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Biomarker signature found for TB infection

A group of leading Australian researchers have uncovered a unique blood-based biomarker signature in individuals infected by tuberculosis (TB).

The presence of the biomarker signature, found through a simple blood test, allows individuals with infectious TB—including those with non-symptomatic early-stage disease—to be easily identified and treated.

The finding, reported in the *Journal of Infection*, could be key in supporting health efforts to control and eventually eliminate the TB epidemic which is responsible for approximately 1.5 million deaths each year globally.

“A major issue in controlling the spread of tuberculosis is the difficulty of detecting the disease quickly and effectively, particularly in developing countries and in remote areas where technology and testing facilities may be limited,” says lead author of the study, Dr Jennifer Ho from the Centenary Institute and the Woolcock Institute of Medical Research

“Sputum smear microscopy is the test used to diagnose TB in the majority of endemic settings but it is unable to pick-up TB in its early stages which prevents timely diagnosis and treatment.”

“Also problematical are individuals with latent TB who possess no physical sickness or symptoms,” she says. “Unaware they are infected, these individuals can become TB spreaders if their disease progresses at some point to an active state.”

Dr Ho notes that it is estimated that over 3.3 million cases of active TB are undetected annually, contributing to the uncontrolled spread of TB.

“Our biomarker discovery could be used as the basis for a highly effective and simple diagnostic blood test to help detect these prevalent cases of TB in the community,” she says.

Professor Warwick Britton, Head of the Centenary Institute’s Tuberculosis Research Program and senior researcher on the project says that active TB case finding, including systematic screening of high risk groups, will be required to dramatically reduce TB incidence worldwide.

“Early case detection and appropriate treatment is absolutely critical to getting on top of this highly infectious disease,” he says. “Our research offers up an exciting new approach to help realise the ambition of global TB elimination.”

The research was a collaboration between scientists at the Centenary Institute, the Woolcock Institute of Medical Research, University of Sydney, UNSW Sydney and University of Technology Sydney.

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Publication: A Transcriptional Blood Signature Distinguishes Early Tuberculosis Disease from Latent Tuberculosis Infection and Uninfected Individuals in a Vietnamese Cohort. Journal of Infection.

<https://www.sciencedirect.com/science/article/pii/S0163445320302218>

Images:

Professor Warwick Britton – https://drive.google.com/file/d/1ZapxJp-UNFRj5bWJso9bk95_D1TP9rCd/view?usp=sharing

Dr Jennifer Ho –

https://drive.google.com/file/d/1Xkd8IY37DaAbNnz0RWnDdvSm05NF4I_x/view?usp=sharing

Blood sample image – https://drive.google.com/file/d/1t0EA477UoqD-YI4ygkTvQRh9_fTaSOZJ/view?usp=sharing

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About the Centenary Institute

The Centenary Institute is a world-leading independent medical research institute, closely affiliated to the University of Sydney and the Royal Prince Alfred Hospital. Our research focuses on three key areas: cancer, inflammation and cardiovascular disease. Our strength lays in uncovering disease mechanisms and applying this knowledge to improve diagnostics and treatments for patients.

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