

MEDIA RELEASE

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Flu-based vaccine helps protect against deadly tuberculosis

Scientists are a step-closer to developing a more effective vaccine against the world's deadliest infectious disease, following a breakthrough involving researchers from the Centenary Institute in Sydney. The group has demonstrated how an Influenza A-based vaccine can be used to activate immune cells in the lungs, and in turn, help protect against tuberculosis.

While Australia is considered a low-risk country, tuberculosis remains a serious threat worldwide, particularly in our immediate region. In 2016, 10.4 million people were diagnosed with the disease globally and 1.7 million people died as a result. Tuberculosis is the single most deadly infectious disease, and more than 50 per cent of cases occur in the Asia Pacific region. Due to our low-risk status and high health-care standards, Australia has been pinpointed as one of the countries best placed to eliminate tuberculosis entirely.

Currently, a vaccine known as "BCG" is given to babies and young children to immunise them against tuberculosis. However, its immunity wanes after about 15 years, meaning it is largely ineffective in adults.

A collaboration of Centenary's researchers, including those from the NHMRC Centre for Research Excellence in TB Control and the Liver Immunology Program, have been working to solve this exact problem. In a study published in the scientific journal *Mucosal Immunology*, the group has demonstrated how a sub-unit vaccine (based on the Influenza A virus) can be used to activate special memory T-cells in the lungs, which in turn, helps protect against tuberculosis.

Head of Centenary's Tuberculosis Research Program, Professor Warwick Britton, believes the study has led to a significant breakthrough in the quest to eliminate tuberculosis.

"This research has been five years in the making. Previously TB vaccines were given by injection, but delivery of the vaccine to the lung may provide improved protection. In this study we proved that immunisation of the lungs with an Influenza-based vaccine stimulated memory T cells in the lungs that were able to protect against virulent TB infection. We are already using this breakthrough to develop other sub-unit vaccines, suitable for delivery to the lungs in humans," says Professor Britton.

It's hoped the ongoing research will be bolstered by those on-the-ground in regions with a high prevalence of TB. Dr Heni Muflihah was able to work on the project as a PhD student at Centenary in Sydney, thanks to funding provided by the Australian Government. She has since returned to her native Indonesia, where she will be able to continue contributing to TB research in the field.

To arrange an interview, please contact: Centenary Institute Media and Communications Manager, Laura Parr, l.parr@centenary.org.au, 0435 530 537

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