

# User Guide: Compound-ELISA Reagent Set

SRA 26500 BYDV-MAV / SRA 27500 BYDV-PAV / SRA 28001 CYDV-RPV • GEB / ECI • Alkaline Phosphatase

## Test Principle, Intended Use and Limitations

This product is intended for the qualitative detection of the target analyte via a direct, triple antibody sandwich protocol known as Compound-ELISA. Upon successful completion of the test, samples containing the target analyte will turn yellow, due to the alkaline phosphatase enzyme label, while negatives will remain colorless. Visit the product webpage for information regarding host reactions, cross-reactions, or other limitations.

Barley yellow dwarf and Cereal yellow dwarf viruses tend to be present in low concentrations in host plants and are phloem limited. **Thorough extraction and overnight sample incubation is imperative to maximize detection.** The use of mortar & pestle and liquid nitrogen extraction have been successfully employed to aid in detection of low titer samples.

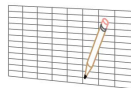
## Handling Information

Antibodies should be stored refrigerated (2 - 8 °C) between uses. All test materials should be warmed to room temperature (18 - 30 °C) before use. For materials provided please see the product webpage. The buffers necessary to run this assay can be purchased as buffer pack ACC 00111. Do not store 1X buffers for more than one day.

## Safety

Agdia recommends reading all relevant SDS sheets before using assay components: <http://docs.agdia.com/DataSheets.aspx>.

## Test Preparation



1. Visit the product webpage to view [buffer formulations](#), [logsheet](#), and other documents.
2. Record lot numbers of materials to be used in the test using the logsheet.
3. Prepare a humid box by lining an airtight container with a wet paper towel.
4. Mix both concentrated and diluted antibodies thoroughly before each use.

Scan for  
buffer  
formulations



## Prepare Capture Antibody



1. Prepare the capture antibody (CAB) in a non-binding container, such as Agdia's sample cups (ACC 00960).
2. Dilute the thoroughly-mixed CAB, per the dilution on the label, in 1X carbonate coating buffer (see example). You will need 100 µL of diluted CAB per well; a full plate will need 10 mL.

*Example: (Wells Used 16 x 100 µL) ÷ 200<sup>†</sup> = 8 µL Capture Antibody*  
*<sup>†</sup>Bottle dilution will be either 100 or 200*

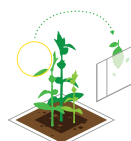
3. Thoroughly mix and pipette 100 µL of diluted CAB into each testwell of the provided high-bind microtiter plate.
4. Incubate plate in the humid box for either 4 hours at room temperature (18 - 30 °C) or overnight at 2 - 8 °C.
5. Coated plates should be used within 24 hours.

## Positive and Negative Control Preparation



1. Use General Extract Buffer (GEB) to hydrate fresh controls, according to label, at least five minutes before use.
2. Recap and mix thoroughly.
3. Use of frozen or aliquoted controls comes with increased stability risks and may not match expected O.D. values.

## Sample Preparation and Plate Loading



1. Sample symptomatic leaf or root tissue if possible.
2. At the time of testing, grind and dilute the samples at a 1:10 ratio with GEB.

*Example: 0.3 g plant tissue, extracted with 3 mL of GEB.*

3. Empty coated plate contents and wash 3 times with 1X PBST.
4. Tap plate dry using lint-free paper towel.
5. Dispense 100 µL of the extracted samples, positive control, negative control, and extraction buffer into the plate following your logsheet.
6. Incubate plate in the humid box overnight at 2 - 8 °C.



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## Prepare Detection Solution

1. Prepare the mix of the detection antibody (Bottle A) and enzyme conjugate (Bottle B) in a non-binding container, such as Agdia's sample cups (ACC 00960).
2. Dilute both the thoroughly-mixed Bottle A and Bottle B, per the dilution on the labels, in 1X ECI buffer (see example). You will need 100  $\mu$ L of diluted detection solution per well; a full plate will need 10 mL.

*Example: (Wells Used 16 x 100  $\mu$ L)  $\div$  200<sup>†</sup> = 8<sup>‡</sup>  $\mu$ L Bottle A and Bottle B*

*<sup>†</sup>Bottle dilution will be either 100 or 200*

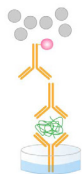
*<sup>‡</sup>Add 8  $\mu$ L of both Bottle A and Bottle B into 1X ECI*

3. Wash the sample from the plate 8 times using 1X PBST.
4. Tap plate dry using lint-free paper towel.
5. Thoroughly mix and pipette 100  $\mu$ L of the diluted detection solution into each testwell.
6. Incubate plate in the humid box for 2 hours at room temperature.



## Prepare Substrate

1. Add 1 PNP substrate tablet per 5 mL of 1X PNP substrate buffer into a dedicated container and keep in the dark until use. You will need 100  $\mu$ L of diluted PNP solution per well; a full plate will need 10 mL. Ensure tablets are dissolved before use.
2. Wash the detection solution from the plate 8 times using 1X PBST.
3. Tap plate dry using lint-free paper towel.
4. Pipette 100  $\mu$ L of dissolved PNP solution into each testwell.
5. Incubate, protected from light, for 1 hour at room temperature.



## Interpreting Results

1. Visually inspect wells and remove bubbles, if present. Measure O.D. values with a spectrophotometer at 405 nm or 405 nm with a 650 nm blank.
2. The test is valid if the positive and negative control O.D. results meet expected values (see Certificate of Analysis).
3. Sample interpretations should be performed on a case-by-case basis. Plant tissue interactions with ELISAs can vary greatly between plant species and even varieties. Certain healthy tissues can cause an elevated or higher than normal O.D. value. In this case, a healthy sample(s) of the same species or variety is needed to determine the healthy average.
4. Generally, positive and negative thresholds can be determined by using 2 times the healthy average. Any samples with an O.D. value higher than 2 times the healthy average are positive, and samples with an O.D. value below 2 times the healthy average are negative. An alternative method for threshold calculations is the healthy average plus 3 times the standard deviation of the healthy sample set.

<i>Method 1</i>	<i>Healthy Avg.</i>	<i>0.105</i>	<i>2 x Healthy Avg.</i>	<i>0.210</i>
	<i>Sample 1</i>	<i>0.355 (Positive)</i>	<i>Sample 2</i>	<i>0.190 (Negative)</i>

<i>Method 2</i>	<i>Healthy Avg.</i>	<i>0.105</i>	<i>Std. Dev.</i>	<i>0.030</i>	<i>Healthy Avg. + 3 x Std. Dev.</i>	<i>0.195</i>
	<i>Sample 1</i>	<i>0.355 (Positive)</i>	<i>Sample 2</i>	<i>0.190 (Negative)</i>		

5. Positive O.D. values indicate the presence of the target pathogen (or in some cases, a closely related pathogen). Visit the product webpage to see if any other pathogens are known to cross-react with this test. As with all diagnostic tools, Agdia recommends confirming all results with a secondary detection method before making any economic decisions (ex: discarding plants due to positive test results, etc.).

## Warranty

Agdia reagents are warranted for performance issues that arise from manufacturer defect. See product packaging for relevant expiration dates. Agdia's return policy can be found at [www.agdia.com/customer-support/return-policy](http://www.agdia.com/customer-support/return-policy).

## Additional Information

If you would like more information on how to run ELISA, please see Agdia's FAQ section, <http://www.agdia.com/customer-support/frequent-questions-and-troubleshooting>. For further documentation, including this user guide, buffer formulations, and a logsheet, please see Agdia's specific product webpages. For answers to your technical questions, please contact us at [techsupport@agdia.com](mailto:techsupport@agdia.com).



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