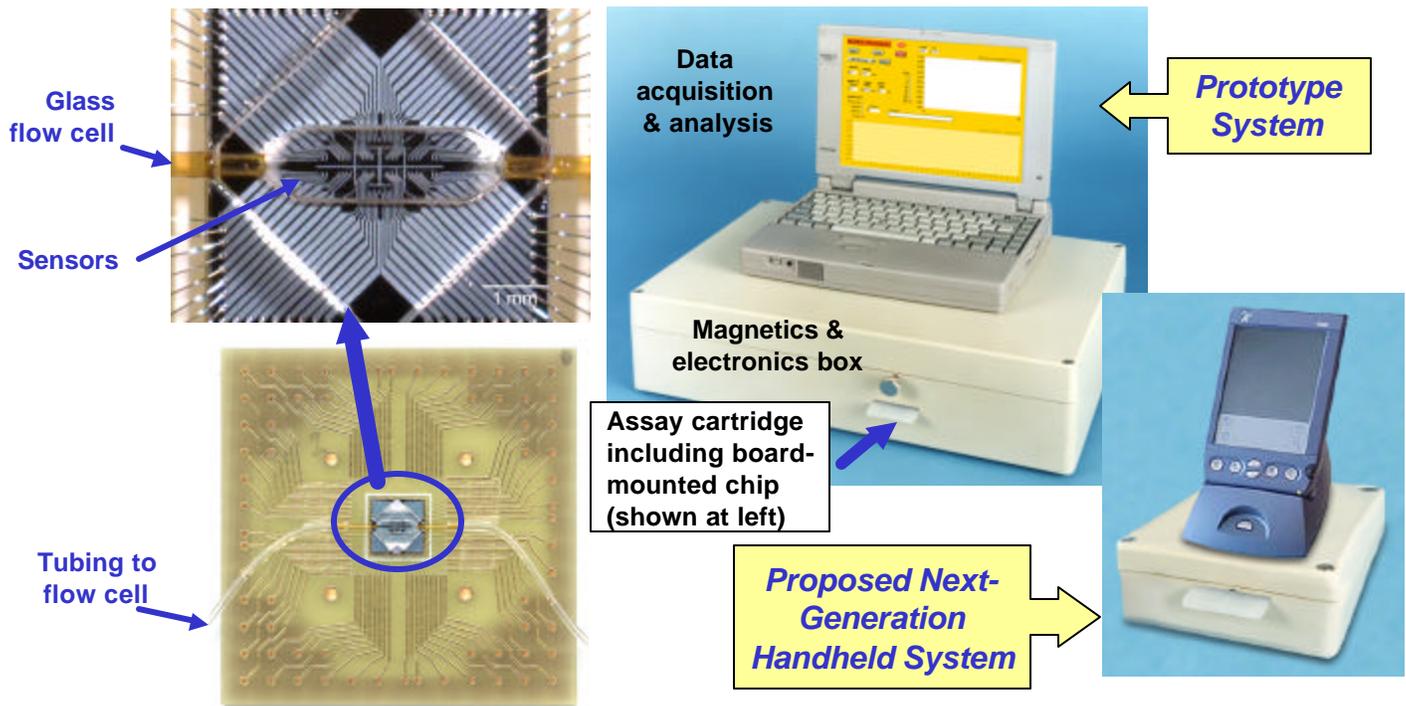


COMPACT, HIGH SENSIVITY BIOSENSOR



The Naval Research Laboratory has developed a revolutionary, chip-based biosensor called the Bead Array Counter (BARC). Pathogens, their genetic material, or their toxins are captured on the surface of a chip by specific molecular recognition reactions and labeled with magnetic microbeads. Beads not specifically bound are then rinsed off. The remaining beads are directly detected by an array of magnetic sensors embedded in the chip. By patterning the sensor array to detect a variety of targets, multiple assays can be performed simultaneously with high sensitivity and specificity on a single chip using only microliter sample volumes. Assays using magnetic labeling have been developed for a variety of bacteria, viruses, protein toxins, and DNA sequences, including those specific to biological warfare agents.

Features and advantages include:

- **Sensitivity:** potentially sensitive enough for DNA assays w/o PCR amplification (demonstrated positive ID from less than 20,000 copies in a 30 μ l sample).
- **Speed:** capable of multiplexed detection in less than 30 minutes.
- **Portability:** device can be miniaturized to a portable battery-powered system (<3 kg).

Applications include:

- Healthcare, including clinical diagnostics, genomics, and proteomics.
- Agricultural testing, including veterinary diagnostics.
- Environmental monitoring, including food and water testing.
- Forensics.

Licenses are available to companies with commercial interest.

Points of Contact

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