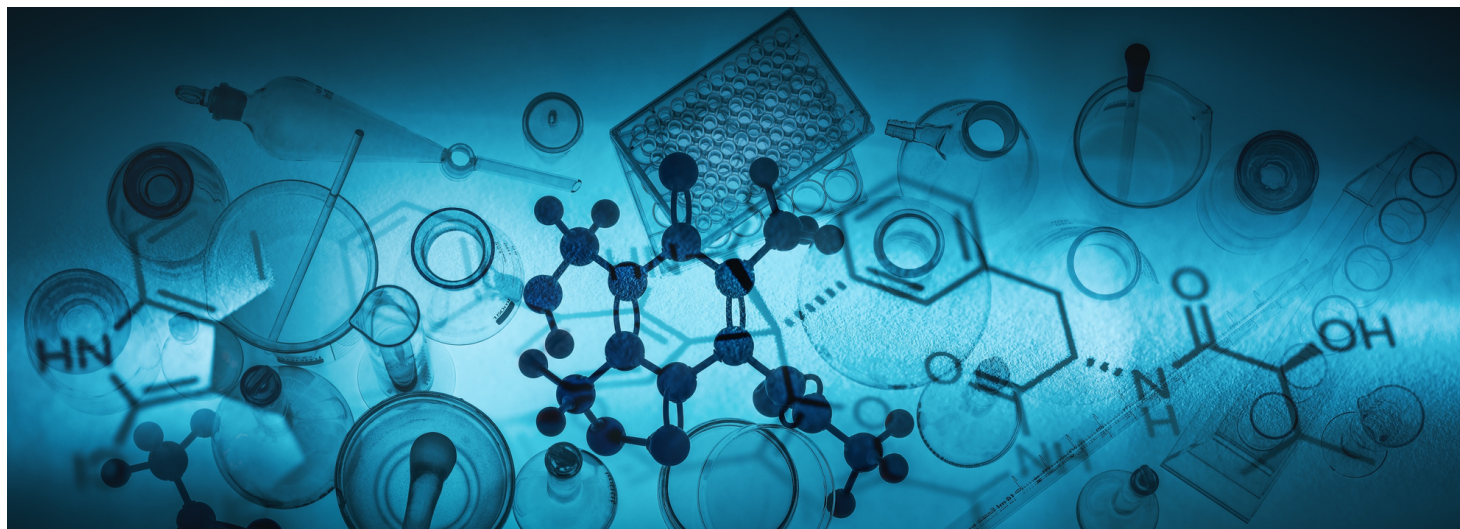


THE MONTHLY DOSE

Official Newsletter of The Mueller Health Foundation



WHAT'S NEW AT THE MUELLER HEALTH FOUNDATION:

At the Mueller Health Foundation, we are proud to continue supporting our partnership with REACH in India, where innovative, community-centered initiatives are helping raise awareness about tuberculosis while reducing stigma and promoting earlier access to care.

Last month, REACH organized a large-scale screening and awareness campaign in recognition of World Hypertension Day at the Nakshatra Centers and the Koyambedu Market, one of the largest wholesale markets in Southern India. The initiative provided screening for TB, diabetes, hypertension, and random blood sugar (RBS), ultimately reaching 1,596 individuals through health education, screening services, and referral linkages for follow-up care. As part of the campaign, REACH also launched the "One Sticker – One Promise" initiative, encouraging participants to commit to a positive lifestyle change aimed at improving their long-term health and wellbeing.



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 Hajera's story, who is a TB laboratory technician for APOPO:

Although Hajera has not personally experienced tuberculosis, she plays a vital role in helping patients receive accurate diagnoses and access treatment through APOPO's TB detection program in Addis Ababa, Ethiopia. Originally from Mizan Teferi, Ethiopia, and now a mother of four, Hajera has worked with APOPO since 2017 and currently serves as a laboratory technician supporting the organization's innovative TB detection efforts. Before joining APOPO, she worked in a private clinic after beginning her career as a laboratory assistant, an experience that inspired her to formally study laboratory technology. She first learned about APOPO through a relative connected to the Armauer Hansen Research Institute and was initially surprised by the organization's use of trained rats for TB detection. Despite her initial hesitation, she traveled to Morogoro, Tanzania, for specialized training. It was her first time leaving the country, and it was a difficult experience because she had to leave behind her one-year-old child. Over the years, Hajera progressed from rat handler to laboratory technician, where she now supports sample reception and GeneXpert analysis to confirm TB-positive indications identified by the rats. She takes great pride in contributing to a program that combines science and innovation to help identify missed TB cases and strengthen access to lifesaving care in her community. To read Hajera's full story, please follow the link: <https://apopo.org/lab-technician-ethiopia-hajera-apopo-story/>

For more news, please also take a look at our top 3 picks for **June** 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 JUNE

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 **June**:

1. Experimental mRNA TB Vaccines Show Promise in Early Preclinical Studies

Researchers recently developed and tested two experimental mRNA-based tuberculosis vaccines, known as BNT164a1 and BNT164b1, that may represent a new approach to TB prevention. Similar to the mRNA technology used in some COVID-19 vaccines, the candidates were designed to train the immune system to recognize multiple proteins from *Mycobacterium tuberculosis* across different stages of infection. In preclinical studies involving mice and rats, both vaccine candidates generated strong immune responses, including activation of T-cells and antibody production, while also demonstrating favorable safety profiles. Importantly, vaccinated animals showed significantly lower bacterial burdens after exposure to TB compared to unvaccinated animals. Researchers also observed increased infiltration of specialized immune cells into lung granulomas, suggesting the vaccines may help strengthen protective immune responses against TB infection. Although the findings are still limited to animal models, the results are encouraging and highlight the growing potential of mRNA technology in the fight against tuberculosis. The vaccine candidates have now advanced into early phase 1/2 clinical trials to further evaluate safety and immune response in humans. To learn more, you can access the paper here: <https://www.nature.com/articles/s41590-026-02545-z>

2. Influenza Infection May Weaken the Body's Ability to Control Tuberculosis

A recent study suggests that influenza infection may temporarily weaken the immune system's ability to control tuberculosis, potentially increasing the risk of progression to active disease. Using a human influenza challenge model, researchers infected healthy adult volunteers with Influenza A (H3N2) and then examined how their blood responded to mycobacterial infection before and after influenza exposure. The study found that following influenza infection, immune cells were significantly less effective at restricting mycobacterial growth. Researchers also identified important changes in immune signaling pathways, particularly involving type I interferon responses and other innate immune mechanisms that are normally involved in controlling TB infection. Many genes that were initially activated during influenza infection later showed reduced responsiveness when exposed to mycobacteria, suggesting that influenza may disrupt the body's normal anti-TB immune defenses. The findings provide new human evidence supporting earlier epidemiological and animal studies that linked influenza coinfection with increased TB susceptibility. Researchers noted that the study highlights the complex interactions between respiratory infections and suggests that influenza vaccination could potentially play an additional role in protecting vulnerable populations from TB disease progression. To learn more, you can access the study here: <https://www.nature.com/articles/s41467-026-72363-2>

3. Asymptomatic Tuberculosis Patients May Still Spread TB, Study Finds

A recent study from eastern China suggests that people with tuberculosis who have few or no recognizable symptoms may still be capable of transmitting the disease to others. Researchers examined more than 1,000 household contacts of TB patients and compared rates of TB infection exposure between contacts of symptomatic and asymptomatic individuals using QuantiFERON and ESAT6-CFP10 immune-based testing. Surprisingly, the study found that contacts of asymptomatic TB patients had similar rates of infection exposure compared to contacts of symptomatic patients, and both groups had substantially higher rates than unexposed community controls. Researchers noted that a significant proportion of TB patients in the study reported no symptoms, no cough, or no prolonged cough despite evidence of active disease on imaging and laboratory testing. The findings challenge the long-standing assumption that coughing is required for TB transmission and suggest that even minimally symptomatic individuals may contribute meaningfully to ongoing community spread. Investigators believe the results highlight the limitations of symptom-based screening strategies alone and underscore the potential importance of broader TB screening and earlier detection approaches, particularly in high-burden settings. You can read the paper here: <https://www.nature.com/articles/s41467-026-73707-8>

DID YOU KNOW?

Tuberculosis not only affects humans, but can also infect cattle and a wide range of wildlife species. Bovine tuberculosis (bovine TB), primarily caused by *Mycobacterium bovis*, is a closely related member of the same bacterial family that causes TB in humans. Some interesting facts about bovine TB include:

- Cattle are the primary hosts of *Mycobacterium bovis*, but the bacteria can also infect deer, badgers, bison, elephants, lions, buffalo, possums, and many other animal species.
- Humans can occasionally contract bovine TB through consumption of unpasteurized milk or dairy products from infected animals, or through close occupational exposure in farming or veterinary settings.
- Before widespread milk pasteurization, bovine TB was a major public health problem and caused serious illness, especially among children. Pasteurization became an important intervention partly because it dramatically reduced transmission of TB through contaminated dairy products.
- Unlike typical human TB, bovine TB in humans more commonly affects areas outside the lungs, including the lymph nodes, bones, intestines, and kidneys.
- Many countries conduct routine TB testing in cattle herds to identify infected animals and prevent spread within livestock populations.
- Wildlife reservoirs can make bovine TB control particularly challenging. In some regions, species such as badgers in the United Kingdom or possums in New Zealand can contribute to ongoing transmission between wildlife and cattle.
- Bovine TB has important economic consequences for farmers and agricultural systems due to livestock losses, trade restrictions, and disease control measures.
- Researchers continue to study improved diagnostics, cattle vaccines, and wildlife management strategies to better control bovine TB globally.

The relationship between tuberculosis, livestock, wildlife, and human health highlights the importance of coordinated disease surveillance and prevention efforts across both medical and veterinary fields.

Information Source:
CDC: <https://www.cdc.gov/tb/about/m-bovis.html>
WHO: https://www.who.org/fileadmin/Home/eng/Media_Center/docs/pdf/Disease_cards/BOVINE-TB-FN.pdf
NIH: <https://pubmed.ncbi.nlm.nih.gov/8073623/>