BIO-SCAN™
HIGH-SPEED DETECTION
FROM PATHSENSORS, INC.

Bio-Scan™ Ricin Assay Kit

THE BIO-SCAN™ RICIN ASSAY KIT IS PART OF THE PATHSENSORS FAMILY OF BIO-SCAN™ ASSAY SOLUTIONS, WHICH OFFER HIGH SPEED, HIGH-SENSITIVITY PATHOGEN DETECTION.

The Bio-Scan™ Ricin Assay Kit allows for unparalleled detection of low levels of Ricin in less than 15 minutes. The Bio-Scan™ Ricin Assay Kit can be used with PathSensors' high performance Zephyr™ analysis platforms for a comprehensive and cost effective detection solution.

PathSensors' Bio-Scan™ Assays use breakthrough CANARY® technology originally developed by MIT-Lincoln Laboratory. Independent tests have shown that PathSensors' CANARY® provides superior speed to detection and sensitivity compared to technologies such as PCR and lateral flow. The technology utilizes biosensors created from B lymphocytes (white blood cells) modified to express surface-bound, target-specific antibodies and a bioluminescent protein. When the biosensor binds to its target pathogen, the antibodies trigger the intracellular release of calcium. This calcium causes the bioluminescent protein to emit light. Sophisticated algorithms analyze this light output, resulting in definitive "positive" or "negative" test results.

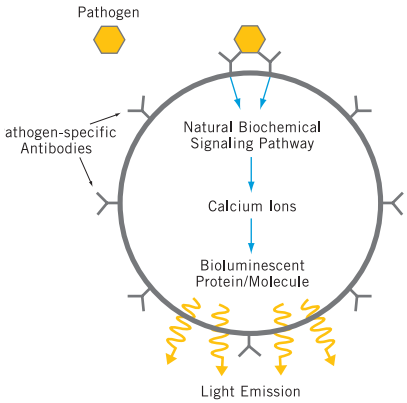
Advantages of this system are its extreme speed and sensitivity. The speed of detection is a result of rapid intracellular signaling. The sensitivity is achieved through signal amplification within the cell. The technology identifies targets in less than 12 minutes with analytical sensitivities down to picograms of target per sample.

Assay Specifications

Analytical Sensitivity (LoD)	400pg Ricin (ACAII, Ricinus communis agglutinin 60, RCA60, Castor Bean toxin)
Assay Sensitivity	1ng/mL Ricin
Resistance to Interferents	0 False Positives with 27 powders
Time to Results	12 minutes

NOTE: Performance validated by Battelle, Columbus, OH and Pacific Northwest National Laboratory, Richland, WA

PathSensors' Bio-Scan™ Assays use CANARY® Biosensor Technology



BioSensors Available

Salmonella spp.
Listeria
E. coli O157:H7
Bacillus anthracis spores
Francisella tularensis
Yersinia pestis
Orthopox virus
Ricin toxin
Botulinum toxin
Brucella spp.
Bacillus subtilis spores
Campylobacter
Ralstonia spp.
Potyvirus
Phytophthora spp.
Dengue virus
RVF virus
Vibrio cholerae (strains O139 & O1)
Chlamydia spp.
Methicillin – Resistant *Staphylococcus aureus*
Group B Strep
VEE virus
Prion protein
FMD virus
Shigella dysenteriae
- Digitonin labeled probes
- Double standed DNA complex

NOTE: Not all biosensors are available on all PathSensors hardware platforms. Contact us for more information.

PATHSENSORS

MADE IN THE USA

DETECTING PATHOGENS AT THE SPEED OF LIGHT

Ricin Assay Protocol:

Dilute collected sample in Sample Diluent

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Add Ricin Capture Beads and incubate with sample (10 minutes)

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Start Zephyr instrument, enter operator ID & assay barcode

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Wash capture beads

∨

Add Sample Diluent

∨

Add Biosensors

∨

Centrifuge 5 seconds

∨

Transfer sample to luminometer (read for 2 minutes)

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RETRIEVE RESULTS

Testing and Results:

The **Bio-Scan™ Ricin** Assay has been extensively tested for signal specificity with a variety of suspicious powders.

The suspicious powders used for testing were:

Acetaminophen	Borax®	Epsom salt	MiraLAX®	Tooth powder
Aerosil powder	Chalk	Foot powder	Powdered sugar	Tums™
Ajax®	Corn starch	Gym chalk	Road dust	Yeast
Baking powder	Dairy creamer	Infant formula	Salt powder	
Baking soda	DiPel	Instant pectin	Spackling powder	
Bentotite	Dry milk	Kaolin	Talcum powder	

SOURCE: Suspicious Powders Panel, Critical Reagents Program.

RICIN ASSAYS		
Supplier: Device	**Approx. Time (min)**	**Reported LoD (ng/mL)**
CANARY		
PathSensors: Zephyr™/Bio-Scan™	< 12	1 ng
IMMUNOASSAY		
Typical Immunoassay Device	5 - 20	Typical 1-10 ng
PCR		
Typical PCR Device	30-60	Cannot directly detect

* Table generated using information found in the Biodetection Technologies for First Responders: 2014 Edition; RM Ozanich, CL Baird, RA Barholomew, HA Colburn, TM Straub, CJ Bruckner-Lea, Pacific Northwest National Laboratory. http://biodetectionresource.pnnl.gov

For copies of independent tests, contact PathSensors, Inc.

About PathSensors:

PathSensors is a leading biotechnology solutions and environmental testing company, providing high speed, high sensitivity, pathogen and threat detection solutions.

PathSensors' solutions can detect a wide range of threats, including anthrax, ricin, *Ebola* and *salmonella*. PathSensors' technology is being used today by government and commercial customers for multiple applications.

PATHSENSORS

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