

**EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:** State **in layman's terms** the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

In 1993, the World Health Organization declared tuberculosis (TB) as a “global emergency”, the first disease so designated. *Mycobacterium tuberculosis*, the etiologic agent of tuberculosis, infects about one-third of the world's population, and there were ~10 million new cases of TB in 2005. Multi-drug resistant strains (MDRTB) are costly to treat, and second line drugs needed in the treatment of MDRTB are often considerably toxic. Most major pharmaceutical companies have not seen an adequate return on investment in development of new TB therapeutics. This collaborative effort of three faculty from the Cal State Fullerton, Fresno and San Diego campuses aims to elucidate the molecular structure and biochemical functional details of the *Mycobacterium tuberculosis* EmbCAB proteins, enzymes involved in the biosynthesis of key structural and immunological polymers of the mycobacterial cell wall. Results from this work will provide insights necessary for the design of new, cheaper, more effective first-line antitubercular drugs to combat MDRTB.