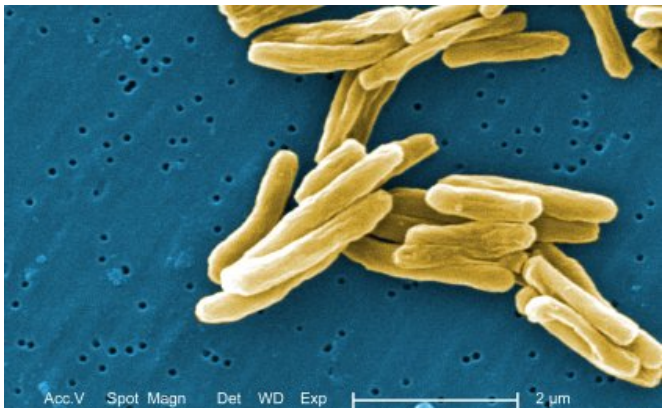
Promising new method inhibits TB–causing bacteria

5 April 2016



Scientists at the The University of Queensland and the University of California San Francisco have found a new way to inhibit the growth of the bacterium that causes tuberculosis (TB).

UQ School of Chemistry and Molecular Biosciences Deputy Head Professor James De Voss said the discovery held promise for the development of treatments.

The research team, led by Professor Paul Ortiz de Montellano in the US, investigated the impact of compounds related to cholesterol on the tuberculosis-causing bacterium Mycobacterium tuberculosis. Cholesterol is known to affect the virulence and infectivity of TB.

"What Paul's team and our team have shown is that if you give this bacterium modified cholesterol instead, then it can't use it as its energy source and so it stops growing, "Professor De Voss said.

"Interestingly, we don't quite understand why this happens.

"Our discovery suggests a new way in which we can robustly inhibit growth of the TB bacterium."

TB is a highly infectious lung disease that kills one person every 21 seconds.

There were 9.6 million new cases of TB in 2014, resulting in 1.5 million deaths.

One in three people globally is infected with TB, with the bulk of the disease burden falling on developing countries.

Professor De Voss said the scale of the threat, compounded by the emergence of increasingly drug-resistant strains of bacteria, meant it was vital to find new ways to combat tuberculosis.

The team at UQ, including postdoctoral research fellow Dr Siew Hoon Wong, was responsible for synthesising inhibitors of the enzymes used to modify the cholesterol by M. tuberculosis.

More information: Daniel J. Frank et al. Cholesterol Analogs with Degradation-resistant Alkyl Side Chains Are Effective Growth Inhibitors , *Journal of Biological Chemistry* (2016). DOI: 10.1074/jbc.M115.708172

Provided by University of Queensland