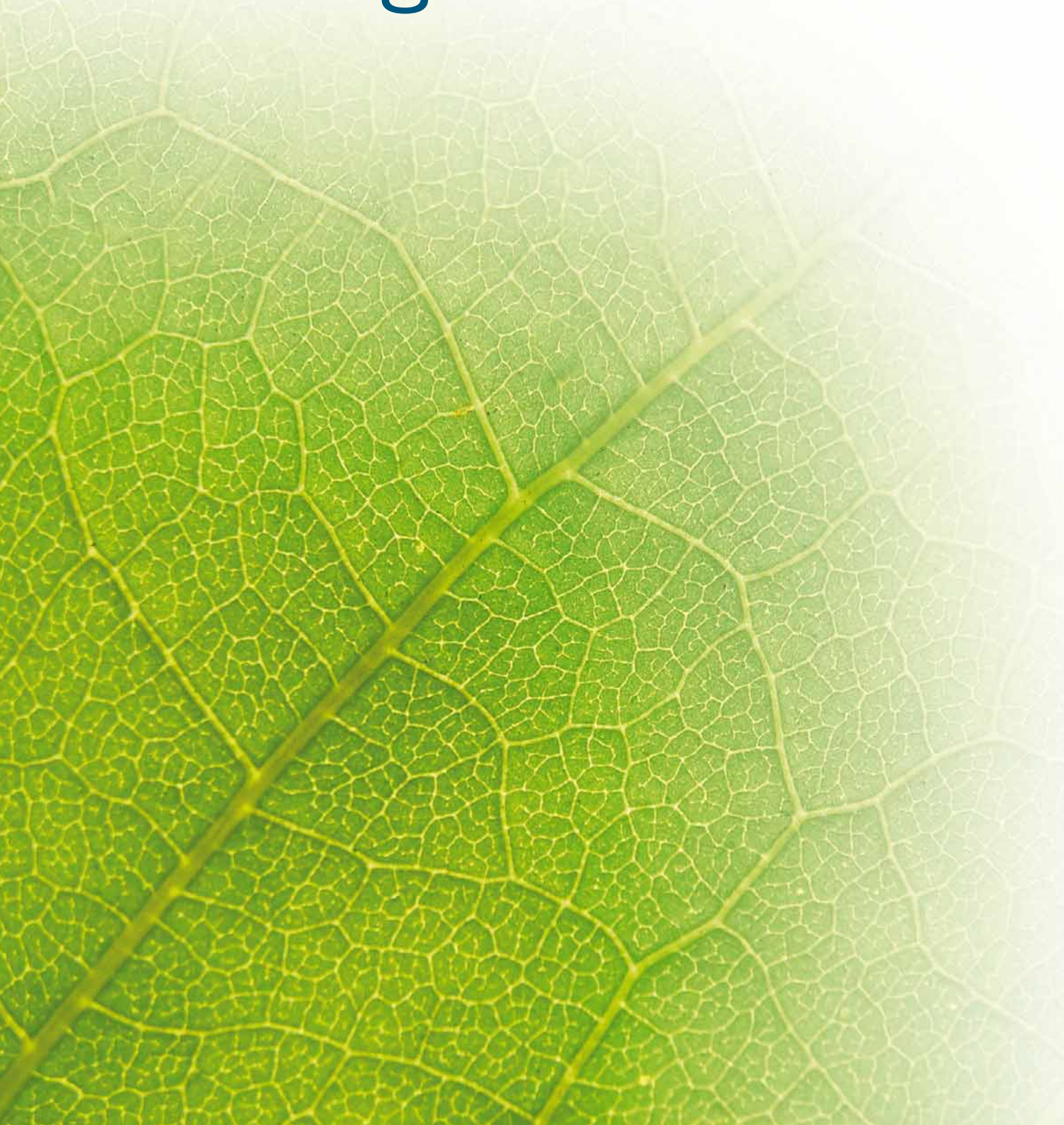


Catalogue



primediagnos*tics*

Droevendaalsesteeg 1
P.O. Box 69
6700 AB Wageningen
The Netherlands

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Fax: +31 317 481 007
E-mail: primediagnos@wur.nl
Internet: www.primediagnos.com

General information on antisera

- The coating and alkaline phosphatase (AP) conjugates are suitable for use in DAS-ELISA only.
- The AP-conjugate and coating should be diluted 1000x. In a standard assay 1 ml of coating and 1 ml of AP-conjugate supports 5000 reactions in DAS-ELISA.
- Positive and negative controls may only be ordered in combination with the homologous antisera.
- Custom-made conjugates with fluorescent labels or AP can be produced upon request.
- Protocols are available at www.primediagnosics.com.
- Antisera that are not on the list can be produced on request. Please inquire.

Storage information and stability

- Coatings and AP-conjugates should preferably be stored at 4°C and not at -20°C (unless stored for periods longer than one year). At 4°C antisera are stable for at least two years.
- When coatings and AP-conjugates are stored at -20°C avoid repeated freezing and thawing as this can influence the product quality considerably. Aliquot if necessary.
- Controls, IgG and FITC-conjugates should be stored permanently, in aliquots, at -20°C. Avoid repeated freezing and thawing. The reagents will remain stable for at least two years.
- Luminex reagents should preferably be stored at 4°C. They will remain stable for two years.
- Lateral flow devices can be stored at room temperature. They will remain stable until expiration date.

Information concerning the quality of the antisera

- The criterion for reactivity of ELISA reagents for virus detection is an OD₄₀₅ reading of the 10 times diluted positive control of at least 1.0 after 30 minutes of substrate incubation. The value of the OD₄₀₅ may however vary depending on the ELISA reader used.
- The criteria for reactivity of ELISA reagents for bacterial detection are an OD₄₀₅ reading of the 10 times diluted positive control (end concentration of 10⁷ cells/ml) of at least 1.0 after 30 minutes of substrate incubation.
- Antisera are biological products and differences in reactivity between batches are apparent. Prime Diagnostics exercises strict quality control and guarantees the reactivity as indicated on the batch quality sheet (if applicable).
- Within our quality assurance programme, our antisera are tested for specificity against a wide variety of currently known and recognized pathogenic isolates, strains and patho-types of the subsequent pathogens. However, new pathogenic or non-pathogenic strains and isolates of a given pathogen may emerge over time. Prime Diagnostics can not guarantee that such a new strain or isolate will be detected with equal efficiency.
- Within our quality assurance programme, our antisera are tested for lack of reactivity against a variety of pathogens and/or plant compounds known to occur in combination with the given pathogen. However, within the context of any given test, the possibility of false-positive results with unrelated organisms or plant or matrix substances should always be considered.
- Positive controls are qualitative and cannot be used for quantification!
- Negative controls are optimized for use in different crops and are not suitable for determination of the selectivity of the assay.

Antisera to plant-pathogenic bacteria

- The label in the FITC-conjugate is fluorescein-iso-thio-cyanate.
- The IgG and FITC-conjugate are both suitable for use in immunofluorescence detection.
- The dilution of the IgG and FITC antiserum for immunofluorescence detection is dependent on the assay used and laboratory circumstances. It is recommended to determine the working dilution of the reagents under on-site conditions.
- Antisera labeled with other fluorescent labels are available on request. Prices can be supplied upon request.
- For all bacteria non-infectious positive controls are available for use in DAS-ELISA or (indirect) immunofluorescence cell staining (IIF and IF). These controls have a concentration of 10⁸ cells/ml.
- Negative controls consisting of non-infectious bacteria or plant extract are available on request.

Virus inocula

- Freeze-dried virus particles, dried plant material (to be reconstituted in buffer) or purified virus for inoculating purposes can be obtained on request. The amounts are generally sufficient for small-scale screening experiments.

Contact

Orders and invoicing	E-mail: primediagnosics@wur.nl Online ordering: www.primediagnosics.com Tel: (+31) 317 480 613 Fax: (+31) 317 480 561
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For information, please contact one of the following persons:

Sales	Ms. Antje de Bruin Mr. Willem Stol	Tel: (+31) 317 480 631 Tel: (+31) 317 480 561
Product information	Mr. Paul Piron Ms. Margarit de Klein Ms. José van Beckhoven	Tel: (+31) 317 480 647 Tel: (+31) 317 480 669 Tel: (+31) 317 480 603
Luminex	Mr. Jan Bergervoet Ms. Marjanne de Weerd	Tel: (+31) 317 480 836 Tel: (+31) 317 480 612

Distributors

A list of our distributors can be found on our website: www.primediagnosics.com.

Diagnostic products for viruses

Pathogen (virus)	Acronym	LFD	DAS-ELISA	Luminex
<i>Alfalfa mosaic virus</i>	AMV		•	•
<i>Alstroemeria carlavirus</i>	AICV		•	
<i>Alstroemeria flower-banding virus</i>	AIFBV		•	
<i>Alstroemeria mosaic virus</i>	AIMV		•	
<i>Apple chlorotic leafspot virus</i>	ACLSV		•	
<i>Apple stem grooving virus</i>	ASGV		•	
<i>Arabis mosaic virus</i>	ArMV		•	•
<i>Bean common mosaic virus</i>	BCMV		•	
<i>Beet necrotic yellow vein virus</i>	BNYVV	•		
<i>Beet yellows virus</i>	BYV	•		
<i>Bean yellow mosaic virus</i>	BYMV		•	
<i>Beet western yellows virus</i>	BWYV		•	
<i>Carnation etched ring virus</i>	CERV		•	•
<i>Carnation italian ringspot virus</i>	CIRV		•	•
<i>Carnation latent virus</i>	CLV		•	•
<i>Carnation mottle virus</i>	CarMV		•	•
<i>Carnation necrotic fleck virus</i>	CNFV		•	•
<i>Carnation ringspot virus</i>	CRSV		•	•
<i>Carnation vein mottle virus</i>	CVMV		•	•
<i>Cherry leafroll virus</i>	CLRV		•	
<i>Chrysanthemum virus B</i>	CVB		•	•
<i>Cucumber green mottle mosaic virus</i>	CGMMV		•	
<i>Cucumber mosaic virus</i>	CMV	•	•	•
<i>Cymbidium mosaic virus</i>	CymMV	•	•	•
<i>Freesia sneak virus</i> (is equal to FOV and FLNV)	FreSV		•	
<i>Hosta virus X</i>	HVX		•	
<i>Impatiens necrotic spot virus</i>	INSV	•	•	•
<i>Iris yellow spot virus</i>	IYSV		•	
<i>Kalanchoë mosaic virus</i>	KMV		•	•
<i>Leek yellow stripe virus</i>	LYSV		•	
<i>Lettuce big vein associated virus</i>	LBVaV		•	
<i>Lettuce mosaic virus</i>	LMV		•	•
<i>Melon necrotic spot virus</i>	MNSV		•	
<i>Mirafiori lettuce big vein virus</i>	MiLBVV		•	
<i>Odontoglossum ringspot virus</i>	ORSV	•	•	•
<i>Onion yellow dwarf virus</i>	OYDV		•	
<i>Pea early-browning virus</i>	PEBV		•	
<i>Pea seed-borne mosaic virus</i>	PSbMV		•	
<i>Pelargonium flower-break virus</i>	PFBV		•	•
<i>Pelargonium line pattern virus</i>	PLPV		•	•
<i>Pepino mosaic virus</i>	PepMV	•	•	•

Diagnostic products for viruses

Pathogen (virus)	Acronym	LFD	DAS-ELISA	Luminex
<i>Plum pox virus ('sharka')</i>	PPV	•	•	
<i>Poplar mosaic virus</i>	PopMV		•	
<i>Potato leafroll virus</i>	PLRV		•	•
<i>Potato virus A</i>	PVA	•	•	•
<i>Potato virus M</i>	PVM		•	•
<i>Potato virus S</i>	PVS	•	•	•
<i>Potato virus V</i>	PVV	•		
<i>Potato virus X</i>	PVX	•	•	•
<i>Potato virus Y</i>	PVY	•	•	•
<i>Potato virus Y^N</i>	PVYN	•		
<i>Shallot yellow stripe virus</i>	SYSV		•	
<i>Squash mosaic virus</i>	SqMV		•	
<i>Streptocarpus flower-break virus</i>	SFBV		•	
<i>Tobacco mosaic virus</i>	TMV		•	•
<i>Tobacco ringspot virus</i>	TRSV		•	•
<i>Tomato aspermy virus</i>	TAV		•	•
<i>Tomato black ring virus</i>	TBRV		•	•
<i>Tomato bushy stunt virus</i>	TBSV		•	•
<i>Tomato mosaic virus</i>	ToMV	•	•	•
<i>Tomato ringspot virus</i>	ToRSV		•	•
<i>Tomato spotted wilt virus</i>	TSWV	•	•	•
<i>Tomato yellow leaf curl virus</i>	TYLCV	•		
<i>Zucchini yellow mosaic virus</i>	ZYMV		•	

The following reagent forms are available for DAS-ELISA:

Reagent form	Amount (ml)	Number of assays	Order code
Coating	1.0	5000	CO
Coating small	0.2	1000	CO-s
AP-conjugate	1.0	5000	AP
AP-conjugate small	0.2	1000	AP-s
Positive control ¹⁾	1.0	50	PC
Negative control ¹⁾	1.0	50	NC

¹⁾ Positive and negative controls are only available in combination with coating and/or conjugate.

Diagnostic products for bacteria and fungi

Pathogen (bacteria)	Acronym	LFD	IIF	IF/DAS-ELISA	Luminex
<i>Clavibacter michiganensis</i> subsp <i>insidiosus</i>	Cmi		•		
<i>Clavibacter michiganensis</i> subsp <i>michiganensis</i>	Cmm		•		
<i>Clavibacter michiganensis</i> subsp <i>sepedonicus</i>	Cms		•	•	•
<i>Curtobacterium flaccumfaciens</i> pv <i>flaccumfaciens</i>	Cff		•		
<i>Curtobacterium flaccumfaciens</i> pv <i>oortii</i>	Cfo		•		
<i>Erwinia amylovora</i>	Eam	•	•		
<i>Dickeya dianthicola</i> (<i>Erwinia chrysanthemi</i>)	Ech		•	•	•
<i>Pectobacterium atrosepticum</i>	Eca		•	•	•
<i>Pseudomonas chichorii</i>	Pc		•		
<i>Pseudomonas syringae</i> pv <i>lachrymans</i>	Psl		•		
<i>Pseudomonas syringae</i> pv <i>mors-prunorum</i>	Psm		•		
<i>Pseudomonas syringae</i> pv <i>phaseolicola</i>	Psph		•		
<i>Pseudomonas syringae</i> pv <i>psi</i>	Pspi		•		
<i>Pseudomonas syringae</i> pv <i>porri</i>	Pspo		•		
<i>Pseudomonas syringae</i> pv <i>syringae</i> (strain specific)	Pssy		•		
<i>Pseudomonas syringae</i> pv <i>savastanoi</i>	Pssa		•		
<i>Pseudomonas syringae</i> pv <i>tomato</i>	Pst		•		
<i>Ralstonia solanacearum</i>	Rsol	•	•	•	•
<i>Rhodococcus fascians</i>	Rhf		•		
<i>Xanthomonas axonopodis</i> pv <i>begoniae</i>	Xb		•		
<i>Xanthomonas axonopodis</i> pv <i>dieffenbachiae</i>	Xcd		•	•	
<i>Xanthomonas axonopodis</i> pv <i>phaseoli</i>	Xph		•		
<i>Xanthomonas axonopodis</i> pv <i>phaseoli</i> var <i>fuscans</i>	Xphf		•		
<i>Xanthomonas arboricola</i> pv <i>pruni</i>	Xpru	•	•		
<i>Xanthomonas campestris</i> pv <i>vesicatoria</i>	Xcv		•		
<i>Xanthomonas campestris</i> pv <i>campestris</i>	Xcc		•		
<i>Xanthomonas fragariae</i>	Xf		•	•	
<i>Xanthomonas hortorum</i> pv <i>carotae</i>	Xcar		•		
<i>Xanthomonas hortorum</i> pv <i>pelargonii</i>	Xcp	•	•	•	•

Pathogen (fungi)	Acronym	LFD	IIF	DAS-ELISA	Luminex
<i>Botrytis</i>	Bot	•			
<i>Fusarium</i>	Fus				•
<i>Phytophthora</i>	Phyto	•			•
<i>Pythium</i>	Pyth	•			
<i>Rhizoctonia</i>	Rhizo	•			

The following reagent forms are available for IIF and IF/DAS-ELISA:

Reagent form	Amount (ml)	Number of assays	Order code
IgG	1.0	5000	I
IgG small	0.2	1000	I-s
FITC-conjugate	1.0	5000	F
FITC-conjugate small	0.2	1000	F-s
Coating	1.0	5000	CO
Coating small	0.2	1000	CO-s
AP-conjugate	1.0	5000	AP
AP-conjugate small	0.2	1000	AP-s
Positive control ¹⁾	1.0	50	PC
Negative control ¹⁾	1.0	50	NC

¹⁾ Positive and negative controls are only available in combination with IgG, coating, AP- or FITC-conjugate.

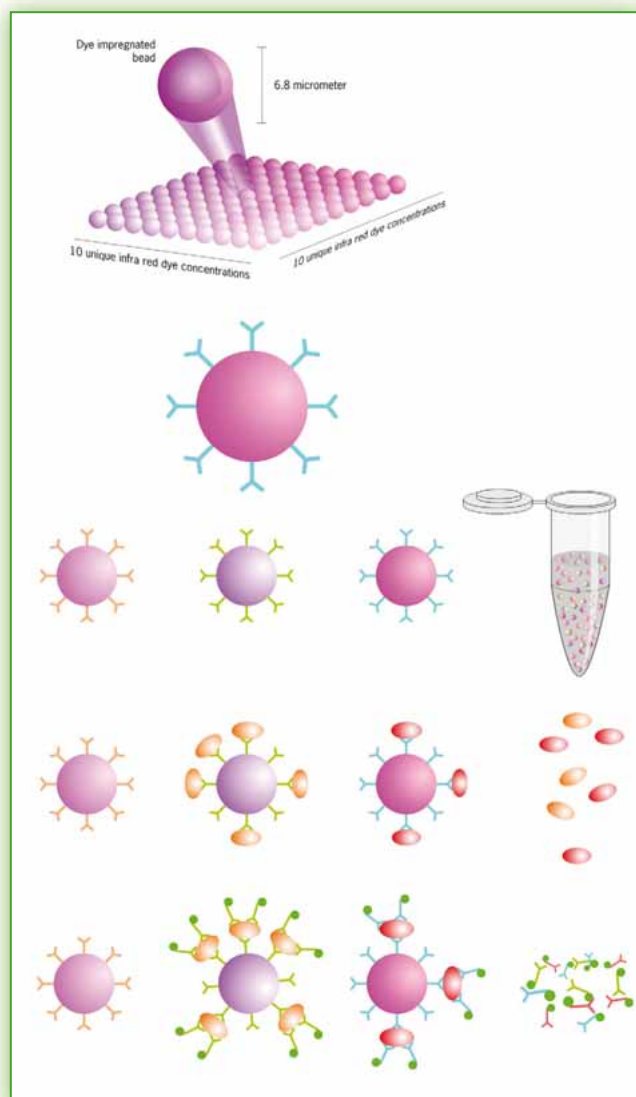
Luminex xMAP® technology for multiplex detection of viruses and bacteria

The Luminex xMAP® technology utilizes small polystyrene beads, so called microspheres. These beads are colour coded into distinct sets. Specific antigens needed for the multiplex bio-assay are covalently linked to these microspheres, to each microsphere set a specific antibody is coupled. Luminex xMAP® technology can analyze up to 500 parameters simultaneously in one single sample using a Flexmap 3D analyzer.

Prime Diagnostics offers multi-analyte assays, which contain defined combinations of these microsphere populations linked to different specific antigens. The production of these multi-analyte bio-assays and the linking of the antigens through the surface of the microspheres, including positive and negative controls is done by Prime Diagnostics. Luminex xMAP® kits of Prime Diagnostics are thoroughly tested and validated (literature references are available) and are available in standard and custom-made formats.

The detection of plant pathogens in a sample occurs on the surface of the microspheres. The microsphere populations are added to a sample in a well (96-wells plate format) and each microsphere population will bind to its specific target molecule (antibody). A secondary antibody is added and after binding and labelling, the microtitre plates are transferred to the Luminex analyzer. In the analyzer the internal dyes that identify each microsphere particle, and the presence, or absence of the reporter dye are analyzed.

Luminex xMAP® technology is an ideal and cost-effective platform for laboratoria with medium or high-throughput volume. The technology enables multiplex analysis in a single sample in a rapid and robust way, saving costs of labour (washing of plates, rapid test time) and consumables by reducing the number of operations moving from sequential simplex test to a multiplex test.



Principle

The xMAP technology is based on small polystyrene microspheres or beads. Over 100 different bead populations exist. They can be recognized from each other according to a colour code specific for each population.

Antibodies, which recognize a specific pathogen, are conjugated to a specific bead, creating a unique bead set antibody combination.

A set of these unique combinations can be 'pooled' and used to detect a number of pathogens in one single sample.

The conjugated antibodies capture the pathogens, but if no pathogens exist for the specific bead antibody combination, nothing is captured.

The secondary antibody conjugated to a fluorescent probe is added. The sandwich of bead, pathogens and antibodies are analyzed and clearly displayed in the analyzer.

Multiplex detection of DNA/RNA

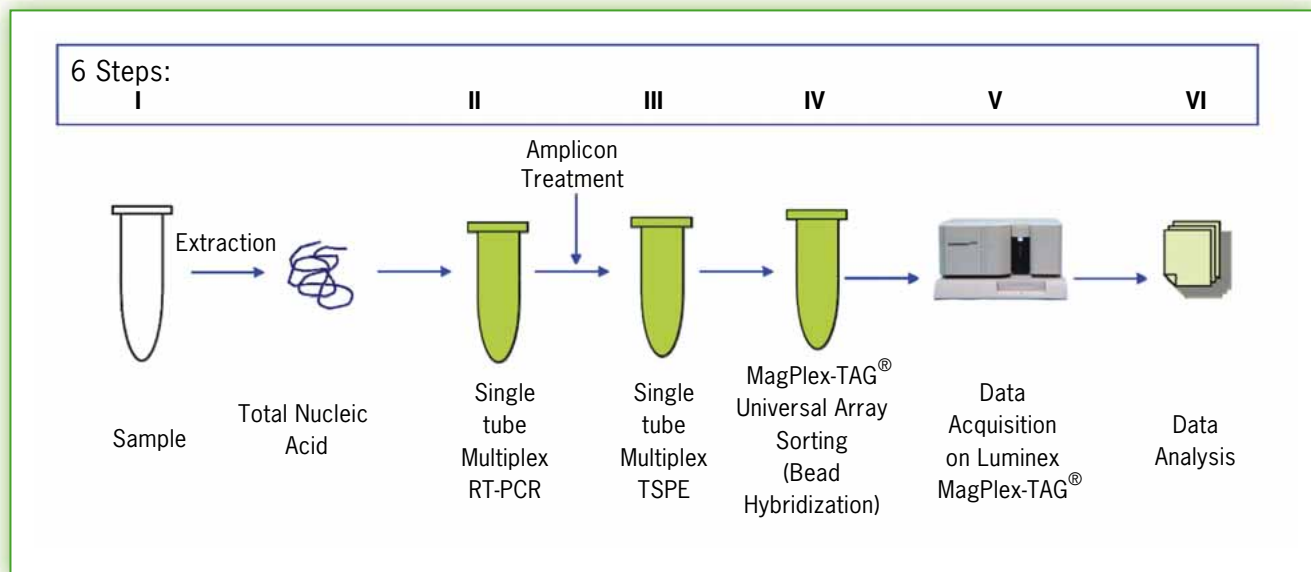
Kits for multiplex detection of DNA or RNA are available from Prime Diagnostics to support our customers with **efficient and reliable methods for multiplex detection of fungi, bacteria, viruses and viroids in plants**. For this purpose Prime Diagnostics selected an assay that is based on Target Specific Primer Extension (TSPE). TSPE is a robust format that combines the functionality of PCR with the flexibility and multiplexing capabilities of Luminex MagPlex-TAG® technology.

Our strategy is to enhance our existing portfolio of immunoassays (ELISA and Luminex xMAP®) with DNA/RNA assays for pathogens where the development of immunoassays is not feasible or limited. These kits are now available for use by our customers and partners. Based on the results achieved so far, users may expect results that are highly specific with respect to the targets in the assay while the sensitivity is similar to PCR assays.

Principle of Target Specific Primer Extension assay (TSPE) with Luminex MagPlex-TAGs

Target specific primer extension (TSPE) is an assay based on detection of DNA or RNA using Luminex MagPlex-TAG® microspheres. This assay type is suited to detect plant pathogens and/or SNP's. The TSPE assay consists of the following elements: 1) DNA extraction of the sample material. 2) Targets are PCR-amplified from genomic DNA or RNA with a target specific primer set, if desired in a multiplex setting. 3) A PCR product purification step is followed by a TSPE reaction in which biotinylated dCTPs are incorporated into the newly polymerised DNA strand. Each TSPE primer carries a unique MagPlex-TAG®, which is reverse-complementary to MagPlex-TAG 'anti-tag' uniquely assigned to a specific Luminex bead. 4) The TSPE products are uniquely annealed to the microspheres through the specificity of the MagPlex-TAG® / 'anti-tag' recognition. 5) Thereafter, the biotinylated dCTPs are labelled with a streptavidin linked fluorescent reporter dye. In the detection step the Luminex system identifies each microsphere by its internal dye, and simultaneously records the level of streptavidin associated reporter dye intensity. The simultaneous identification of different beads each with its own specific TSPE product makes the Luminex MagPlex-TAG® system a true multiplex detection platform.

Technology overview and workflow of the TSPE assay format



Multiplex detection

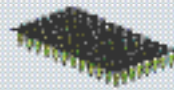
Luminex workflow

Plant material



xMAP

Collect samples
in tubes



Transfer to
microtiter plate



Add bead-antibody
mixture



Wash and add secondary
antibody mixture



Wash and add reporter



MagPlexTAG

Collect samples
in PCR plate



Add generic primers
and amplify DNA/RNA



Purify cDNA



Add target specific
primers and extend



Add bead mixture
and reporter



Measurement



Multiplex detection

Luminex instrumentation



Instrument Comparison Chart

Feature	MAGPIX	Luminex 200	FLEXMAP 3D
Software	xPONENT®	xPONENT®	xPONENT®
Optics	LED/CCD Camera	Lasers/APDs/PMTs	Lasers/APDs/PMTs
Hardware	Fluorescent Imager	Flow Cytometry based	Flow Cytometry based
Bead Compatibility	MagPlex® MagPlex-TAG™	MagPlex® MagPlex-TAG™	MagPlex® MagPlex-TAG™
Multiplex Capacity	50	100 (80 for MagPlex)	500
Read Time	~ 60 mins/96-well plate	~ 40 mins/96-well plate	~ 20 mins/96-well plate ~ 75 mins/384-well plate
Applications	Protein/Nucleic Acid	Protein/Nucleic Acid	Protein/Nucleic Acid
Dynamic Range	3.5 logs	3.5 logs	4.5 logs
Microtiter Plate	96 well	96 well	96 well and 384 well
Footprint Including PC (Linear Bench Space)	64.8 cm (24")	80.0 cm (32")	64.8 cm (24")
Weight Analyzer	17.5 kg (38.5 lbs)	49 kg (113 lbs)	77.1 kg (170 lbs)

Luminex xMAP® kits

Crop	Luminex xMAP® kit	Order code	Number of assays	# Plex
<i>Carnation</i>	Carnation xMAP kit LM0651-0500 CarMV, CERV, CIRV, CLV, CNFV, CRSV, CVMV	LM0651-0500	500	7
<i>Carnation</i>	Carnation xMAP kit LM0651-1000 CarMV, CERV, CIRV, CLV, CNFV, CRSV, CVMV	LM0651-1000	1000	7
<i>Carnation</i>	Carnation xMAP kit LM0651-5000 CarMV, CERV, CIRV, CLV, CNFV, CRSV, CVMV	LM0651-5000	5000	7
<i>Chrysanthemum</i>	Chrysanthemum xMAP kit LM1051-0500 CSNV, CVB, INSV, TAV, TSWV	LM1051-0500	500	5
<i>Chrysanthemum</i>	Chrysanthemum xMAP kit LM1051-1000 CSNV, CVB, INSV, TAV, TSWV	LM1051-1000	1000	5
<i>Chrysanthemum</i>	Chrysanthemum xMAP kit LM1051-5000 CSNV, CVB, INSV, TAV, TSWV	LM1051-5000	5000	5
<i>Dahlia</i>	Dahlia xMAP kit LM0541-0500 CMVa, INSV, TSWV	LM0541-0500	500	3
<i>Dahlia</i>	Dahlia xMAP kit LM0541-1000 CMVa, INSV, TSWV	LM0541-1000	1000	3
<i>Dahlia</i>	Dahlia xMAP kit LM0541-5000 CMVa, INSV, TSWV	LM0541-5000	5000	3
<i>Dahlia</i>	Dahlia xMAP kit LM0545-0500 CMVa, INSV, TSWV, AMV	LM0545-0500	500	4
<i>Dahlia</i>	Dahlia xMAP kit LM0545-1000 CMVa, INSV, TSWV, AMV	LM0545-1000	1000	4
<i>Dahlia</i>	Dahlia xMAP kit LM0545-5000 CMVa, INSV, TSWV, AMV	LM0545-5000	5000	4
<i>Impatiens</i>	Impatiens xMAP kit LM0951-0500 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0951-0500	500	5
<i>Impatiens</i>	Impatiens xMAP kit LM0951-1000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0951-1000	1000	5
<i>Impatiens</i>	Impatiens xMAP kit LM0951-5000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0951-5000	5000	5
<i>Impatiens</i>	Impatiens xMAP kit LM0955-0500 CMVa, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0955-0500	500	8
<i>Impatiens</i>	Impatiens xMAP kit LM0955-1000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0955-1000	1000	8
<i>Impatiens</i>	Impatiens xMAP kit LM0955-5000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0955-5000	5000	8
<i>Kalanchoe</i>	Kalanchoe xMAP kit LM0451-0500 TSWV, INSV, KMV	LM0451-0500	500	3
<i>Kalanchoe</i>	Kalanchoe xMAP kit LM0451-1000 TSWV, INSV, KMV	LM0451-1000	1000	3
<i>Kalanchoe</i>	Kalanchoe xMAP kit LM0451-5000 TSWV, INSV, KMV	LM0451-5000	5000	3

Crop	Luminex xMAP® kit	Order code	Number of assays	# Plex
<i>Nemesia</i>	Nemesia xMAP kit LM1151-0500 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM1151-0500	500	5
<i>Nemesia</i>	Nemesia xMAP kit LM1151-1000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM1151-1000	1000	5
<i>Nemesia</i>	Nemesia xMAP kit LM1151-5000 CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM1151-5000	5000	5
<i>Orchid</i>	Orchid xMAP kit LM0800-0500 CymMV, ORSV	LM0800-0500	500	2
<i>Orchid</i>	Orchid xMAP kit LM0800-1000 CymMV, ORSV	LM0800-1000	1000	2
<i>Orchid</i>	Orchid xMAP kit LM0800-5000 CyMV, ORSV	LM0800-5000	5000	2
<i>Osteoporium</i>	Osteoporium xMAP kit LM0741-0500 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV	LM0741-0500	500	6
<i>Osteoporium</i>	Osteoporium xMAP kit LM0741-1000 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV	LM0741-1000	1000	6
<i>Osteoporium</i>	Osteoporium xMAP kit LM0741-5000 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV	LM0741-5000	5000	6
<i>Osteoporium</i>	Osteoporium xMAP kit LM0745-0500 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0745-0500	500	9
<i>Osteoporium</i>	Osteoporium xMAP kit LM0745-1000 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0745-1000	1000	9
<i>Osteoporium</i>	Osteoporium xMAP kit LM0745-5000 CMVa, CVB, INSV, TMV-WU, ToMV-D03, TSWV, AMV, ArMV, TRV	LM0745-5000	5000	9
<i>Pelargonium</i>	Pelargonium xMAP kit LM0301-0500 Rsol, Xcp	LM0301-0500	500	2
<i>Pelargonium</i>	Pelargonium xMAP kit LM0301-1000 Rsol, Xcp	LM0301-1000	1000	2
<i>Pelargonium</i>	Pelargonium xMAP kit LM0301-5000 Rsol, Xcp	LM0301-5000	5000	2
<i>Pelargonium</i>	Pelargonium xMAP kit LM0351-0500 TSWV, INSV, PFBV, PLPV	LM0351-0500	500	4
<i>Pelargonium</i>	Pelargonium xMAP kit LM0351-1000 TSWV, INSV, PFBV, PLPV	LM0351-1000	1000	4
<i>Pelargonium</i>	Pelargonium xMAP kit LM0351-5000 TSWV, INSV, PFBV, PLPV	LM0351-5000	5000	4
<i>Pelargonium</i>	Pelargonium xMAP kit LM0355-0500 TSWV, INSV, PFBV, PLPV, CMV, TBRV, TBSV, ToRSV, TRSV	LM0355-0500	500	9
<i>Pelargonium</i>	Pelargonium xMAP kit LM0355-1000 TSWV, INSV, PFBV, PLPV, CMV, TBRV, TBSV, ToRSV, TRSV	LM0355-1000	1000	9
<i>Pelargonium</i>	Pelargonium xMAP kit LM0355-5000 TSWV, INSV, PFBV, PLPV, CMV, TBRV, TBSV, ToRSV, TRSV	LM0355-5000	5000	9

Multiplex detection

Luminex xMAP® technology

Crop	Luminex xMAP® kit	Order code	Number of assays	# Plex
<i>Petunia</i>	Petunia xMAP kit LM0851-0500 CbMV, CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0851-0500	500	6
<i>Petunia</i>	Petunia xMAP kit LM0851-1000 CbMV, CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0851-1000	1000	6
<i>Petunia</i>	Petunia xMAP kit LM0851-5000 CbMV, CMVa, INSV, TMV-WU, ToMV-D03, TSWV	LM0851-5000	5000	6
<i>Potato</i>	Potato xMAP kit LM0151-0500 PLRV, PVA, PVM, PVS, PVX, PVY	LM0151-0500	500	6
<i>Potato</i>	Potato xMAP kit LM0151-1000 PLRV, PVA, PVM, PVS, PVX, PVY	LM0151-1000	1000	6
<i>Potato</i>	Potato xMAP kit LM0151-5000 PLRV, PVA, PVM, PVS, PVX, PVY	LM0151-5000	5000	6
<i>Tomato</i>	Tomato xMAP kit LM0251-0500 CMV, PepMV, TMV, ToMV	LM0251-0500	500	4
<i>Tomato</i>	Tomato xMAP kit LM0251-1000 CMV, PepMV, TMV, ToMV	LM0251-1000	1000	4
<i>Tomato</i>	Tomato xMAP kit LM0251-5000 CMV, PepMV, TMV, ToMV	LM0251-5000	5000	4

Tailor-made Luminex xMAP® kits of specific combinations can be produced on demand. Luminex xMAP® kits include all reagents for the multiplex assay; 96-wells plates, bead-antibody mixture, secondary antibody mixture, reporter, buffers and controls.

Luminex MagPlex-TAG® kits for multiplex detection with DNA/RNA assays

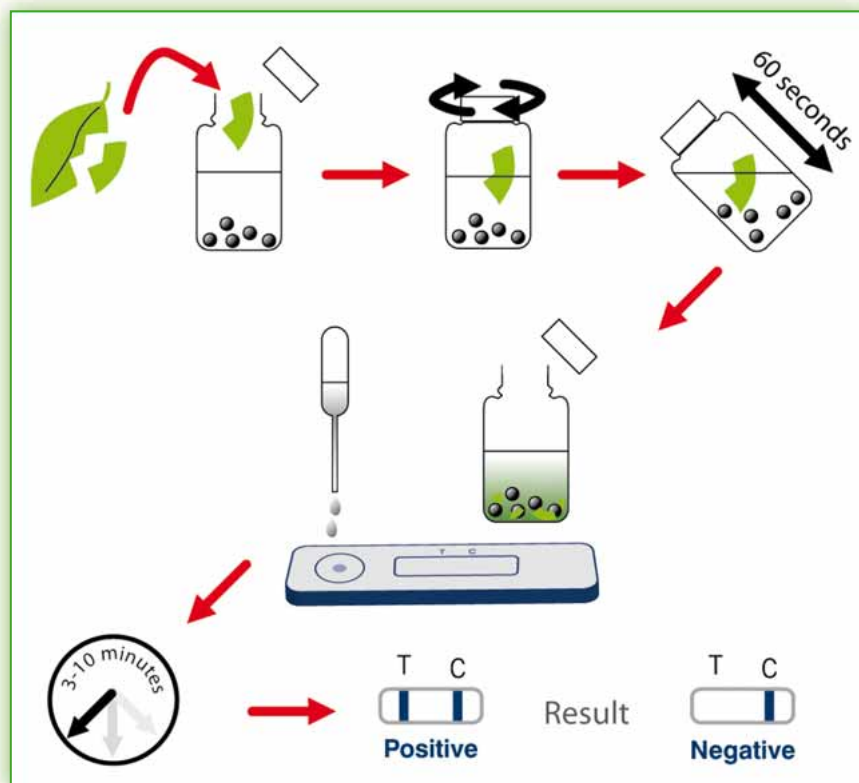
Luminex MagPlex-TAG® kit	Number of assays	Order code																																																
<p>Fusarium</p> <p><i>Fusarium</i> spp., <i>Fusarium acaciae-mearnsii</i>, <i>Fusarium asiaticum</i>, <i>Fusarium austroamericanum</i>, <i>Fusarium boothii</i>, <i>Fusarium brasiliicum</i>, <i>Fusarium cerealis</i>, <i>Fusarium cortideriae</i>, <i>Fusarium culmorum</i>, <i>Fusarium gerlachii</i>, <i>Fusarium graminearum</i>, <i>Fusarium graminearum</i> complex, <i>Fusarium lunulosporum</i>, <i>Fusarium meridionale</i>, <i>Fusarium mesoamericanum</i>, <i>Fusarium pseudograminearum</i>, <i>Fusarium vorosii</i>, genes for toxin production: 3-ADON, 15-ADON, NIV chemotypes.</p>	250, 500, 1000	Please inquire for order code and pricing.																																																
<p>Phytophthora</p> <p><i>Phytophthora alni</i>, <i>Phytophthora andina</i>, <i>Phytophthora botryosa</i>, <i>Phytophthora brassicae</i>, <i>Phytophthora cactorum</i>, <i>Phytophthora cambivora</i>, <i>Phytophthora cinnamomi</i>, <i>Phytophthora citricola</i>, <i>Phytophthora citrophthora</i>, <i>Phytophthora cryptogea</i>, <i>Phytophthora fragariae</i>, <i>Phytophthora hibernalis</i>, <i>Phytophthora humicola</i>, <i>Phytophthora infestans</i>, <i>Phytophthora lateralis</i>, <i>Phytophthora megasperma</i>, <i>Phytophthora multivesiculata</i>, <i>Phytophthora nicotianae</i>, <i>Phytophthora ramorum</i>, <i>Phytophthora rosacearum</i>, <i>Phytophthora tentaculata</i>, <i>Phytophthora</i> (generic).</p>	250, 500, 1000	Please inquire for order code and pricing.																																																
<p>Viroids and Viruses</p> <table border="0"> <tr> <td>Viroids</td> <td>acronym</td> </tr> <tr> <td>Citrus exocortis viroid</td> <td>CEVd</td> </tr> <tr> <td>Columnnea latent viroid</td> <td>CLVd</td> </tr> <tr> <td>Chrysanthemum stunt viroid</td> <td>CSTVd</td> </tr> <tr> <td>Iresine viroid</td> <td>IrVd</td> </tr> <tr> <td>Pepper chat fruit viroid</td> <td>PCFVd</td> </tr> <tr> <td>Pospi viroid (generic)</td> <td>PospUni</td> </tr> <tr> <td>Potato spindle tuber viroid</td> <td>PSTVd</td> </tr> <tr> <td>Tomato apical stunt viroid</td> <td>TASVd</td> </tr> <tr> <td>Tomato chlorotic dwarf viroid</td> <td>TCDVd</td> </tr> <tr> <td>Tomato planta macho viroid</td> <td>TPMVd</td> </tr> <tr> <td>Viruses</td> <td>acronym</td> </tr> <tr> <td>Cucumber mosaic virus</td> <td>CMV</td> </tr> <tr> <td>Pepper mild mottle virus</td> <td>PeMMoV</td> </tr> <tr> <td>Pepino mosaic virus (all strains)</td> <td>PepMV all</td> </tr> <tr> <td>Pepino mosaic virus (US 1)</td> <td>PepMV US1</td> </tr> <tr> <td>Pepino mosaic virus (Chili 2)</td> <td>PepMV Ch2</td> </tr> <tr> <td>Pepino mosaic virus (EU-tomato)</td> <td>PepMV EU</td> </tr> <tr> <td>Pepino mosaic virus (Peru)</td> <td>PepMV Peru</td> </tr> <tr> <td>Potato virus Y</td> <td>PVY</td> </tr> <tr> <td>Tobamovirus (genus, generic)</td> <td>Tobamo</td> </tr> <tr> <td>Tobacco mosaic virus</td> <td>TMV</td> </tr> <tr> <td>Tomato mosaic virus</td> <td>ToMV</td> </tr> <tr> <td>Tomato spotted wilt virus</td> <td>TSWV</td> </tr> </table>	Viroids	acronym	Citrus exocortis viroid	CEVd	Columnnea latent viroid	CLVd	Chrysanthemum stunt viroid	CSTVd	Iresine viroid	IrVd	Pepper chat fruit viroid	PCFVd	Pospi viroid (generic)	PospUni	Potato spindle tuber viroid	PSTVd	Tomato apical stunt viroid	TASVd	Tomato chlorotic dwarf viroid	TCDVd	Tomato planta macho viroid	TPMVd	Viruses	acronym	Cucumber mosaic virus	CMV	Pepper mild mottle virus	PeMMoV	Pepino mosaic virus (all strains)	PepMV all	Pepino mosaic virus (US 1)	PepMV US1	Pepino mosaic virus (Chili 2)	PepMV Ch2	Pepino mosaic virus (EU-tomato)	PepMV EU	Pepino mosaic virus (Peru)	PepMV Peru	Potato virus Y	PVY	Tobamovirus (genus, generic)	Tobamo	Tobacco mosaic virus	TMV	Tomato mosaic virus	ToMV	Tomato spotted wilt virus	TSWV	250, 500, 1000	Please inquire for order code and pricing.
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Tailor-made Luminex MagPlex-TAG® kits of specific combinations can be produced on demand. Kits include all reagents for the multiplex assay; reagents for extraction of DNA/RNA, however, are not included.

On-site detection, Pocket® Diagnostic LFD technology

Test kits of Pocket® Diagnostic (registered trademark of Forsite Diagnostics Ltd, York, United Kingdom) are ready-to-use tests for rapid testing of fungi, viruses and bacteria of plants.

These kits can directly be applied in the field, greenhouse, point of care or in a laboratory. LFD technology of Pocket® Diagnostic is based on Lateral Flow Immuno-chromatography. The assay is a simple device intended to detect the presence (or absence) of a target pathogen in a plant sample. Basically the lateral flow test is a form of immunoassay in which the test sample flows along a solid substrate via capillary action. After the sample is applied to the test it encounters a coloured reagent which mixes with the sample and transmits the substrate encountering lines or zones which have been pre-treated with an antibody or antigen. Depending upon the analytes present in the sample the coloured reagent can become bound at the test line or zone.



Principle

Take a small piece (0.2 g or a 25 mm square piece) of leaf material from the plant, if possible, symptomatic tissue, include the junction between healthy and diseased material. Don't use dead tissues. If you use root samples wash off soil (above left).

Unscrew the extraction bottle lid and add the plant material. Replace the lid tightly (above middle). Leaves with a thick cuticle should be cut or scored before adding to the extraction bottle. Shake the bottle firmly for 30 seconds (60 seconds if the material is hard or woody), until the extraction buffer is no longer colourless (above right).

Remove the test device from its foil packing and place on a level surface with the viewing window upwards. Do not touch the viewing window. The test can be carried out with the device held horizontally in the hand.

Remove the lid from the extraction bottle and draw some of the liquid in the pipette. Gently squeeze 2 or 3 drops of the sample liquid into the sample well of the test device (middle). Take care not to flood the sample well.

After about 30 seconds blue dye will appear in the viewing window as liquid flows along the test device. A blue line (the Control line) will appear next to the letter 'C' on the device (lower, right). This line confirms the test is working properly. If the test is positive, a second blue line, the Test line (next to the letter 'T') will appear (lower, middle). The lines will appear within 10 minutes after adding sample to the test device. Note that there are some specific devices that take longer to run than others – specific information can be found on the key card - that is supplied with each test.

Prime Diagnostics and Forsite Diagnostics Ltd. are able to develop and produce lateral flow devices for new target pathogens on request of their customers.

Pocket® Diagnostic LFD technology

Pathogen	Acronym	Pack Size
<i>Beet necrotic yellow vein virus</i>	BNYVV	4 pack
<i>Clavibacter michiganensis</i> subsp <i>michiganensis</i>	Cmm	4 pack
<i>Cucumber mosaic virus</i>	CMV	4 pack
<i>Erwinia amylovora</i>	Eam	4 pack
<i>Impatiens necrotic spot virus</i>	INSV	4 pack
Orchid virus screen: <i>Odontoglossum ringspot virus</i> and <i>Cymbidium mosaic virus</i> ¹⁾	OR	Single
<i>Pepino mosaic virus</i>	PepMV	4 pack
<i>Plum pox virus</i> ('sharka')	PPV	4 pack
<i>Potato virus A</i>	PVA	4 pack
<i>Potato virus S</i>	PVS	4 pack
<i>Potato virus V</i>	PVV	4 pack
<i>Potato virus X</i>	PVX	4 pack
<i>Potato virus Y</i>	PVY	4 pack
<i>Potato virus Y^N</i>	PVYN	4 pack
<i>Potato multi-virus 3</i> (PVY, PVX and PVA) ¹⁾	PV-M3	Single
<i>Potato multi-virus 5</i> (PVA, PVS, PVV, PVX and PVY) ¹⁾	PV-M5	Single
<i>Phytophthora</i>	Phyto	Single & 50 pack
<i>Pythium</i>	Pyth	Single
<i>Ralstonia solanacearum</i>	Rsol	4 & 50 pack
<i>Tomato mosaic virus</i>	ToMV	4 pack
<i>Tomato spotted wilt virus</i>	TSWV	4 pack
<i>Xanthomonas arboricola</i> pv <i>pruni</i>	Xpru	4 & 50 pack
<i>Xanthomonas hortorum</i> pv <i>pelargonii</i>	Xcp	4 & 50 pack

¹⁾ Each multi kit contains; 1 strip per target pathogen, 1 extraction bottle, 1 pipette, instructions and pathogen key cards. Several individual pathogens can be detected in one sample.

For ordering, please use the product code that is listed on our price list.

Special terms of delivery of Plant Research International (PRI) concerning Prime Diagnostics Products

- These “Special terms of delivery” and the “General terms of delivery” of PRI will apply to all offers and all agreements between PRI and client concerning Prime Diagnostics Products. In case of conflict between both terms, these “Special terms of delivery” takes precedence over the “General terms of delivery”.
- Only written orders that have been accepted by PRI will be handled.
- Most products are usually available from stock and are shipped within one week on receipt of the order. However, to ensure timely delivery, orders should be placed 8 weeks prior to the desired delivery date. In the event of force majeure PRI will be entitled to suspend performance of the agreement or to terminate the agreement without recourse to the courts and without any liability towards the client. Force majeure on the part of PRI means any circumstance beyond the control of PRI, for example: strikes, fire, war, damage, transport difficulties, export obstructions, defaults on the part of suppliers and legal bars to manufacture or to supply the products.
- All products are supplied under the condition that they are for the exclusive use by the client. They may not be sold, integrated into other commercial applications nor handed over to third parties without distribution or supply and license agreement.
- Most of the conjugated antibodies are stabilized with bovine serum albumin (BSA). Due to European legislation (EU DIR 1774/2002 and 668/2004) the use of BSA is not allowed in fields of human or veterinary medicine, agriculture, food or cosmetics. By ordering antibodies from PRI client acknowledges that the ordered product, containing BSA, will be used exclusively for research and analytical purposes. If required a form for the written declaration can be obtained on request or downloaded from our website www.primediagnosics.com.
- Client shall use the material in appropriate containment conditions only for research purposes. In no event PRI shall be liable for any use by client of the material or any loss, claim, damage, or liability of whatever kind of nature, which may arise from or in connection with this agreement or the use, handling, storage or transport of the material. PRI shall be safeguarded by the recipient company against any claim regarding these matters. Any damage or loss to the material during transport is at the purchaser’s full risk.
- The client has to verify the suitability of the products before purchasing the products. When the product information isn’t clearly enough the client has to ask PRI for more information. On request PRI can give the client a sample of the product.
- Permits, import charges or client’s formalities necessary for import by the client of the ordered products are not the responsibility of PRI. It is the responsibility of the client that the client takes care of this before placing an order. All necessary permits need to be in the possession of PRI before an order can be shipped and PRI can not be held responsible for any damages or import charges that might occur from import problems. The client has to verify if the use of the products is allowed by its government.
- Antisera are biological products and differences in reactivity between batches may occur. Therefore any guaranty given by PRI is limited to the relative reactivity in a standard performed DAS-ELISA with a 10 times diluted positive control originating from Prime Diagnostics.
- Specificity of the antisera is tested against strains known to be pathogenic at the time of the last actual testing. PRI can not be held responsible for possible false positive or false negative results caused by newly emerging pathogens, developed resistance, pathogen strains or plant or matrix substances.
- PRI does not accept the responsibility for any direct or indirect damage that might arise from the use of delivered products. PRI shall be safeguarded by the recipient company against any claim regarding the delivery and/or the use of the delivered products.
- Complaints regarding deficiencies of the products delivered by PRI should be deposited within 2 months after the purchase and should be supported by relevant test results obtained with the standard protocol of Prime Diagnostics. In the event that PRI declares a complaint to be founded, PRI will be exclusively obliged to effect performance as agreed upon as yet or to refund the purchase price paid, at PRI’s exclusive discretion.
- In the event of any liability of PRI, this liability will be limited to the invoice amount for that part of the order to which the liability pertains, on the understanding that this amount shall in no event exceed the amount PRI in such case will receive from its liability insurance.
- Prices are Ex Works (EXW Wageningen, NL, Incoterms 2000) in Euros (€), excluding VAT and all orders are charged with € 25.00 for handling.
- The VAT number of Plant Research International is NL806511618B01.
- Payment should be made by wire transfer (Euro Base Payment applying code SHA (shared costs)) using IBAN of PRI and BIC/SWIFT of RABOBANK within 30 days after date of the invoice.
- Payment by Master Card or Visa is accepted. Please supply card type, card number, expiry date, card holders name and security code.
- By placing any order with PRI, the client declares that he/she has read and accept these “Special terms of delivery” as well as the “General terms of delivery” of PRI and that he has complete knowledge of the current product information.
- All agreements between PRI and the clients are only governed by Dutch Law. All disputes shall be handled exclusively by the competent court in The Hague, The Netherlands.



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**provides high quality reagents
for detection of plant pathogens**

- **ELISA reagents**
- **Immunofluorescence reagents**
- **Luminex multiplex kits**
- **Lateral flow devices**

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