

BaDx: Credit card sized pathogen detector

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Technology Overview

Diagnostic test to identify bacterial pathogens: Lab on a Chip



Clinical or environmental sample:

- *Detects ~100 spores*

Bacillus anthracis detection:

- Self contained
- Portable
- Requires no infrastructure
- Safe and secure



Selective micro-culture

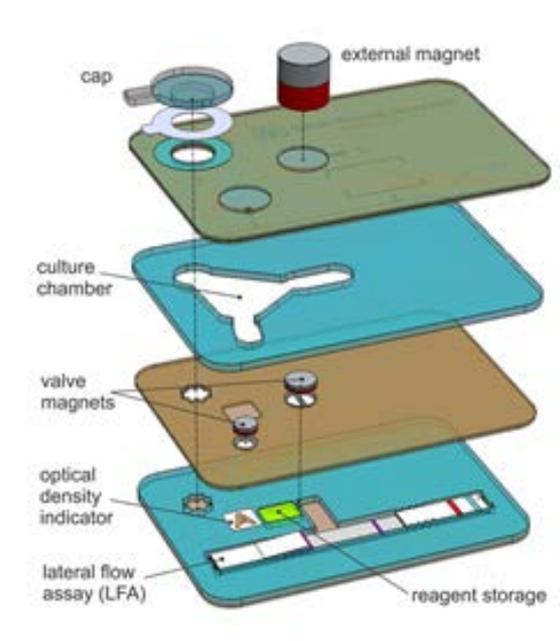
Decontamination

Immunoassays

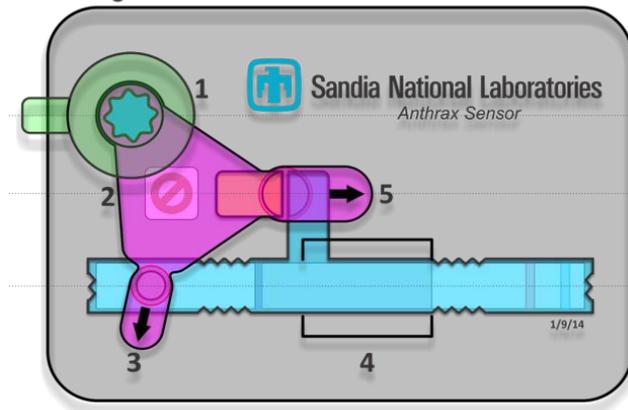
Underlying Technology

Microfluidic platform for bacterial detection made from laser ablated plastic laminates

- Selective bio-amplification
- Magnetic valve system facilitate chamber communication
- Commercial lateral flow assay
- Integrated decontamination



Cartridge Dimensions: 0.25 in. x 1.875 in. x 2.75 in.



Key Advantages

- **Adaptable:** Multiple bacterial pathogens
- **Easy to use:** Requires no expertise
- **Inexpensive:** \$5 - \$10
- **All inclusive:** Laboratory on a chip
- **No infrastructure requirements:** No power, instrumentation, or reader required
- **No sample prep:** Direct analysis of samples including clinical and environmental
- **Selective amplification:** Minimize contaminants, as sensitive as the gold standard
- **Safe and secure:** self-contained with decontamination methods included
- **Long shelf life:** Approximately one year and can be maintained at room temperature



Portable and light weight: Credit card size

Differentiating factor from existing technology

- **One step:** Inoculation can be done on-site
- **Easy to use:** Multiple laboratory steps are not needed
- **All inclusive:** Media and reagents are within the device
- **Portable:** Laboratory on a chip
- **Power-free:** No infrastructure requirements
- **Self-contained:** Inaccessible once inoculated and sealed
- **Safe and secure:** Pathogen is inaccessible once inoculated, supports laboratory biosafety and biosecurity



Commercial Applications

- **Adaptable to detect bacterial pathogens**
 - Nosocomial infections: environmental monitoring and support remediation efforts
 - Hospitals, clinics, homes
 - Foodborne pathogens
 - Environmental surveillance
- **Diagnostic laboratories**
 - Low-resource environments
 - Field outbreaks and biosurveillance
- **Animal and public health professionals**
 - Enhance diagnostic capabilities in clinics
- **First responders**
 - Detection of bioterrorism
 - Naturally occurring outbreaks
 - Support remediation



3
4