

# Validation report

## DAS-ELISA GVA

Article No.: 122278 (GVA Complete kit 96) / 122276 (GVA Complete kit 480) / 122273 (GVA Complete kit 960)

### General information:

|                 |                                                |
|-----------------|------------------------------------------------|
| Target Pathogen | GVA (Grapevine virus A / Vitivirus alphavitis) |
| Genus           | <i>Vitivirus</i>                               |
| Method          | DAS-ELISA                                      |

### Technical information:

|                |                                                                                                                                                                                                                                                                                                                                                            |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Antibodies     | Polyclonal (coat and conjugate) antibodies developed against a recombinant GVA coat protein. Monoclonal antibodies (conjugate) developed against a CH-781 GVA isolate from Switzerland.                                                                                                                                                                    |
| Sampling       | Leaf samples: 1:20 (w/v) in extraction buffer "General".<br>Grapevine leaf samples: 1:10 (w/v) in extraction buffer "Grapevine".<br>Grapevine bark scrapings: 1:10 (w/v) in extraction buffer "Grapevine".<br>Detection in well-developed leaves (late in the growing season) or scrapings from mature canes during dormancy are good sources for testing. |
| Controls       | Negative control (NC): lyophilized extracts from healthy plants<br>Positive control (PC): lyophilized GVA infected plant extracts                                                                                                                                                                                                                          |
| Working volume | 200 µl / well                                                                                                                                                                                                                                                                                                                                              |

### Host matrix:

|                         |                                                                                                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tested plant material   | Leaf, bark (phloem) from dormant canes, vein<br>Transmission by vectors (Mealy bugs)                                                                      |
| Tested species infected | <i>Chenopodium quinoa</i> (Quinoa)<br><i>Nicotiana Benthiana</i> (Tobacco)<br><i>Nicotiana Clevelandii</i> (Tobacco)<br><i>Vitis vinifera</i> (Grapevine) |

### Specificity:

|                                                                |                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analytical Specificity                                         | 93%                                                                                                                                                                                                                                                          |
| Number of tested samples from target organism (True Positives) | >100                                                                                                                                                                                                                                                         |
| Diagnostic Specificity                                         | 93%                                                                                                                                                                                                                                                          |
| Number of tested samples non-target organism (True Negatives)  | 53                                                                                                                                                                                                                                                           |
| Detected isolates / geographic regions (Inclusivity)           | GVA Y215 (France, Grapevine)<br>GVA Y170 (France, Grapevine)<br>GVA Y217 (France, Grapevine)<br>GVA Y172 (France, Grapevine)<br>GVA Y307 (France, Grapevine)<br>GVA 1027 (Israel, Tobacco)<br>GVA 1027 (Israel, Quinoa)<br>GVA IS-151 (Switzerland, Tobacco) |

|                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                     | GVA-1 873 (Switzerland, Tobacco)<br>GVA-2 935 (Switzerland, Tobacco)<br>GVA-2 825 (Switzerland, Tobacco)<br>GVA-2 070199 (Switzerland, Tobacco)<br>GVA-2 030699 (Switzerland, Tobacco)<br>GVA 290909 (Germany, Grapevine)<br>GVA 240913 (Switzerland, Grapevine)<br>GVA 151013 (Switzerland, Grapevine)<br>GVA 300914 (Switzerland, Grapevine)<br>GVA 091014 (Switzerland, Grapevine)<br>GVA 270716 (Switzerland, Grapevine)<br>GVA 280916 (Switzerland, Grapevine)<br>GVA 150217 (Switzerland, Grapevine)<br>GVA 300123 (Switzerland, Grapevine)<br>GVA b201 (Germany, Grapevine)<br>GVA b202 (Germany, Grapevine)<br>GVA b203 (Germany, Grapevine)<br>GVA b41 (Germany, Grapevine)<br>GVA b250 (Germany, Grapevine)<br>GVA b251 (Germany, Grapevine) |
| <b>Cross reaction with (Exclusivity)</b>            | GVB (Grapevine virus B): weak cross-reaction possible.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>No cross reaction tested with (Exclusivity)</b>  | AMV (Alfalfa mosaic virus)<br>APLV (Andean potato latent virus)<br>ArMV (Arabis mosaic virus)<br>GFLV (Grapevine fanleaf virus)<br>GLRaV-1 (Grapevine leafroll-associated virus 1)<br>GLRaV-3 (Grapevine leafroll-associated virus 3)<br>RpRSV (Raspberry ringspot virus)                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>No matrix effect observed with (Selectivity)</b> | <i>Nicotiana Benthamiana</i> (Tobacco)<br><i>Nicotiana Clevelandii</i> (Tobacco)<br><i>Nicotiana Occidentalis</i> (Tobacco)<br><i>Vitis vinifera</i> (Grapevine)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**Sensitivity:**

|                                          |                                                                                                                  |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Diagnostic Sensitivity</b>            | 100%                                                                                                             |
| <b>Analytical Sensitivity / LoD</b>      | 10 <sup>-2</sup> dilution of infected tissue (pathogen titer unknown).                                           |
| <b>Sensitivity on host matrix</b>        | GVA on veins of grapevine: 1:150 dilution<br>GVA on canes of grapevine: 1:150 dilution<br>Pathogen titer unknown |
| <b>Other sensitivity characteristics</b> | -                                                                                                                |

**Validation:**

|                               |                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Internal validation</b>    | 2004, 2013/2014, 2017                                                                                                                                                            |
| <b>External validation</b>    | Validation by external research partners in 2014 (France, Germany, US and Switzerland).                                                                                          |
| <b>Reproducibility</b>        | 100%                                                                                                                                                                             |
| <b>Repeatability</b>          | 100%                                                                                                                                                                             |
| <b>Validation information</b> | Internally, the reagents have been validated with the BIOREBA isolate collection, composed of various samples with diverse plant host range, collected within the last 40 years. |

Validation release Date:  
July 30<sup>th</sup>, 2026

QC manager:



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[www.bioreba.com](http://www.bioreba.com)

**BIOREBA AG**  
Christoph Merian-Ring 7  
CH-4153 Reinach  
Switzerland

phone +41 61 712 11 25  
fax +41 61 712 11 17

*Your Partner in Agro-Diagnostics*

[admin@bioreba.ch](mailto:admin@bioreba.ch)  
[www.bioreba.com](http://www.bioreba.com)

