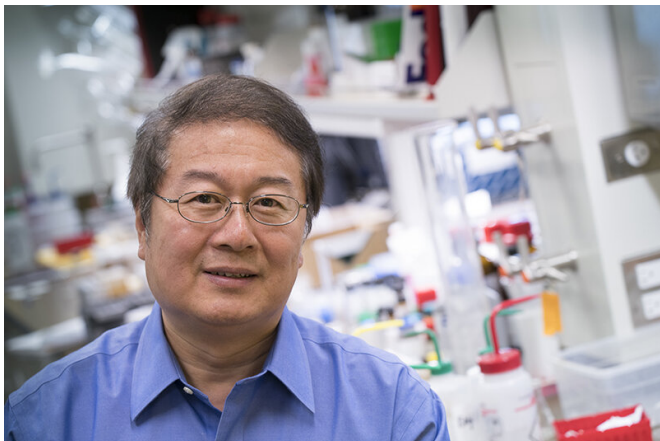


New inhibitors may offer novel approach to treating deadly tuberculosis

8 April 2021



Zhong-Yin Zhang, head of Purdue's Department of Medicinal Chemistry and Molecular Pharmacology, developed highly potent and selective compounds for use in the treatment of tuberculosis. Credit: Purdue University

Purdue University innovators have developed highly potent and selective compounds for use in the treatment of tuberculosis, which is one of the top 10 causes of death worldwide.

The Purdue researchers developed a series of small molecule inhibitors to target one of the proteins critical for the survival of TB in infected macrophages. Protein tyrosine phosphates B (mPTPB) is a virulence factor of TB to subvert the host immune responses.

The Purdue research is published in the *Journal of Medicinal Chemistry*.

"The [death toll](#) from TB is particularly high because of drug-resistant strains," said Zhong-Yin Zhang, distinguished professor and head of Purdue's Department of Medicinal Chemistry and Molecular Pharmacology and director of Purdue Institute for Drug Discovery. "These inhibitors are part of a

promising new approach to developing TB therapeutic agents with novel targets and mechanisms of action to help save more lives."

Current treatments for TB are mostly antibiotic-based solutions. A major problem is that a large number of patients fail to take the entire antibiotic regime, which can lead to drug-resistant strains.

"We developed a platform to target mPTPB for novel anti-TB agents that builds on technologies we pioneered to modulate abnormal protein tyrosine phosphatase activity for the treatment of diseases such as cancer, diabetes and [autoimmune disorders](#)," Zhang said.

Zhang said these inhibitors' properties also make them promising drug candidates. They possess lighter molecular weights, excellent metabolic stability and bioavailability to provide a starting point for further therapeutic development for use as TB treatments.

More information: Kasi Viswanatharaju Ruddraraju et al. Highly Potent and Selective N-Aryl Oxamic Acid-Based Inhibitors for Mycobacterium tuberculosis Protein Tyrosine Phosphatase B, *Journal of Medicinal Chemistry* (2020). [DOI: 10.1021/acs.jmedchem.0c00302](https://doi.org/10.1021/acs.jmedchem.0c00302)

Provided by Purdue University

APA citation: New inhibitors may offer novel approach to treating deadly tuberculosis (2021, April 8)
retrieved 29 April 2021 from
<https://medicalxpress.com/news/2021-04-inhibitors-approach-deadly-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.