

Product Information: DAS-ELISA

Grapevine leafroll-associated virus 3 (GLRaV-3)

GLRaV-3, an *Ampelovirus*, in the family *Closteroviridae*, is causing grapevine leafroll disease worldwide. 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. Red-fruited cultivars typically show more pronounced symptoms (reddish in late summer and fall with main veins remaining green, and leaf rolling) than white-fruited cultivars. GLRaV-3 causes significant losses (affecting yield and quality). The virus is transmitted by grafting and also by insect vectors such as mealybugs (*Pseudococcidae*) and soft scales (*Coccidae*).

Specificity and sampling instruction

The DAS-ELISA reagents contain poly- and monoclonal antibodies developed against purified viruses of different isolates as well as a recombinant coat protein (1-5, 7, and P. Gugerli, personal communication) of GLRaV-3. 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). These broad-spectrum ELISA 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 GLRaV-3 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 the most ideal tissue sources (6). 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) (8, modified) is used at a ratio of 1:10 (w/v).

The product was developed in cooperation with 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) Hu, J.S., and Gonsalves, D., Boscia, D., and Namba, S. 1990. Phytopathology 80:920-925.
- (3) Hu, J.S., Gonsalves, D., and Teliz, D. 1990. J. Phytopathology 128:1-14.
- (4) 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.
- (5) Rosciglione, B., and Gugerli, P. 1986. Rev. suisse Vitic. Arboric. Hortic. 18:207-211.
- (6) Teliz, D., Tanne, E., Gonsalves, D., and Zee, F. 1987. Plant Dis. 71 :704-709.
- (7) Zee, F., Gonsalves, D., Goheen, A., Kim, K.S., Pool, R., and Lee, R.F. 1987. Phytopathology 77:1427-1434
- (8) 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.