

Bacteria from cystic fibrosis patient could help thwart antibiotic-resistant TB

June 14 2017

The number of drug-resistant tuberculosis (TB) cases is rising globally. But a newly discovered natural antibiotic—produced by bacteria from the lung infection in a cystic fibrosis patient—could help fight these infections. Lab testing reported in the *Journal of the American Chemical Society* shows that the compound is active against multi-drug resistant strains.

Starting with the famous first discovery of penicillin from mold, scientists have continued to search for natural sources of [antibiotics](#). And as pathogens develop resistance to once-reliable medicines, the search has taken on a new urgency. By 2040, more than a third of all TB cases in Russia, for example, could show resistance to first-line drugs currently used to fight the disease, a recent report published in *Lancet* estimates. Among potential new drug sources are species of the bacterial genus *Burkholderia* that thrive in a wide range of habitats, from soil to the human lung. One way these microbes have adapted to these diverse environments is by making potent antibiotics to take out their competition. In light of the growing threat of [drug-resistant bacteria](#), particularly among TB strains, Gregory L. Challis, Eshwar Mahenthiralingam and colleagues wanted to see if *Burkholderia* might produce a promising anti-TB compound.

The researchers discovered that one species, *Burkholderia gladioli*, which was isolated from the sputum of a child with [cystic fibrosis](#), produces an antibiotic called gladiolin. The compound belongs to the same structural class as etnangien, another antibiotic that has been investigated for its

ability to jam bacterial cell machinery. But etnangien is highly unstable. The researchers found that gladiolin is much more stable than etnangien, and could therefore potentially be a better drug candidate. Lab testing also showed that gladiolin blocked the growth of four drug-resistant TB strains.

More information: Aditya Sharma et al. Estimating the future burden of multidrug-resistant and extensively drug-resistant tuberculosis in India, the Philippines, Russia, and South Africa: a mathematical modelling study, *The Lancet Infectious Diseases* (2017). [DOI: 10.1016/S1473-3099\(17\)30247-5](https://doi.org/10.1016/S1473-3099(17)30247-5)

Provided by American Chemical Society

Citation: Bacteria from cystic fibrosis patient could help thwart antibiotic-resistant TB (2017, June 14) retrieved 10 May 2024 from <https://medicalxpress.com/news/2017-06-bacteria-cystic-fibrosis-patient-thwart.html>

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