

Validation report

DAS-ELISA ToRSV

Article No.: 151477 (ToRSV Complete kit 96) / 151478 (ToRSV Grapev. Complete kit 96) /
151475 (ToRSV Complete kit 480) / 151476 (ToRSV Grapev. Complete kit 480) /
151472 (ToRSV Complete kit 960) / 151473 (ToRSV Grapev. Complete kit 960)

General information:

Target Pathogen	ToRSV (Tomato ringspot virus)
Genus	<i>Nepovirus</i>
Method	DAS-ELISA

Technical information:

Antibodies	Polyclonal antibodies developed against ToRSV isolates from a fruit orchard and from raspberry field in the USA.
Sampling	<u>Grapevine:</u> Samples: 1:10 (w/v) in extraction buffer "Grapevine". Leaves from young shoots and juicy bark early in the growing season and phloem scrapings from mature canes in dormancy. <u>Other plants:</u> Samples: 1:20 (w/v) in extraction buffer "General". Concentration has strong variation and conscious sample collection is important. Peach: below-ground portion of the stem is best source.
Controls	Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized ToRSV infected plant extracts
Working volume	200 µl / well

Host matrix:

Tested plant material	Leaf, canes, phloem Transmission by nematodes, seed transmission possible (tobacco, raspberry, soybean, strawberry, pelargonium) and mechanical transmission possible.
Tested species infected	<i>Cucumis sativa</i> (Cucumber) <i>Malus domestica</i> (Apple) <i>Nicotiana benthamiana</i> (Tobacco) <i>Nicotiana clevelandii</i> (Tobacco) <i>Nicotiana occidentalis</i> (Tobacco) <i>Nicotiana tabacum</i> "Xanthi" (Tobacco) <i>Prunus persica</i> (Peach) <i>Rubus idaeus</i> (Raspberry) <i>Vitis vinifera</i> (Grapevine)

Specificity:

Analytical Specificity	100%
Number of tested samples from target organism (True Positives)	37
Diagnostic Specificity	100%
Number of tested samples non-target organism (True Negatives)	>100
Detected isolates / geographic regions (Inclusivity)	ToRSV 1002 (Tobacco, Switzerland) ToRSV 1002 (Cucumber, Switzerland)

	ToRSV I 579 (Peach, France) ToRSV ID982 (Tobacco, Switzerland) ToRSV grape 1 (Grapevine, USA) ToRSV grape 2 (Grapevine, USA) ToRSV grape 3 (Grapevine, USA) ToRSV apple 1 (Apple, USA) ToRSV apple 2 (Apple, USA) ToRSV apple 3 (Apple, USA) ToRSV raspberry 1 (Raspberry, USA) ToRSV-PYBM (Tobacco, Switzerland) <u>Not detected isolates:</u> Grape yellow vein (GYV) strain isolates Chickadee (Ch) strain isolates (Apple, USA) ToRSV-Ch 905 (Tobacco, Switzerland)
Cross reaction with (Exclusivity)	None known
No cross reaction tested with (Exclusivity)	CGMMV (Cucumber green mottle mosaic virus) CMV (Cucumber mosaic virus) GFKV (Grapevine fleck virus) GLRaV-2 (Grapevine leafroll-associated virus 2) GLRaV-3 (Grapevine leafroll-associated virus 3) GLRaV-4 strain 6 (Grapevine leafroll-associated virus 4 strain 6) PDV (Prune dwarf virus) PMMoV (Pepper mild mottle virus) PRSV (Papaya ringspot virus) SLRSV (Strawberry latent ringspot virus) TBRV (Tomato black ring virus) TMV (Tobacco mosaic virus) WMV-2 (Watermelon mosaic virus 2)
No matrix effect observed with (Selectivity)	<i>Cannabis sativa</i> (Hemp) <i>Capsicum</i> (Pepper) <i>Cucumis sativa</i> (Cucumber) <i>Cucurbita pepo</i> (Zucchini) <i>Malus domestica</i> (Apple) <i>Perlargonium</i> (Geranium) <i>Prunus domestica</i> (Plum) <i>Prunus persica</i> (Peach) <i>Rubus idaeus</i> (Raspberry) <i>Solanum lycopersicum</i> (Tomato) <i>Vitis vinifera</i> (Grapevine)

Sensitivity:

Diagnostic Sensitivity	92%
Analytical Sensitivity / LoD	10 ⁻³ to 10 ⁻⁴ dilution of infected tissue (pathogen titer unknown)
Sensitivity on host matrix	ToRSV on leaves of cucumber: 1:12'500 dilution ToRSV on leaves of tobacco: 1:62'500 dilution ToRSV on canes of grapevine: 1:6'250 dilution Pathogen titer unknown
Other sensitivity characteristics	-

Validation:

Internal validation	2006, 2016, 2022 (last internal validation)
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External validation	2017 (USA)
Reproducibility	100%
Repeatability	100%
Validation information	Internally, the reagents have been validated with the BIOREBA isolate collection composed of various samples collected within the last 40 years.

Validation release Date:
June, 30th, 2023

QC manager:




Version: 3 – 12.08.2026 – New information about sensitivity on host matrix and limit of detection (LoD) for the detection in grapevine added.