



Detects, Differentiates and Identifies:  
**Anthrax, Small Pox, Plague and Tularemia**

## Advantages

- Multiple diagnostic tests on one chip
- Precise
- Ultra Fast
- Customisable
- Portable and easy-to-use
- Multiple security features for each chip
- Enables bio-surveillance to provide first line of defence in places of need
- Allows for prompt action to be taken in the event of bio-threat detection
- Ability to update probes to detect genetic manipulation of pathogens



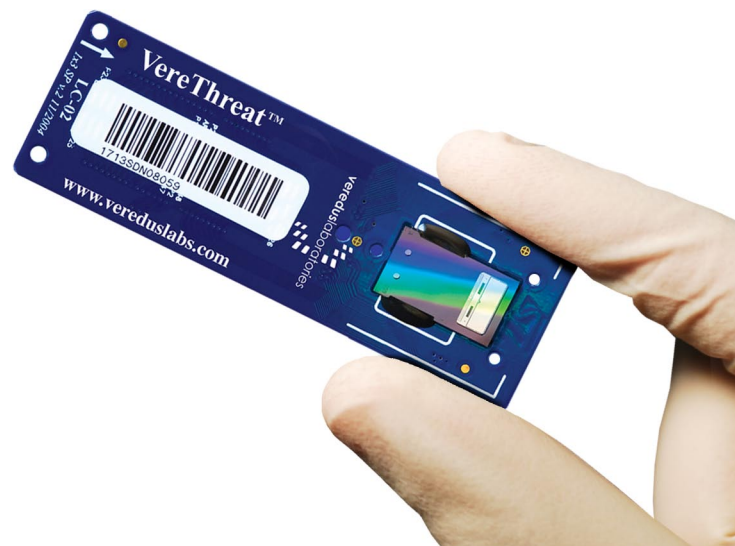
Biological weapons include any pathogen (bacterium, virus or other disease-causing organism) or biotoxin that can be used to kill, seriously injure or incapacitate an adversary. Biological weapons are characterized by low visibility, high lethality, broad accessibility, and relatively easy delivery. The potential spectrum of bioterrorism ranges from hoaxes and use of non-mass casualty agents by individuals or small groups in small scale targeted attacks to state-sponsored terrorism that employs biological weapons of mass destruction. The threat that biological agents will be used on military forces and civilian populations is now more likely than at any point in all of history.

In response to the growing global threat posed by biological weapons, Veredus has developed VereThreat™ - a Lab-on-Chip application that can detect, differentiate and identify major biological agents in one test. VereThreat™ can be deployed at a point of need setting with sample to results in about 2-3 hours with the aim of identifying the agent to facilitate prompt treatment and action. The sensitivity and accuracy and user friendliness would enable it to be used at ports, borders, postal offices, train stations, airports, military sites, etc.

**Robust and Time-tested Technologies:** Polymerase Chain Reaction (PCR) and microarray, gives the VereThreat™ chip the accuracy and sensitivity needed to provide answers in the shortest possible time.

**Breakthrough Innovation:** The integration of two powerful molecular biological technologies enables the development of the VereThreat™ chip into a fast PCR-microarray based diagnostic test using the Vered™ Biosystem to simultaneously detect, differentiate and identify selected biological agents all in a single test.

With the flexibility afforded by our customisable updates in our VereChip™ target panels, we are able to provide diagnostic and surveillance tools needed today and be ready for the next threat tomorrow. Veredus Laboratories, the future of diagnostics and surveillance, today



## Specifications

- Detects *B.anthraxis*, *F. tularensis*, *Y. pestis* bacteria and *Variola virus* using multiple gene targets and probes
- Process controls on each chip for PCR:
  - a. Positive
  - b. Negative
- Process controls on each chip for the microarray:
  - a. Orientation Probes
  - b. Hybridisation Probes
- High Specificity
- High Sensitivity
- Sample Types: Air, water, soil and food
- Every chip is bar-coded, and measures 2.54cm x 7.62cm

## Features

- Able to run multiplex amplification reactions
- Multiple probes per target ensures reliable detection of subtypes in every test
- Small sample volume requirement
- Fast and programmable temperature ramp rate
- Fully customisable PCR protocol
- Scalable for high throughput
- PCR yield is comparable to standard thermal cyclers
- 40% faster than conventional thermal cyclers
- Functional validation of PCR is provided by an internal positive control
- Functional validation of hybridization for each assay is provided by an internal positive hybridization control
- Proprietary microfluidic interface: contact surfaces are biocompatible and do not inhibit the PCR reaction
- Short time required for fluidic operations

## VerelD™ Biosystem



VerelD™ Biosystem combines molecular biology, microfluidics and microelectronics to bring the future of diagnostics and surveillance to you today. The VerelD™ Biosystem, along with the VereChip™, is a breakthrough in innovation, integrating two powerful molecular biological technologies: PCR and Microarray.

### VerelD™ Biosystem includes the following components:

1. Temperature Control System
2. Optical Reader
3. Biosystem Software
4. Bar Code Reader