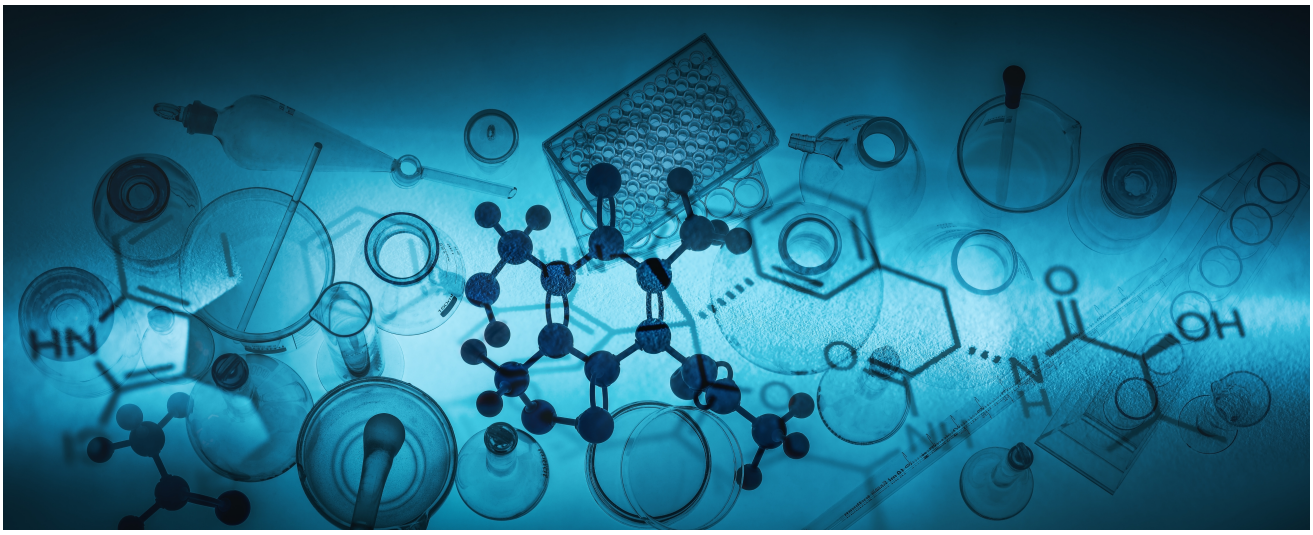
VOLUME 1, ISSUE 4, JUNE 2021

THE MONTHLY DOSE

Official Newsletter of The Mueller Health Foundation



LATEST NEWS:
CELEBRATING THE LITTLE TB HEROES

PICTURE SOURCE:
APOPO HERO RATS. WWW.APOPO.ORG

TB heroes come in all shapes and sizes. This month we would like to spread some joy and celebrate the African giant pouched rat, a species endemic to sub-Saharan Africa. Thanks to the efforts of the non-profit organization APOPO, these rats have found a new purpose and now happily live and work in Morogoro, a few hundred kilometres west of Tanzania's largest city, Dar es Salaam. What is especially unique is that these rats are engaged in a program to sniff out tuberculosis. The little rodent heroes participate in the program by sniffing cough-and-spit samples provided by suspected TB patients. And it turns out, these little furry researchers might soon be awarded employee of the months awards as they detect about 70% of cases. They do this regardless of whether or not a patient has HIV, which makes an important difference in Tanzania, where about four in every 10 people with TB are HIV-positive. If you would like to learn more about these heroic little rats, please visit: www.apopo.org.

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 around the prevention and treatment of tuberculosis around the world.

The Mueller Health Foundation

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. Below are our top **3** picks for **June**:

1.New Blood Test Helps to Identify Tuberculosis in Infants

More than 80% of childhood TB deaths occur in those under the age of 5. Most of these deaths occur because their disease is undiagnosed as children with TB, particularly infants, usually have symptoms that are not specific for the disease. These children also have difficulty producing the respiratory samples used for TB detection by tests now in use. Non-sputum methods are urgently needed to improve tuberculosis diagnosis and treatment monitoring in children. The new test's assay uses a small blood sample that can be easily obtained from children of any age to detect a specific protein (CFP-10) that the bacteria secrete to maintain the infection that develops into TB. The researchers found that their test identified children diagnosed with TB by the current gold-standard TB tests with 100% accuracy. The assay also detected 83.7% of TB cases that these tests missed, but that were later diagnosed by a standard checklist employing an array of other information collected by each child's physician (unconfirmed TB cases).
You can access the full article at:
https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-021-01983-w

2. Study Discovers Harmful Inflammatory Protein in Patients with Symptomatic Tuberculosis

A pioneering study by UCL scientists has discovered the presence of a harmful inflammatory protein in patients with symptomatic tuberculosis (TB). Researchers say, by targeting the IL-17 cytokine, a component produced naturally by the immune system in response to infection, excessive and damaging lung inflammation caused by TB may be significantly reduced to help speed up patient recovery.
Read the full article here: https://www.news-medical.net/news/20210510/Study-discovers-harmful-inflammatory-protein-in-patients-with-symptomatic-tuberculosis.aspx

3. New Inhibitors May Offer Novel Approach in Treating TB

Purdue researchers developed a series of small molecule inhibitors to target one of the proteins critical for the survival of TB in infected macrophages. Protein tyrosine phosphatase B (mPTPB) is a virulence factor of TB to subvert the host immune responses. The inhibitors' properties also make them promising drug candidates. They possess lighter molecular weights, excellent metabolic stability and bioavailability to provide a starting point for further therapeutic development for use as TB treatments.
To learn more, read the full paper here:
https://pubs.acs.org/doi/10.1021/acs.jmedchem.0c00302?ref=pdf&#

DID YOU KNOW?

This month, we would like to highlight some interesting statistics related to children and tuberculosis.

- **According to the WHO, an estimated 1.2 million children develop TB each year, and approximately 250,000 children die annually.**
- **A 2016 study estimated that 67 million children have latent TB.**
- **70-80% of children with TB disease have the disease in their lungs (pulmonary TB). The rest are affected by TB disease in other parts of their body.**
- **It is estimated that more than 30,000 children become sick every year with strains of multidrug-resistant (MDR-TB) for which there are limited treatment options.**
- **Children with TB rarely die when they receive standard treatment for the disease, but 90 percent of children who die from TB worldwide go untreated.**

Source:
TB Facts: ***TB in Children***
https://tbfacts.org/tb-children/