



The Compact Bead Array Sensor System (*cBASS*)



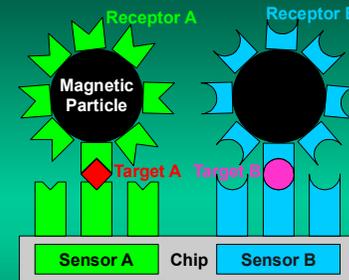
Combining Biotechnology & Nanotechnology to Combat Terrorism

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The *cBASS* Story

- Quickly detects and identifies biological warfare agents in the environment
- Uses **BIOTECHNOLOGY** to capture individual molecules from the toxic agents
- Uses magnetic **NANOTECHNOLOGY** to identify captured molecules
- Uses **MICROFLUIDICS** to harness these two technologies into a compact, portable system

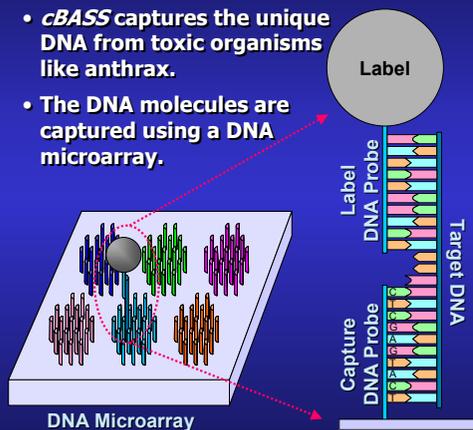
One of 77 technologies selected from >12,000 proposals to combat terrorism after the tragic events of fall 2001.



cBASS captures, labels, and detects toxic agents using magnetic micro-particles and a special sensor chip.

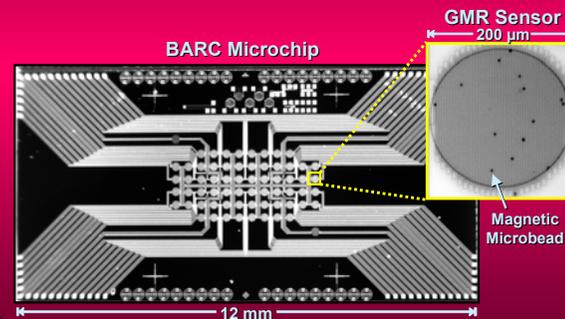
Biotechnology

- *cBASS* captures the unique DNA from toxic organisms like anthrax.
- The DNA molecules are captured using a DNA microarray.



Nanotechnology

- The Bead ARray Counter (BARC) microchip uses an array of Giant Magneto-Resistive (GMR) sensors.
- The GMR sensors—similar to those in PC hard drives—are based on magnetic nanostructures.

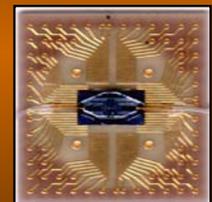


Microfluidics

- Each BARC chip is housed in a disposable plastic cartridge that includes all the needed chemicals.
- All chemistry is done in miniature channels so everything can be done quickly.



cBASS



Flow Cell/Chip Assembly