

Scientists find potential weapon against tuberculosis infection

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The discovery of a unique copper-repressing protein in the bacterium that causes tuberculosis in humans may pave the way toward new strategies for halting tuberculosis infection.

Scientists have known that when macrophages - the host's immune cells - swallow an invading bacterium, they dump excessive amounts of copper onto the invader in an effort to kill it. While all cells need copper to function, too much of the metal ion causes cell death.

"But the invaders fight back with their own defense," says Adel Talaat, a microbiologist at the University of Wisconsin-Madison School of Veterinary Medicine. "They block the excess copper."

In a paper published in the January 2007 issue of *Nature Chemical Biology*, Talaat and colleagues from Texas A&M University and University of Saskatchewan in Saskatoon, Canada describe a unique protein repressor that they have identified as the mechanism used by invading bacterium cells to fight off the host's copper attack.

Prior to the discovery of this repressor protein, scientists did not know exactly how invading bacterium protected themselves from copper ions used by the body as a defense against infection.

"With this discovery, we can now pursue ways to deactivate the repressor protein," says Talaat. "Our goal is to disable the tuberculosis bacterium from fighting back against the host body's defense

mechanisms, so that we can stop tuberculosis."

Source: University of Wisconsin-Madison

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