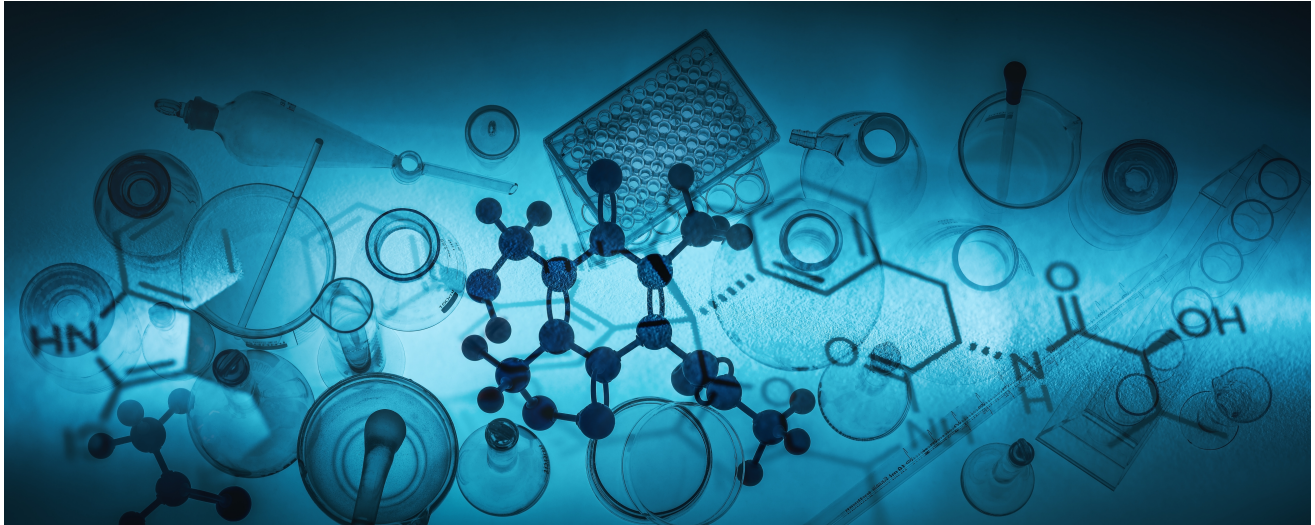


# THE MONTHLY DOSE

Official Newsletter of The Mueller Health Foundation



## WHAT'S NEW AT THE MUELLER HEALTH FOUNDATION:

We are continuing to work hard together with our team at Boston Children's Hospital Precision Vaccines Program (PVP) on the development of new RNA vaccines against tuberculosis. It is our hope to have at least one vaccine candidate ready for an Investigational New Drug Application (IND) in 2024.

Stay tuned for more updates!

## LATEST NEWS: HAPPY 100TH BIRTHDAY TO THE BCG VACCINE

July 2021 marks the one hundredth year of the administration of the first dose of the BCG vaccine to humans. BCG is named after its inventors Basil de Colmet et Gurin, Dr. Albert Calmet and veterinarian Camille Gurin. The vaccine was invented at the Institut Pasteur de Lille in France and it took the inventors about 20 years to make the vaccine. Because they wanted to make the BCG vaccine available to as many people as possible, the scientists did not file a patent for their invention. The BCG vaccine is effective only at preventing certain severe forms of TB in children (TB meningitis and disseminated TB); it is unfortunately ineffective at preventing the most common form of TB, such as pulmonary TB, in adults. But despite these serious limitations, it remains the only TB vaccine in use to this day, a century after its introduction. While 14 TB vaccine candidates are in trials as of August 2020, only two are in Phase 3 and there is a significant need for continued research and funding to develop improved and novel TB vaccines.

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

# MHF TOP PICKS FOR JULY

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 July:

## 1. Tuberculosis: The Forgotten Pandemic

Nowadays, BCG is given to more than 100 million babies each year, primarily in the developing world, and saves tens of thousands of lives. But it provides incomplete protection, and TB remains the number one infectious killer on the planet. It is estimated to have wiped out 1 billion people in the past 200 years, including 1.4 million in 2019 alone. Although BCG is currently the only available TB vaccine, researchers have for decades been working to develop a better option. And after trialing dozens of approaches, with a handful of clinical failures, those in the field express hope that a second vaccine is close to its market debut.

You can access the full article at: <https://www.the-scientist.com/features/tuberculosis-the-forgotten-pandemic-68894>

## 2. TAG- Tuberculosis Preventive Therapy Pipeline Report 2020

The Treatment Action Group's (TAG) annual review provides an overview of research and development of innovations for diagnosing, preventing, treating, and curing of tuberculosis. Some of the most exciting advances in TB preventive therapy in the past two years have come from secondary analyses (of P1078 and BRIEF-TB), pharmacokinetic investigations (P2001), drug-drug interaction studies (DOLPHIN), biomarker research (CORTIS), pediatric studies (TiTi), and studies evaluating the durability of newer TPT regimens (WHIP3TB). Read the full article here:

[https://www.researchgate.net/publication/345312682\\_Tuberculosis\\_Preventive\\_Therapy\\_Pipeline\\_Report\\_-\\_2020](https://www.researchgate.net/publication/345312682_Tuberculosis_Preventive_Therapy_Pipeline_Report_-_2020)

## 3. Nano-Patch Smells Skin to Detect Tuberculosis

A team of Israeli scientists report on a new diagnostic pathway enabling a noninvasive, fast, and highly accurate way of detecting TB. The approach relies on TB-specific volatile organic compounds (VOCs) that are detected and quantified from the skin headspace. A specifically designed nanomaterial-based sensors array translates these findings into a point-of-care diagnosis by discriminating between active pulmonary TB patients and controls with sensitivity above 90%. This fulfills the WHO's triage test requirements and poses the potential to become a TB triage test.

To learn more, read the full paper here:

<https://onlinelibrary.wiley.com/doi/full/10.1002/adv.202100235>

## DID YOU KNOW?

This month, we would like to highlight some interesting statistics comparing COVID-19 and TB vaccine milestones.

### Year Causative Pathogen Identified:

COVID 19: 2019

Tuberculosis: 1882

### Year First Vaccine Developed:

COVID 19: 2020

Tuberculosis: 1921

### Number of Vaccine Candidates:

COVID 19: 109

Tuberculosis: 14

### Number of Vaccines Approved:

COVID 19: 14

Tuberculosis: 1

### Estimated Annual Deaths in 2020:

COVID 19: ~1.7 million

Tuberculosis: ~1.8 million

### Global Funding Invested in Vaccine Development (Billion US):

COVID 19: 8.5

Tuberculosis: 0.12

Source:

<https://www.healthaffairs.org/doi/10.1377/hblog2.0210503.703348/full/>