

Biology researchers demystify elusive war zone bacterium

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Tao Weitao, a researcher in the College of Sciences' Department of Biology at the University of Texas at San Antonio is making great strides in a project that was funded one year ago by the San Antonio Area Foundation. The professor in the South Texas Center for Emerging Infectious Diseases is researching *Acinetobacter baumannii*, a soil-dwelling bacterium that threatens the health of military personnel in the Middle East and can also infect their family members once the soldiers have returned home following battle.

The symptoms of *Acinetobacter* infections are mild to severe and present in a variety of ways, but are mostly found in immunocompromised individuals. Signs may include urinary tract infections and respiratory infections post-surgery, pneumonia following health care treatment, bacteria in the blood, deep wound infections, bone and bone marrow infections, or skin and soft-tissue infection.

A year ago, very little was known about *A. baumannii*. Treatment of infected individuals was exceedingly difficult, because the bacterium was able to develop multi-drug resistance. Treatment was also impaired by the bacterium's ability to form biofilms: highly-resistant communities of bacteria which serve as a breeding ground for microorganisms infecting an individual.

In the last year, however, Weitao's collaborative research team has isolated proteins they believe help the bacterium form its biofilm. As the biologists continue their research, they hope to gain a better

understanding of the mechanisms by which each protein helps *A. baumannii* propagate its deadly infections. Such an understanding will help develop effective therapeutic strategies to disrupt biofilm formation and diminish the risk of antimicrobial resistance emergence.

The San Antonio Area Foundation awarded funding to Weitao, in part, because San Antonio has such strong ties to the military.

"San Antonio has a proud history as a military city," said Retired Air Force Colonel Clarence R. "Reggie" Williams, president / CEO of the San Antonio Area Foundation. "The San Antonio Area Foundation is equally proud to partner with area donors in funding new medical research efforts impacting our military personnel and their families. Through innovative research and advancement, The University of Texas at San Antonio has successfully addressed many of the military community's most challenging health care needs. We're proud to support their efforts to 'make better lives' for everyone."

"*Acinetobacter baumannii* is an extremely threatening microbe that researchers desperately need to better understand," said Weitao. "Ultimately, we hope our research leads us to pathways we can target for the development of therapeutic or preventative strategies, that is effective antibiotics or vaccines, to keep the [infection](#) rate low."

Source: University of Texas at San Antonio

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