Product Information: DAS-ELISA

Tomato ringspot virus (ToRSV)

Synonym: Nepovirus lycopersici

ToRSV (7) is a nepovirus with a wide host range and is naturally transmitted by nematodes in the genus *Xiphinema*. It is an important virus in fruit trees, berry crops and grapevines in North America. In other parts of the world, the virus is only sporadically occurring. In Europe, for example, ToRSV has been detected in geraniums (pelargonium) and raspberries in Denmark, Great Britain, Sweden and Former Yugoslavia. Serologically different strains of ToRSV do exist (3). Serological properties are not related to host or geographic origin of the isolates.

BIOREBA offers two different, complementary, reagents (IgG and AP-conjugated IgG for DAS-ELISA) for ToRSV. To our current knowledge, all isolates are detected if tested with both reagents ToRSV and ToRSV-Ch.

Specificity of the ToRSV reagents

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The reagents contain different antibodies. One was made against an isolate obtained from soil baiting from a WV orchard (3). The other antibody was made against an isolate of ToRSV from a raspberry field in northern Washington (Robert R. Martin, personal communication; and 8). The reagents detect most ToRSV isolates from many host plants such as fruit trees, small fruits and grapevines in DAS-ELISA (4); however, they do not react with serologically very distinct ToRSV isolates such as grape yellow vein (6) or Chickadee (3), which are detected with our reagent «tomato ringspot virus-Chickadee strain» (ToRSV-Ch).

Tomato ringspot virus-Chickadee strain (ToRSV-Ch)

The reagent was made against an apple isolate of ToRSV (from Oregon, U.S.A.) that apparently does not cause any symptoms of apple union necrosis and decline disease in North America. The reagent is specific for the Chickadee and grape yellow vein (GYV) strains (3, 6). The reagent is complementary to ToRSV.

Both reagents have been developed in cooperation with the Cornell University, New York State Agricultural Experiment Station, Geneva, NY, USA and the USDA-ARS Northwest Center for Small Fruit Research, Corvallis, OR, USA.

Information on the antibodies

Coating IgG: polyclonal; conjugate: polyclonal

Sampling instruction

The concentration of ToRSV in woody plants varies; thus, conscious sample collection is important (1,2,5). For example in peaches, bark from the below-ground portion of the stem is the most reliable source of viral antigen (2). Samples are homogenized in extraction buffer «General».

Leaves from young shoots and juicy bark early in the growing season as well as bark (phloem) scrapings from mature canes during dormancy are good tissue sources for detecting ToRSV in grapevines. For testing grapevine, a special extraction buffer «Grapevine» (Art. No. 110123) (9, modified) is used at a ratio of 1:10 (w/v); for other plants, the extraction buffer «General» (Art. No. 110120) is used at a ratio of 1:20 (w/v).

References

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(5) Gonsalves, D. 1979. Plant Dis. Rep. 63:962-966.
(6) Gooding, G.V. 1963. Phytopathology 53:475-480.
(7) Stace-Smith, R. 1984. Descriptions of plant viruses. No. 290. CMI/AAB. 6pp.
(8) Rott, M.E., Tremaine, J.H., and Rochon, D.M., 1991. J. Gen. Virol. 72:1505-1514.
(9) Gugerli, P. 1986. In H.U. Bergmeyer : Methods of Enz. Analysis. Vol. XI, pp. 474-481.

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Ordering Information

BIOREBA offers the following formats:

Individual ELISA reagents for 100, 500 or 1000 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.