

DBT/ Translational Health Science and Technology Institute

“Small” molecules to take on the Goliath Tuberculosis

By Sunderarajan Padmanabhan

New Delhi, February 24. Dr. Ramandeep Singh and his team from THSTI in partnership with Laboratoire de Chimie Biologique Structurale (CBS), Namur Medicine and Drug Innovation Center (NAMEDIC), Namur Research Institute for Life Sciences (NARILIS), University of Namur (UNamur), Belgium are working to identify small molecules that have a novel mechanism of action and are active against TB causing drug resistant bacteria.

SerB2 is an enzyme that plays a significant role in the serine (an amino acid) biosynthesis pathway of *Mycobacterium tuberculosis*, the TB causing pathogen. SerB2 has been targeted by researchers working on developing TB therapeutics as it enables the pathogen to invade the host cells and thrive inside them.

The two teams recently published results of their work aimed at repurposing small molecules from an in-house library of chemicals and assess them for their ability to inhibit the enzyme SerB2. The screening of the chemicals in the library showed that molecules derived from harmine, which is also obtained from *Peganum harmala*, inhibited SerB2. The team from THSTI performed the *in vitro* MIC99 determination and killing experiments at THSTI's TB research laboratory. MIC, expanded as the **Minimum Inhibitory Concentration** of a chemical is its minimum concentration required to prevent growth of the pathogen. In this case, MIC was calculated by assessing the bactericidal activity of the proposed drug inhibitor against the pathogen. The article published by the journal *Molecules* is available for Open Access at <https://www.mdpi.com/1420-3049/25/2/415>.

Eyeing the World Health Organization's mission of a TB-free world by 2035, let's just hope the small molecules do successfully take on the Goliath that TB has been for years.

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