

BIOCHIPS AN ANALYTICAL LABORATORY ON A SLIDE

APPLICATIONS

Identification of infectious disease or biological warfare agents in the field as well as in hospitals and other laboratories.

- Protein assays
- Pathogen detection (bacteria, viruses, parasites, protozoa)
- Host immune profiling
- Chemical agents
- Gene detection
- Functional enzymes
- PCR/amplification

BENEFITS

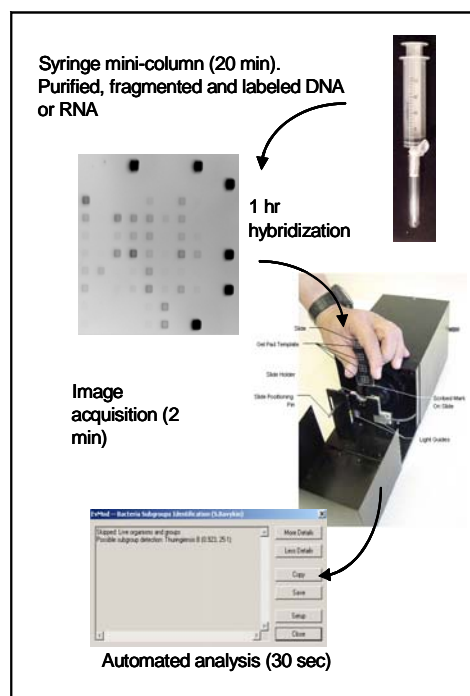
- Easy sample preparation and standard operating protocols suitable for use in the field.
- Portable biochip reader smaller than a lunchbox
- Reusable biochips
- Fully automated software for identifying and reporting agents
- Readily usable by first responders, military personnel, medical technicians
- Environmental and medical applications
- Chips can be tailored to individual user needs, and mass-produced cost effectively
- Unlimited PCR multiplexing capability from a single sample and test
- Simultaneous spatial resolution of thousands of diagnostic tests from a single sample

A system for rapid identification of biological and chemical agents using reusable biochips and a portable reader

BIOCHIPS carry a high-density array of test sites that can analyze a single droplet of a sample for hundreds to thousands of biological agents simultaneously. The system developed at Argonne can complete such identification of infectious disease strains or biological warfare agents in less than two hours.

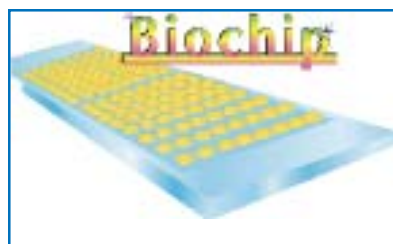
Argonne's **BIOCHIPS** contain hundreds to thousands of test sites, each chip being a matrix of three-dimensional gel pads about 100x100x20 microns in size (100 microns is about the width of a human hair).

- Thousands of individual test sites can be immobilized on a 1x3 inch glass or plastic substrate.
- The array of sites can be tailored for the specific needs of users, whether to detect bioterrorism agents, specific strains of infectious diseases or other biological organisms.
- Each site can detect the presence of trace quantities of the agents for which they are set up.



Complete analysis in two hours or less

How Argonne's BIOCHIP System Works



Each **BIOCHIP** has hundreds to thousands of gel pads. A segment of a DNA strand, protein, peptide or antibody is inserted into each pad, tailoring it to recognize a specific biological agent or biochemical signature. These pads are in known positions so, when a sample reacts, the reaction position can be detected, identifying the sample.

