**Technology**

*Acinetobacter baumannii* is a gram-negative opportunistic pathogen that has become endemic in many hospitals. The bacterium has the ability to quickly evolve resistance factors and can tolerate harsh environments providing challenges in sanitization and sterilization. Due to the challenges in treating or preventing *A. baumannii* infections, mortality in hospitals and intensive care units has ranged from approximately 8 to 23 percent and from approximately 10 to 43 percent, respectively.

Researchers at the Atlanta VA Medical Center have identified two distinct subpopulations of *A. baumannii* that can be distinguished by their opaque (O) or translucent (T) colony phenotypes with the regulatory mechanism that controls the O to T switch. Only the O variant is virulent with the T variant highly susceptible to host defenses. Also, O variants are also resistant to common disinfectants and resistant to desiccation. In addition, the research has led to the identification of a key transcriptional regulator that when overexpressed, represses genes required for virulence in *A. baumannii*. An overexpressed strain of *A. baumannii* could be used as a potential vaccine.

**Key Features**

- Identification of two distinct subpopulations of *A. baumannii* with different virulence and susceptibility to host defenses, disinfection, and desiccation
- Identification of a master regulator gene that can be overexpressed to control virulence
- An overexpressed strain of *A. baumannii* could be used as a potential vaccine and would be more effective than heat killed vaccine or those directed against a cellular component

**Competitive Advantage**

The approach of using an attenuated strain has been demonstrated to have 100 percent protection against challenge by highly virulent strains in a murine model. A vaccine commercialized utilizing the approach would be the first attenuated live vaccine in the market. The vaccine would be preferred over heat killed vaccines or those directed against a cellular component that would likely be less effective. In addition, the identified transcriptional regulator could easily be integrated into any *A. baumannii* strain to enable immunization.

**Partnership**

The VA is looking for a partner to further the development and commercialization of this technology through a license or through a collaborative agreement such as a Cooperative Research and Development Agreement (CRADA).