

## Tulane researchers working on new tuberculosis vaccine

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This photomicrograph reveals *Mycobacterium tuberculosis* bacteria using acid-fast Ziehl-Neelsen stain; Magnified 1000 X. The acid-fast stains depend on the ability of mycobacteria to retain dye when treated with mineral acid or an acid-alcohol solution such as the Ziehl-Neelsen, or the Kinyoun stains that are carbolfuchsin methods specific for *M. tuberculosis*. Credit: public domain

Researchers at the Tulane National Primate Research Center (TNPRC) are leading efforts to find a new vaccine for tuberculosis, one of the world's deadliest diseases. Tuberculosis, a contagious infection of the

lungs, affected more than nine million people in 2013, killing more than one million.

A team of researchers led by the TNPRC used a modified strain of TB to show that monkeys could generate better protective immunity than when vaccinated with BCG, a common TB vaccine.

In their experiments the Tulane researchers used *Mycobacterium tuberculosis* (Mtb) - a strain modified to lose a stress response gene called SigmaH. Monkeys that received aerosols of the modified strain resisted infection with Mtb better than the similarly-delivered BCG, and showed glimpses of protective immune response in their lungs.

"While the results are exciting, we believe further work is needed before this excitement can be translated to human trials," says Deepak Kaushal, PhD, Professor at TNPRC. "More monkey studies are needed to validate these results in alternative settings, and more modifications may be necessary to add to the strain we're working with in order to safeguard it further. However, the impact of the current work in identifying what is needed to protect against TB, and, in a model that closely mimics human [infection](#), is unquestionable."

Grants from the National Institutes of Health are supporting this study. More information can be found in the journal *Nature Communications*.

Provided by Tulane University

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