ZEPHYR
PATHOGEN IDENTIFIER

Photo Source: Ron Brlanski

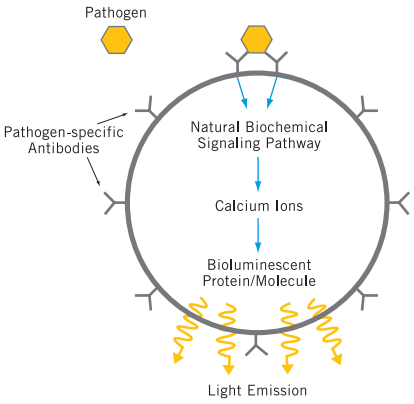
CiLV-C Zephyr Assay

The CANARY®- Zephyr System detects Citrus leprosis virus cytoplasmic type (CiLV-C) with no cross-reactivity with Citrus leprosis virus cytoplasmic type 2 (CiLV-C2), Citrus leprosis virus nuclear type (CiLV-N), or hibiscus green spot virus 2 (HGSV-2).

CANARY® technology was developed by MIT-Lincoln Laboratory under a DARPA contract, and commercialized by PathSensors, Inc. The technology utilizes biosensors, which 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 biosensor. This leading edge technology identifies CiLV-C infected orange leaves in < 15 minutes.

CANARY® Biosensor



Assay Specifications

Biosensor Analytical Sensitivity	1 ng/mL recombinant CiLV-C coat protein
Specificity	CiLV-C
Cross-Reactivity	No cross-reactivity with CiLV-C2, CiLV-N, or HGSV-2
Time to Results	< 15 minutes

PATHSENSORS
701 E. Pratt Street
Baltimore, MD 21202
phone: 443.557.6150
email: info@pathsensors.com
www.pathsensors.com

MADE IN THE USA

CiLV-C Zephyr Assay

Testing Protocol:

Add leaf samples to FastPrep Tube with Sample Diluent

∨

Process with FastPrep for 40 seconds

∨

Centrifuge sample for 2 minutes

∨

Transfer 20 µL extract to Capture Tube with Capture Beads

∨

Mix and incubate for 2 minutes

∨

Add 200 µL Sample Diluent

∨

Add Biosensors

∨

Centrifuge 5 seconds

∨

Transfer sample to Luminometer (read for 1 minute)

∨

RETRIEVE RESULTS

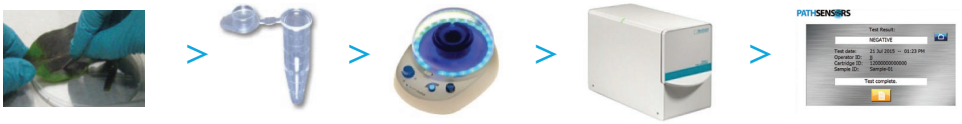
Testing and Results:

Sample Type
Healthy control sweet orange leaves
CiLV-C field samples *(confirmed by qRT-PCR)*

CiLV-C Assay Statistics	
Positive Predictive Value	> 99.0%
Negative Predictive Value	> 98.3%
Sensitivity	> 98.1%
Specificity	> 99.1%

CiLV-C Assay Kit Configuration (For 40 assays):	
Cl Biosensor Reagent **(A)**	1 tube 1 mL each
Biosensor Resuspension Buffer **(B)**	1 barcode labeled tube
Reconstitution Tubes	1 tube
Negative Controls **(NC)**	1 tube
Positive Controls **(PC)**	1 tube
Sample Diluent **(D)**	1 bottle 45 mL each
Capture Beads **(E)**	1 tube 20 µL
Capture Tubes & Assay Tubes	50 tubes

USDA Animal and Plant Health Inspection Service
PPQ
Plant Protection and Quarantine



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