

Help STOP TB

World TB Day 24 March



Centenary Institute joins the TB Research Movement – launched by the Stop TB Partnership and the World Health Organization (WHO) – in a collaborative strategic effort to stimulate, support and expand research to ensure the global elimination of tuberculosis by 2050.



Quick facts about TB

- ▶ TB is a contagious, airborne infectious disease caused by the bacteria *Mycobacterium tuberculosis*.
- ▶ One in three people in the world are infected with the TB bacteria. Of these 10% will get sick and every 20 seconds someone will die of TB.
- ▶ Although weakened immune systems and genetic risks all contribute – scientists don't fully understand why 10% of people get sick with TB.
- ▶ TB is treated with a course of four antibiotics. These 'first line' drugs must be taken for 6-9 months.
- ▶ If these drugs are not taken as prescribed, multidrug-resistant TB (MDR-TB) can develop.
- ▶ This requires 'second line' drugs that are expensive, less effective and have more side-effects.
- ▶ Extensively drug-resistant TB (XDR-TB) can develop when people can't access or stop treatment with second-line drugs and this is virtually untreatable.
- ▶ South-East Asia has one of the world's fastest growing rates of TB and in Papua New Guinea the rate has increased by 42% in the last decade and is growing.
- ▶ TB is among the three main causes of death in women aged 15-44 years globally.
- ▶ Exposure to TB becomes greater with increased travel and work in countries with a high occurrence of TB.

Why is TB research critical and why should you join the fight to Stop TB

- ▶ Basic diagnosis of TB has not changed for more than a century.
- ▶ The current vaccine, which is over 90 years old, is grossly inadequate and a more effective vaccine is urgently needed.
- ▶ The drugs used to treat TB have not changed in more than 50 years and are now less effective.

A History of TB

3500 B.C.

Oldest known example of TB found in an Egyptian mummy

1851

1 in 4 people die of TB in Europe and America

1880

3000 Australians die of TB

1882

Dr Robert Koch discovers TB is caused by an organism, *Mycobacterium tuberculosis*. His achievement is marked by World TB Day on 24 March

1921

First human testing of BCG vaccine

1935

Britain introduces pasteurised milk and reduces spread of TB from cattle to humans

1944

First patient successfully treated with new drug 'Streptomycin'

1948

National TB Campaign is established in Australia and BCG vaccination introduced

Centenary Institute supports the largest TB research group in Australasia. Our scientists are part of a global effort to bring tuberculosis under control.

Meet Centenary's TB Scientists



Professor Warwick Britton

Head, Mycobacterial Group

A clinician and recognised international authority on the immunology of infectious diseases, Professor Britton established a lab in 1986 in Nepal to study the immune responses to leprosy. He has been at Centenary since 1990 studying the immune response to TB and new vaccine strategies. Professor Britton is passionate about improving health care in resource-poor countries.

"Seeing people waste away from tuberculosis is heartbreaking. Tackling TB at a global level is an enormous undertaking but it is not impossible."



Dr Nick West, PhD

Group Leader, Vaccine Development and Pathogenesis, Mycobacterial Group

Dr West and his team are focused on developing new therapies and control measures for TB. They discovered a protein essential to the survival of the TB bacteria and have designed a new drug to shut that protein down, which could result in a cure for TB in its early stages.

"What is really needed in the fight against tuberculosis is effective vaccines to protect the young, and drugs to cure the sick. Improvements in both of these aspects are urgently needed"



Dr Bernadette Saunders, PhD

Group Leader, Host Response to Infection, Mycobacterial Group

With extensive experience investigating the immunology, pathology and genetics of TB, Dr Saunders researches the relationship between genetic susceptibility and immunity in TB patients. Dr Saunders is on the hunt for new TB therapies.

"We expect our research to lead to a test which will identify children or adults with a high risk of developing active TB. This means we could treat people before they infect family and friends, or suffer serious illness."



Dr Greg Fox

PhD Scholar and Project Coordinator, Mycobacterial Group, National Lung Hospital, Vietnam

Dr Fox is a respiratory physician currently researching TB in Vietnam. He is working with Professor Marks of the Woolcock Institute for Medical Research and with Professor Britton and Dr Saunders to collect blood samples from patients to look for genes that either protect people from TB or explain why some people are more vulnerable to active TB.

"Being in Vietnam I'm constantly reminded about the importance of TB research. It's such a huge problem."

Your donation can Help Stop TB

Invest in medical research to Help Stop TB at www.tb.org.au

You can donate online or call 1800 677 977, or post your donation to Centenary Institute Reply Paid 83998 NEWTOWN NSW 2042.

Thank you.



Please visit www.centenary.org.au to link to our videos on YouTube and find out how to join our online social media networks.

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1952

Compulsory free chest x-rays of general public in Australia

New drug called 'Isoniazid' used to treat TB (still used as first line treatment today)

1960

"All-out war" to conquer TB is declared with a combination of drugs that make it curable

1970

First outbreak of drug resistant TB in the USA

1981-1990s

HIV epidemic proves devastating for TB sufferers

TB biggest killer among people with HIV – a third of all HIV related deaths

1993

The WHO declares TB a global emergency; TB is killing more people than any previous year in history

1995

First recorded outbreak of MDR-TB in London (MDR-TB first discovered in 1988)

2001

Global Stop TB Partnership founded to eliminate TB as a global public health problem

2004

First case of XDR-TB diagnosed in Australia

2012

Totally drug resistant TB found in South Africa and India