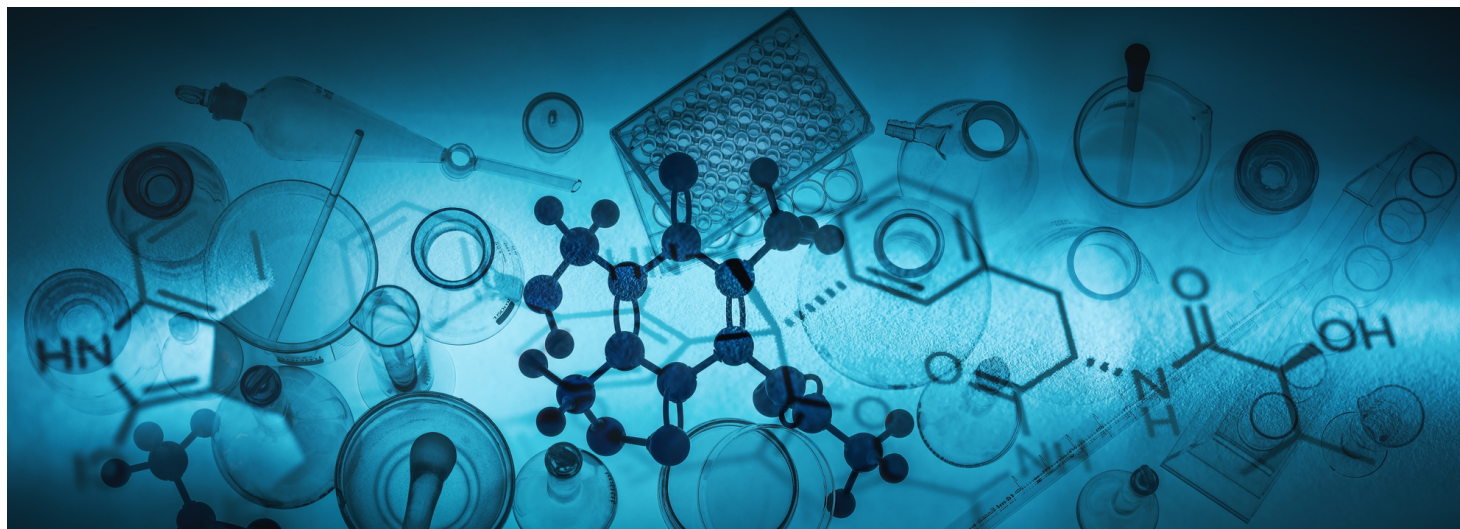


THE MONTHLY DOSE

Official Newsletter of The Mueller Health Foundation



WHAT'S NEW AT THE MUELLER HEALTH FOUNDATION:

At the Mueller Health Foundation, we believe effective tuberculosis care must extend beyond diagnosis and medication. TB can affect nearly every aspect of a person's life ranging from physical and mental health to employment, family responsibilities, nutrition, and financial security. Our philosophy is simple: **treat the person, not just the disease.**

Through our partnership with REACH in India, we put this philosophy into practice through people-centered programs that combine TB care with counseling, peer support, nutritional and transportation assistance, health education, caregiver engagement, and support navigating the health system. These services recognize that successful recovery often depends on addressing barriers that extend far beyond the clinic.

By listening to people affected by TB and continually evaluating their experiences and outcomes, MHF and REACH are working to advance care that is compassionate, responsive, and centered on the needs of individuals and their families.

Stay tuned for more updates!

LATEST NEWS: SHOWCASING STORIES OF TB SURVIVORS

We at The Mueller Health Foundation remain deeply committed to sharing personal stories and giving a voice to TB patients, TB survivors, TB practitioners, and all the friends and family members affected by the disease. We are also proud to continue our support of our 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, and this month, we would like to highlight Rahima's story:

Rahima, a 35-year-old mother of five living in Kolfe Keranyo, Addis Ababa, experienced a long and difficult journey to receiving an accurate tuberculosis diagnosis. Her symptoms began while she was pregnant with her youngest child, when she developed a loss of appetite, persistent weakness, and eventually a cough. Despite seeking care at a private hospital, where she underwent an ultrasound and X-ray, she was initially told that she had gastritis. It was not until a year after giving birth that Rahima was finally diagnosed with TB, with APOPO's trained HeroRATs helping to identify her disease. Initially frightened by the diagnosis and concerned about protecting her children, Rahima began treatment and gradually regained her strength. Her two youngest children received TB preventive therapy, and she took precautions at home to help protect her family. Throughout her illness, Rahima continued working as a street vendor selling small items such as socks, while her family also faced significant financial challenges. Although stigma made her reluctant to share her diagnosis widely, she now encourages others experiencing symptoms to seek testing and emphasizes the importance of completing treatment. Rahima successfully completed her TB medication approximately one year ago and was astonished to later learn that trained rats had played a role in detecting her disease. She describes feeling deeply grateful to APOPO and its HeroRATs and is eager to share her unusual diagnosis story with family and friends. Today, Rahima's greatest hope is for her children to have a better life and access to a good education. Her experience has also left her with a simple but important message for others: pay attention to your health and seek care when symptoms arise, because tuberculosis is treatable, but only once it is identified. To read Rahima's full story, please follow the link: <https://apopo.org/tb-detection-ethiopia-rahima/>

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

MHF TOP PICKS FOR SEPTEMBER

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 September:

1. New Study Suggests Higher TB Burden Among Men May Be Driven by Greater Exposure

New research suggests that the disproportionately high burden of tuberculosis among men worldwide may be driven more by a greater risk of becoming infected with *Mycobacterium tuberculosis* than by biological differences in progression from infection to active TB disease. Researchers analyzed data from 11 prospective cohort studies across sub-Saharan Africa, Europe, Asia, and South America, encompassing more than 22,000 participants. At baseline, 38.1% of males and 35.0% of females had TB infection, with males having a 12% higher likelihood of infection after adjusting for age. However, once infection status was taken into account, researchers found no significant difference between males and females in their risk of progressing to TB disease. While not assessed in the study, the findings suggest that factors influencing exposure, including social interactions, occupational environments, and behavioral risks, may contribute to the higher TB burden observed among men, although biological differences cannot be ruled out. The study highlights the importance of better understanding sex-specific patterns of TB exposure and suggests that prevention and screening strategies designed to reduce men's risk of infection may help narrow the persistent gender gap in global TB burden. To learn more, you can access the paper here: [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(26\)00399-8/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(26)00399-8/fulltext)

2. Researchers Uncover Hidden Function of Key TB Gene

Researchers at the Herbert Wertheim UF Scripps Institute have discovered an unexpected function of a gene in *Mycobacterium tuberculosis* that could deepen understanding of TB metabolism and potentially inform future drug development. The gene, rv2531c, was previously believed to encode an enzyme involved in producing polyamines, but researchers found that it instead converts the amino acid glutamate into GABA, a molecule involved in bacterial metabolism, signaling, and defense. Remarkably, the enzyme remains relatively inactive until reaching a threshold under stressful conditions, after which its activity increases dramatically. Similar enzymes are also found in pathogens responsible for diseases such as leprosy and malaria. The discovery suggests that even well-studied portions of the TB genome may have functions that remain poorly understood and highlights how uncovering these hidden metabolic pathways could reveal new opportunities for addressing drug resistance and developing more effective TB treatments. To learn more, you can access the article here: <https://www.pnas.org/doi/10.1073/pnas.2619778123>

3. Urine-Based LAM Assay Shows Promise for Diagnosing TB in Children

A new urine-based lipoarabinomannan (LAM) assay has demonstrated promising performance for diagnosing tuberculosis in children, a population in whom TB can be particularly difficult to confirm as young children may struggle to produce the sputum samples required for conventional diagnostic testing. The new assay detects LAM, a component of the *Mycobacterium tuberculosis* cell wall that can be found in urine, offering a non-invasive and easier-to-collect alternative to sputum-based testing. Researchers found encouraging diagnostic performance, particularly among children with microbiologically confirmed TB, highlighting the potential for more sensitive urine LAM technologies to help close the persistent pediatric TB diagnostic gap. Further validation will be needed, but the findings highlight the promise of simple, non-sputum-based diagnostics that could enable earlier TB detection and treatment among children, particularly in settings where obtaining high-quality respiratory samples and accessing advanced laboratory testing remain challenging. You can read the article here: <https://www.idse.net/Pediatric-Infections/Article/08-26/Urine-LAM-Assay-Shows-Promise-for-Pediatric-TB-Diagnosis/81364>

DID YOU KNOW?

Although tuberculosis is most commonly associated with humans, many other animals can also develop the disease. This includes livestock such as cows, wildlife, and companion animals such as dogs. A 2024 review in *The Veterinary Journal* highlights canine tuberculosis as an emerging concern and shows that dogs can become infected with members of the *Mycobacterium tuberculosis* complex. Here are some interesting facts about TB in dogs:

- Reported cases of canine TB have been caused by three members of the *Mycobacterium tuberculosis* complex: *M. tuberculosis*, *M. bovis*, and *M. microti*.
- Dogs can acquire TB through exposure to infected humans, livestock, or wildlife, making canine TB an important *One Health* issue connecting human, animal, and environmental health.
- TB in dogs can be difficult to recognize because clinical signs are often nonspecific and vary depending on which organs are affected. Disease may involve the lungs as well as other organs, including the liver and kidneys.
- Diagnosis can also be challenging. While mycobacterial culture remains an important diagnostic method, results can take considerable time and testing may have limited availability. Molecular tests such as PCR and immunological approaches such as interferon-gamma release assays (IGRAs) can provide complementary diagnostic options.
- Pulmonary disease is the most frequently reported presentation in dogs. In a review of 583 confirmed canine TB cases, 44.1% were classified as primarily pulmonary, while 14.5% were primarily abdominal; other dogs experienced disseminated or less common manifestations of disease.
- Despite these challenges, canine TB can sometimes be successfully treated. Research found that among 13 dogs treated by the study authors with triple antimicrobial therapy, 12 (92%) had a good clinical outcome, although treatment decisions require careful consideration of both veterinary and public health factors.
- Canine TB has been recognized for more than a century, but researchers describe it as an emerging concern. Because confirmed cases are reported only sporadically and diagnosis can be difficult, continued awareness among veterinarians is important for recognizing potential infections and managing their animal and public health implications.

Growing recognition of TB disease in dogs emphasizes an important lesson: TB is not solely a human health issue. Understanding how TB can affect and move between humans and animals reinforces the value of a *One Health* approach to tuberculosis prevention, detection, and control.

Information Source:
<https://www.sciencedirect.com/science/article/pii/S1090023324000509>