

Product Information: DAS-ELISA

Grapevine leafroll-associated virus 1+3 (GLRaV-1+3)

Leafroll diseases of grapevine are important and occur in all major grape-growing areas worldwide. The virus species GLRaV-1 and GLRaV-3 (both classified in the genus *Ampelovirus*), are the most prevalent ones out of several in the family *Closteroviridae* associated with grapevine leafroll disease (1-8). All common cultivars (e.g. *Vitis vinifera*) as well as interspecific hybrids and rootstocks are infected, even though not all infected vines develop strong symptoms. Yield and quality of the grapevines are affected and losses can be substantial. The viruses are transmitted by grafting and also by insect vectors such as mealybugs (*Pseudococcidae*) and soft scales (*Coccidae*).

Specificity and sampling instruction

These reagents allow in a single test (format DAS-ELISA) the detection of both GLRaV-1 and GLRaV-3. The reagents contain a mixture of complementary monoclonal antibodies to different isolates of GLRaV-1 (1, 2) as well as poly- and monoclonal antibodies developed against purified virus and a recombinant protein of different isolates of GLRaV-3 (1-6, 8). The mixture of these selected antibodies allows a broad-spectrum detection of all scientifically recognized and published GLRaV-1 and 3 isolates. The reagents have been extensively tested with virus collections from New Zealand, South Africa, Switzerland, and USA.

The DAS-ELISA technique is an efficient method for detecting leafroll viruses in grapevine. However, the concentration of the viruses in grapevine tissue is irregular; it varies according to tissue source and time of the year. Well-developed mature leaves, especially petioles and veins, from the lower part late in the growing season as well as bark (phloem) scrapings from mature canes, are good tissue sources (7). Due to the uneven distribution of the virus in plants, it is advised to take several subsamples from different canes. For testing grapevine, a special extraction buffer «Grapevine» (Art. No. 110123) (9, modified) is used at a ratio of 1:10 (w/v).

The product was developed in cooperation with Agroscope, the Swiss centre of excellence for research in the agriculture and food sector; ARC-Plant Protection Research Institute (PPRI) Pretoria South Africa; Cornell University NYSAES, Geneva, USA; and New Zealand Institute for Plant & Food Research Ltd, Auckland, New Zealand.

Information on the antibodies

Coating IgG: polyclonal/monoclonal; conjugate: polyclonal/monoclonal

References

- (1) Gugerli, P., Brugger, J.-J., and Bovey, R. 1984. Rev. suisse Vitic. Arboric. Hortic. 16:299-304.
- (2) Gugerli, P. Monoclonal antibodies to grapevine leafroll associated closterovirus (unpublished).
- (3) Hu, J.S., and Gonsalves, D., Boscia, D., and Namba, S. 1990. Phytopathology 80:920-925.
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- (5) Ling, K.S., Zhu, H.Y., Jiang, Z.Y., McFerson, J.R., and Gonsalves, D. 1997. 12th Meeting ICVG, Lisbon, Portugal, 29 September-2 October 1997, p. 89.
- (6) Rosciglione, B., and Gugerli, P. 1986. Rev. suisse Vitic. Arboric. Hortic. 18:207-211.
- (7) Teliz, D., Tanne, E., Gonsalves, D., and Zee, F. 1987. Plant Dis. 71:704-709.
- (8) Zee, F., Gonsalves, D., Goheen, A., Kim, K.S., Pool, R. and Lee, R.F. 1987. Pytopathology 77:1427-1434.
- (9) Gugerli, P. 1986. In H.U. Bergmeyer : Methods of Enz. Analysis. Vol. XI, pp. 474-481.

Ordering Information

BIOREBA offers the following formats:

Individual ELISA reagents for 96, 480 or 960 assays: IgG and/or conjugate for the working volume of 200 µl/test/well.

Reagent sets for 480 or 960 assays: IgG and conjugate, positive and negative controls, and microtiter plates (F-96) for a working volume of 200 µl/test/well.

Complete kits for 96, 480 or 960 assays: All reagents, controls, microtiter plates (F-96), buffers, and substrate necessary for a working volume of 200 µl/test/well.

ELISA buffers, equipment for sample preparation and disposables are also available.

For all Art. No. please refer to our product catalogue or our homepage www.bioreba.com and for prices and further information on any other product from BIOREBA, please contact your local distributor or our office in Switzerland.