

# Uncovering new treatments for drug-resistant tuberculosis

June 17 2016, by Alex Mcalpin

---

For most Australians tuberculosis is a disease of yesteryear, but leading immunologists from UTS and India's Jawaharlal Nehru University (JNU) are partnering to combat what they call a future health crisis.

"Right now, irrespective of socio-economic status, almost every country is under threat from [drug-resistant tuberculosis](#)," says Professor Gobardhan Das, a world expert in tuberculosis from JNU.

"As we are discovering new antibiotics, tuberculosis is mutating much faster. The World Health Organisation estimates that if we don't deal with drug-resistant tuberculosis right now, by the year 2035 almost all patients will have the drug-resistant strain."

Professor Das joined UTS's Professor Bernadette Saunders during a recent two-week visit to UTS under the Key Technology Partnership (KTP) Visiting Fellows Program.

The pair is looking for new ways that the UTS School of Life Sciences' Parasites, Microbes and Host Immunity Team and JNU's Special Centre for Molecular Medicine can collaborate on tuberculosis research.

During the visit, Das and Saunders laid the groundwork for their first joint research paper and began testing new bio-markers that could unlock the secrets to improving tuberculosis diagnostics and treatments.

"Tuberculosis is a very slow growing bug and it's very hard to kill. Basic

treatment for tuberculosis is at least six months long, and if you have the drug-resistant strain it's 18 months to two years," says Professor Saunders.

"It's very challenging to diagnose whether a patient has regular tuberculosis or the drug-resistant version and whether the patient is responding to the treatment and what dose of treatment we should give," says Professor Das.

"If we can find a bio-marker to show us how someone is responding, we can develop targeted treatments and alternative strategies that minimise drug-resistance."

The KTP agreement between UTS and JNU has allowed Das and Saunders to forge a close cross-institutional working relationship over the past twelve months.

The pair has finalised a grant application to Australia's National Health and Medical Research Centre that will enable them to undertake trials on tuberculosis patients in Australia and India.

"We want to see whether the bio-marker that we've started to develop works in different populations. The testing we've done so far has been in China, now we want to look at doing similar trials in Australian and Indian populations," says Professor Saunders.

"We want to understand how the molecules that we've identified within that biomarker work. It's possible that if we understand more about those molecules that they themselves may be good targets for future drug targeting for new therapies against tuberculosis."

Today, tuberculosis is most prevalent in India and China where extreme population density, low socio-economics and genetic susceptibility

escalate the risk of contracting the disease.

But tuberculosis is still a global public health concern and is a present risk in Australia.

"Tuberculosis still kills about a million-and-a-half people a year and about 10 million people get critically ill with the disease every year," says Professor Saunders.

"The biggest risk factor for contracting tuberculosis is having lived in an endemic country. We're a very mobile society now so we see migrants and people who go overseas to work for a couple of years bringing the infection with them."

The pair believes that international collaboration is essential in tuberculosis research. They look forward to strengthening their research ties with more opportunities for student and faculty exchange as well as joint-supervised higher research degrees.

"We may be able to have joint PHD students that will spend a year or two in each of our laboratories, that will be a great way to facilitate our research," says Professor Saunders.

"When we research collaboratively, we can translate our findings for human use much faster," says Professor Das.

"Unlike countries, [tuberculosis](#) doesn't have any boundaries; it's all over the world. We have to unite to win against this bug. UTS has a zeal for scientific research – that is why we like to do things together. My visit has opened the gate for our future collaborations."

Provided by University of Technology, Sydney

Citation: Uncovering new treatments for drug-resistant tuberculosis (2016, June 17) retrieved 25 April 2024 from

<https://medicalxpress.com/news/2016-06-uncovering-treatments-drug-resistant-tuberculosis.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.