

# Validation report

## DAS-ELISA TMV

Article No.: 190477 (TMV Complete kit 96) / 190475 (TMV Complete kit 480) / 190472 (TMV Complete kit 960)

### General information:

Target Pathogen	TMV (Tobacco mosaic virus)
Genus	<i>Tobamovirus</i>
Method	DAS-ELISA

### Technical information:

Antibodies	Polyclonal antibodies developed against a TMV isolate (FAL-76) from Switzerland.
Sampling	Leaf samples: 1:20 (w/v) in extraction buffer "General" Seed samples: 1:25 (w/v) in extraction buffer "General" with soaking the samples at 4°C for 4 hours before homogenization.
Controls	Negative control (NC): lyophilized extracts from healthy plants Positive control (PC): lyophilized TMV infected plant extracts
Working volume	200 µl / well

### Host matrix:

Tested plant material	Leaf, seed Mechanical transmission, no true vectors, incidental transmission by chewing insects reported
Tested species infected	<i>Chenopodium amaranticolor</i> <i>Cucumis sativa</i> (Cucumber) <i>Lactuca sativa</i> (Lettuce) <i>Nicotiana clevelandii</i> (Tobacco) <i>Nicotiana tabacum</i> "White Burley" (Tobacco) <i>Nicotiana tabacum</i> "Xanthi" (Tobacco) <i>Solanum lycopersicum</i> (Tomato)

### Specificity:

Analytical Specificity	100%
Number of tested samples from target organism (True Positives)	81 (PT: 100%)
Diagnostic Specificity	100%
Number of tested samples non-target organism (True Negatives)	>100 (PT: 100%)
Detected isolates / geographic regions (Inclusivity)	TMV (Tobacco, Switzerland) TMV 082001 ( <i>C. Amaranticolor</i> , Switzerland) TMV Mt-Favet (Tomato, Switzerland) TMV Mt-Favet+Mirza (Tomato, Switzerland) TMV 521 (Cucumber, Switzerland) TMV TH1-3 (Cucumber, Switzerland) TMV TH1-2 (Cucumber, Switzerland) TMV Rougette du Midi (Lettuce, Switzerland) TMV 27052021 (Cucumber, Switzerland) TMV 24082021 (Cucumber, Switzerland) TMV 4153 (Bean, Switzerland)

	TMV PMI-1 (Tobacco, Switzerland) TMV PMI-2 (Tobacco, Switzerland) TMV PMI-3 (Tobacco, Switzerland) TMV PMI-4 (Tobacco, Switzerland) TMV ZZB-312 (Tomato, Netherlands)
Cross reaction with (Exclusivity)	CGMMV (Cucumber green mottle mosaic virus) ToMV (Tomato mosaic virus) ToBRFV (Tomato brown rugose fruit virus)  <b>Cross-reaction with other tobamoviruses cannot be excluded.</b>
No cross reaction tested with (Exclusivity)	AMV (Alfalfa mosaic virus) BCMNV (Bean common mosaic necrosis virus) BCMV (Bean common mosaic virus) BYDV (Barley yellow dwarf virus) CMV (Cucumber mosaic virus) PFBV (Pelargonium flower break virus) PLRV (Potato leafroll virus) PNRSV (Prunus necrotic ringspot virus) PVS (Potato virus S) PVY (Potato virus Y) Rs ( <i>Ralstonia solanacearum</i> ) SMV (Soybean mosaic virus) TSWV (Tomato spotted wilt virus) ZYMV (Zucchini yellow mosaic virus)
No matrix effect observed with (Selectivity)	<i>Allium cepa</i> (Onion) <i>Allium sativum</i> (Garlic) <i>Beta vulgaris</i> (Sugar beet) <i>Brassica rapa</i> (Chinese cabbage) <i>Cannabis sativa</i> (Hemp) <i>Capsicum</i> (Pepper) <i>Chenopodium amaranticolor</i> <i>Chenopodium quinoa</i> (Quinoa) <i>Cucumis melo</i> (Melon) <i>Cucumis metuliferus</i> (Kiwano) <i>Cucumis sativa</i> (Cucumber) <i>Cucurbita pepo</i> (Zucchini) <i>Fragaria ananassa</i> (Strawberry) <i>Hordeum vulgare</i> (Barley) <i>Lactuca sativa</i> (Lettuce) <i>Malus domestica</i> (Apple) <i>Nicotiana benthamiana</i> (Tobacco) <i>Nicotiana clevelandii</i> (Tobacco) <i>Nicotiana glutinosa</i> (Tobacco) <i>Nicotiana occidentalis</i> (Tobacco) <i>Nicotiana tabacum</i> "Xanthi" (Tobacco) <i>Pelargonium</i> (Geranium) <i>Petunia hybrida</i> (Petunia) <i>Phaseolus vulgaris</i> (Bean) <i>Physalis peruviana</i> (Bladder cherries) <i>Prunus domestica</i> (Plum) <i>Prunus persica</i> (Peach) <i>Pyrus communis</i> (Pear) <i>Raphanus sativus</i> (Radish) <i>Rubus idaeus</i> (Raspberry)



	<i>Sinapis alba</i> (White mustard) <i>Solanum lycopersicum</i> (Tomato) <i>Solanum tuberosum</i> (Potato) <i>Vinca minor</i> (Vinca) <i>Vitis vinifera</i> (Grapevine) <i>Zea mays</i> (Corn)
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**Sensitivity:**

Diagnostic Sensitivity	100%   PT: 100%
Analytical Sensitivity / LoD	-
Sensitivity on host matrix	100%
Other sensitivity characteristics	PT: 100% of medium and heavily contaminated seed lots detected (70 samples with each 250 seeds).

**Validation:**

Internal validation	1998, 2001, 2007 (last internal validation)
External validation	1 PT in 2023 with 15 laboratories (Netherlands)
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, 28<sup>th</sup>, 2023

QC manager:

Version: 2 – 15.11.2023 – New validation data from PT was included in the validation report.