Researchers identify potential target for anthrax drug

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(Medical Xpress) -- Researchers at the University of Michigan have identified new targets for drugs that could potentially treat anthrax, the deadly infection caused by Bacillus anthracis.

The team, led by David Sherman, the Hans W. Vahlteich Professor of Medicinal Chemistry in UM's College of Pharmacy and a faculty member at the U-M Life Sciences Institute, found a new way to block the bacteria's ability to capture iron, which is vital to its survival and its disease-causing properties.

By discovering the mechanism by which B. anthracis obtains iron, the researchers are now able to search rapidly for powerful new antibiotics

to effectively treat or prevent deadly anthrax infections. Not only does this finding open the door to possible treatments for anthrax infections, it also indicates possibilities for discovery and development of powerful new anti-infective agents.

"This organism continues to be a serious security threat, as there are inadequate responses to natural or engineered drug-resistant forms of the micro-organism," said Sherman.

This work highlights studies on a new drug target that could lead to development of broad-spectrum antibiotics, which are urgently needed to respond to the increased incidence of drug-resistant infectious agents like anthrax.

While an actual treatment for anthrax remains several years away, according to Sherman, the researchers are using high-throughput screening in the Center for Chemical Genomics at the Life Sciences Institute to identify the most effective potential drugs.

"We are already following active extracts from a large natural products library and hope to have new structures of antibiotic molecules very soon," Sherman said. "Our efforts are part of a major program funded by the Great Lakes Regional Center of Excellence for Biodefense and Emerging Infectious Disease to identify new small molecule antibiotics and vaccines against biowarfare agents and other high-risk infectious microbes."

The current study has inspired the team to take a similar approach, also in collaboration with the Center for Chemical Genomics, in the search for new antibiotics active against methicillin-resistant Staphylococcus aureus, a multi-drug-resistant staph infection.

The anthrax findings were published May 4 in the *Journal of Biological*

Chemistry.

Provided by University of Michigan