



2011



Your Partner in Agro-Diagnostics

BIOREBA

The Company

BIOREBA AG was the first company worldwide to produce and commercialize ELISA reagents for plant virus diagnostics in 1980. It is an independent company that was started in close collaboration with Agroscope Changins-Wädenswil, Research Station ACW Nyon, Switzerland. Since then, BIOREBA has established cooperation with numerous other research institutes and universities in many countries. Since its foundation more than three decades ago, the company has steadily grown and built a reputation for high quality diagnostics. Today, the research community and diagnostic laboratories around the world rely on our products for testing potatoes, grapevines, fruit trees, small fruits, vegetables, ornamentals and field crops.

Our philosophy is to provide our customers with high quality products and services to address their special diagnostic questions. Customers benefit from our expert knowledge and long-standing experience in developing and introducing complete ELISA systems as well as AgriStrip, the rapid assay for the detection of plant pathogens. BIOREBA has well-equipped facilities for R & D activities and production of these test systems as well as an accredited testing laboratory for serving customers with serological and molecular analyses of plant pathogens. The company also provides special equipment and disposables for the preparation of plant samples and liquid handling. BIOREBA products are available worldwide. The

sales and marketing department and an extensive distributor-network, including our own office in Argentina, ensure a quick response to customer inquiries and prompt product delivery. Our well-trained staff is committed maintaining high quality standards.

BIOREBA has been awarded the internationally recognized certificate of Quality Management System ISO 9001. Furthermore, our testing service laboratory has been accredited according to ISO/IEC 17025 for analyses of plant pathogens. Both certificates shall give us the incentive to continue serving you with best quality products and helping you growing healthy crops.

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We have a certified Quality-Management System.



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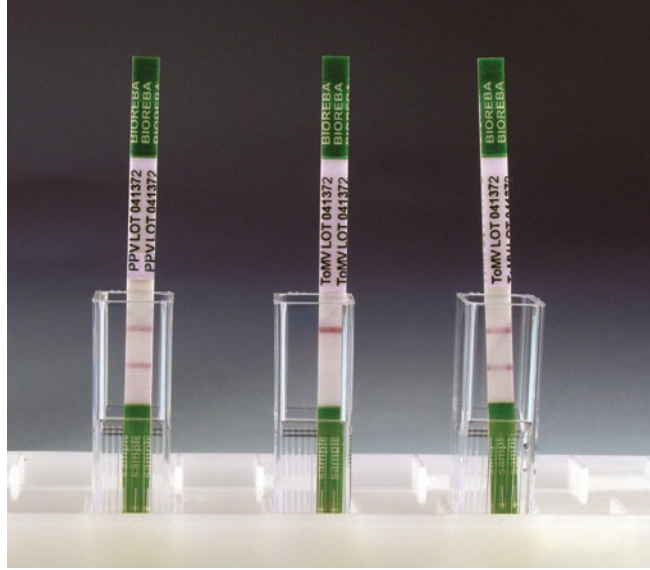
AgriStrip

Complete kits and single strips for fast and easy use in field and greenhouse

AgriStrip-magnetic

Complete kits for fast and easy use in field and greenhouse

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ELISA Tests for Plant Pathogens

ELISA reagents, sets, kits, buffers, substrates and chemicals

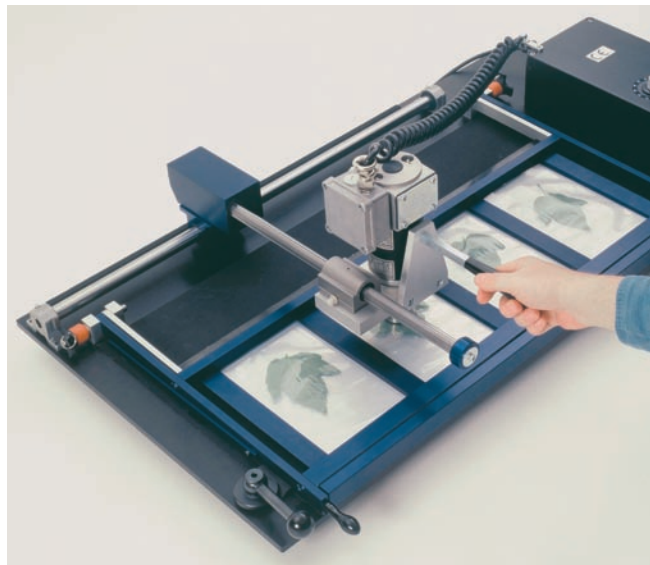
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Equipment and Disposables

HOMEX 6 homogenizer and EASY WASH 2000 plate washer for plant diagnostic applications. Disposables for sample preparation.

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Testing Service

Our testing service guarantees:

- High quality Standard (ISO/IEC 17025)
- Reliable results
- Confidentiality



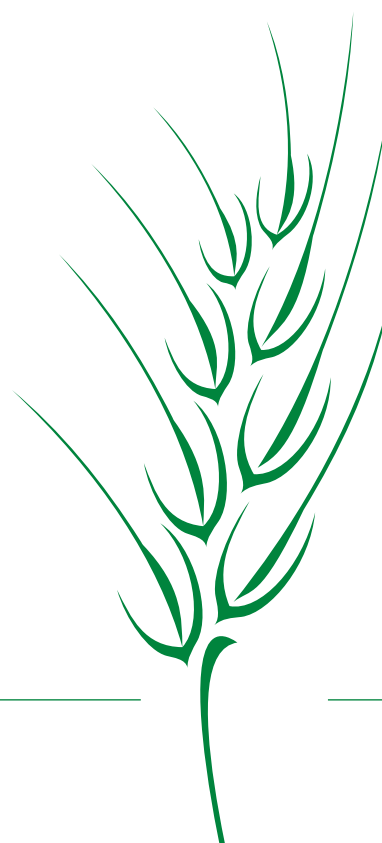
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Contract Research, Development and Production

- Antibody production
- Test development
- Production of test kits
- Customer-specific products
- Confidentiality

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Diagnostics for Plant Pathogens of different Crop Groups

Our AgriStrip products are listed in alphabetical order on page 10 - 11.

Our ELISA reagents, reagent sets and complete kits are listed in alphabetical order on page 13 - 31.

The table below illustrates the prevalence of the pathogens as related to different crop groups.

Potatoes

Abbr.	page
AMV	13
APLV	13
APMoV	13
PLRV	10/22
PMTV	23
Poty group	25
PVA	10/23
PVM	10/23
PVS	10/23
PVV	24
PVX	10/24
PVY	10
PVY-mono	24
PVY-monocock	24
PVY ^N	25
PVY-poly	25
Rs	10/26
Sss	11/27
TBRV	28
TNV	28
TSWV	11/29
<i>Verticillium</i>	30

Grapevines

Abbr.	page
ArMV	14/15
ArMV+GFLV	15
GFLV	18
GFKV	18
GLRaV - 1	18
GLRaV - 1+3	18
GLRaV - 2	18/19
GLRaV - 3	10/19
GLRaV - 4-9	19
GLRaV - 6	19
GLRaV - 7	19
GVA	19
RpRSV-ch	26
RpRSV-g	26
SLRSV	27
TBRV	28
ToRSV	29
ToRSV-Ch	29
TRSV	28

Fruit Trees & Small Fruits

Abbr.	page
ACLSV	14
ApMV	14
ApP	14
ArMV	14/15
ASGV	14

ASPV	14
CLRv-ch	16/17
CLRv-e	17
CTV	17
Ea	10
PeAMV	22
PRSV (=WMV-1)	21
PPV	10/22
PDV	25
PNRSV	25
Poty group	25
RBDV	26
RpRSV-ch	26
SLRSV	27
SMYEPV	27
ToRSV	29
ToRSV-ch	29
TRSV	28
TSV	28
<i>Verticillium</i>	30
Xfr	31

Vegetables

Abbr.	page
Aac	10/13
ACMV (TYLCV)	30
BCMV	15/16
BCMNV	16
BGMV (TYLCV)	30
BNYVV	16
CaMV	16
CMV	17
CYSDV	17
EACMV (TYLCV)	30
ErLV	17
GCLV	18
ICMV (TYLCV)	30
LMV	10/20
LYSV	20
MiLBVV	20
OYDV	21
PepMV	10/22
PMMoV	10/22
Poty group	25
PRSV (=WMV-1)	21
PVX	10/24
PVY	10/24/25
RaMV	26
SLCV (TYLCV)	30
SLV	26/27
SqMV	27
TBSV	29
TCSV (TSWV)	29
TMV	11/28
TNV	28

ToMV	11/29
ToMoV (TYLCV)	30
ToRSV	29
ToRSV-Ch	29
Tospo (I, II, III)	30
TSV	28
TSWV	29
TuMV	30
TYLCV	30
TYMV	30
<i>Verticillium</i>	30
WMV-1 (=PRSV)	21
WMV-2	31
ZYMV	31

Field Crops

Abbr.	page
AMV	13
BYDV - B	15
BYDV - F	15
BYDV - RPV	15
BNYVV	16
CaMV	16
CMV	17
CYDV - RPV (BYDV - RPV)	15
GRSV (TSWV)	29
MDMV	20
PeAMV	22
Poty group	25
PVX	10/24
PVY	10/24/25
RaMV	26
SCMV	27/28
TMV	11/28
TNV	28
TSV	28
TSWV	29
TYMV	30

Ornamentals

Abbr.	page
Aacat	13
AMV	13
ApMV	14
ArMV	14/15
CbMV	10/16
CMV	17
ErLV	17
INSV	10/20
PeAMV	22
PFBV	21
PLCV	21
PLPV	21
PNRSV	25
Poty group	25

PVA	10/23
PVX	10/24
PVY	10/24/25
Rs	10/26
SLRSV	27
TMV	28
TNV	28
ToMV	29
ToRSV	29
ToRSV-ch	29
Tospo (I, II, III)	30
TRSV	28
TSV	28
TSWV	29
<i>Verticillium</i>	30
Xh (Xcp)	31
Xcp	31

AgriStrip

The rapid one-step assay

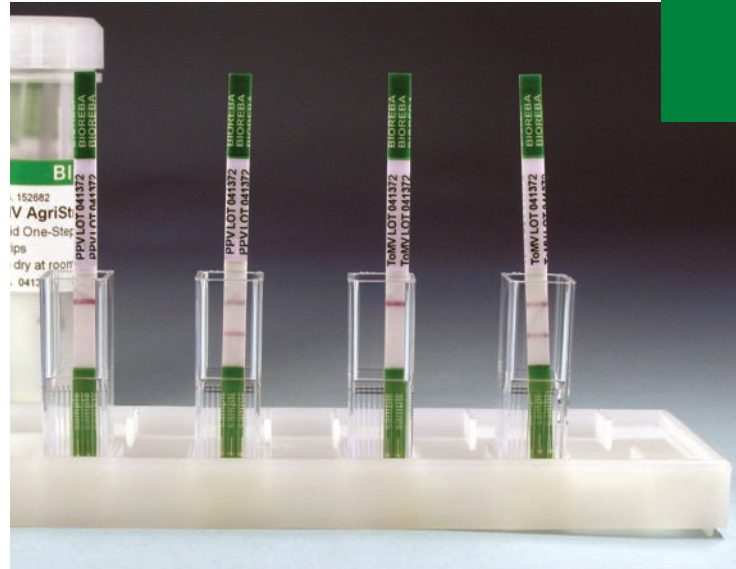
AgriStrip

Fast

Reliable

Easy

Cost effective



**Unique in
plant pathogen
diagnostics**

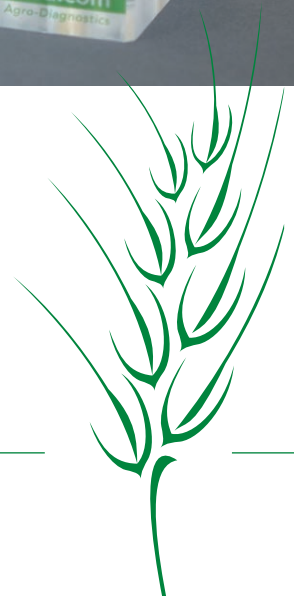
Reliable

Easy

Cost effective



Your partner in Agro-Diagnostics

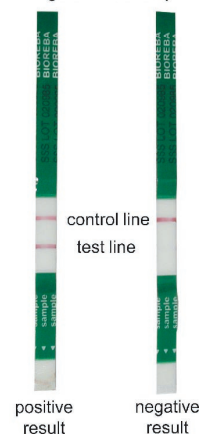


AgriStrip

The rapid one-step assay **AgriStrip**, developed and manufactured by BIOREBA, is based on lateral flow immunochromatography and is very fast. The test has been developed to confirm the presence of a plant pathogen in samples with suspicious symptoms. Such a sample is homogenized and a few drops of the homogenate are transferred to a cuvette. The strip is dipped into the extract and the result can be read within a few minutes. A positive result is seen as a colored band at the test line, whereas the colored band at the control line should always appear. Test strips can be kept as permanent records.

The performance of the test is very easy and there is no need for special laboratory equipment. Therefore, the **AgriStrip** is especially suitable when testing is required on-site, such as in greenhouses or fields.

Figure 1: Test strips



Content of the Complete kit

- Strips packed with desiccant bags 25
- AgriStrip Extraction buffer, ready-to-use 100 ml
- Disposable pipettes 25
- Extraction bags 25
- Disposable cuvettes 25
- Cuvette rack 1
- Note: The homogenizer hand model (Art. No. 400010) is optional and not included in the complete kit AgriStrip.



AgriStrip

Available in different formats:

Product	Assays
AgriStrip Complete kit	25
AgriStrip Single strips*	25
AgriStrip Single strips*	100

*including ready-to-use extraction buffer

Optional products	Art. No.	Size
Cuvette rack, holds 12 cuvettes	2166	1
Cuvettes, disposable	2534	100
Pipettes, disposable	2292	500
Extraction bags «Universal»	430100a	100
Homogenizer hand model	400010	1

AgriStrip-magnetic

Unique in plant pathogen diagnostics!

The innovative rapid assay **AgriStrip-magnetic**, developed and produced by BIOREBA, is a lateral-flow immunochromatographic test based on an antigen-antibody reaction combined with Magnetic Bead Technology enabling the preceding enrichment of the antigen.

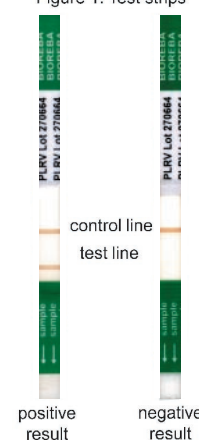


A plant extract is first incubated with magnetic beads coated with pathogen-specific antibodies. These beads are then separated from the extract with a magnet and resuspended in a small volume of running buffer. Finally, a strip is inserted and the concentrated beads migrate upwards through the strip and brown colored lines will become visible.

Both test and control lines become visible with positive extracts (containing the pathogen), whereas negative samples produce only the upper control line. Intense coloration is reached within 10-20 min and the results can be registered.

The performance of the test is very easy and there is no need for special laboratory equipment. The **AgriStrip-magnetic** is especially suitable when testing is required on-site, such as in greenhouses or fields.

Figure 1: Test strips



Content of the Complete kit AgriStrip-magnetic

- Strips packed with desiccant bags 25
- Tubes containing magnetic beads coupled to pathogen-specific antibody 25
- AgriStrip Extraction buffer 100 ml
- Running buffer 5 ml
- Disposable pipettes 25
- Extraction bags 25
- Note: The magnetic rack (Art. No 2367) and the homogenizer hand model (Art. No. 400010) are optional and not included in the complete kit AgriStrip-magnetic.



Product

AgriStrip-magnetic Complete kit

Assays

25

Optional products

Magnetic rack
Homogenizer hand model

Art. No. 2367
400010

Size 1
1

AgriStrip

Pathogen	Abbr.	Art. No.	Format	Assays		
<i>Acidovorax avenae</i> subsp. <i>citrulli</i>	Aac	161981	AgriStrip Complete kit	25		
		161982	AgriStrip Single strips	25		
		161983	AgriStrip Single strips	100		
Calibrachoa mottle virus	CbMV	170781	AgriStrip Complete kit	25		
		170782	AgriStrip Single strips	25		
		170783	AgriStrip Single strips	100		
<i>Erwinia amylovora</i> (Fire blight)	Ea	153081	AgriStrip Complete kit	25		
		153082	AgriStrip Single strips	25		
		153083	AgriStrip Single strips	100		
*Grapevine leafroll-assoc. virus 3 (AgriStrip-magnetic)	GLRaV-3	122381 2367	AgriStrip-magnetic Complete kit Magnetic rack	25		
Impatiens necrotic spot virus	INSV	190281	AgriStrip Complete kit	25		
		190282	AgriStrip Single strips	25		
		190283	AgriStrip Single strips	100		
Lettuce mosaic virus	LMV	160581	AgriStrip Complete kit	25		
		160582	AgriStrip Single strips	25		
		160583	AgriStrip Single strips	100		
Pepino mosaic virus	PepMV	161581	AgriStrip Complete kit	25		
		161582	AgriStrip Single strips	25		
		161583	AgriStrip Single strips	100		
Pepper mild mottle virus	PMMoV	161781	AgriStrip Complete kit	25		
		161782	AgriStrip Single strips	25		
		161783	AgriStrip Single strips	100		
Plum pox virus	PPV	150581	AgriStrip Complete kit	25		
		150582	AgriStrip Single strips	25		
		150583	AgriStrip Single strips	100		
*Potato leaf roll virus (AgriStrip-magnetic)	PLRV	110681 2367	AgriStrip-magnetic Complete kit Magnetic rack	25		
		Potato virus A	PVA	112181	AgriStrip Complete kit	25
				112182	AgriStrip Single strips	25
112183	AgriStrip Single strips			100		
Potato virus M	PVM	112281	AgriStrip Complete kit	25		
		112282	AgriStrip Single strips	25		
		112283	AgriStrip Single strips	100		
Potato virus S	PVS	110381	AgriStrip Complete kit	25		
		110382	AgriStrip Single strips	25		
		110383	AgriStrip Single strips	100		
Potato virus X	PVX	110481	AgriStrip Complete kit	25		
		110482	AgriStrip Single strips	25		
		110483	AgriStrip Single strips	100		
Potato virus Y	PVY	112981	AgriStrip Complete kit	25		
		112982	AgriStrip Single strips	25		
		112983	AgriStrip Single strips	100		
<i>Ralstonia solanacearum</i>	Rs	170581	AgriStrip Complete kit	25		
		170582	AgriStrip Single strips	25		
		170583	AgriStrip Single strips	100		

*AgriStrip-magnetic only available as Complete kit for 25 assays

AgriStrip

Pathogen	Abbr.	Art. No.	Format	Assays
<i>Spongospora subterranea</i> <i>f.sp. subterranea</i>	Sss	111181	AgriStrip Complete kit	25
		111182	AgriStrip Single strips	25
		111183	AgriStrip Single strips	100
Tobacco mosaic virus	TMV	190481	AgriStrip Complete kit	25
		190482	AgriStrip Single strips	25
		190483	AgriStrip Single strips	100
Tomato mosaic virus	ToMV	152681	AgriStrip Complete kit	25
		152682	AgriStrip Single strips	25
		152683	AgriStrip Single strips	100
Tomato spotted wilt virus	TSWV	190181	AgriStrip Complete kit	25
		190182	AgriStrip Single strips	25
		190183	AgriStrip Single strips	100
<i>Xanthomonas campestris</i> <i>pv. pelargonii</i>	Xcp	170181	AgriStrip Complete kit	25
		170182	AgriStrip Single strips	25
		170183	AgriStrip Single strips	100
<i>Xanthomonas fragariae</i>	Xfr	150381	AgriStrip Complete kit	25
		150382	AgriStrip Single strips	25
		150383	AgriStrip Single strips	100



Please refer to www.bioreba.com for an up-to-date list of tests which are available in the AgriStrip or the AgriStrip-magnetic format.

ELISA Reagents, Sets and Kits

Individual ELISA Reagents

IgG and conjugate are available for 500 and for 1000 assays.

For the six main potato viruses (PLRV, PVA, PVM, PVS, PVX and PVY), reagents are also available for 5000 assays.

Positive and negative controls are only available in combination with the corresponding coating and/or conjugate reagents.



ELISA Reagent Sets

contain IgG and conjugate, controls and microtiter plates. For the six main potato viruses (PLRV, PVA, PVM, PVS, PVX and PVY), Reagent sets are also available for 5000 assays.

Content

Component	Assays		
	480	960	5000
IgG	0.1 ml	0.2 ml	1 ml
Conjugate	0.1 ml	0.2 ml	1 ml
Positive control	2.5 ml	2.5 ml	5 x 2.5 ml
Negative control	2.5 ml	2.5 ml	5 x 2.5 ml
Microtiter plates	5	10	60



ELISA Complete Kits

contain all reagents, controls, microtiter plates, buffers and substrate necessary to perform the tests. For the six main potato viruses (PLRV, PVA, PVM, PVS, PVX and PVY), Complete kits are also available for 5000 assays.

Content

Component	Assays		
	480	960	5000
IgG	0.1 ml	0.2 ml	1 ml
Conjugate	0.1 ml	0.2 ml	1 ml
Positive control	2.5 ml	2.5 ml	5 x 2.5 ml
Negative control	2.5 ml	2.5 ml	5 x 2.5 ml
Extraction buffer (10x)*	250 ml	500 ml	5 x 500 ml
Coating buffer	1 tablet (0.1 l)	2 tablets (0.2 l)	10 tablets (1 l)
Conjugate buffer (10x)	10 ml	20 ml	100 ml
Substrate buffer (5x)	20 ml	2 x 20 ml	200 ml
Washing buffer	1 pouch (5 l)	2 pouches (10 l)	2 containers (500 g)
Substrate (pNPP)**	5 tablets (0.1 l)	10 tablets (0.2 l)	bulk powder (5 g)
Egg Albumin***	25 g	50 g	250 g
Microtiter plates	5	10	60

* For grapevine testing, twice as much buffer is included since the concentration is 5x

** 20 mg tablets, individually blister-packed

*** Is included only with the extraction buffer «Bulbs & Tubers»

Please indicate which extraction buffer should be added when ordering a «Complete kit»



ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Acidovorax avenae subsp. cattleyae polyclonal - polyclonal*	Aacat	170612	IgG	0.2 ml	1000
		170622	Conjugate	0.2 ml	1000
		170615	IgG	0.1 ml	500
		170625	Conjugate	0.1 ml	500
		170653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170662	Reagent set 960		960
		170665	Reagent set 480		480
		170672	Complete kit 960		960
		170675	Complete kit 480		480
Acidovorax avenae subsp. citrulli polyclonal - polyclonal	Aac	161912	IgG	0.2 ml	1000
		161922	Conjugate	0.2 ml	1000
		161915	IgG	0.1 ml	500
		161925	Conjugate	0.1 ml	500
		161953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161962	Reagent set 960		960
		161965	Reagent set 480		480
		161972	Complete kit 960		960
		161975	Complete kit 480		480
African cassava mosaic virus	ACMV	see Tomato yellow leaf curl virus		(page 30)	
Alfalfa mosaic virus polyclonal - polyclonal	AMV	140512	IgG	0.2 ml	1000
		140522	Conjugate	0.2 ml	1000
		140515	IgG	0.1 ml	500
		140525	Conjugate	0.1 ml	500
		140553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		140562	Reagent set 960		960
		140565	Reagent set 480		480
		140572	Complete kit 960		960
		140575	Complete kit 480		480
Andean potato latent virus polyclonal - polyclonal	APLV	110912	IgG	0.2 ml	1000
		110922	Conjugate	0.2 ml	1000
		110915	IgG	0.1 ml	500
		110925	Conjugate	0.1 ml	500
		110953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110962	Reagent set 960		960
		110965	Reagent set 480		480
		110972	Complete kit 960		960
		110975	Complete kit 480		480
Andean potato mottle virus polyclonal - polyclonal	APMoV	111012	IgG	0.2 ml	1000
		111022	Conjugate	0.2 ml	1000
		111015	IgG	0.1 ml	500
		111025	Conjugate	0.1 ml	500
		111053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		111062	Reagent set 960		960
		111065	Reagent set 480		480
		111072	Complete kit 960		960
		111075	Complete kit 480		480

* refers to coating IgG and conjugate, respectively.
Product Information on www.bioreba.com

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Apple chlorotic leaf spot virus polyclonal - polyclonal	ACLSV	151012	IgG	0.2 ml	1000
		151022	Conjugate	0.2 ml	1000
		151015	IgG	0.1 ml	500
		151025	Conjugate	0.1 ml	500
		151053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151062	Reagent set 960		960
		151065	Reagent set 480		480
		151072	Complete kit 960		960
		151075	Complete kit 480		480
Apple mosaic virus polyclonal - polyclonal	ApMV	150712	IgG	0.2 ml	1000
		150722	Conjugate	0.2 ml	1000
		150715	IgG	0.1 ml	500
		150725	Conjugate	0.1 ml	500
		150753	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		150762	Reagent set 960		960
		150765	Reagent set 480		480
		150772	Complete kit 960		960
		150775	Complete kit 480		480
Apple proliferation phytoplasma monoclonal - monoclonal	ApP	151712	IgG	0.2 ml	1000
		151722	Conjugate	0.2 ml	1000
		151715	IgG	0.1 ml	500
		151725	Conjugate	0.1 ml	500
		151753	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151762	Reagent set 960		960
		151765	Reagent set 480		480
		151772	Complete kit 960		960
		151775	Complete kit 480		480
Apple stem grooving virus polyclonal - polyclonal	ASGV	150812	IgG	0.2 ml	1000
		150822	Conjugate	0.2 ml	1000
		150815	IgG	0.1 ml	500
		150825	Conjugate	0.1 ml	500
		150853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		150862	Reagent set 960		960
		150865	Reagent set 480		480
		150872	Complete kit 960		960
		150875	Complete kit 480		480
Apple stem pitting virus monoclonal - monoclonal	ASPV	151812	IgG	0.2 ml	1000
		151822	Conjugate	0.2 ml	1000
		151815	IgG	0.1 ml	500
		151825	Conjugate	0.1 ml	500
		151853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151862	Reagent set 960		960
		151865	Reagent set 480		480
		151872	Complete kit 960		960
		151875	Complete kit 480		480
Arabidopsis mosaic virus polyclonal - polyclonal	ArMV	120312	IgG	0.2 ml	1000
		120322	Conjugate	0.2 ml	1000
		120315	IgG	0.1 ml	500

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Arabis mosaic virus (continued)	ArMV	120325	Conjugate	0.1 ml	500
		120353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120362	Reagent set 960		960
		120365	Reagent set 480		480
		120372	Complete kit 960		960
		120375	Complete kit 480		480
Arabis mosaic virus + Grapevine fanleaf virus polyclonal / monoclonal - monoclonal	ArMV+GFLV	120212	IgG	0.2 ml	1000
		120222	Conjugate	0.2 ml	1000
		120215	IgG	0.1 ml	500
		120225	Conjugate	0.1 ml	500
		120253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120262	Reagent set 960		960
		120265	Reagent set 480		480
		120272	Complete kit 960		960
		120275	Complete kit 480		480
Barley yellow dwarf virus-B (PAV-like) polyclonal - polyclonal	BYDV - B	140112	IgG	0.2 ml	1000
		140122	Conjugate	0.2 ml	1000
		140115	IgG	0.1 ml	500
		140125	Conjugate	0.1 ml	500
		140153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		140162	Reagent set 960		960
		140165	Reagent set 480		480
		140172	Complete kit 960		960
		140175	Complete kit 480		480
Barley yellow dwarf virus-F (MAV-like) polyclonal - polyclonal	BYDV - F	140212	IgG	0.2 ml	1000
		140222	Conjugate	0.2 ml	1000
		140215	IgG	0.1 ml	500
		140225	Conjugate	0.1 ml	500
		140253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		140262	Reagent set 960		960
		140265	Reagent set 480		480
		140272	Complete kit 960		960
		140275	Complete kit 480		480
Barley yellow dwarf virus-RPV polyclonal - polyclonal Synonym: Cereal yellow dwarf virus -RPV (CYDV -RPV)	BYDV - RPV	140612	IgG	0.2 ml	1000
		140622	Conjugate	0.2 ml	1000
		140615	IgG	0.1 ml	500
		140625	Conjugate	0.1 ml	500
		140653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		140662	Reagent set 960		960
		140665	Reagent set 480		480
		140672	Complete kit 960		960
		140675	Complete kit 480		480
Bean common mosaic virus polyclonal - polyclonal	BCMV	162012	IgG	0.2 ml	1000
		162022	Conjugate	0.2 ml	1000
		162015	IgG	0.1 ml	500
		162025	Conjugate	0.1 ml	500
		162053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Bean common mosaic virus (continued)	BCMV	162062	Reagent set 960		960
		162065	Reagent set 480		480
		162072	Complete kit 960		960
		162075	Complete kit 480		480
Bean common mosaic necrosis virus polyclonal - polyclonal	BCMNV	162112	IgG	0.2 ml	1000
		162122	Conjugate	0.2 ml	1000
		162115	IgG	0.1 ml	500
		162125	Conjugate	0.1 ml	500
		162153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		162162	Reagent set 960		960
		162165	Reagent set 480		480
		162172	Complete kit 960		960
		162175	Complete kit 480		480
Bean golden mosaic virus	BGMV	see Tomato yellow leaf curl virus			(page 30)
Beet necrotic yellow vein virus (Rhizomania) polyclonal - polyclonal	BNYVV	160112	IgG	0.2 ml	1000
		160122	Conjugate	0.2 ml	1000
		160115	IgG	0.1 ml	500
		160125	Conjugate	0.1 ml	500
		160153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160162	Reagent set 960		960
		160165	Reagent set 480		480
		160172	Complete kit 960		960
160175	Complete kit 480		480		
Calibrachoa mottle virus polyclonal - polyclonal	CbMV	170712	IgG	0.2 ml	1000
		170722	Conjugate	0.2 ml	1000
		170715	IgG	0.1 ml	500
		170725	Conjugate	0.1 ml	500
		170753	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170762	Reagent set 960		960
		170765	Reagent set 480		480
		170772	Complete kit 960		960
		170775	Complete kit 480		480
Cauliflower mosaic virus polyclonal - polyclonal Needs special extraction buffer «Caulimo»	CaMV	162212	IgG	0.2 ml	1000
		162222	Conjugate	0.2 ml	1000
		162215	IgG	0.1 ml	500
		162225	Conjugate	0.1 ml	500
		162253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		162262	Reagent set 960		960
		162265	Reagent set 480		480
		162272	Complete kit 960		960
		162275	Complete kit 480		480
Cereal yellow dwarf virus-RPV	CYDV-RPV	see Barley yellow dwarf virus-RPV			(page 15)
Cherry leaf roll virus-ch polyclonal - polyclonal Suitable for cherry, peach, walnut and birch isolates. Complementary to CLRV-e (see next page)	CLRV-ch	150912	IgG	0.2 ml	1000
		150922	Conjugate	0.2 ml	1000
		150915	IgG	0.1 ml	500
		150925	Conjugate	0.1 ml	500
		150953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Cherry leaf roll virus -ch (continued)	CLR V -ch	150962	Reagent set 960		960
		150965	Reagent set 480		480
		150972	Complete kit 960		960
		150975	Complete kit 480		480
Cherry leaf roll virus -e polyclonal - polyclonal Suitable for elderberry and walnut isolates. Complementary to CLR V-ch (see page 16).	CLR V -e	151212	IgG	0.2 ml	1000
		151222	Conjugate	0.2 ml	1000
		151215	IgG	0.1 ml	500
		151225	Conjugate	0.1 ml	500
		151253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151262	Reagent set 960		960
		151265	Reagent set 480		480
		151272	Complete kit 960		960
		151275	Complete kit 480		480
Citrus tristeza virus polyclonal / monoclonal - polyclonal / monoclonal	CTV	151512	IgG	0.2 ml	1000
		151522	Conjugate	0.2 ml	1000
		151515	IgG	0.1 ml	500
		151525	Conjugate	0.1 ml	500
		151553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151562	Reagent set 960		960
		151565	Reagent set 480		480
		151572	Complete kit 960		960
Cucumber mosaic virus polyclonal - polyclonal / monoclonal	CMV	160612	IgG	0.2 ml	1000
		160622	Conjugate	0.2 ml	1000
		160615	IgG	0.1 ml	500
		160625	Conjugate	0.1 ml	500
		160653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160662	Reagent set 960		960
		160665	Reagent set 480		480
		160672	Complete kit 960		960
		160675	Complete kit 480		480
Cucurbit yellow stunting disorder virus polyclonal - polyclonal	CYS DV	162312	IgG	0.2 ml	1000
		162322	Conjugate	0.2 ml	1000
		162315	IgG	0.1 ml	500
		162325	Conjugate	0.1 ml	500
		162353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		162362	Reagent set 960		960
		162365	Reagent set 480		480
		162372	Complete kit 960		960
Erysimum latent virus polyclonal - polyclonal	ErLV	170912	IgG	0.2 ml	1000
		170922	Conjugate	0.2 ml	1000
		170915	IgG	0.1 ml	500
		170925	Conjugate	0.1 ml	500
		170953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170962	Reagent set 960		960
		170965	Reagent set 480		480
		170972	Complete kit 960		960
		170975	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Garlic common latent virus polyclonal - polyclonal	GCLV	160412	IgG	0.2 ml	1000
		160422	Conjugate	0.2 ml	1000
		160415	IgG	0.1 ml	500
		160425	Conjugate	0.1 ml	500
		160453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160462	Reagent set 960		960
		160465	Reagent set 480		480
		160472	Complete kit 960		960
		160475	Complete kit 480		480
Grapevine fanleaf virus polyclonal - monoclonal	GFLV	120412	IgG	0.2 ml	1000
		120422	Conjugate	0.2 ml	1000
		120415	IgG	0.1 ml	500
		120425	Conjugate	0.1 ml	500
		120453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120462	Reagent set 960		960
		120465	Reagent set 480		480
		120472	Complete kit 960		960
		120475	Complete kit 480		480
Grapevine fleck virus polyclonal - monoclonal	GFkV	120612	IgG	0.2 ml	1000
		120622	Conjugate	0.2 ml	1000
		120615	IgG	0.1 ml	500
		120625	Conjugate	0.1 ml	500
		120653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120662	Reagent set 960		960
		120665	Reagent set 480		480
		120672	Complete kit 960		960
		120675	Complete kit 480		480
Grapevine leafroll-assoc. virus 1 monoclonal - monoclonal Improved: Higher sensitivity, also for atypical isolates	GLRaV-1	120112	IgG	0.2 ml	1000
		120122	Conjugate	0.2 ml	1000
		120115	IgG	0.1 ml	500
		120125	Conjugate	0.1 ml	500
		120153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120162	Reagent set 960		960
		120165	Reagent set 480		480
		120172	Complete kit 960		960
		120175	Complete kit 480		480
Grapevine leafroll-assoc. virus 1+3 polyclonal / monoclonal - monoclonal Improved: Higher sensitivity, also for atypical isolates	GLRaV-1+3	120912	IgG	0.2 ml	1000
		120922	Conjugate	0.2 ml	1000
		120915	IgG	0.1 ml	500
		120925	Conjugate	0.1 ml	500
		120953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120962	Reagent set 960		960
		120965	Reagent set 480		480
		120972	Complete kit 960		960
		120975	Complete kit 480		480
Grapevine leafroll-assoc. virus 2 monoclonal - polyclonal	GLRaV-2	120812	IgG	0.2 ml	1000
		120822	Conjugate	0.2 ml	1000
		120815	IgG	0.1 ml	500
		120825	Conjugate	0.1 ml	500
		120853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Grapevine leafroll-assoc. virus 2 (continued)	GLRaV-2	120862	Reagent set 960		960
		120865	Reagent set 480		480
		120872	Complete kit 960		960
		120875	Complete kit 480		480
Grapevine leafroll-assoc. virus 3 polyclonal / monoclonal - monoclonal	GLRaV-3	122312	IgG	0.2 ml	1000
		122322	Conjugate	0.2 ml	1000
		122315	IgG	0.1 ml	500
		122325	Conjugate	0.1 ml	500
		122353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		122362	Reagent set 960		960
		122365	Reagent set 480		480
		122372	Complete kit 960		960
		122375	Complete kit 480		480
Grapevine leafroll generic 4-9 monoclonal - monoclonal Recognizes isolates of GLRaV-types 4, 5, 6, 7 and 9.	GLRaV-4-9	122512	IgG	0.2 ml	1000
		122522	Conjugate	0.2 ml	1000
		122515	IgG	0.1 ml	500
		122525	Conjugate	0.1 ml	500
		122553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		122562	Reagent set 960		960
		122565	Reagent set 480		480
		122572	Complete kit 960		960
		122575	Complete kit 480		480
Grapevine leafroll-assoc. virus 6 polyclonal - monoclonal	GLRaV-6	122412	IgG	0.2 ml	1000
		122422	Conjugate	0.2 ml	1000
		122415	IgG	0.1 ml	500
		122425	Conjugate	0.1 ml	500
		122453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		122462	Reagent set 960		960
		122465	Reagent set 480		480
		122472	Complete kit 960		960
		122475	Complete kit 480		480
Grapevine leafroll-assoc. virus 7 monoclonal - monoclonal	GLRaV-7	121012	IgG	0.2 ml	1000
		121022	Conjugate	0.2 ml	1000
		121015	IgG	0.1 ml	500
		121025	Conjugate	0.1 ml	500
		121053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		121062	Reagent set 960		960
		121065	Reagent set 480		480
		121072	Complete kit 960		960
		121075	Complete kit 480		480
Grapevine virus A polyclonal - polyclonal / monoclonal	GVA	122212	IgG	0.2 ml	1000
		122222	Conjugate	0.2 ml	1000
		122215	IgG	0.1 ml	500
		122225	Conjugate	0.1 ml	500
		122253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		122262	Reagent set 960		960
		122265	Reagent set 480		480
		122272	Complete kit 960		960
		122275	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Groundnut ringspot virus	GRSV	see tomato spotted wilt virus			(page 29)
Impatiens necrotic spot virus polyclonal - monoclonal	INSV	190212	IgG	0.2 ml	1000
		190222	Conjugate	0.2 ml	1000
		190215	IgG	0.1 ml	500
		190225	Conjugate	0.1 ml	500
		190253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		190262	Reagent set 960		960
		190265	Reagent set 480		480
		190272	Complete kit 960		960
		190275	Complete kit 480		480
Leek yellow stripe virus polyclonal - polyclonal	LYSV	160312	IgG	0.2 ml	1000
		160322	Conjugate	0.2 ml	1000
		160315	IgG	0.1 ml	500
		160325	Conjugate	0.1 ml	500
		160353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160362	Reagent set 960		960
		160365	Reagent set 480		480
		160372	Complete kit 960		960
		160375	Complete kit 480		480
Lettuce mosaic virus polyclonal - monoclonal For leaves and seeds	LMV	160512	IgG	0.2 ml	1000
		160522	Conjugate	0.2 ml	1000
		160515	IgG	0.1 ml	500
		160525	Conjugate	0.1 ml	500
		160553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160562	Reagent set 960		960
		160565	Reagent set 480		480
		160572	Complete kit 960		960
		160575	Complete kit 480		480
Maize dwarf mosaic virus polyclonal - polyclonal	MDMV	140312	IgG	0.2 ml	1000
		140322	Conjugate	0.2 ml	1000
		140315	IgG	0.1 ml	500
		140325	Conjugate	0.1 ml	500
		140353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		140362	Reagent set 960		960
		140365	Reagent set 480		480
		140372	Complete kit 960		960
		140375	Complete kit 480		480
Mirafiori lettuce big-vein virus polyclonal - polyclonal	MiLBVV	161612	IgG	0.2 ml	1000
		161622	Conjugate	0.2 ml	1000
		161615	IgG	0.1 ml	500
		161625	Conjugate	0.1 ml	500
		161653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161662	Reagent set 960		960
		161665	Reagent set 480		480
		161672	Complete kit 960		960
		161675	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Onion yellow dwarf virus polyclonal - polyclonal	OYDV	160212	IgG	0.2 ml	1000
		160222	Conjugate	0.2 ml	1000
		160215	IgG	0.1 ml	500
		160225	Conjugate	0.1 ml	500
		160253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160262	Reagent set 960		960
		160265	Reagent set 480		480
		160272	Complete kit 960		960
		160275	Complete kit 480		480
Papaya ringspot virus (= Watermelon mosaic virus 1) polyclonal - polyclonal	PRSV	151912	IgG	0.2 ml	1000
		151922	Conjugate	0.2 ml	1000
		151915	IgG	0.1 ml	500
		151925	Conjugate	0.1 ml	500
		151953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151962	Reagent set 960		960
		151965	Reagent set 480		480
		151972	Complete kit 960		960
		151975	Complete kit 480		480
Pelargonium flower break virus polyclonal - polyclonal	PFBV	170212	IgG	0.2 ml	1000
		170222	Conjugate	0.2 ml	1000
		170215	IgG	0.1 ml	500
		170225	Conjugate	0.1 ml	500
		170253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170262	Reagent set 960		960
		170265	Reagent set 480		480
		170272	Complete kit 960		960
		170275	Complete kit 480		480
Pelargonium leaf curl virus polyclonal - polyclonal	PLCV	170312	IgG	0.2 ml	1000
		170322	Conjugate	0.2 ml	1000
		170315	IgG	0.1 ml	500
		170325	Conjugate	0.1 ml	500
		170353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170362	Reagent set 960		960
		170365	Reagent set 480		480
		170372	Complete kit 960		960
		170375	Complete kit 480		480
Pelargonium line pattern virus polyclonal - polyclonal	PLPV	170412	IgG	0.2 ml	1000
		170422	Conjugate	0.2 ml	1000
		170415	IgG	0.1 ml	500
		170425	Conjugate	0.1 ml	500
		170453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170462	Reagent set 960		960
		170465	Reagent set 480		480
		170472	Complete kit 960		960
		170475	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Pepino mosaic virus polyclonal - polyclonal Improved: For leaves and seeds, recognizes all genotypes	PepMV	161512	IgG	0.2 ml	1000
		161522	Conjugate	0.2 ml	1000
		161515	IgG	0.1 ml	500
		161525	Conjugate	0.1 ml	500
		161553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161562	Reagent set 960		960
		161565	Reagent set 480		480
		161572	Complete kit 960		960
		161575	Complete kit 480		480
		Pepper mild mottle virus polyclonal - polyclonal	PMMoV	161712	IgG
161722	Conjugate			0.2 ml	1000
161715	IgG			0.1 ml	500
161725	Conjugate			0.1 ml	500
161753	Positive control			2.5 ml	12
180043	Negative control			2.5 ml	12
161762	Reagent set 960				960
161765	Reagent set 480				480
161772	Complete kit 960				960
161775	Complete kit 480				480
Petunia asteroid mosaic virus polyclonal - polyclonal	PeAMV			170812	IgG
		170822	Conjugate	0.2 ml	1000
		170815	IgG	0.1 ml	500
		170825	Conjugate	0.1 ml	500
		170853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170862	Reagent set 960		960
		170865	Reagent set 480		480
		170872	Complete kit 960		960
		170875	Complete kit 480		480
		Plum pox virus (Sharka) polyclonal - polyclonal / monoclonal Improved: Higher sensitivity, recognizes all strains	PPV	150512	IgG
150522	Conjugate			0.2 ml	1000
150515	IgG			0.1 ml	500
150525	Conjugate			0.1 ml	500
150553	Positive control			2.5 ml	12
180043	Negative control			2.5 ml	12
150562	Reagent set 960				960
150565	Reagent set 480				480
150572	Complete kit 960				960
150575	Complete kit 480				480
Potato leafroll virus polyclonal - monoclonal	PLRV			110611	IgG
		110621	Conjugate	1 ml	5000
		110612	IgG	0.2 ml	1000
		110622	Conjugate	0.2 ml	1000
		110615	IgG	0.1 ml	500
		110625	Conjugate	0.1 ml	500
		110653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110670	Reagent set 5000		5000
		110662	Reagent set 960		960
		110665	Reagent set 480		480
		110680	Complete kit 5000		5000
		110672	Complete kit 960		960
		110675	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Potato mop-top virus monoclonal - monoclonal	PMTV	113012	IgG	0.2 ml	1000
		113022	Conjugate	0.2 ml	1000
		113015	IgG	0.1 ml	500
		113025	Conjugate	0.1 ml	500
		113053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		113062	Reagent set 960		960
		113065	Reagent set 480		480
		113072	Complete kit 960		960
		113075	Complete kit 480		480
Potato virus A monoclonal - monoclonal	PVA	112111	IgG	1 ml	5000
		112121	Conjugate	1 ml	5000
		112112	IgG	0.2 ml	1000
		112122	Conjugate	0.2 ml	1000
		112115	IgG	0.1 ml	500
		112125	Conjugate	0.1 ml	500
		112153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		112170	Reagent set 5000		5000
		112162	Reagent set 960		960
		112165	Reagent set 480		480
		112180	Complete kit 5000		5000
		112172	Complete kit 960		960
		112175	Complete kit 480		480
Potato virus M polyclonal - polyclonal	PVM	110211	IgG	1 ml	5000
		110221	Conjugate	1 ml	5000
		110212	IgG	0.2 ml	1000
		110222	Conjugate	0.2 ml	1000
		110215	IgG	0.1 ml	500
		110225	Conjugate	0.1 ml	500
		110253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110270	Reagent set 5000		5000
		110262	Reagent set 960		960
		110265	Reagent set 480		480
		110280	Complete kit 5000		5000
		110272	Complete kit 960		960
		110275	Complete kit 480		480
Potato virus S polyclonal - polyclonal	PVS	110311	IgG	1 ml	5000
		110321	Conjugate	1 ml	5000
		110312	IgG	0.2 ml	1000
		110322	Conjugate	0.2 ml	1000
		110315	IgG	0.1 ml	500
		110325	Conjugate	0.1 ml	500
		110353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110370	Reagent set 5000		5000
		110362	Reagent set 960		960
		110365	Reagent set 480		480
		110380	Complete kit 5000		5000
		110372	Complete kit 960		960
		110375	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Potato virus V (PVY^c 624) polyclonal - polyclonal	PVV	110812	IgG	0.2 ml	1000
		110822	Conjugate	0.2 ml	1000
		110815	IgG	0.1 ml	500
		110825	Conjugate	0.1 ml	500
		110853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110862	Reagent set 960		960
		110865	Reagent set 480		480
		110872	Complete kit 960		960
		110875	Complete kit 480		480
Potato virus X polyclonal - polyclonal	PVX	110411	IgG	1 ml	5000
		110421	Conjugate	1 ml	5000
		110412	IgG	0.2 ml	1000
		110422	Conjugate	0.2 ml	1000
		110415	IgG	0.1 ml	500
		110425	Conjugate	0.1 ml	500
		110453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110470	Reagent set 5000		5000
		110462	Reagent set 960		960
		110465	Reagent set 480		480
		110480	Complete kit 5000		5000
		110472	Complete kit 960		960
		110475	Complete kit 480		480
Potato virus Y - monoclonal monoclonal - monoclonal Traditional broad-spectrum reagent. Recognizes all isolates except atypical isolates of PVY ^{eb} subgroup.	PVY-mono	112511	IgG	1 ml	5000
		112521	Conjugate	1 ml	5000
		112512	IgG	0.2 ml	1000
		112522	Conjugate	0.2 ml	1000
		112515	IgG	0.1 ml	500
		112525	Conjugate	0.1 ml	500
		112553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		112570	Reagent set 5000		5000
		112562	Reagent set 960		960
		112565	Reagent set 480		480
		112580	Complete kit 5000		5000
		112572	Complete kit 960		960
		112575	Complete kit 480		480
		Potato virus Y - monoclonal cocktail monoclonal - monoclonal Full-spectrum reagent. Contains complementary monoclonal antibodies to isolates from different strain groups. Recognizes all known isolates of all groups/subgroups of PVY.	PVY-monocock	112911	IgG
112921	Conjugate			1 ml	5000
112912	IgG			0.2 ml	1000
112922	Conjugate			0.2 ml	1000
112915	IgG			0.1 ml	500
112925	Conjugate			0.1 ml	500
112553	Positive control			2.5 ml	12
180043	Negative control			2.5 ml	12
112970	Reagent set 5000				5000
112962	Reagent set 960				960
112965	Reagent set 480				480
112980	Complete kit 5000				5000
112972	Complete kit 960				960
112975	Complete kit 480				480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Potato virus Y-necrotic monoclonal - monoclonal	PVY ^N	112712	IgG	0.2 ml	1000
		112722	Conjugate	0.2 ml	1000
		112715	IgG	0.1 ml	500
		112725	Conjugate	0.1 ml	500
		112553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		112762	Reagent set 960		960
		112765	Reagent set 480		480
		112772	Complete kit 960		960
		112775	Complete kit 480		480
Potato virus Y-polyclonal polyclonal - polyclonal	PVY-poly	110511	IgG	1 ml	5000
		110521	Conjugate	1 ml	5000
		110512	IgG	0.2 ml	1000
		110522	Conjugate	0.2 ml	1000
		110515	IgG	0.1 ml	500
		110525	Conjugate	0.1 ml	500
		112553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		110570	Reagent set 5000		5000
		110562	Reagent set 960		960
		110565	Reagent set 480		480
		110580	Complete kit 5000		5000
		110572	Complete kit 960		960
		110575	Complete kit 480		480
Poty group test monoclonal	Poty group	163072	Complete kit 960		960
		163075	Complete kit 480		480
Only available as kit in indirect PTA-ELISA format.					
Prune dwarf virus polyclonal - polyclonal	PDV	150612	IgG	0.2 ml	1000
		150622	Conjugate	0.2 ml	1000
		150615	IgG	0.1 ml	500
		150625	Conjugate	0.1 ml	500
		150653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		150662	Reagent set 960		960
		150665	Reagent set 480		480
		150672	Complete kit 960		960
150675	Complete kit 480		480		
Prunus necrotic ringspot virus polyclonal - polyclonal	PNRSV	151112	IgG	0.2 ml	1000
		151122	Conjugate	0.2 ml	1000
		151115	IgG	0.1 ml	500
		151125	Conjugate	0.1 ml	500
		151153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151162	Reagent set 960		960
		151165	Reagent set 480		480
		151172	Complete kit 960		960
151175	Complete kit 480		480		

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Radish mosaic virus polyclonal - polyclonal	RaMV	162412	IgG	0.2 ml	1000
		162422	Conjugate	0.2 ml	1000
		162415	IgG	0.1 ml	500
		162425	Conjugate	0.1 ml	500
		162453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		162462	Reagent set 960		960
		162465	Reagent set 480		480
		162472	Complete kit 960		960
		162475	Complete kit 480		480
Ralstonia solanacearum polyclonal - polyclonal	Rs	170512	IgG	0.2 ml	1000
		170522	Conjugate	0.2 ml	1000
		170515	IgG	0.1 ml	500
		170525	Conjugate	0.1 ml	500
		170553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170562	Reagent set 960		960
		170565	Reagent set 480		480
		170572	Complete kit 960		960
		170575	Complete kit 480		480
Raspberry bushy dwarf virus polyclonal - monoclonal	RBDV	152012	IgG	0.2 ml	1000
		152022	Conjugate	0.2 ml	1000
		152015	IgG	0.1 ml	500
		152025	Conjugate	0.1 ml	500
		152053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152062	Reagent set 960		960
		152065	Reagent set 480		480
		152072	Complete kit 960		960
		152075	Complete kit 480		480
Raspberry ringspot virus - ch polyclonal - polyclonal Broad-spectrum reagent recognizes most common isolates from fruit tree, small fruit and grapevine.	RpRSV-ch	150412	IgG	0.2 ml	1000
		150422	Conjugate	0.2 ml	1000
		150415	IgG	0.1 ml	500
		150425	Conjugate	0.1 ml	500
		150453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		150462	Reagent set 960		960
		150465	Reagent set 480		480
		150472	Complete kit 960		960
		150475	Complete kit 480		480
Raspberry ringspot virus - g polyclonal - polyclonal Specific reagent for certain grapevine isolates from limited geographic locations. Complementary to RpRSV-ch.	RpRSV-g	120512	IgG	0.2 ml	1000
		120522	Conjugate	0.2 ml	1000
		120515	IgG	0.1 ml	500
		120525	Conjugate	0.1 ml	500
		120553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		120562	Reagent set 960		960
		120565	Reagent set 480		480
		120572	Complete kit 960		960
		120575	Complete kit 480		480
Shallot latent virus polyclonal - polyclonal	SLV	160812	IgG	0.2 ml	1000
		160822	Conjugate	0.2 ml	1000
		160815	IgG	0.1 ml	500
		160825	Conjugate	0.1 ml	500

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Shallot latent virus (continued)	SLV	160853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160862	Reagent set 960		960
		160865	Reagent set 480		480
		160872	Complete kit 960		960
		160875	Complete kit 480		480
Spongospora subterranea f. sp. subterranea Powdery scab of potato monoclonal - monoclonal Suitable for detecting resting spores on potato tubers and in soil.	Sss	111112	IgG	0.2 ml	1000
		111122	Conjugate	0.2 ml	1000
		111115	IgG	0.1 ml	500
		111125	Conjugate	0.1 ml	500
		111153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		111162	Reagent set 960		960
		111165	Reagent set 480		480
		111172	Complete kit 960		960
		111175	Complete kit 480		480
		Squash leaf curl virus	SLCV	see Tomato yellow leaf curl virus	
Squash mosaic virus polyclonal - polyclonal	SqMV	160912	IgG	0.2 ml	1000
		160922	Conjugate	0.2 ml	1000
		160915	IgG	0.1 ml	500
		160925	Conjugate	0.1 ml	500
		160953	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		160962	Reagent set 960		960
		160965	Reagent set 480		480
		160972	Complete kit 960		960
		160975	Complete kit 480		480
Strawberry latent ringspot virus polyclonal - polyclonal	SLRSV	151612	IgG	0.2 ml	1000
		151622	Conjugate	0.2 ml	1000
		151615	IgG	0.1 ml	500
		151625	Conjugate	0.1 ml	500
		151653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151662	Reagent set 960		960
		151665	Reagent set 480		480
		151672	Complete kit 960		960
		151675	Complete kit 480		480
Strawberry mild yellow edge potexvirus polyclonal - monoclonal	SMYEPV	152112	IgG	0.2 ml	1000
		152122	Conjugate	0.2 ml	1000
		152115	IgG	0.1 ml	500
		152125	Conjugate	0.1 ml	500
		152153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152162	Reagent set 960		960
		152165	Reagent set 480		480
		152172	Complete kit 960		960
		152175	Complete kit 480		480
Sugarcane mosaic virus polyclonal - polyclonal	SCMV	140412	IgG	0.2 ml	1000
		140422	Conjugate	0.2 ml	1000
		140415	IgG	0.1 ml	500
		140425	Conjugate	0.1 ml	500
		140453	Positive control	2.5 ml	12

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Sugarcane mosaic virus (continued)	SCMV	180043	Negative control	2.5 ml	12
		140462	Reagent set 960		960
		140465	Reagent set 480		480
		140472	Complete kit 960		960
		140475	Complete kit 480		480
Tobacco mosaic virus polyclonal - polyclonal	TMV	190412	IgG	0.2 ml	1000
		190422	Conjugate	0.2 ml	1000
		190415	IgG	0.1 ml	500
		190425	Conjugate	0.1 ml	500
		190453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		190462	Reagent set 960		960
		190465	Reagent set 480		480
		190472	Complete kit 960		960
		190475	Complete kit 480		480
Tobacco necrosis virus polyclonal - polyclonal	TNV	152412	IgG	0.2 ml	1000
		152422	Conjugate	0.2 ml	1000
		152415	IgG	0.1 ml	500
		152425	Conjugate	0.1 ml	500
		152453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152462	Reagent set 960		960
		152465	Reagent set 480		480
		152472	Complete kit 960		960
		152475	Complete kit 480		480
Tobacco ringspot virus polyclonal - polyclonal	TRSV	152212	IgG	0.2 ml	1000
		152222	Conjugate	0.2 ml	1000
		152215	IgG	0.1 ml	500
		152225	Conjugate	0.1 ml	500
		152253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152262	Reagent set 960		960
		152265	Reagent set 480		480
		152272	Complete kit 960		960
		152275	Complete kit 480		480
Tobacco streak virus polyclonal - monoclonal	TSV	152312	IgG	0.2 ml	1000
		152322	Conjugate	0.2 ml	1000
		152315	IgG	0.1 ml	500
		152325	Conjugate	0.1 ml	500
		152353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152362	Reagent set 960		960
		152365	Reagent set 480		480
		152372	Complete kit 960		960
		152375	Complete kit 480		480
Tomato black ring virus polyclonal / monoclonal - polyclonal / monoclonal Broad-spectrum reagent	TBRV	113112	IgG	0.2 ml	1000
		113122	Conjugate	0.2 ml	1000
		113115	IgG	0.1 ml	500
		113125	Conjugate	0.1 ml	500
		113153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		113162	Reagent set 960		960
		113165	Reagent set 480		480
		113172	Complete kit 960		960
		113175	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Tomato bushy stunt virus polyclonal - polyclonal	TBSV	161812	IgG	0.2 ml	1000
		161822	Conjugate	0.2 ml	1000
		161815	IgG	0.1 ml	500
		161825	Conjugate	0.1 ml	500
		161853	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161862	Reagent set 960		960
		161865	Reagent set 480		480
		161872	Complete kit 960		960
		161875	Complete kit 480		480
Tomato chlorotic spot virus	TCSV	see Tomato spotted wilt virus			(page 29)
Tomato mosaic virus polyclonal - polyclonal	ToMV	152612	IgG	0.2 ml	1000
		152622	Conjugate	0.2 ml	1000
		152615	IgG	0.1 ml	500
		152625	Conjugate	0.1 ml	500
		152653	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		152662	Reagent set 960		960
		152665	Reagent set 480		480
		152672	Complete kit 960		960
		152675	Complete kit 480		480
Tomato mottle virus	ToMoV	see Tomato yellow leaf curl virus			(page 30)
Tomato ringspot virus polyclonal - polyclonal Broad-spectrum reagent, recognizes most common isolates from many host plants (fruit trees, small fruits, grapevines, ornamentals).	ToRSV	151412	IgG	0.2 ml	1000
		151422	Conjugate	0.2 ml	1000
		151415	IgG	0.1 ml	500
		151425	Conjugate	0.1 ml	500
		151453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151462	Reagent set 960		960
		151465	Reagent set 480		480
		151472	Complete kit 960		960
		151475	Complete kit 480		480
Tomato ringspot virus-Ch polyclonal - polyclonal Specific for Chickadee (originally from apple) and grape yellow vein (GYV) strains. Complementary to ToRSV-PYBM.	ToRSV-Ch	151312	IgG	0.2 ml	1000
		151322	Conjugate	0.2 ml	1000
		151315	IgG	0.1 ml	500
		151325	Conjugate	0.1 ml	500
		151353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		151362	Reagent set 960		960
		151365	Reagent set 480		480
		151372	Complete kit 960		960
		151375	Complete kit 480		480
Tomato spotted wilt virus polyclonal - monoclonal Recognizes serogroups I, II of Tospoviruses (TSWV, TCSV, GRSV).	TSWV	190112	IgG	0.2 ml	1000
		190122	Conjugate	0.2 ml	1000
		190115	IgG	0.1 ml	500
		190125	Conjugate	0.1 ml	500
		190153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		190162	Reagent set 960		960
		190165	Reagent set 480		480
		190172	Complete kit 960		960
		190175	Complete kit 480		480

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form	Size	Assays
Tomato yellow leaf curl virus polyclonal - monoclonal	TYLCV	161412	IgG	0.2 ml	1000
		161422	Conjugate	0.2 ml	1000
		161415	IgG	0.1 ml	500
		161425	Conjugate	0.1 ml	500
		161453	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161462	Reagent set 960		960
		161465	Reagent set 480		480
		161472	Complete kit 960		960
		161475	Complete kit 480		480
Tospovirus broad-spectrum (serogroups I,II,III) polyclonal - monoclonal	Tospo (I,II,III)	190312	IgG	0.2 ml	1000
		190322	Conjugate	0.2 ml	1000
		190315	IgG	0.1 ml	500
		190325	Conjugate	0.1 ml	500
		190353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		190362	Reagent set 960		960
		190365	Reagent set 480		480
		190372	Complete kit 960		960
		190375	Complete kit 480		480
Turnip mosaic virus polyclonal - monoclonal	TuMV	161012	IgG	0.2 ml	1000
		161022	Conjugate	0.2 ml	1000
		161015	IgG	0.1 ml	500
		161025	Conjugate	0.1 ml	500
		161053	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161062	Reagent set 960		960
		161065	Reagent set 480		480
		161072	Complete kit 960		960
		161075	Complete kit 480		480
Turnip yellow mosaic virus polyclonal - polyclonal	TYMV	162512	IgG	0.2 ml	1000
		162522	Conjugate	0.2 ml	1000
		162515	IgG	0.1 ml	500
		162525	Conjugate	0.1 ml	500
		162553	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		162562	Reagent set 960		960
		162565	Reagent set 480		480
		162572	Complete kit 960		960
		162575	Complete kit 480		480
Verticillium spp. monoclonal - monoclonal	Verticillium	161312	IgG	0.2 ml	1000
		161322	Conjugate	0.2 ml	1000
		161315	IgG	0.1 ml	500
		161325	Conjugate	0.1 ml	500
		161353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161362	Reagent set 960		960
		161365	Reagent set 480		480
		161372	Complete kit 960		960
161375	Complete kit 480		480		
Watermelon mosaic virus 1	WMV-1	See Papaya ringspot virus			

ELISA Reagents, Sets and Kits

Pathogen	Abbr.	Art. No.	Reagent form		Assays
Watermelon mosaic virus 2 polyclonal - polyclonal	WMV-2	161112	IgG	0.2 ml	1000
		161122	Conjugate	0.2 ml	1000
		161115	IgG	0.1 ml	500
		161125	Conjugate	0.1 ml	500
		161153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161162	Reagent set 960		960
		161165	Reagent set 480		480
		161172	Complete kit 960		960
		161175	Complete kit 480		480
Xanthomonas campestris pv. pelargonii polyclonal - polyclonal Synonym: <i>Xanthomonas hortorum</i> (Xh)	Xcp	170112	IgG	0.2 ml	1000
		170122	Conjugate	0.2 ml	1000
		170115	IgG	0.1 ml	500
		170125	Conjugate	0.1 ml	500
		170153	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		170162	Reagent set 960		960
		170165	Reagent set 480		480
		170172	Complete kit 960		960
		170175	Complete kit 480		480
Xanthomonas hortorum	Xh	see <i>Xanthomonas campestris</i> pv. <i>pelargonii</i>			
Xanthomonas fragariae polyclonal - polyclonal	Xfr	150312	IgG	0.2 ml	1000
		150322	Conjugate	0.2 ml	1000
		150315	IgG	0.1 ml	500
		150325	Conjugate	0.1 ml	500
		150353	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		150362	Reagent set 960		960
		150365	Reagent set 480		480
		150372	Complete kit 960		960
		150375	Complete kit 480		480
Zucchini yellow mosaic virus polyclonal - polyclonal*	ZYMV	161212	IgG	0.2 ml	1000
		161222	Conjugate	0.2 ml	1000
		161215	IgG	0.1 ml	500
		161225	Conjugate	0.1 ml	500
		161253	Positive control	2.5 ml	12
		180043	Negative control	2.5 ml	12
		161262	Reagent set 960		960
		161265	Reagent set 480		480
		161272	Complete kit 960		960
		161275	Complete kit 480		480

* refers to coating IgG and conjugate, respectively.
Product Information on www.bioreba.com

ELISA Buffers

The ELISA buffers are supplied either in tablets or as concentrated liquids (5x or 10x concentrate). The handling of these formats is easier and more accurate than powder concentrates. No time-consuming dissolving of PVP and other chemicals nor pH adjustment are necessary. Extraction, coating

and conjugate buffers are in different colors to help prevent mistakes.

ELISA buffers are available either individually or as part of the complete kits (see page 12).

Chemicals for preparing the buffers are available as bulk (see page 33).

Product	Art. No.	Size	sufficient for
Coating buffer	110110	50 tablets	25000 assays
Coating buffer	110111	10 tablets	5000 assays
Coating buffer	110112	2 tablets	1000 assays
Conjugate buffer (10x)	110140	100 ml	5000 assays
Conjugate buffer (10x)	110142	20 ml	1000 assays
Substrate buffer* (5x)	110130	200 ml	5000 assays
Substrate buffer* (5x)	110132	40 ml	1000 assays
Washing buffer (PBST)	110150	10 tablets	10 x 1 liter
Washing buffer (PBST) powder	110152	50 g	5 liters
Washing buffer (PBST) powder	110153	250 g	25 liters
Washing buffer (PBST) powder	110154	1250 g	125 liters
Extraction buffer «General» (10x)	110120	500 ml	1000 samples**
Extraction buffer «Grapevine» (5x)	110123	2 x 500 ml	1000 samples**
Extraction buffer «Bulbs & Tubers» ***	110122	500 ml	1000 samples**
Extraction buffer «Caulimo» ****	110124	500 ml	1000 samples
Extraction buffer «Caulimo» ****	110224	250 ml	500 samples

* For use with pNPP (see below)

** Calculated with 5 ml extraction buffer per sample of 0.25 g

*** Composed of 500 ml extraction buffer «General» (10x) and 50 g egg albumin

**** Includes extraction buffer «Caulimo» (10x), urea, and egg albumin

Substrates

Para-nitrophenyl-phosphate (pNPP)	Art. No.	Size	sufficient for
pNPP blister-packed tablets (20 mg)*	110180	10 tablets	1000 assays
pNPP blister-packed tablets (20 mg)*	110080	50 tablets	5000 assays
pNPP blister-packed tablets (5 mg)*	110185	10 tablets	250 assays
pNPP blister-packed tablets (5 mg)*	110085	50 tablets	1250 assays
pNPP bulk tablets (5 mg)**	E-50-80-01	100 tablets	2500 assays
pNPP bulk powder***	71770	1 x 5 g	25000 assays
pNPP bulk powder***	71771	1 x 25 g	125000 assays

* Single packed, providing optimal protection and long-term stability (shelf life > 3 years at -20°C)

** Bulk reagent with limited shelf life (shelf life 1 year, at 4-6°C)

*** Excellent quality bulk substrate; needs a balance with 0.1 mg accuracy (shelf life > 2 years at 4-6°C)

Chemicals

Product	Art. No.	Size
Bulk chemicals for coating buffer*		
Sodium carbonate (Na ₂ CO ₃)	A135.2	1 kg
Sodium hydrogen carbonate (NaHCO ₃)	6885.1	1 kg
Bulk chemicals for PBST* (washing buffer)		
Sodium chloride (NaCl)	3957.1	1 kg
Sodium chloride (NaCl)	3957.2	5 kg
Potassium-di-hydrogen phosphate (KH ₂ PO ₄)	3904.1	1 kg
di-Sodium hydrogen phosphate (Na ₂ HPO ₄)	P030.2	1 kg
Potassium chloride (KCl)	6781.1	1 kg
Tween 20	93773	250 g
Bulk chemicals for different use		
BSA standard grade	700110	75 g
BSA standard grade	700100	1 kg
Polyvinylpyrrolidone PVP K 25 (MW 24000)	4606.1	100 g
Polyvinylpyrrolidone PVP K 25 (MW 24000)	4606.2	500 g
Diethanolamine	31590	1 kg
Egg albumin	5461.1	100 g
Egg albumin	5461.5	500 g
Tris-(hydroxymethyl)aminomethane (TRIS)	4855.2	1 kg
Magnesium chloride (MgCl ₂ · 6H ₂ O)	2189.2	250 g
Sodium chloride (NaCl)	3957.1	1 kg
Sodium chloride (NaCl)	3957.2	5 kg
Urea	X999.1	500 g

* Buffer formulations are listed on page 46

Homogenizers

HOMEX 6

The semi-automated HOMEX 6 is ideal for tissue extraction for samples to be used in **ELISA** and **PCR**. Samples are contained within our extraction bags throughout the sample processing, thereby eliminating cross-contamination and the need of washing between samples. Tissue samples of different thickness weighing up to several grams may be homogenized. About 250 samples per hour can be processed.

Our HOMEX 6 can be equipped with three different racks to hold different sizes of extraction bags (see page 35). The HOMEX 6 is available with 230 V or 115 V external power supply.

Standard rack (Art. No. 400014)

Our HOMEX 6 is equipped with this standard rack. It holds 1-5 extraction bags with a width of 12 cm and a length of 12-14 cm. Please find all our extraction bags on page 35. Changing racks is just a matter of a few seconds.

Adjustable rack (Art. No. 400015)

This adjustable rack can be used for nearly all types and sizes of extraction bags. The holders, adjusting the width, can be set individually to fix our bags 15 x 41 cm and/or 15 x 28.5 cm. These bags have been specially designed for large samples.

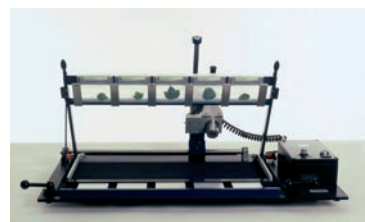
Rack 4/25 (Art. No. 400016)

This rack holds 1-4 bags with a width of 15 cm and a length of 28.5 cm. The extraction bag is perfectly fixed when closing the rack. Herewith you avoid any leaking during the homogenization phase. Extraction bags 15 x 28.5 cm of a very strong quality with 20 mm sealing borders are available with a synthetic intermediate layer.

Homogenizer Hand Model

The hand model is suitable for small sample numbers and for samples of softer tissue such as leaves, sprouts, flowers etc. The hand model can be used with all our extraction bags. For optimal grinding it is recommended to work on a hard surface.

Unique



Original



Product	Art. No.	Size
HOMEX 6 with one rack of your choice (115 V)	400004	1
HOMEX 6 with one rack of your choice (230 V)	400005	1
Homogenizer hand model	400010	1
Standard rack	400014	1
Adjustable rack	400015	1
Rack 4/25	400016	1
Replacement parts		
Complete head with ring and ball bearings	400001	1
Aluminium bars for standard rack	409999	6
Handle with base plate	409998	1

Extraction Bags

Our homogenizing system includes four different extraction bags in different sizes, with or without a synthetic intermediate layer. All extraction bags are ideal for tissue extraction to be used in ELISA and PCR. All extraction bags fit in a HOMEX 6 rack.

The characteristics of our extraction bags are:

- optimal sampling and sample preparation (samples can be labeled and stored)
- optimal homogenization
- optimal filtration of the plant extracts (bags with synthetic intermediate layer)
- optimal recovery of the plant sap
- no cross-contamination between test samples
- optimal for homogenizing with our HOMEX 6
- suitable for homogenizing leaves, sprouts, roots, seeds, woody samples, sieved soil



Product	Art. No.	Size
Extraction bags «Universal» 12 x 14 cm with synthetic intermediate layer for optimal filtration, heavy duty plastic for testing all kind of samples	430100 a	100
	430100 b	1000
	430100 c	5000



Extraction bags «Universal-U-form» 12 x 12 cm heavy duty plastic with U-formed compartment with synthetic intermediate layer for testing seeds	480100 a	100
	480100 b	1000
	480100 c	5000

Extraction bag «Universal» an «Universal-U-form»
are for our standard rack Art. No. 400014



Product	Art. No.	Size
Extraction bags «Long» 15 x 41 cm heavy duty plastic without intermediate layer for testing long leaves	420100 a	100
	420100 b	1000
	420100 c	5000

For our adjustable rack Art. No. 400015



Extraction bags «Universal-Long» 15 x 28.5 cm heavy duty plastic with 20 mm wide sealing borders on bottom and sides with synthetic intermediate layer	470100 a	100
	470100 b	1000
	470100 c	5000

For our rack 4/25 Art. No. 400016

ELISA Plate Washer

The EASY WASH 2000 microtiter plate washer has been specially developed for plant-diagnostic application and provides an efficient and uniform washing process, even for sticky plant extracts. Thanks to a special design where the plates are inserted upside down and rinsed from below, clogging of the nozzles with plant material as often observed with conventional washers does not occur with EASY WASH 2000. Up to 100 plates can be washed per hour.

EASY WASH 2000 is operated with tap water to which defined amounts of supplement such as concentrated PBS-Tween are admixed with an adjustable metering pump. With its compact dimensions, this equipment fits in every laboratory.



Technical specifications:

External power supply:	100 V - 240 V AC, 50/60 Hz.
Internal voltage:	12 V DC
Power consumption:	30 VA.
Operating temperature range:	5 - 40°C
Tap water regulation:	A) External pressure reducing valve, to reduce tap water pressure (1.0 - 6.0 bar constant pressure required) to 0.5 - 1.0 bar. B) Internal valve electronically adjustable in the range of 0 - 0.5 bar.
Supplement pump:	Peristaltic pump, adjustable in the range of 50 - 240 ml/min.
External control:	Socket for plug-in for connection of an optional footswitch.
Dimensions (W x D x H):	220 mm x 450 mm x 230 mm
Weight:	6.6 kg

Optional pre-filter (< 100 µm) is strongly recommended if tapwater contains considerable amounts of loam, rust or other impurities.

Product	Art. No.	Size
EASY WASH 2000, 96 well ELISA plate washer complete	600000	1
Replacement and optional parts		
Optional foot-switch	600010	1
Replacement washing head for 96-well plate	600020	1
Replacement set of tubings for metering pump, incl. one pump head	600030	1
Replacement cap with connections for glass bottles	600040	1
Replacement glass bottle 1000 ml (for supplement)	600050	1
Optional glass bottle 5000 ml (for supplement)	600060	1
Optional pre-filter housing and filter (8 µm)	600070	1
Replacement filter inserts (8 µm) for Art. No. 600070	600080	1
Pre-mixed supplement		
Washing buffer (PBST) powder, makes 1 liter of PBST 25x	110153	250 g
Washing buffer (PBST) powder, makes 5 liter of PBST 25x	110154	1250 g

ELISA Plates

Product	Art. No.	Size
Nunc-Immuno Plates MaxiSorp F96, certified	520000a 520000b	10 plates 60 plates
ELISA plate covers (for multiple use)*	520001	10 covers
Rubber sheets for ELISA plates (for multiple use)*	500003	10 sheets

* ELISA plates are covered during incubations with a sheet of Parafilm which is firmly pressed down by a rubber sheet inside a plate cover. The plate cover is fixed to the plate with rubber bands. This prevents evaporation during incubation.

Pipettes & Tips

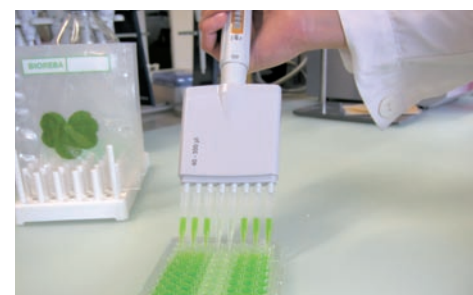
Digital micro pipettes Acura® and Qualitips

Product	Art. No.	Size
Single channel pipette 0.5-10 µl	E-825.0010	1
Microtips (natural) 10 µl, bulk	E-309.0010B	1000 / bag
Microtips (natural) 10 µl	E-309.0010R	10 x 96 / rack
Single channel pipette 20-200 µl	E-825.0200	1
Pipette tips (natural) 350 µl, bulk	E-308.0350B	1000 / bag
Pipette tips (natural) 350 µl	E-308.0350R	10 x 96 / rack
Single channel pipette 100-1000 µl	E-825.1000	1
Pipette tips (blue) 1000 µl, bulk	E-319.1000B	4 x 250 / bag
Pipette tips (blue) 1000 µl	E-319.1000R	8 x 60 / rack



Digital multichannel pipette Acura®

Product	Art. No.	Size
8-channel pipette 40-350 µl	E-855.08.350	1
12-channel pipette 40-350 µl	E-855.12.350	1



Reservoirs

Product	Art. No.	Size
Single reservoir 70 ml (polypropylene)	E-330.01	20
8-channel reservoir 40 ml (polystyrene)	E-330.08.9	10
12-channel reservoir 40 ml (polystyrene)	E-330.12.9	10



Testing Service

Our testing service analyzes plant samples for the presence of plant pathogens (viruses, bacteria, fungi and phytoplasma). BIOREBA has been offering this service since 1986 and recently has been accredited according to ISO/IEC 17025 (Swiss Testing Service No. 541).

Our test service guarantees:

- High quality standards (ISO/IEC 17025)
- Reliable results
- Confidentiality

Test methods

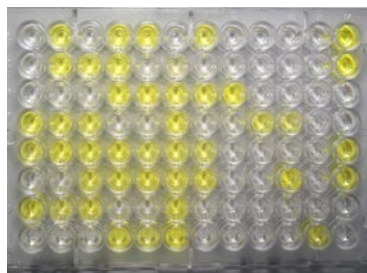
The serological method DAS-ELISA (double antibody sandwich enzyme-linked immunosorbent assay) is primarily used for the analysis of plant samples for the presence of specific pathogens. This method

We test plant material for customers in Switzerland and abroad with the same ELISA reagents and equipment as offered in this catalogue to our customers worldwide. In addition, other techniques and services such as PCR analysis are provided.



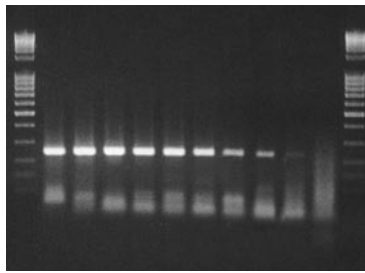
STS 541

S SCHWEIZERISCHER PRÜFSTELLENDIENST
T SERVICE SUISSE D'ESSAI
S SERVIZIO DI PROVA IN SVIZZERA
S SWISS TESTING SERVICE



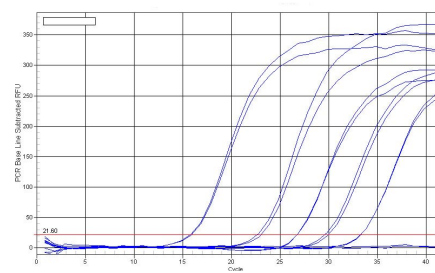
DAS-ELISA.

Antigen (pathogen) present in the sample is recognized by specific antibodies in microtiter plates. A color change indicates a positive result, whereas negative samples remain colorless.



Classical PCR.

Pathogen-specific DNA or RNA is amplified and then detected as fluorescent band with specific size in a gel.



Real-time PCR.

Pathogen-specific DNA or RNA is amplified and recorded real-time as fluorescent increase. This method allows to quantify the pathogen concentration in the sample.

Ask for our testing service brochure or visit www.bioreba.com.

Contract Research, Development and Production

We offer:

- Development and production of monoclonal and polyclonal antibodies
- Test development and production of test kits
- Customer-specific products
- Rapid assays for on-site use
- R&D under high quality management (according to ISO 9001)

BIOREBA has many years of experience in developing diagnostic tests. Our R&D department develops new tests and improves existing products for our own program. In addition, a service to customers on a contract basis is provided.

Let us know your specific needs, we can provide a solution for you. We guarantee confidentiality.

Ordering Information

To place an order or for customer service, please contact your local distributor (see pages 40 - 42) or our office:

BIOREBA AG

Christoph Merian-Ring 7
CH-4153 Reinach BL 1
Switzerland

Phone: +41 61 712 11 25
Fax: +41 61 712 11 17
admin@bioreba.ch
www.bioreba.com

Orders

Orders are accepted by phone, mail, e-mail, fax or by online form.

Please specify always:

- article number, description, size and quantity
- delivery address and clear shipping instructions
- address for invoicing
- contact name and title
- phone, fax and e-mail

Positive and negative controls are only available in combination with the corresponding coating and/or conjugate ELISA reagents.

Terms and Pricing

Prices are according to the price list of your local distributor. We may ask for prepayment against proforma invoice for direct shipments. Payment against letter of credit or cash against documents is also possible. We also accept VISA card. In any case, bank charges must be paid by the customer.

Our prices are ex works Reinach/Switzerland, excluding VAT. Shipping and handling costs are not included. We prepay freight charges and add them to the invoice. All our prices are subject to change without notice.

Shipping Information

We ship via FedEx, DHL, TNT or best means to assure quick and secure delivery. Products are shipped at ambient temperature. We indicate on the shipping documents that products must be kept at 4°C for long term storage. If you have special shipping requirements, please give us clear instructions. If a permission to handle our products is required by local authorities, it is the responsibility of the customer to obtain such a permit.

Warranty and Liability

BIOREBA products are guaranteed to meet the specifications described on the product data-sheet and product information that is added to each shipment. No further warranties are given. If you have any questions about specification or performance, please contact our administration (admin@bioreba.ch).

Our ELISA products are for laboratory use only. AgriStrip products are for laboratory-, field-, and greenhouse use. All products are not to be used for human or animal applications. Should a product fail for reasons other than inappropriate handling or misuse, BIOREBA AG will replace the product free of charge or refund the purchase price.

BIOREBA AG shall not be liable for any direct or indirect, special or consequential damages of any kind resulting from the use of our products.

Returns

Please notify us about any damage, loss or failure to meet product specifications within 72 hours after receipt of the goods.

If a product fails to perform as expected, when used according to standard procedures, then please contact your distributor or our administration (admin@bioreba.ch). All returns must be authorized prior to returning material.

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ELISA Technical Information and Recommendations

The following information, comments and recommendations should give you answers to frequently asked questions and provide help in obtaining optimal results with your ELISA tests.

Test procedure/incubation conditions: Our ELISA reagents are optimized for the DAS-ELISA (double antibody sandwich enzyme-linked immunosorbent assay), using certified Nunc-Immuno Plates MaxiSorp F96 and operating with a working volume of 200 µl per well with the following incubation conditions: Coating of antibody at 30°C for 4 h, antigen (test sample) overnight at 4-6°C, conjugate at 30°C for 5 h and substrate at room temperature for 30-60 min (exceptionally for 60-120 min), see page 45. In order to accommodate ELISA tests better to work schedules of some laboratories, alternative incubations might be desirable. The subsequently mentioned alternatives will not change the test result (the conclusion on «which test sample is positive or negative») even though the OD-values will differ somewhat from those stated on the specific datasheet.

Coating: Alternatively to the standard, an overnight incubation in the refrigerator at 4-6°C is possible. It is also feasible to leave the coating solution for several days in the refrigerator (4-6°C, plates covered, preservative such as NaN₃ in the buffer). As a further alternative, the plates might be coated before the test season. The washed and emptied plates can be frozen (-20°C) for several weeks. Note that repeated freezing/thawing of pre-coated plates must be avoided. Optionally, a short incubation time such as 2.5 h at 37°C gives similar results.

Antigen: Our standard incubation condition generally fits the user's needs and does not require any modification.

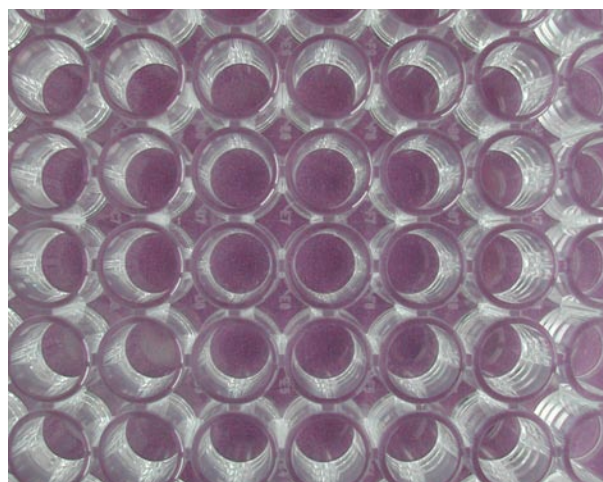
Conjugate: Alternatively to the standard, incubation at 37°C for 2 h gives similar results if the substrate incubation is prolonged to 1.5 h as compared to 1 h as standard (see below).

Substrate: Even though we indicate on the datasheet the OD-values at 30 and 60 min (exceptionally at 60 and 120 min), OD readings at different time intervals might be appropriate; e.g. if distinctions between heavily infected samples need to be documented, we suggest earlier readings as well (e.g. 15 min). On the other hand, longer incubations can help in verifying «borderline infections».

ELISA microtiter plate: The plate has a dramatic effect on the outcome of the test result. The plate criterion is not equally obvious for all ELISA reagents. Some ELISA reagents, optimized for one type of plates, may perform very poorly on other plates. **Our ELISA reagents are standardized in certified Nunc-Immuno Plates MaxiSorp F96.** The plates are included in our «ELISA Reagent sets» and «ELISA Complete kits». Plates can also be ordered separately (see page 37). We strongly urge you to use these plates for optimal results.

Outer-row-wells of the microtiter plate: Tight covering of plates (e.g. with parafilm, rubber sheets and covers) as well as placing them in a moist chamber during incubation help eliminating a possible outer-row-effect (edge-effect).

Washing the plate: Careful washing is important. Our commercially available ELISA plate washer, the «EASY WASH 2000» (see page 36) provides a repeatable and standardized washing. If you have a low number of plates to wash, a wash-bottle can be used instead. For all washing steps, empty the wells by quickly turning over the plate to prevent overflow into other wells. Then tap the plate onto absorbent tissue (such as paper towels) before filling the wells the next time with washing buffer. Repeat washing 3-4 times. Please pay special attention to washing out «sticky» plant debris (after antigen incubation) and thoroughly washing after conjugate incubation (before adding the substrate). The washing procedure may need adaptation to the washing equipment available in your laboratory.



Avoid drying of test wells between steps: Do not let a plate stand with empty wells, since drying may considerably reduce the test performance (loss of activity/irregular results). Try to organize everything in advance in order to be efficient between working steps. Filling wells with washing buffer, placing the plate upside down on a wet towel or partial covering of the plate help prevent loss of activity.

Extraction buffer/sample preparation: Depending on the plant samples to be analyzed, a different extraction buffer is required. For most plants, the extraction buffer «General» is appropriate. For testing grapevines, the extraction buffer «Grapevine» is required. For testing tubers and sprouts of potatoes, bulbs of onion and other *Allium* spp. as well as for seeds (e.g. of lettuce for LMV tests or of tomato for PepMV tests), the extraction buffer «Bulbs and Tubers» is necessary; and CaMV testing needs the special extraction buffer «Caulimo». You find the information concerning appropriate use of extraction buffer (type and w/v ratio) on the «Product Information» delivered with the ELISA reagents. All buffers should be stored

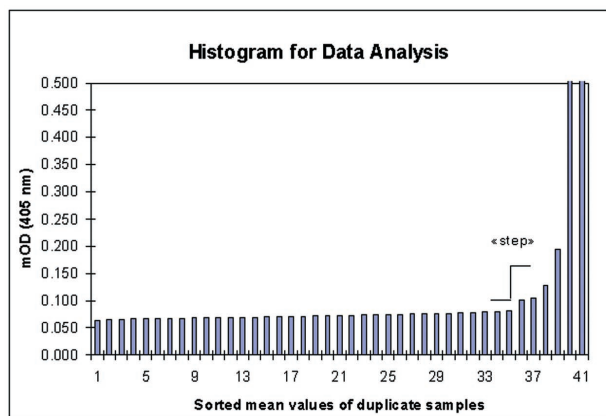
ELISA Technical Information and Recommendations

at 4-6°C, but used at room temperature (20-25°C). Thus, bring the aliquot needed for the actual test to room temperature before use. Buffers need to be used within 2 days or microbial growth must be prevented by adding 0.2 g/l NaN₃.

OD values (extinction values): Our tests employ pNPP as the substrate. The color development is measured at 405 nm. If your reader is equipped with dual filters, we suggest reading at 405/492 nm. Reading with dual filters reduces «irregular background» compared to single filter reading at 405 nm. OD values may vary according to species, variety, tissue, physiological age of test plants, pathogen strain, microtiter plate, plate washer, plate reader and quality of chemicals.

Use of controls and test interpretation (cut-off value positive/negative samples): Duplicate wells per test sample increase test security. Include known positive and negative controls (healthy plant and buffer controls) on each plate. Our positive and negative controls are supplied as lyophilized samples, storable in the refrigerator until reconstitution in 2.5 ml of distilled water. Once reconstituted, the unused portion can be stored frozen in aliquots for later use, even though a slight decrease in activity can occur. Thus, one control can be used for 12 assays at 200 µl each.

BIOREBA controls are intended to verify the assay performance and not to determine the positive/nega-



tive cut-off in your assay. For determining this cut-off, you should apply your own controls, using the same kind of tissue as you are analyzing. Include enough of your healthy controls (samples from the same variety, tissue etc. as your test samples) to learn about the possible «range of healthy reaction». Any method of setting the cut-off value between positive and negative samples is arbitrary and should be verified with an independent method. One possibility for setting this threshold is a statistical calculation based on healthy samples. For this, at least 5 samples of known healthy tissue are needed (Gugerli, P. 1986. In H.U. Bergmeyer. Methods of Enzymatic Analysis. Vol. XI. pp. 430-446). Further information on the calculation of the cut-off is available on our website; see «Technical Info» ELISA

Troubleshooting: What could be wrong if a test «did not work»?

If no color reaction or too low OD values are obtained

Procedure was not followed correctly (manipulation error, e.g. step omitted)

Wrong buffer: pH, old buffer, contaminated buffer

Error in concentration of ELISA reagents

- due to wrong calculation or pipetting
- due to droplets of condensation stuck to the lid or wall of the vial (needs centrifugation)

Wrong storage of ELISA reagents

No positive control, no infected sample (wrong tissue or wrong season for detection)

Wells have dried between steps

Wrong microtiter plate

ELISA reader malfunctioning (e.g. wrong or damaged filter)

Quality of substrate

Faulty reagents (activity of antibodies, contamination)

Microbial contamination of buffers, dispensers, containers etc.

If irregular color or non-specific reactions are obtained

Incomplete washing and/or spillage between wells (e.g. malfunction of washer)

Error in concentration of reagents

- due to wrong calculation or pipetting
- due to droplets of condensation stuck to the lid or wall of the vial (needs centrifugation)

Mistake in application of reagents (e.g. conjugate instead of coating)

Edge effect due to improper incubation conditions

Wells have dried between steps

Old substrate or substrate of poor quality

Faulty reagents (e.g. contamination of coating IgG with conjugate)

Faulty microtiter plate

Microbial contamination of buffers, dispensers, containers etc.

If you need help, please contact your local distributor (see pages 40 - 42) or our office (page 39).

ELISA Test Procedure

Our ELISA reagents are optimized for the DAS-ELISA (double antibody sandwich enzyme-linked immunosorbent assay), using certified Nunc-Immuno Plates MaxiSorp F96 and operating with a working volume of 200 µl per well. Our ELISA test procedure fits well with the protocol commonly carried out in certification laboratories testing large numbers of samples

per day. It is a robust procedure (providing high test security) applicable to the testing of potatoes, fruit trees, grapevines etc. Thus, the customer can conveniently use a single procedure for all plant/pathogen combinations. One exception is the «Poty group test» where the indirect PTA-ELISA format is applied (procedure supplied with the kit).



1. Coating: Specific antibody adsorbed to surface of microtiter wells

Dilute IgG 1000 x in coating buffer; i.e., 20 µl in 20 ml buffer, or at equal ratio for other volumes. Add 200 µl to each well.

Cover plates tightly and place them in a humid box.
Incubate at 30°C for 4 h or at 4-6°C overnight.

1a. Wash: Empty the wells and wash 3-4 times with washing buffer, remove any liquid by blotting the plate on paper towels. Our EASY WASH 2000 (see page 36) provides a repeatable and standardized washing. The washing procedure may need adaptation to washing equipment available in your laboratory.



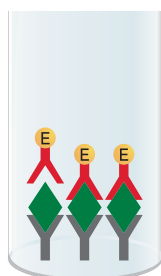
2. Antigen: Incubation of plant extract

Homogenize test sample 1:20 in extraction buffer*. Different extraction buffers and/or sample/buffer ratios are recommended for certain plant samples; refer to indications given in the «Product Information» of reagents.

Add 200 µl per well.

Cover plates tightly and place them in a humid box.
Incubate at 4-6°C overnight.

2a. Wash as in 1a.



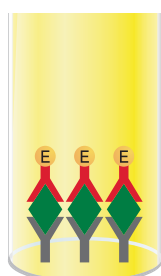
3. Conjugate: Incubation of enzyme-labeled antibody

Dilute enzyme conjugate 1000 x in conjugate buffer.

Add 200 µl per well.

Cover plates tightly and place them in a humid box.
Incubate at 30°C for 5 h.

3a. Wash as in 1a.



4. Substrate: Color reaction indicates infected sample

Dissolve pNPP (para-nitrophenyl-phosphate) at 1 mg/ml in substrate buffer.

Add 200 µl per well.

Incubate at room temperature (20-25°C) in the dark.

Observe reaction and read yellow color development after 30-120 min visually and/or photometrically at 405 nm. If the reader is equipped with dual filters, read at 405/492 nm. Reading with dual filters reduces «irregular background» compared to single filter reading at 405 nm.

* ELISA Extraction buffer: Depending on the plant samples to be analyzed, a different extraction buffer is required. For most plants, the extraction buffer «General» is appropriate. For testing grapevines, the extraction buffer «Grapevine» is required. For testing tubers and sprouts of potatoes, bulbs of onion and other *Allium* spp. as well as for seeds (e.g. of lettuce for LMV tests or of tomato for PepMV tests), the extraction buffer «Bulbs and Tubers» is necessary; and CaMV testing needs the special extraction buffer «Caulimo». The information on appropriate use of extraction buffer is indicated on the «Product Information» delivered with the ELISA reagents. For buffer formulations, see next page.

ELISA Buffer Formulations

All buffers should be stored at 4°C. They are stable for 1-2 months after dilution/preparation. Use the prepared buffers at room temperature (20-25°C).

Washing buffer (pH 7.4; for 1000 ml)

in dist. water:

NaCl	8.00 g
KH ₂ PO ₄	0.20 g
Na ₂ HPO ₄	1.15 g
KCl	0.20 g
Tween 20	0.50 g

Contains no preservative. Use within 2 days or add 0.2 g/L NaN₃.

Washing buffer available as tablets for 1000 ml each, or as pre-mixed powder for larger amounts (Art. No. 110150 - 54, page 32)

Coating buffer (pH 9.6; for 1000 ml)

in dist. water:

Na ₂ CO ₃	1.59 g
NaHCO ₃	2.93 g
NaN ₃	0.20 g

Coating buffer available as tablets for 100 ml each (Art. No. 110110-12, page 32)

Conjugate buffer (pH 7.4; for 1000 ml)

in dist. water (pH adjusted with HCl)

TRIS	2.40 g
NaCl	8.00 g
PVP K25 (MW 24000)	20.00 g
Tween 20	0.50 g
BSA (bovine serum albumin)	2.00 g
MgCl ₂ · 6 H ₂ O	0.20 g
KCl	0.20 g
NaN ₃	0.20 g

Conjugate buffer available as 10x concentrate (Art. No. 110140+42, page 32)

Substrate buffer (pH 9.8; for 1000 ml)

in dist. water (pH adjusted with HCl)

Diethanolamine	97.00 ml
NaN ₃	0.20 g

Substrate buffer available as 5x concentrate (Art. No. 110130+32, page 32)

Extraction buffers*

Please note that special extraction buffers are used for testing different plant samples.

Extraction buffer «General» (pH 7.4; for 1000 ml)

in dist. water (pH adjusted with HCl)

TRIS	2.40 g
NaCl	8.00 g
PVP K25 (MW 24000)	20.00 g
Tween 20	0.50 g
KCl	0.20 g
NaN ₃	0.20 g

Extraction buffer «General» available as 10x concentrate (Art. No. 110120, page 32)

Extraction buffer «Bulbs & Tubers» (pH 7.4; for 1000 ml)

Extraction buffer «General»	1000 ml
Egg albumin (ovalbumin)	10.00 g

First dissolve 10 g of ovalbumin in about 20 ml of buffer and then make up to a total of 1000 ml with the remaining buffer. Prepare freshly before use.

Extraction buffer «General» (Art. No. 110120) and egg albumin (Art. No. 5461.1 or 5461.5), are available either separately or as extraction buffer «Bulbs & Tubers» set for 1000 samples (Art. No. 110122, page 32)

Extraction buffer «Grapevine» (pH 8.2/ for 1000 ml)

in dist. water (pH adjusted with HCl)

TRIS	24.00 g
NaCl	8.00 g
PVP K25 (MW 24000)	20.00 g
PEG (MW 6000)	10.00 g
NaN ₃	0.20 g
Tween 20	0.50 g

Extraction buffer «Grapevine» available as 5x concentrate (Art. No.110123, page 32)

Extraction buffer «Caulimo»

For buffer formulation please see www.bioreba.com ▶ Product Info ▶ ELISA Buffers

Caulimo buffer available as 10x concentrate (Art. No. 110124/110224, page 32)

* ELISA Extraction buffer: Depending on the plant samples to be analyzed, a different extraction buffer is required. For most plants, the extraction buffer «General» is appropriate. For testing grapevines, the extraction buffer «Grapevine» is required. For testing tubers and sprouts of potatoes, bulbs of onion and other *Allium* spp. as well as for seeds (e.g. of lettuce for LMV tests or of tomato for PepMV tests), the extraction buffer «Bulbs and Tubers» is necessary; and CaMV testing needs the special extraction buffer «Caulimo». The information on appropriate use of extraction buffer is indicated on the «Product Information» delivered with the ELISA reagents.

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121075	19	140362	20	150581	10	151253	17	151922	21
122212	19	140365	20	150582	10	151262	17	151925	21
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170553	26	190215	20	600030	36
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THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and SQS
hereby certify that the organization

BIOREBA AG
CH-4153 Reinach

Certified area

Entire Company

Field of activity

**Agro-Diagnostics: Research and development, production
and worldwide distribution of tests, test systems and equipment,
as well as test service for customers**

has implemented and maintains a
Management System
which fulfills the requirements of the following standard

ISO 9001:2008

Scope Nos: 12, 19, 29

Issued on: 2008-12-29

Validity date: 2011-12-28

Registration Number: **CH-35633**



René Wasmer
President of IQNet

Theodor Zahner
Managing Director SQS



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Federal Department of Economic Affairs DEA
Swiss Accreditation Service SAS

Based on the Accreditation and Designation Ordinance dated 17 June 1996 (as of 1 December 2007) and on the advice of the Federal Accreditation Commission, the Swiss Accreditation Service (SAS) grants to

BIOREBA AG
Test service
Plant pathogen diagnostics
Chr. Merian-Ring 7
CH-4153 Reinach

the accreditation as

Testing laboratory for serological and molecular biological analyses of plant pathogens

in accordance with the Standard ISO/IEC 17025. The scope of accreditation is defined in the Official Directory of the Accredited Testing Laboratories.



Accreditation mark and number: STS 541

Date of accreditation: 28 May 2010

The accreditation is valid until: 27 May 2015

CH-3003 Berne-Wabern, 28 May 2010
Swiss Accreditation Service

The Head
Hanspeter Ischi

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