistance to Mycobacterium tuberculosis (Mtb), the bacterium responsible for tuberculosis. The research focused on individuals with HIV who, despite repeated exposure to Mtb, remained uninfected. The team analyzed alveolar immune cells from these individuals and discovered a significantly higher number of alveolar T cells, including cytotoxic T cells known to eliminate Mtb. This finding suggests a previously unrecognized immune defense mechanism occurring directly in the lung alveoli. This study is the first to examine alveolar immune responses in individuals naturally resistant to Mtb infection, offering a potential pathway to block TB transmission by focusing on preventing the initial infection rather than just the progression to active TB. The researchers plan to identify the specific T cell populations responsible for this resistance and explore methods to induce similar immune protection in others, aiming to develop new strategies to prevent TB infection before it begins. To learn more, you can access the research study at: https://doi.org/10.1172/jci188016

2. Lessons Learned from Early Implementation and Scale-up of Stool-Based Xpert Testing to Diagnose Tuberculosis in Children

The study examines the early adoption and scale-up of stool-based tuberculosis testing in nine countries. The World Health Organization (WHO) endorsed stool as an alternative diagnostic sample for children in 2020, addressing the challenge that young children often cannot produce sputum. The study analyzed data from 71,757 children tested over three years, with an overall TB detection yield of 4.1%. The implementation highlighted key benefits, such as ease of sample collection, reduced need for invasive procedures, and improved case detection, especially in decentralized healthcare settings. However, challenges included infrastructure limitations, equipment maintenance, and the need for healthcare provider training. The research underscores the importance of integrating stool-based testing into routine diagnostic workflows and calls for further investigation into optimizing testing methods, expanding accessibility, and addressing operational hurdles to maximize TB detection in children. To learn more, you can read about the study here: https://wwwnc.cdc.gov/eid/article/31/3/24-1580_article

3. Study Examines Outbreak Caused by Multidrug-Resistant Mycobacterium Tuberculosis with Unusual Combination of Resistance Mutations in Northern Argentina from 2006–2022

The study investigates an outbreak of multidrug-resistant tuberculosis (MDR-TB) in Chaco Province, Argentina. Researchers used whole-genome sequencing (WGS) to analyze 25 isolates from 12 patients, revealing a monophyletic strain (Ch strain) with unique resistance mutations, including dual mutations for rifampin and isoniazid. The outbreak likely originated in 2006 and spread within a hospital setting before reaching household contacts. Many patients faced delayed diagnosis and ineffective treatment, leading to a high mortality rate of 53%. The study highlights the role of genetic susceptibility, suboptimal treatment regimens, and inadequate healthcare responses in exacerbating transmission. It underscores the need for improved MDR-TB surveillance, early detection, and next-generation molecular diagnostics to prevent future outbreaks. You can read the full article here: https://wwwnc.cdc.gov/eid/article/31/3/24-1272_article

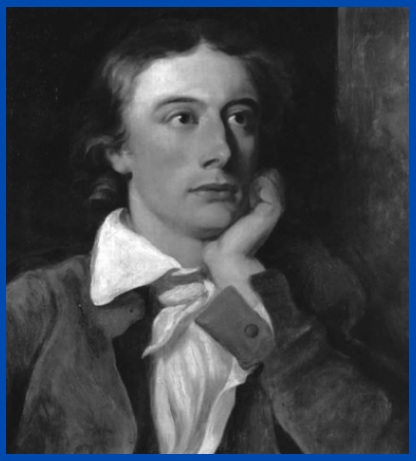
DID YOU KNOW?

In the mid-19th century, the celebrated poet John Keats fell victim to tuberculosis, the same disease that had claimed many of his family members.

By 1819, Keats, already plagued by financial struggles and personal loss, began experiencing the telltale signs of TB: persistent coughing, fever, and fatigue. A trained physician himself, he recognized the gravity of his condition when he first coughed up blood, famously remarking, "I know the color of that blood; it is arterial blood. I cannot be deceived by that color. That drop of blood is my death warrant."

Hoping that a warmer climate would ease his suffering, Keats left England for Italy in 1820, settling in Rome under the care of his friend Joseph Severn. Despite their efforts, his health rapidly declined, and he succumbed to tuberculosis at just 25 years old.

Keats' premature death cut short a poetic career of immense promise, but his work endured, influencing generations of writers. His story remains a poignant reminder of how tuberculosis shaped not only individual lives but also cultural and literary history, taking some of the world's greatest talents before their time.



Picture Source:
National Portrait Gallery, London

Information Source:
https://en.wikipedia.org/wiki/John_Keats
https://pmc.ncbi.nlm.nih.gov/articles/PMC4790579/