

## Supplementary materials

**Table S1.** The main ELISA test systems for the control of grapevine virus pathogens that are commercially available.

Manufacturer Company, Country, Company Website	Controlled Pathogens	Assay Format	Additional Information
Agdia, USA; www.agdia.com	GFLV	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal. Assaying plant foliage.
	ArMV (Arabis mosaic virus)	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal. Assaying plant foliage.
Bioreba, Switzerland; www.bioreba.ch	GFLV	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: monoclonal. The antibodies against the isolates of the GFLV from Central Europe (Colmar, France) and Canada (Vineland Research Station, Ontario). The use of young leaves or sprouting buds and juicy bark is recommended.
	GFkV	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: monoclonal. The antibodies against an GFkV isolate of Rupestris St. Georges grapevine. Mature leaves and bark (phloem) scrapings are recommended for testing.
	GLRaV-1	DAS-ELISA	Coating IgG: monoclonal. Phosphatase conjugate: monoclonal. The reagents contain complementary monoclonal antibodies to isolates of the GLRaV-1. Mature leaves (especially petioles) and bark (phloem) scrapings from dormant canes are recommended for testing.
	GLRaV-3	DAS-ELISA	Coating IgG: polyclonal/monoclonal. Phosphatase conjugate: polyclonal/monoclonal. Antibodies against purified viruses of different isolates, as well as a recombinant coat protein of the GLRaV-3. Well-developed mature leaves, especially petioles and veins from the lower part late in the growing season, and bark (phloem) scrapings from mature canes, are recommended for testing.
	GLRaV-1+3	DAS-ELISA	Coating IgG: polyclonal/monoclonal. Phosphatase conjugate: polyclonal/monoclonal. Mixtures of complementary monoclonal antibodies to isolates of GLRaV-1, as well as the poly- and monoclonal antibodies against the purified virus and its recombinant protein. Well-developed mature leaves, especially petioles and veins from the lower part of the plant, and bark (phloem) scrapings from mature canes, are recommended for testing.
	GLRaV-2	DAS-ELISA	Coating IgG: monoclonal. Phosphatase conjugate: polyclonal. Monoclonal antibodies against an isolate of the Chasselas clone 8/22. Polyclonal antibodies against an isolate from a Pinot Noir grapevine in Oregon. Mature leaves and bark (phloem) scrapings from dormant canes are recommended for testing.
	GLRaV-4 strains	DAS-ELISA	Coating IgG: monoclonal. Phosphatase conjugate: monoclonal. The reagents contain a mixture of complementary monoclonal antibodies that recognise the GLRaV-4 and its strains 5, 6, 9, and Ob. Bark (phloem) scrapings from mature canes and mature leaves (especially petioles) are recommended for testing.
	GLRaV-4 strain 6	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: monoclonal. The antibodies against an isolate of the Chasselas clone 8/22 detect the GLRaV-4 strain 6, formerly named the GLRaV IIa. Mature leaves and bark (phloem) scrapings from dormant canes (especially well-developed middle-aged leaves, veins, and petioles) are recommended for testing.
	GVA	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal/monoclonal. Polyclonal antibodies are raised against a recombinant virus coat protein, and monoclonal ones are raised against the CH-781 isolate. Well-developed leaves from the lower part of the plant, and bark (phloem) scrapings (cortical scrapings) from mature canes during dormancy are recommended for testing.

	GPGV (grapevine pinot gris virus)	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal. The antibodies are made against a recombinant coat protein. Bark (phloem) scrapings from dormant canes and leaves from young shoots are recommended for testing. Sampling mature leaves is not recommended during summer or in fall.
Creative Diagnostics, USA; www.creative-diagnostics.com	GFLV	DAS-ELISA	Sample—grapevine phloem, infected grapevine plant foliage.
	GfKv	DAS-ELISA	Sample—grapevine phloem.
	GLRaV-1	DAS-ELISA	Sample—grapevine phloem.
	GLRaV-3	DAS-ELISA	Sample—grapevine phloem.
	GVA	DAS-ELISA	Sample—grapevine phloem.
Loewe Biochemica, Germany; www.loewe-info.com	GLRaV-7	DAS-ELISA	Using polyclonal rabbit antibodies.
Sediag, France; www.sediag.com	GFLV	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: monoclonal. Assaying leaves, stems, or seeds.
	GfKv	TAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: monoclonal. Assaying leaves, stems, or seeds.
	GLRaV-1	DAS-ELISA	Coating IgG: monoclonal. Phosphatase conjugate: monoclonal. Leaves, stems, or seeds are recommended for testing.
	GLRaV-1 +3	DAS-ELISA	Assaying leaves, stems, or seeds.
	GLRaV-2	TAS-ELISA	Coating IgG: polyclonal. Monoclonal antibodies. Phosphatase conjugate: anti-species antibodies. Assaying leaves, stems, or seeds.
	GLRaV-3	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal. Assaying leaves, stems, or seeds.
	GLRaV-5	DAS-ELISA	Coating IgG: polyclonal. Biotinylated polyclonal antibodies. Streptavidin–phosphatase. Assaying leaves, stems, or seeds.
	GVA	DAS-ELISA	Coating IgG: polyclonal. Phosphatase conjugate: polyclonal. Assaying leaves, stems, or seeds.
	GVB	DAS-ELISA	Coating IgG: monoclonal. Biotinylated monoclonal antibodies. Streptavidin–phosphatase. Assaying leaves, stems, or seeds.
	GALV (grapevine Algerian latent virus)	DAS-ELISA	Using polyclonal rabbit antiserum.
	GFLV	DAS-ELISA	Using polyclonal rabbit antiserum.
	GLRaV-1	DAS-ELISA	Using polyclonal rabbit antiserum.
	GLRaV-3	DAS-ELISA	Using polyclonal rabbit antiserum.

**Table S2.** The main commercial kits based on nucleic acid amplification for grapevine viruses diagnostic.

Manufacturer Company, Country, Company Website	Controlled Pathogens	Assay Format	Additional Information
Agdia, USA; www.agdia.com	GRBaV	AmplifyRP® Acceler8® DNA amplification with detection by lateral flow strip	Biotin-labelled primer/FITC probe; field-based or laboratory testing
NANO Diagnostics, USA; www.nanodiainc.com	GFLV	Immunocapture RT-PCR and immunocapture qRT-PCR	Strips pre-coated with specific antibody and complete kit available
	GFkV	Immunocapture RT-PCR and immunocapture qRT-PCR	Strips pre-coated with specific antibody and complete kit available
	GLRaV-1	Immunocapture RT-PCR	Strips pre-coated with specific antibody and complete kit available
	GLRaV-2	Immunocapture RT-PCR and immunocapture qRT-PCR	Strips pre-coated with specific antibody and complete kit available
	GLRaV-3	Immunocapture RT-PCR and immunocapture qRT-PCR	Strips pre-coated with specific antibody and complete kit available
	ArMV	Immunocapture kit for RT-PCR	Pre-coated PCR tubes for capturing virus particles
	GRSPaV	Immunocapture kit for RT-PCR	Pre-coated PCR tubes for capturing virus particles
Qualiplante SAS; France; www.qualiplante.eu	ArMV+ GFLV	Triplex end-point PCR	Matrices: leaf, wood; internal control is included
	ArMV+GFLV+GLRaV-1+GLRaV-2+GLRaV-3+GVA+GFkV	Multiplex end-point PCR	Matrices: leaf, wood; internal control is included
	GPGV	One-step RT-PCR	Matrices: leaf, wood
	GPGV	One-step real-time RT-PCR	Matrices: leaf, wood; SYBR-Green® technology
	GRBaV	Real-time PCR	Matrices: leaf, wood; SYBR-Green technology®
	GRBaV	End-point PCR	Matrices: leaf, wood
	GFLV	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore
	GFkV	One-step real-time RT-PCR	Matrices: leave, wood; Taq-Man® technology, FAM fluorophore
	GLRaV-1	Real-time PCR	Matrices: leaf, wood; SYBR-Green® technology
	GLRaV-1	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore
	GLRaV-1+ GLRaV-2+ GLRaV-3	Multiplex end-point PCR	Matrices: leaf, wood; internal control
	GLRaV-2	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore
	GLRaV-3	Real-time PCR	Matrices: leaf, wood; SYBR-Green® technology
	GLRaV-3	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore
	GVA	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore
	GVB	One-step real-time RT-PCR	Matrices: leaf, wood; Taq-Man® technology, FAM fluorophore