

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.

WatchCAT is proposed to be a hand-held unit that can rapidly and accurately detect living, spore-forming microbial pathogens in exceedingly low concentrations with little if any false positive or false negatives. Easy-to-use WatchCAT achieves its superior sensitivity and speed, by using a built-in enzymatic amplifier (the bioelectrode) coupled to a sensitive electronic monitor. As conceived by BTI and fully developed, WatchCAT will exceed the capability of all competing technologies including PCR. Simplicity in the bioelectrode design will also add to the desirability of this unit. Thus, rapid and accurate detection of trace amounts of *Bacillus cereus* or *B. anthracis* spores by minimally trained personnel and with minimal sample preparation will be possible. WatchCAT units will reduce the response time to early detecting, identifying and locating pathogens and biotoxins. With the WatchCAT's relatively inexpensive early-detection technology, monitoring costs can be significantly lowered. This will aid and protect soldiers and supporting military personnel, homeland security officers, and health personnel to improve the safety of our field units and civilians. We forecast that this will become a commercial market in California with applications in the surveillance of recreational waters, municipal water and waste processing, public healthcare, and food production industry growing to \$1 billion in annual sales.