Technical Specifications

Instrument
W x D x H (with open front window and drawer): 114 cm x 156 cm x 100 cm
Weight: 130 kg
Mains voltage: 100–240 universal a.c. input
Temperature of environment: 5–40 °C
Max. number of plates: Up to 7 microtiter plates at RT
Barcode: Barcode identification of samples, reagents and microtiter plates
Barcode laser: Scanner for racksystem
Max. number of samples: Max. 240 samples or 180 samples, 10 reagents, 10 controls
Reagents: SERION racks
Dilution positions: Up to 4 dilution plates
Max. number of tip racks: Up to 5 tip racks with 300 µl or 1100 µl disposable tips

Pipetting System
Pipetting system: Liquid pipettor for disposable tips
Volumes min./max.: For 300 µl tips 10–300 µl, for 1100 µl tips 301–1000 µl
Accuracy: <15 % CV for 25 µl volumes; <5 % CV for 100 µl volumes
Precision: <5 % CV for 25 µl volumes; <2.5 % CV for 100 µl volumes

Incubators
Incubation capacity: 4 independent chambers with agitation function
Incubation range: Between RT +7 °C up to max. 50 °C with temperature control
Temperature: +/–2 °C (determined in the plate with 100 µl aqua dest.)

ELISA Washer
Capacity of buffers: Max. 4 positions
Dispense volume: 200–999 µl/well
Residual volume: <2.5 µl in U-shaped bottom; <4 µl in flat bottom
Precision: 10 % CV for 300 µl volumes
Fluid alarms: Automated warning in case of lack of reagents or filled waste container

Photometer
Spectral range: 400–700 nm
Dynamic range: 0.0 OD up to 3.5 OD
Accuracy: +/– 0.005 OD or 2.5 %
Reading time / 96 wells: <15 sec.
Number of filters: Up to 8 filter positions (Standard 405, 450, 620 nm)

4-plate ELISA Analyzer

SERION Immunomat

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2018/03

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SERION Immunomat

The SERION Immunomat is a 4-plate benchtop automat with integrated pipetting system, plate transporter, ELISA washer and reader. Four plate positions and incubators with agitation function guarantee an efficient workload of the instrument allowing the processing of four microtiter plates. Of course, the system is in compliance with the *in-vitro* diagnostic directive 98/79/EC.

Fully automated ELISA Analyzer

It includes a barcode identification system for racks, reagents and microtiter plates and allows the processing of up to 16 different assays per plate. The easy access to buffers and reagents, level sensors for all fluid containers and a software-controlled tip management system guarantee customer convenient handling.

SERION Immunomat is validated for antibody and antigen detection in serum, plasma and cerebrospinal fluid (CSF), if necessary, as well as for avidity determination with SERION ELISA *classic* and SERION ELISA *antigen* immunoassays.

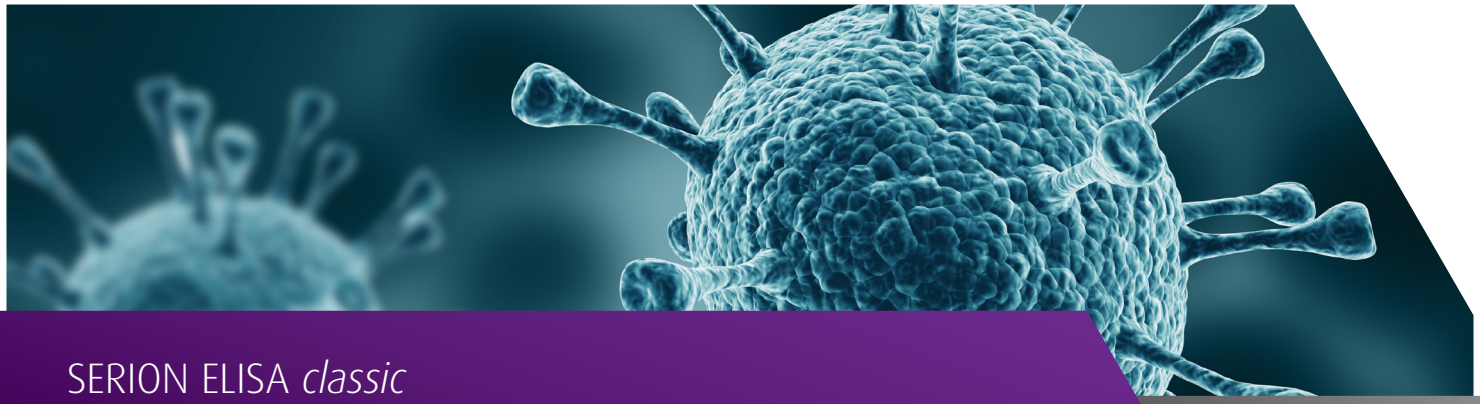
SERION Immunomat Software

The software allows the generation of assay protocols, panel definitions and worklists for routine diagnostics. Connection to laboratory software systems is possible via the bi-directional ASTM interface. Evaluation of SERION ELISA tests is carried out fast and conveniently using the SERION Immunomat software.

Highlights

- SERION ELISA Analyzer for medium to high throughput applications
- Validated for antibody detection in serum, plasma or cerebrospinal fluid (CSF), for avidity determination and antigen detection with SERION ELISA immunoassays
- Short loading times by barcode identification of samples, reagents and microtiter plates
- Processing of up to 16 different assays per plate
- Reload function for patient samples, reagents and microtiter plates
- 2D hand barcode scanner for parameters of quality control certificates
- Tip type detection and memory function for tip racks
- Optimize function for scheduling for an efficient workload of the instrument
- Clot detection, bubble kill function and reagent level check guarantee secure processing of samples
- Level sensors for fluid containers with automated warning in case of lack of reagents or filled waste container
- Easy access to buffers and reagents
- Fast and quantitative evaluation of SERION ELISA immunoassays
- Parameter- or patient-orientated result reports
- Listing of test reagents
- Import/export function for reagents
- Integrated reports for quality controls of standards and controls
- Bi-directional connection to laboratory software systems via ASTM interface

Order information	
SERION Immunomat	Order No.: VT020
SERION Clean, cleaning solution, 500 ml, 5 x conc.	Order No.: VT125
Deep well microtiter plates, 50 pieces	Order No.: VT124
Pipetting tips, 300 µl, 18 x 960 tips	Order No.: VT111
Pipetting tips, 1100 µl, 10 x 960 tips	Order No.: VT112
Plastic bottles, white, with cap, 35 ml, 100 pieces	Order No.: VT113
Plastic bottles, yellow, with cap, 35 ml, 100 pieces	Order No.: VT114
Plastic bottles, white, with cap, 50 ml, 100 pieces	Order No.: VT115
Glas bottles, with cap, 2.5 ml, 323 pieces	Order No.: VT116
Glas bottles, with cap, 2.5 ml, 30 pieces	Order No.: VT116-30
Waste bags, 10 pieces	Order No.: VT051



SERION ELISA *classic*

Influenza A and B Virus IgA/IgG/IgM

Intended use

- Qualitative and quantitative detection of human IgA, IgG and IgM antibodies in serum or plasma directed against the conserved nucleo- (NP) and matrix proteins (M) of Influenza A or Influenza B Viruses
- Detection of acute infections
- Detection of intrathecally synthesized IgG antibodies in cerebrospinal fluid

Diagnostic Efficiency

The SERION ELISA *classic* Influenza A (B) Virus IgA and IgG tests were evaluated by the analysis of 68 (76) serum samples from patients and 105 samples from blood donors in comparison to CFT with the presumption that IgA antibody production after an infection and the synthesis of complement binding antibodies takes place simultaneously. SERION ELISA *classic* Influenza A (B) Virus IgA and IgG exclude the often high seroprevalence of the healthy population to detect clinically relevant antibody activities. The SERION ELISA *classic* Influenza A (B) Virus IgM test was validated by the analysis of 105 serum samples from healthy blood donors and 76 (81) samples from patients with suspected Influenza Virus infection. The ELISA of a European manufacturer was used as a reference.

Product	Sensitivity	Specificity
SERION ELISA *classic* Influenza A Virus IgA/ IgG	92.3 %	90.1 %
SERION ELISA *classic* Influenza A Virus IgM	95.2 %	98.5 %
SERION ELISA *classic* Influenza B Virus IgA/ IgG	> 99 %	92.0 %
SERION ELISA *classic* Influenza B Virus IgM	95.5 %	>99 %

Precision

SERION ELISA *classic* Influenza A Virus IgA

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.116	4.8	0.120	5.1
Serum 2	1.008	2.9	0.948	3.7
Serum 3	3.088	4.1	3.047	3.9

SERION ELISA *classic* Influenza A Virus IgG

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.160	9.2	0.159	7.2
Serum 2	0.399	4.4	0.435	8.2
Serum 3	1.219	3.9	1.451	4.3

SERION ELISA *classic* Influenza A Virus IgM

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.230	3.1	0.256	8.2
Serum 2	0.732	1.3	0.884	6.2
Serum 3	2.121	1.6	2.146	3.9

SERION ELISA *classic* Influenza B Virus IgA

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.178	4.7	0.185	11.9
Serum 2	0.736	5.4	0.771	3.2
Serum 3	1.919	4.3	1.988	2.4

SERION ELISA *classic* Influenza B Virus IgG

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.800	5.5	0.928	3.0
Serum 2	1.547	4.1	1.765	3.2
Serum 3	1.582	3.7	1.821	2.9

SERION ELISA *classic* Influenza B Virus IgM

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.246	4.3	0.236	7.6
Serum 2	1.114	1.8	1.099	4.0
Serum 3	1.701	1.9	1.519	13.1

Pathogen

The main reservoirs for Influenza Viruses are man and a wide variety of other mammals as well as birds. The pathogens are characterized by a distinct immunogenic variability due to a high mutation frequency and the ability to exchange their genetic material. Point mutations introduce gradual changes in the hemagglutinin and neuraminidase antigens (antigenic drift). Coinfection of a host with two different strains of influenza viruses can result in a reassortment of their segmented RNA genome and produce new subtypes (antigenic shift). It is such an event which may lead to a global pandemic of Influenza.

Disease

Influenza is an acute respiratory disease with highly contagious viruses being transmitted through droplet infection. The spectrum of symptoms, which appear after a short incubation period of one to three days, is variable and ranges from asymptomatic infections to pneumonia, acute respiratory failure and death. A sudden onset of disease is very characteristic for influenza. Fever, cough, headache and muscle aches develop within a few hours of symptoms onset.

Diagnosis

PCR and antigen detection methods are particularly recommended for direct pathogen determination while ELISA is a reliable method for the demonstration of pathogen-specific antibodies, although the relevance of results obtained with antibody detection methods is very dependent upon the antigen utilised in the test. The use of the virus envelope proteins, such as haemagglutinin (HA) and neuraminidase (NA), permits the detection of immunity conferring antibodies, which may persist life-long and may complicate the result interpretation. In contrast, if conserved nucleo- (NP) or matrix proteins (M) are used, then the antibodies detected generally persist only for weeks or months post infection. Consequently, it is possible to better differentiate between past and acute infections.

Highlights

- Use of conserved nucleo- (NP) and matrix proteins (M) for the detection of antibodies directed against Influenza A and B Viruses, independent of the causative virus subtype
- Sensitive demonstration of IgM antibodies for detection of acute / primary infections
- Exclusion of background seroprevalence of IgA and IgG antibodies resulting in the specific detection of clinically relevant antibody activities
- Alternative IgA and IgG borderline ranges for children and adults
- Differentiation of acute from past infections
- Typification of Influenza A and B Virus infections by combined usage of SERION ELISA *classic* Influenza A and B Virus tests
- Detection of intrathecally synthesized Influenza A or B Virus IgG antibodies for CSF diagnostics

Product	Order No. IgA	Order No. IgG	Order No. IgM
SERION ELISA *classic* Influenza A Virus	ESR1231A	ESR1231G	ESR1231M
SERION ELISA *classic* Influenza B Virus	ESR1232A	ESR1232G	ESR1232M

SERION ELISA *control*

Please visit our website for more information.

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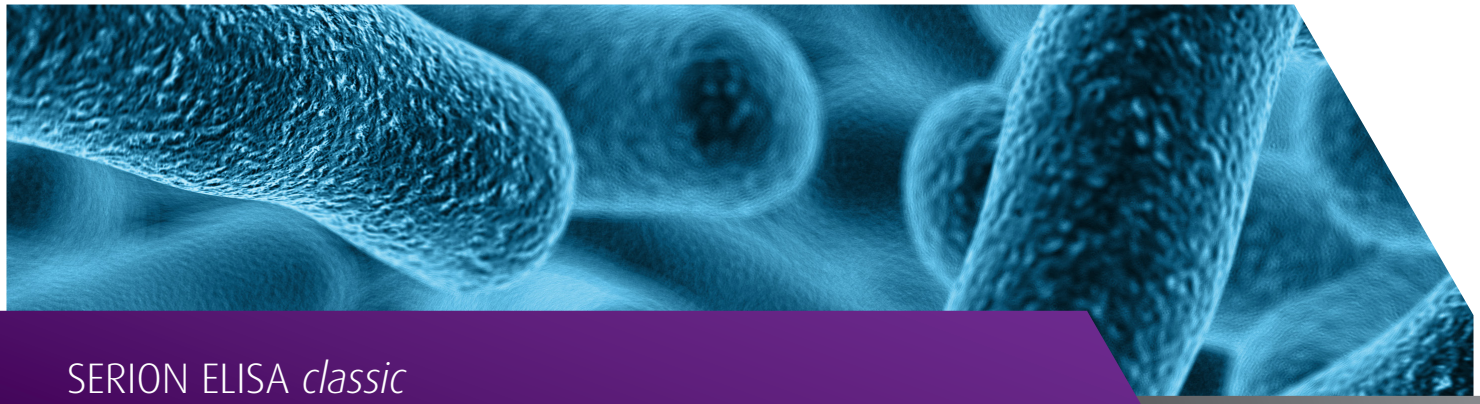

SERION ELISA *classic*

Mycoplasma pneumoniae IgA/IgG/IgM

Intended use

- Qualitative and quantitative detection of human IgA, IgG and IgM antibodies in serum or plasma directed against *Mycoplasma pneumoniae*
- Differential detection of the different antibody classes facilitates the confirmation of contact with the organism and supports the categorization of the disease stage
- Detection IgA antibodies is particularly recommended to determine reinfections

Diagnostic Efficiency

The diagnostic performance characteristics of SERION ELISA *classic* Mycoplasma pneumoniae IgA, IgG and IgM were determined by analyzing sera of patients with a suspected infection, as well as blood donor sera, in comparison to results obtained from commercially available ELISA tests of competitors. The SERION ELISA *classic* Mycoplasma pneumoniae IgG test compensates for the background seroprevalence in the population and records only clinically relevant antibody activities.

Product	Sensitivity	Specificity
SERION ELISA *classic* Mycoplasma pneumoniae IgA	77.1 %	95.7 %
SERION ELISA *classic* Mycoplasma pneumoniae IgG	99.0 %	95.5 %
SERION ELISA *classic* Mycoplasma pneumoniae IgM	91.3 %	95.5 %

Precision

SERION ELISA *classic* Mycoplasma pneumoniae IgA

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.272	10.2	0.358	11.7
Serum 2	0.525	7.1	0.578	6.4
Serum 3	1.155	8.6	1.295	7.1

SERION ELISA *classic* Mycoplasma pneumoniae IgG

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.835	4.9	0.906	11.6
Serum 2	1.269	4.7	1.467	6.9
Serum 3	1.562	4.2	1.790	5.9

SERION ELISA *classic* Mycoplasma pneumoniae IgM

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.375	7.7	0.434	12.8
Serum 2	1.581	7.2	1.823	5.5
Serum 3	1.702	7.9	1.943	8.3

Pathogen

Mycoplasma pneumoniae is a worldwide distributed bacterium, which is not surrounded by a rigid cell wall. With a diameter of 0.2 µm, the organism belonging to the class of *Mollicutes* is one of the smallest human pathogens. It possesses a special organelle that allows attachment to the ciliated epithelium in the respiratory tract. The adhesion is mediated by the highly immunogenic P1-Adhesin (168 kDa).

Disease

Mycoplasma pneumoniae is the most important causative agent of atypical pneumonia. Despite the high seroprevalence, 10–15 % of all pneumonias are caused by this pathogen. Children and elderly people are particular at risk of *Mycoplasma pneumoniae* infection, which may manifest with tracheobronchitis, laryngitis, meningitis and otitis media. Furthermore, disorders of the haematopoietic system, the central nervous system and the cardiovascular system can occur.

Diagnosis

The variety of clinical symptoms of atypical pneumonias and possible causative agents requires a diagnosis that is not exclusively limited to the clinical picture. Serological and direct detection methods can be employed to identify the pathogen and so enable appropriate medical intervention strategies. The direct detection of *Mycoplasma pneumoniae* by cultivation is difficult and time-consuming. Faster results are achieved by complement fixation tests (CFT). Meanwhile, sensitive and specific ELISA tests are available in order to differentiate between immunoglobulin classes so improving the diagnostic value of the results obtained.

Highlights

- Use of enriched P1-Adhesin from *Mycoplasma pneumoniae* for the specific detection of all relevant antibody classes
- Sensitive IgM detection for the diagnosis of acute infections, particularly in children and teenager
- Sensitive demonstration of IgA antibodies for the diagnosis of acute re-(infections), particularly in adults
- Exclusion of background seroprevalence of IgA and IgG antibodies resulting in the specific detection of clinically relevant antibody activities
- Alternative IgG borderline ranges for children (analytical borderline)
- Quantitative determination of IgA, IgG and IgM antibodies for the analysis of paired sera for disease stage monitoring and therapy

Product	Order No.
SERION ELISA *classic* Mycoplasma pneumoniae IgA	ESR127A
SERION ELISA *classic* Mycoplasma pneumoniae IgG	ESR127G
SERION ELISA *classic* Mycoplasma pneumoniae IgM	ESR127M

SERION ELISA *control*

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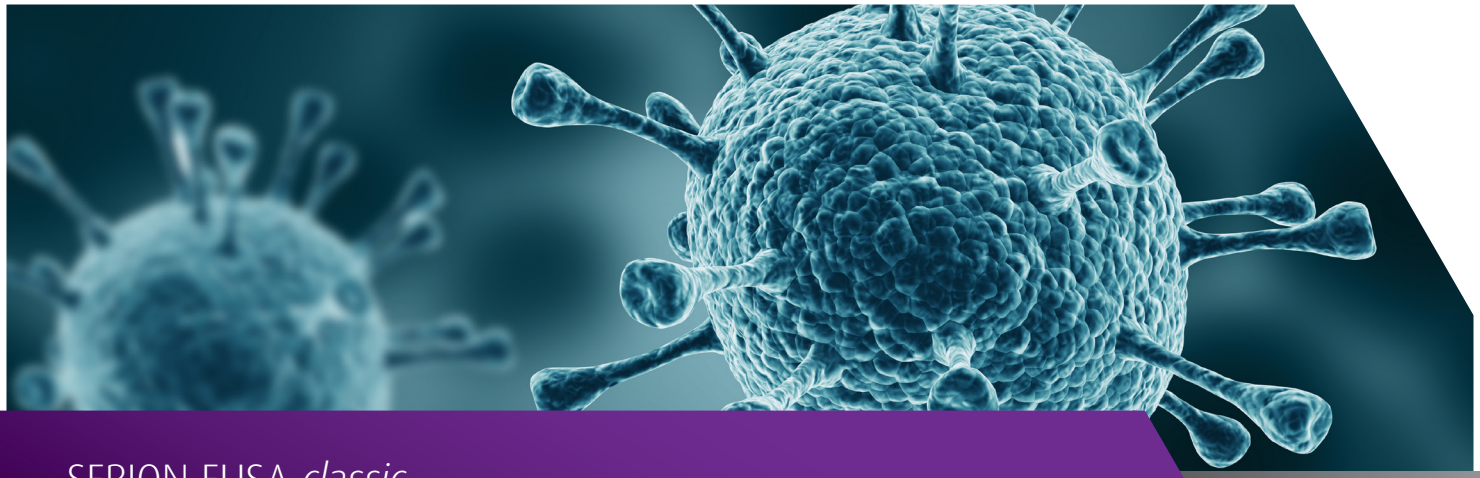

SERION ELISA *classic*

Parainfluenza Virus IgA/IgG

Intended use

- Qualitative and quantitative detection of human IgA and IgG antibodies in serum or plasma directed against all relevant human pathogenic Parainfluenza Viruses
- Detection of acute infections
- Confirmation of contact with the pathogen
- Differential diagnosis in case of respiratory infections

Diagnostic Efficiency

The SERION ELISA *classic* Parainfluenza Virus IgA (IgG) test was validated in an internal study by the analysis of 46 (45) serum samples from children under three years of age and 97 serum samples from patients with suspected Parainfluenza Virus infection against the ELISA of a leading European manufacturer. Due to the frequency of Parainfluenza Virus infections, the seroprevalence in the population is high. As a consequence, the SERION ELISA *classic* Parainfluenza Virus IgG test was adjusted in order to largely exclude the natural seroprevalence.

Product	Sensitivity	Specificity
SERION ELISA *classic* Parainfluenza Virus IgA	>99 %	95.0 %
SERION ELISA *classic* Parainfluenza Virus IgG	90.2 %	>99 %

Precision

SERION ELISA *classic* Parainfluenza Virus IgA

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.266	3.5	0.357	11.7
Serum 2	0.577	4.1	0.717	10.8
Serum 3	1.446	1.2	1.762	2.6

SERION ELISA *classic* Parainfluenza Virus IgG

Sample	Mean value (OD)	Intraassay CV (%) (n=20)	Mean value (OD)	Interassay CV (%) (n=10)
Serum 1	0.362	1.3	0.388	7.3
Serum 2	0.569	2.0	0.602	5.5
Serum 3	1.135	1.0	1.198	5.0

Pathogen

Parainfluenza Viruses are worldwide distributed (-)ssRNA viruses belonging to the family of Paramyxoviridae. Currently, four serotypes have been identified. The Parainfluenza Virus types 1 to 3 are clinically most significant.

Disease

Human Parainfluenza Viruses are a common causative agent of infections of the respiratory tract, particularly in infants and children. Transmission of the viruses occurs by droplet infections. Parainfluenza Viruses cause mild to severe infections in the lower and upper respiratory tract which may manifest as rhinitis, cough, fever, non-diphtheric croup (acute laryngotracheobronchitis) or pneumonia. In infants, excessive formation of mucus and internal airway obstruction can occur. In adults, an infection usually results in mild catarrh of the upper respiratory tract.

Diagnosis

While the majority of patients infected with Parainfluenza Viruses develop IgG antibodies, IgM antibodies are detectable in approximately 50 % of cases. Thus, the specific detection of IgA antibodies should be performed analogous to other infectious diseases of the respiratory tract (e.g. Respiratory Syncytial Virus infections). Particularly in children under three years of age the combined use of IgG and IgA detection is recommended.

Highlights

- Use of inactivated preparations of Parainfluenza Viruses type 1, 2 and 3 for the demonstration of antibodies directed against all relevant human pathogenic Parainfluenza Viruses
- Exclusion of background seroprevalence of IgG antibodies resulting in the specific detection of clinically relevant antibody activities
- Differentiation between acute and past infections
- Quantitative determination of IgA and IgG antibodies for the analysis of paired sera for disease stage monitoring and therapy control

Product	Order No.
SERION ELISA *classic* Parainfluenza Virus IgA	ESR126A
SERION ELISA *classic* Parainfluenza Virus IgG	ESR126G

SERION ELISA *control*

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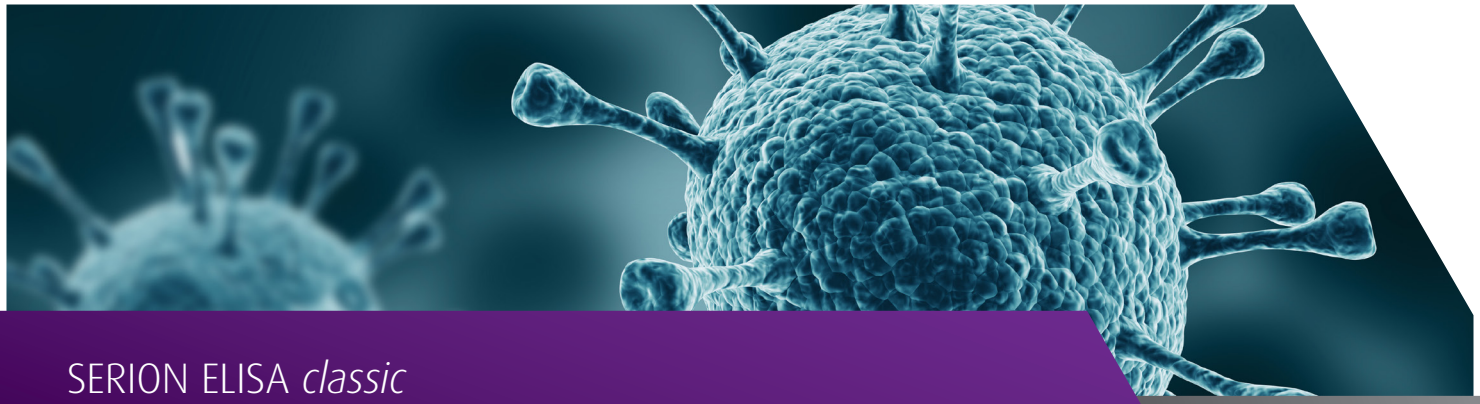

SERION ELISA *classic*

Respiratory Syncytial Virus IgA/IgG/IgM

Intended Use

- Qualitative (IgM) and quantitative (IgA / IgG) detection of human antibodies in serum or plasma directed against Respiratory Syncytial Virus
- Support in the diagnosis of acute respiratory diseases and differential diagnosis.

Diagnostic Efficiency

The SERION ELISA *classic* Respiratory Syncytial Virus IgG and IgA tests were evaluated with a panel of 67 blood donor sera and 25 sera of patients with a suspected RSV infection. Due to the fact that the CFT does not differentiate between immunoglobulin classes, the results of IgA and IgG ELISA were summarized.

For the calculation of the performance parameters of the SERION ELISA *classic* Respiratory Syncytial Virus IgM test 115 sera of healthy blood donors and patients with suspected acute RSV infections were analyzed in comparison to the results obtained with a commercially available ELISA.

Product	Sensitivity	Specificity
SERION ELISA *classic* Respiratorisches Syncytial Virus IgA / IgG	>99 %	95.0 %
SERION ELISA *classic* Respiratorisches Syncytial Virus IgM	>99 %	97.2 %

Precision

SERION ELISA *classic* Respiratory Syncytial Virus IgA

Sample	Mean Value (OD)	Intraassay CV (%) (n=20)	Mean Value (OD)	Interassay CV (%) (n=10)
Serum 1	0.502	1.8	0.529	6.1
Serum 2	0.795	2.1	0.835	6.2
Serum 3	1.116	4.1	1.144	4.8

SERION ELISA *classic* Respiratory Syncytial Virus IgG

Sample	Mean Value (OD)	Intraassay CV (%) (n=20)	Mean Value (OD)	Interassay CV (%) (n=10)
Serum 1	0.475	1.8	0.510	5.9
Serum 2	0.624	1.4	0.683	5.6
Serum 3	1.383	1.7	1.455	5.0

SERION ELISA *classic* Respiratory Syncytial Virus IgM

Sample	Mean Value (OD)	Intraassay CV (%) (n=20)	Mean Value (OD)	Interassay CV (%) (n=10)
Serum 1	0.601	0.9	0.573	3.2
Serum 2	1.392	1.1	1.364	1.6
Serum 3	2.392	1.1	2.465	1.5

Pathogen

Human Respiratory Syncytial Viruses (RSV) are enveloped (-)ssRNA viruses belonging to the Paramyxoviridae family. The two subtypes, classified as A and B, are globally distributed and are primarily differentiated by the antigenic structures. Respiratory Syncytial Viruses cause diseases of the upper and lower respiratory tract, particularly in infants and the elderly.

Disease

Respiratory Syncytial Viruses are among the most important agents causing nosocomial respiratory diseases in infants, particular premature babies, immune compromised patients and the elderly. They elicit damage to the ciliated epithelium of the respiratory tract, which can be accompanied by the formation of syncytia. The following immune reaction may result in cell detritus which can block the bronchi and lead to respiratory distress. Epidemiological studies document that almost all children at the age of two years have been exposed to the virus.

Diagnosis

Antigen and antibody detection methods are important in the diagnosis of RSV infections. In serology, ELISA tests, which allow for the differentiation of IgA, IgG and IgM immunoglobulin classes, are of increasing importance.

Highlights

- Use of an inactivated preparation of Respiratory Syncytial Viruses for the demonstration of IgA, IgG and IgM antibodies, independent of the RSV A or B subtype
- Sensitive determination of IgA and IgM antibodies for the detection of acute infections
- Exclusion of background seroprevalence of IgG antibodies resulting in the specific detection of clinically relevant antibody activities
- Differentiation of acute from past infections
- Quantification of IgA and IgG antibody activities, starting in the clinically negative measurement range, for analysis of paired sera for monitoring at risk patients, disease stage progression and therapy control

Produkt	Bestell-Nr.
SERION ELISA *classic* Respiratory Syncytial Virus IgA	ESR113A
SERION ELISA *classic* Respiratory Syncytial Virus IgG	ESR113G
SERION ELISA *classic* Respiratory Syncytial Virus IgM	ESR113M

SERION ELISA *control*

Please visit our website for more information.

Flyer RSV V9.19/01

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SERION ELISA *classic*
SERION ELISA *antigen*

Easy and standardized handling, precise test results!

SERION ELISA *classic* tests are qualitative and quantitative immunoassays for the detection of human antibodies directed against antigens of bacteria, viruses, fungi and parasites in serum, plasma or, when indicated, cerebrospinal fluid, for the diagnosis of infectious diseases.

High diagnostic performance by the use of carefully selected antigens

Easy handling due to standardized test procedures

Flexible combination of all SERION ELISA *classic* immunoassays in one test run

Easily automatable on SERION Immunomat and comparable devices

Fast and quantitative evaluation with selected software tools

Flyer SERION ELISA - EN V3.18/03

Immunoassays for optimal performance

SERION ELISA *classic*
SERION ELISA *antigen*

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	Order No.	Sample	Dilution	Units	Measurement Range	Borderline Range
Adenovirus IgA	ESR128A	Serum/Plasma	1+500	U/ml	5–300	8–10 (Child); 11–14 (Adult)
Adenovirus IgG	ESR128G [2]	Serum/Plasma/CSF	1+2000	U/ml	1–180	8–10 (Child); 10–13 (Adult)
Adenovirus IgM	ESR128M	Serum/Plasma	1+100		qualitative	OD C/O +/- 10 %
Aspergillus fumigatus IgA	ESR132A	Serum/Plasma	1+100	U/ml	30–1000	50–70
Aspergillus fumigatus IgG	ESR132G	Serum/Plasma	1+500	U/ml	30–1000	50–70
Aspergillus fumigatus IgM	ESR132M	Serum/Plasma	1+500	U/ml	30–1000	50–70
Bordetella pertussis IgA	ESR120A	Serum/Plasma	1+100	IU/ml	2–200	25–40
Bordetella pertussis IgG	ESR120G	Serum/Plasma	1+100	IU/ml	10–1000	40–50
Bordetella pertussis IgM	ESR120M	Serum/Plasma	1+100	U/ml	5–50	9–14
Bordetella pertussis Toxin IgA	ESR1201A	Serum/Plasma	1+100	IU/ml	10–300	15–20
Bordetella pertussis Toxin IgG	ESR1201G	Serum/Plasma	1+100	IU/ml	5–600	40–100
Borrelia burgdorferi IgG	ESR121G [2]	Serum/Plasma/CSF	1+100 [5]	U/ml	1–100	3–5
Borrelia burgdorferi IgM	ESR121M [2]	Serum/Plasma/CSF	1+100 [5]	U/ml	1–60	3–5
Brucella IgA	ESR116A	Serum/Plasma	1+100	U/ml	5–100	10–15
Brucella IgG	ESR116G	Serum/Plasma	1+100	U/ml	5–500	20–30
Brucella IgM	ESR116M	Serum/Plasma	1+100	U/ml	5–100	15–20
Campylobacter jejuni IgA	ESR139A	Serum/Plasma	1+1000	U/ml	5–1000	20–25
Campylobacter jejuni IgG	ESR139G	Serum/Plasma	1+1000	U/ml	2–500	20–30
Campylobacter jejuni IgM	ESR139M	Serum/Plasma	1+1000	U/ml	20–2000	40–60
Candida albicans IgA	ESR117A	Serum/Plasma	1+1000	U/ml	10–225	60–80
Candida albicans IgG	ESR117G	Serum/Plasma	1+1000	U/ml	5–450	40–100
Candida albicans IgM	ESR117M	Serum/Plasma	1+100	U/ml	5–500	60–80
Chlamydia IgA	ESR137A	Serum/Plasma	1+100	U/ml	5–200	10–15
Chlamydia IgG	ESR137G	Serum/Plasma	1+100	U/ml	5–800	10–15
Chlamydia pneumoniae IgA	ESR1371A	Serum/Plasma	1+500	U/ml	4–150	10–13
Chlamydia pneumoniae IgG	ESR1371G	Serum/Plasma	1+500	U/ml	4–200	10–12
Chlamydia pneumoniae IgM	ESR1371M	Serum/Plasma	1+100	U/ml	3–200	10–15
Chlamydia trachomatis IgA	ESR1372A	Serum/Plasma	1+100	U/ml	5–150	9–16
Chlamydia trachomatis IgG	ESR1372G	Serum/Plasma	1+100	U/ml	4–250	10–15
Chlamydia trachomatis IgM	ESR1372M	Serum/Plasma	1+100	U/ml	5–180	10–14
Coxiella burnetii phase 1 IgA	ESR1311A	Serum/Plasma	1+100		qualitative	OD C/O +/- 10 %
Coxiella burnetii phase 1 IgG	ESR1311G	Serum/Plasma	1+100		qualitative	OD C/O +/- 10 %
Coxiella burnetii phase 2 IgG	ESR1312G	Serum/Plasma	1+500	U/ml	5–500	20–30
Coxiella burnetii phase 2 IgM	ESR1312M	Serum/Plasma	1+100		qualitative	OD C/O +/- 10 %
Coxsackievirus IgA	ESR134A	Serum/Plasma	1+100	U/ml	4–150	10–15
Coxsackievirus IgG	ESR134G	Serum/Plasma	1+500	U/ml	5–300	11–15
Coxsackievirus IgM	ESR134M	Serum/Plasma	1+100	U/ml	5–250	10–15
Cytomegalovirus IgG	ESR109G [1,2]	Serum/Plasma/CSF	1+100	PEI-U/ml	10–2000	25–40
Cytomegalovirus IgM	ESR109M	Serum/Plasma/DBS [3]	1+100	U/ml	5–600	10–15
Dengue Virus IgG	ESR114G	Serum/Plasma	1+100	U/ml	5–600	10–15
Dengue Virus IgM	ESR114M	Serum/Plasma	1+100	U/ml	5–200	10–15
Diphtheria IgG	ESR130G	Serum/Plasma	1+100	IU/ml	0.05–2.0	
Echinococcus IgG	ESR107G	Serum/Plasma	1+100	U/ml	5–500	10–15
Echovirus IgA	ESR135A	Serum/Plasma	1+100	U/ml	4–150	10–15
Echovirus IgG	ESR135G	Serum/Plasma	1+500	U/ml	5–300	11–15
Echovirus IgM	ESR135M	Serum/Plasma	1+100	U/ml	5–250	10–15
Enterovirus IgA	ESR133A	Serum/Plasma	1+100	U/ml	4–150	10–15
Enterovirus IgG	ESR133G [2]	Serum/Plasma/CSF	1+500	U/ml	5–300	11–15
Enterovirus IgM	ESR133M	Serum/Plasma	1+100	U/ml	5–250	10–15
Epstein-Barr Virus VCA IgG	ESR1361G [2]	Serum/Plasma/CSF	1+100	U/ml	4–200	10–15
Epstein-Barr Virus VCA IgM	ESR1361M	Serum/Plasma	1+100	U/ml	4–200	9–13
Epstein-Barr Virus EBNA1 IgG	ESR1362G [2]	Serum/Plasma/CSF	1+100	U/ml	1–200	2.5–3.0
Epstein-Barr Virus EA IgG	ESR1363G	Serum/Plasma	1+100 [4]	U/ml	2–400	10–15

	Order No.	Sample	Dilution	Units	Measurement Range	Borderline Range
Francisella tularensis IgG	ESR142G	Serum/Plasma	1+100	U/ml	3–300	10–15
Francisella tularensis IgM	ESR142M	Serum/Plasma	1+100	U/ml	4–400	10–15
Helicobacter pylori IgA	ESR118A	Serum/Plasma	1+100	U/ml	10–200	20–30
Helicobacter pylori IgG	ESR118G	Serum/Plasma	1+100	U/ml	5–500	35–50
Helicobacter pylori IgM	ESR118M	Serum/Plasma	1+100	U/ml	10–300	20–30
Herpes Simplex Virus 1/2 IgA	ESR105A [2]	Serum/Plasma/CSF	1+100	U/ml	10–500	20–30
Herpes Simplex Virus 1/2 IgG	ESR105G [2]	Serum/Plasma/CSF	1+100	U/ml	10–1000	20–30
Herpes Simplex Virus 1/2 IgM	ESR105M	Serum/Plasma	1+100	U/ml	10–500	20–30
Herpes Simplex Virus 1 IgG	ESR1051G	Serum/Plasma	1+100	U/ml	10–1000	20–30
Herpes Simplex Virus 1 IgM	ESR1051M	Serum/Plasma	1+100	U/ml	10–500	20–30
Herpes Simplex Virus 2 IgG	ESR1052G	Serum/Plasma	1+100	U/ml	10–1000	20–30
Herpes Simplex Virus 2 IgM	ESR1052M	Serum/Plasma	1+100	U/ml	10–500	20–30
Influenza A Virus IgA	ESR1231A	Serum/Plasma	1+500	U/ml	2–200	6–9 (Child); 10–15 (Adult)
Influenza A Virus IgG	ESR1231G [2]	Serum/Plasma/CSF	1+2000	U/ml	2–200	4–7 (Child); 10–15 (Adult)
Influenza A Virus IgM	ESR1231M	Serum/Plasma	1+500	U/ml	5–100	10–15
Influenza B Virus IgA	ESR1232A	Serum/Plasma	1+500	U/ml	2–200	4–7 (Child); 10–15 (Adult)
Influenza B Virus IgG	ESR1232G [2]	Serum/Plasma/CSF	1+2000	U/ml	2–200	4–7 (Child); 10–15 (Adult)
Influenza B Virus IgM	ESR1232M	Serum/Plasma	1+500	U/ml	5–130	10–15
Legionella pneumophila 1–7 IgG	ESR106G	Serum/Plasma	1+100	U/ml	10–500	50–70
Legionella pneumophila 1–7 IgM	ESR106M	Serum/Plasma	1+100	U/ml	10–500	120–140
Leishmania IgG	ESR147G	Serum/Plasma	1+100	U/ml	4–800	10–15
Leptospira IgG	ESR125G	Serum/Plasma	1+100	U/ml	2–100	10–15
Leptospira IgM	ESR125M	Serum/Plasma	1+100	U/ml	3–100	15–20
Measles Virus IgG	ESR102G [2]	Serum/Plasma/CSF	1+100	mIU/ml	50–5000	150–200
Measles Virus IgM	ESR102M	Serum/Plasma	1+100	U/ml	5–800	10–15
Mumps Virus IgG	ESR103G [2]	Serum/Plasma/CSF	1+100	U/ml	30–2000	70–100
Mumps Virus IgM	ESR103M	Serum/Plasma	1+100	U/ml	5–600	10–15
Mycoplasma pneumoniae IgA	ESR127A	Serum/Plasma	1+100	U/ml	2–150	10–14
Mycoplasma pneumoniae IgG	ESR127G	Serum/Plasma	1+100	U/ml	3–200	10–15 (Child); 20–30 (Adult)
Mycoplasma pneumoniae IgM	ESR127M	Serum/Plasma	1+100	U/ml	5–150	13–17
Parainfluenza Virus IgA	ESR126A	Serum/Plasma	1+500	U/ml	5–200	10–15
Parainfluenza Virus IgG	ESR126G	Serum/Plasma	1+2000	U/ml	5–1000	10–15
Parvovirus B19 IgG	ESR122G	Serum/Plasma	1+100	IU/ml	1.5–150	3–5
Parvovirus B19 IgM	ESR122M	Serum/Plasma	1+100	U/ml	5–300	10–15
Respiratory Syncytial Virus IgA	ESR113A	Serum/Plasma	1+500	U/ml	5–200	10–15
Respiratory Syncytial Virus IgG	ESR113G	Serum/Plasma	1+2000	U/ml	2–200	10–15
Respiratory Syncytial Virus IgM	ESR113M	Serum/Plasma	1+100		qualitative	OD C/O +/-10 %
Rubella Virus IgG	ESR129G [1,2]	Serum/Plasma/CSF	1+100	IU/ml	2–500	10–20
Rubella Virus IgM	ESR129M	Serum/Plasma/DBS [3]	1+100	U/ml	2–120	2.5–3.5
TBE Virus IgG	ESR112G [2]	Serum/Plasma/CSF	1+100	U/ml	30–3000	100–150
TBE Virus IgM	ESR112M [2]	Serum/Plasma/CSF	1+100	U/ml	5–150	10–15
Tetanus IgG	ESR108G	Serum/Plasma	1+100	IU/ml	0.05–5.0	
Toxoplasma gondii IgG	ESR110G [1,2]	Serum/Plasma/CSF	1+100	IU/ml	5–500	10–20
Toxoplasma gondii IgM	ESR110M	Serum/Plasma/DBS [3]	1+100	U/ml	100–5000	300–350/450–540
Varicella Zoster Virus IgA	ESR104A [2]	Serum/Plasma/CSF	1+100	U/ml	5–1000	35–50
Varicella Zoster Virus IgG	ESR104G [2]	Serum/Plasma/CSF	1+100	mIU/ml	15–2000	50–100
Varicella Zoster Virus IgM	ESR104M	Serum/Plasma	1+100	U/ml	5–200	10–15
West Nile Virus IgG	ESR141G	Serum/Plasma	1+100	U/ml	5–200	11–15
West Nile Virus IgM	ESR141M	Serum/Plasma	1+100	U/ml	5–750	10–15
Yersinia IgA	ESR138A	Serum/Plasma	1+100	U/ml	5–100	10–15
Yersinia IgG	ESR138G	Serum/Plasma	1:20	U/ml	5–500	10–15
Yersinia IgM	ESR138M	Serum/Plasma	1+100	U/ml	5–100	10–15
Candida antigen	ESR200	Serum/Plasma	3+1	U/ml	0.7–50	1.4–2.6

We recommend to use our Rf Absorbent (Order No. Z200) for all SERION ELISA *classic* IgM immunoassays

[1] SERION avidity reagents available [2] Validated for CSF diagnostics [3] Dried Blood Spots from new born babies
[4] Special dilution buffer DILBS1 [5] Special dilution buffer DILBS2