

# Validation report

## DAS-ELISA GLRaV-3

Article No.: 122378 (GLRaV-3 Complete kit 96) / 122376 (GLRaV-3 Complete kit 480) / 122373 (GLRaV-3 Complete kit 960)

### General information:

Target Pathogen	GLRaV-3 (Grapevine leafroll-associated virus 3)
Genus	<i>Ampelovirus</i>
Method	DAS-ELISA

### Technical information:

Antibodies	<p>Polyclonal and monoclonal antibodies developed against different GLRaV-3 isolates and recombinant proteins.</p> <p>The mixture of these selected antibodies allows a broad-spectrum detection of all scientifically recognized and published isolates so far, notably isolates of genetic variant groups I, II, III and VI, including recently published serologically distinct isolates in New Zealand (e.g., NZ1, NZ2, NZ1-VM)</p>
Sampling	<p>Leaf samples: 1:10 (w/v) in extraction buffer "Grapevine"</p> <p>Bark scrapings: 1:10 (w/v) in extraction buffer "Grapevine"</p>
Controls	<p>Negative control (NC): lyophilized extracts from healthy plants</p> <p>Positive control (PC): lyophilized GLRaV-2 infected plant extracts</p>
Working volume	200 µl / well

### Host matrix:

Tested plant material	Mature leaves, petioles, veins and bark (phloem) from dormant canes
Tested species infected	<i>Vitis vinifera</i> (Grapevine)

### Specificity:

Analytical Specificity	100%
Number of tested samples from target organism (True Positives)	>100
Diagnostic Specificity	100%
Number of tested samples non-target organism (True Negatives)	>100
Detected isolates / geographic regions (Inclusivity)	<p>Pinot noir 8027 (Switzerland, Grapevine)</p> <p>Chasselas 9035 (Switzerland, Grapevine)</p> <p>Gamay 9037 (Switzerland, Grapevine)</p> <p>Gamay 10816 (Switzerland, Grapevine)</p> <p>Monis 4 12472-73 (USA, Grapevine)</p> <p>STA 020870 12478-79 (USA, Grapevine)</p> <p>GRdL 8995-9001 (Switzerland, Grapevine)</p> <p>Malvoisie 8757-59 (Switzerland, Grapevine)</p> <p>GH11 N°41232 (South Africa, Grapevine)</p> <p>NZ-2, Cabernet Sauvignon N°41032 (New Zealand, Grapevine)</p>



GH24 Cabernet Sauvignon (South Africa, Grapevine)  
 NZ-2, Cabernet Sauvignon N°41033-4 (New Zealand, Grapevine)  
 Group II 623 (South Africa, Grapevine)  
 Group III PL-20 (South Africa, Grapevine)  
 Group VI GH30 (South Africa, Grapevine)  
 Pinot Noir California 15279-3, -4 (USA, Grapevine)  
 NZ-1, Cabernet Sauvignon N°41018 (New Zealand, Grapevine)  
 NZ-1 VM 13-1 Pinot noir (New Zealand, Grapevine)  
 NZ-1VM, Cabernet Sauvignon N°41038 (New Zealand, Grapevine)  
 California, 15269-2 (USA, Grapevine)  
 California, 15429-2 (USA, Grapevine)  
 NZ-1VM, Pinot noir N°42633-4 (New Zealand, Grapevine)  
 43572, ID45, Cabernet Sauvignon (USA, Grapevine)  
 4-1 (Germany, Grapevine)  
 4-13 (Germany, Grapevine)  
 4-19 (Germany, Grapevine)  
 4-21 (Germany, Grapevine)  
 4-22 (Germany, Grapevine)  
 4-27 (Germany, Grapevine)  
 95-137 Malvasia Nera (Italy, Grapevine)  
 95-139 Trebbiano Dorato (Italy, Grapevine)  
 95-182 Muscat de Samos (Greece, Grapevine)  
 95-184 Grand Noir (Greece, Grapevine)  
 96-41 Pinot Noir (Italy, Grapevine)  
 96-42 Nebbiolo (Italy, Grapevine)  
 CB19 Muskat Blume Metis Oberlin (France, Grapevine)  
 IFV10 Ribote rose (Spain, Grapevine)  
 PN E803 Pinot Noir (Switzerland, Grapevine)  
 PV124 Negro Amaro (Italy, Grapevine)  
 V29 Chardonnay (France, Grapevine)  
 V38 Chardonnay (France, Grapevine)  
 Y165 Ahmeur Mouara (Turkey, Grapevine)  
 Y215 Einuni (Israel, Grapevine)  
 Y245 Karasakis (Turkey, Grapevine)  
 Y251 Kok Khabakh (Crimean Peninsula, Grapevine)  
 Y256 Lasina (Jugoslavia, Grapevine)  
 Y258 Lilia Bidona (Azerbaijan, Grapevine)  
 Y259 Lutea (Italy, Grapevine)  
 Y261 Maeatheftico (Cyprus, Grapevine)  
 Y270 Muscat d'Istanbul (Israel, Grapevine)  
 Y285 Raziki (Yemen, Grapevine)  
 Y318 Yshouhali (Iran, Grapevine)  
 43771 Merlot (Switzerland, Grapevine)  
 10256-58 Black Spanish (Switzerland, Grapevine)  
 10772 Roussanne (Switzerland, Grapevine)

	10330 Sakasly (Switzerland, Grapevine)
Cross reaction with (Exclusivity)	None known
No cross reaction tested with (Exclusivity)	GFLV (Grapevine fanleaf virus) ArMV (Arabis mosaic virus) GLRaV-1 (Grapevine leafroll-associated virus 1) GLRaV-2 (Grapevine leafroll-associated virus 2) GLRaV-4 (Grapevine leafroll-associated virus 4) GFkV (Grapevine fleck virus) GVA (Grapevine virus A)
No matrix effect observed with (Selectivity)	<i>Vitis vinifera</i> (Grapevine)

**Sensitivity:**

Diagnostic Sensitivity	100%
Analytical Sensitivity / LoD	10 <sup>-3</sup> dilution of infected tissue (pathogen titer unknown)
Sensitivity on host matrix	GLRaV-3 on leaves of grapevine: 1:6'250 dilution GLRaV-3 on canes of grapevine: 1:6'250 dilution Pathogen titer unknown
Other sensitivity characteristics	-

**Validation:**

Internal validation	2021
External validation	2021: France (27 GLRaV-3 isolates) 2021: USA (900 samples, some infected) 2022: Switzerland (Grapevine Collection, 118 samples) PT every 2 years (Germany)
Reproducibility	100%
Repeatability	100%
Validation information	Every two years BIOREBA participates with GLRaV-3 reagents on an external proficiency test (PT).  Internally, the reagents have been validated with the BIOREBA isolate collection composed of various different samples collected within the last 40 years.

Validation report release Date:  
July, 20<sup>th</sup>, 2022

QC manager:



Version: 2 – 30.06.2023 – Information about sensitivity on host matrix and limit of detection (LoD) added.