Scientists discover how TB controls its growth, revealing new ways to fight the global disease

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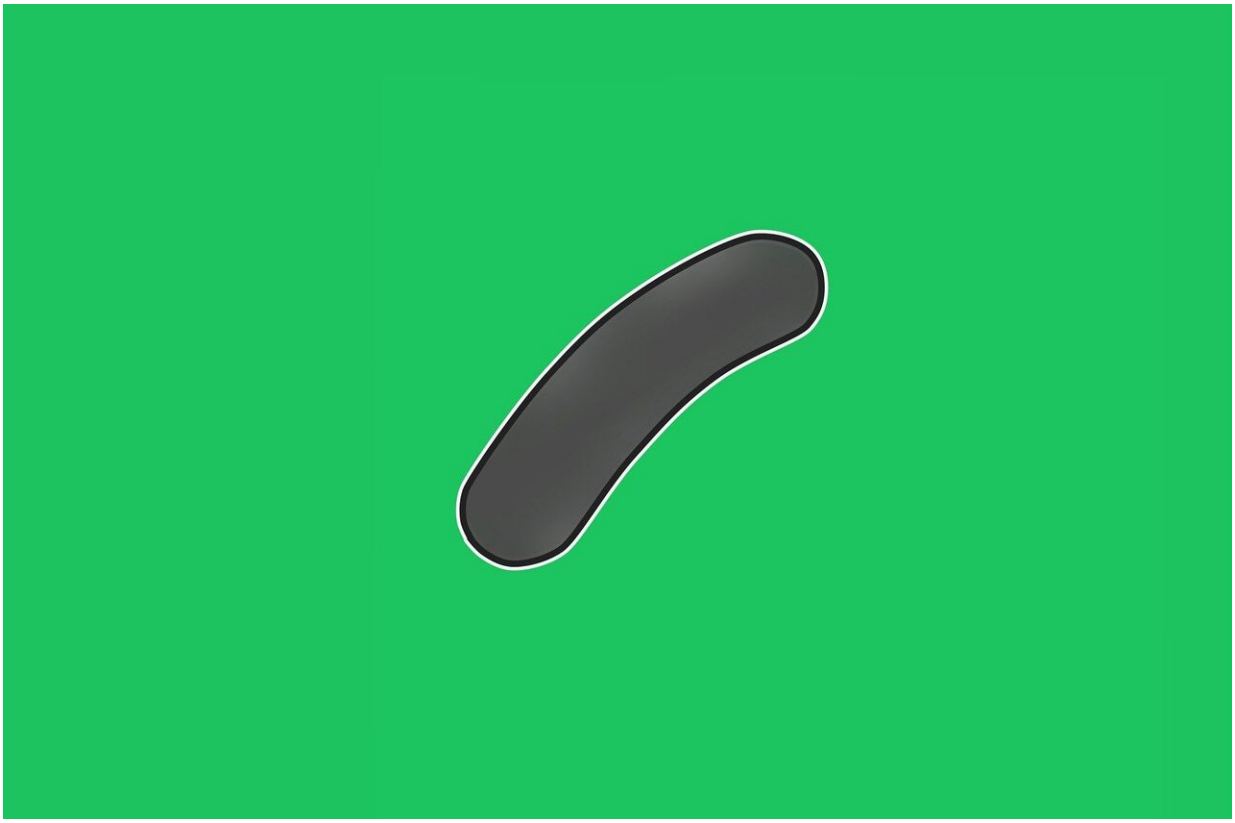

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A new study explores how tuberculosis (TB) controls its own growth on a molecular level. The research team behind the study, led by the

University of Surrey and the University of Oxford, propose that this identifies a new target for antibiotics against TB.

TB is usually caused by the MTB bacterium, and it grows very slowly, allowing it to cause infections that may last a lifetime. One-quarter of the world's population may be infected with TB without knowing they have it, and it is estimated that TB causes around 1.3 million deaths each year.

In a study published in *Nature*, the research team reveal that the newly discovered DNA modification system involves two enzymes, DarT and DarG, that reversibly modify chromosomal DNA to create a 'switch' that coordinates bacterial replication. By interfering with the DarT/DarG system, it becomes massively toxic to the bacterium and represents the target for a new class of antibiotics.

Graham Stewart, Professor of Molecular Bacteriology at the University of Surrey and lead author of the study, said: "Before Covid-19, tuberculosis killed more people each year than any other infectious disease, and it will regain its infamy once the pandemic subsides.

"Tuberculosis is a global health emergency and current antibiotics are becoming ineffective. This study describes a genuinely new piece of DNA biology that could be targeted by new antibiotics."

More information: Marion Schuller et al, Molecular basis for DarT ADP-ribosylation of a DNA base, *Nature* (2021). DOI: 10.1038/s41586-021-03825-4

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