Dia.Pro
Diagnostic
BioProbes

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Location: Moldova
MOLDOVA EUROPEANĂ

EC DECLARATION OF CONFORMITY

MANUFACTURER	DIA.PRO DIAGNOSTIC BIOPROBES S.R.L. VIA G. CARDUCCI N° 27 – 20099 SESTO SAN GIOVANNI (MILANO) – ITALY
PRODUCT	**HEV IgM** CODE: **EVM.CE** (96 tests)
CLASSIFICATION	GENERAL IVD
CONFORMITY ASSESSMENT ROUTE	SELF CERTIFICATION

WE HEREBY DECLARE THAT THE ABOVE MENTIONED PRODUCT MEETS THE PROVISIONS OF THE COUNCIL DIRECTIVE 98/79/EC FOR IN VITRO DIAGNOSTIC DEVICES.

ISO CERTIFICATE	UNE EN ISO 13485 N° 2013 11 0039 EN, RELEASED BY AEMPS (AGENCIA ESPAÑOLA DE MEDICAMENTOS Y PRODUCTOS SANITARIOS)

PLACE & DATE OF FIRST ISSUE	MILANO – MARCH 2004
PLACE & DATE OF CURRENT ISSUE	SESTO SAN GIOVANNI (MI) – MARCH 2019
SIGNATURE **Legal Representative** **Dr.ssa Fiorenza Scozzesi**	DIA.PRO DIAGNOSTIC BIOPROBES S.r.l.

Rev:	05/2018

Dia.Pro
Diagnostic
BioProbes

EC DECLARATION OF CONFORMITY

MANUFACTURER	DIA.PRO DIAGNOSTIC BIOPROBES S.R.L. VIA G. CARDUCCI N° 27 – 20099 SESTO SAN GIOVANNI (MILANO) – ITALY
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Rev:	05/2018

MINISTERIO DE SANIDAD

CNCPS CENTRO NACIONAL DE CERTIFICACIÓN DE PRODUCTOS SANITARIOS

EL CENTRO NACIONAL DE CERTIFICACION DE PRODUCTOS SANITARIOS

THE CENTRO NACIONAL DE CERTIFICACION DE PRODUCTOS SANITARIOS

otorga el certificado número

grants the certificate no.

2013 11 0039 EN

según la norma

in accordance with the standard

UNE-EN ISO 13485: 2018

(EN ISO 13485: 2016 & ISO 13485: 2016)

Productos Sanitarios: Sistemas de Gestión de Calidad – Requisitos para fines reglamentarios

Medical devices – Quality management systems - Requirements for regulatory purposes

a la empresa

to the company

Dia.Pro Diagnostic Bioprobes S.r.l.

Via G. Carducci, 27. 20099 Sesto San Giovanni, Milano (Italy)

Para las siguientes actividades / *For the following activities:*

Diseño, desarrollo y producción de reactivos y productos reactivos, calibradores y materiales de control para inmunoquímica, microbiología, inmunología infecciosa y técnicas de biología molecular.

Diseño, desarrollo, producción de instrumentos y software para diagnóstico *in vitro*.

Design, development and manufacturing of reagents, reagent products, calibrators and control materials for immunochemistry, microbiology, infectious immunology and molecular biology techniques.

Design and development and manufacturing of instruments and software for "in vitro" diagnostic.

Fecha de validez / *Date of validity:* **Desde/** *From:* **18-11-2023 Hasta/** *To:* **17-11-2026**

Renovación / *Renewal of certification date:* **18-11-2023**

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

ENAC CERTIFICACIÓN ISO 17021 Nº39 / C-SG055

Madrid, 17 de noviembre de 2023
Jefa del Centro Nacional de Certificación de Productos Sanitarios

Fdo. Gloria Hernández Hernández

13485 CERTIFICADO Rev. 16/10/2023

Agencia Española de Medicamentos y Productos Sanitarios (AEMPS)
Fecha de la firma: 17/11/2023
Puede comprobar la autenticidad del documento en la sede de la AEMPS:https://localizador.aemps.es

CSV: N F 9 Q K D G 9 E A

EU Certificate

Quality Management System
REGULATION (EU) 2017/746 on In Vitro Diagnostic Medical Devices, Annex IX Chapter I, Section 2 and 3 and Chapter III

TÜVRheinland®

Registration No.: HX 1483000-1

Manufacturer:
EUROIMMUN
Medizinische Labordiagnostika AG
Seekamp 31
23560 Lübeck
Germany

EUDAMED Single Registration No.: DE-MF-000005296

Products: Products of class B:

IMMUNOCHEMISTRY (IMMUNOLOGY)

IVR 0602: Devices intended to be used for screening, determination or monitoring of physiological markers for a specific disease
W01021090 - VARIOUS AUTO-IMMUNE DISEASE

IVR 0603: Devices intended to be used for screening, confirmation/determination, or monitoring of allergies and intolerances
W01020299 - ALLERGY TESTS - OTHER
W01020201 - IMMUNOGLOBULIN E - TOTAL

IVR 0608: Devices intended to be used for screening, determination or monitoring of physiological markers
W01020702 - VITAMINES

The Notified Body hereby declares that the requirements of Annex IX, Chapter I, Section 2 and 3 of the REGULATION (EU) 2017/746 have been met for the listed products. The above named manufacturer has established and applies a quality management system, which is subject to periodic surveillance, defined by Annex IX, Chapter I, Section 3 of the aforementioned regulation. If class B, C or D devices for self-testing or near-patient testing are covered by this certificate an EU technical documentation assessment certificate according to Chapter II, Section 5.1 is required before placing them on the market. If companion diagnostics are covered by this certificate an EU technical documentation assessment certificate according to Chapter II, Section 5.2 is required before placing them on the market. If class D devices are covered by this certificate an EU technical documentation assessment certificate according to Chapter II, Section 4.10 is required before placing them on the market.

Report No.: 1090492-40

Effective date: 2023-05-10

Expiry date: 2028-05-09

Issue date: 2023-05-10

TÜV Rheinland LGA Products GmbH TÜVRheinland® Zertifizierungsstelle

Benannt durch/Designated by Zentralstelle der Länder für Gesundheitsschutz bei Arzneimitteln und Medizinprodukten www.zlg.de
BS-IVDR-097

Katja Mierisch
TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany

TÜV Rheinland LGA Products GmbH is a Notified Body according to REGULATION (EU) 2017/746 concerning in vitro diagnostic medical devices with the identification number 0197.

EU Certificate

Quality Management System
REGULATION (EU) 2017/746 on In Vitro Diagnostic Medical Devices, Annex IX Chapter I, Section 2 and 3 and Chapter III

TÜVRheinland®

Registration No.: HX 1483000-1

Manufacturer:

EUROIMMUN
Medizinische Labordiagnostika AG
Seekamp 31
23560 Lübeck
Germany

INFECTIOUS DISEASES

IVR 0503: Devices intended to be used to detect the presence of, or exposure to an infectious agent including sexually transmitted agents
W01050808 - CONTROLS - INFECT. IMMUNOLOGY
W01050404 - EPSTEIN BARR VIRUS
W01050502 - MISCELLANEOUS PARASITOLOGY
W01050117 - OTHER BACTERIOLOGY IMMUNOASSAYS
W01050406 - OTHER VIROLOGY ANTIGEN/ANTIBODY DETECTION

IVR 0504: Devices intended to be used to determine the infectious load, to determine infective disease status or immune status and devices used for infectious disease staging
W01050117 - OTHER BACTERIOLOGY IMMUNOASSAYS

CHEMISTRY / IMMUNOCHEMISTRY INSTRUMENTS

IVR 0503: Devices intended to be used to detect the presence of, or exposure to an infectious agent including sexually transmitted agents
W0201020192 - AUTOMATED IMMUNOCHEMISTRY ANALYSERS – IVD MEDICAL DEVICE SOFTWARE

Products of class C

IMMUNOCHEMISTRY (IMMUNOLOGY)

IVR 0602: Devices intended to be used for screening, determination or monitoring of physiological markers for a specific disease
W01021090 - VARIOUS AUTO-IMMUNE DISEASE

Report No.: 1090492-40

Effective date: 2023-05-10

Expiry date: 2028-05-09

Issue date: 2023-05-10

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Benannt durch/Designated by
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Katja Mierisch
TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany

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EU Certificate

Quality Management System
REGULATION (EU) 2017/746 on In Vitro Diagnostic Medical Devices,
Annex IX Chapter I, Section 2 and 3 and Chapter III

TÜVRheinland®

Registration No.: HX 1483000-1

Manufacturer:

EUROIMMUN
Medizinische Labordiagnostika AG
Seekamp 31
23560 Lübeck
Germany

INFECTIOUS DISEASES

IVR 0501: Devices intended to be used for pre-natal screening of women in order to determine their immune status towards transmissible agents
W01050501 - TOXOPLASMA

IVR 0503: Devices intended to be used to detect the presence of, or exposure to an infectious agent including sexually transmitted agents
W01050403 - HERPES SIMPLEX VIRUS
W01050405 - OTHER VIROLOGY - NA REAGENTS
W01050705 - MULTIPLE PANELS FOR INFECTIONS - VARIOUS
W01050107 - MYCOBACTERIA GENUS + SPECIES

GENETIC TESTING

IVR 0402: Devices intended to be used to predict genetic disease/disorder risk and prognosis
W01060101 - MONOGENETIC DISORDERS

NUCLEIC ACID TESTING INSTRUMENTS

IVR 0402: Devices intended to be used to predict genetic disease/disorder risk and prognosis
W02050292 - MICRO-ARRAY INSTRUMENTS – IVD MEDICAL DEVICE SOFTWARE

CHEMISTRY / IMMUNOCHEMISTRY INSTRUMENTS

IVR 0501: Devices intended to be used for pre-natal screening of women in order to determine their immune status towards transmissible agents
W0201020192 - AUTOMATED IMMUNOCHEMISTRY ANALYSERS – IVD MEDICAL DEVICE SOFTWARE

Report No.: 1090492-40

Effective date: 2023-05-10

Expiry date: 2028-05-09

Issue date: 2023-05-10

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle

Benannt durch/Designated by
Zentralstelle der Länder für Gesundheitsschutz bei Arzneimitteln und Medizinprodukten
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Katja Mierisch
TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany

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Quality Management System
REGULATION (EU) 2017/746 on In Vitro Diagnostic Medical Devices, Annex IX Chapter I, Section 2 and 3 and Chapter III

Registration No.: HX 1483000-1

Manufacturer:
EUROIMMUN
Medizinische Labordiagnostika AG
Seekamp 31
23560 Lübeck
Germany

Authorised representative(s): N/A

Certificate history		
Revision:	Description:	Issue date:
0	Initial issuing	2023-05-10

Report No.: 1090492-40

Effective date: 2023-05-10

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TÜV Rheinland LGA Products GmbH
Zertifizierungsstelle

Katja Mierisch
TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany

TÜV Rheinland LGA Products GmbH is a Notified Body according to REGULATION (EU) 2017/746 concerning in vitro diagnostic medical devices with the identification number 0197.

CERTIFICATE OF REGISTRATION

Lorne Laboratories Ltd

Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire RG6 4UT UNITED KINGDOM

Facility ID: F001410

UL Medical Regulatory Services of UL LLC® (UL Solutions) issues this certificate to the Firm named above, after auditing the Firm's quality management system and finding it in conformance per the defined scope with respect to:

ISO 13485:2016
EN ISO 13485:2016

with additional regulatory requirements listed on final page of this certificate.

The design and manufacture of in vitro diagnostic reagents for the detection of the blood groups.

MDSAP
MEDICAL DEVICE SINGLE AUDIT PROGRAM

Authorized by

Paul Hilgeman
Senior Business Manager - Medical
CMIT – Medical Regulatory

Check Certificate Status:
here

File Number	A12241	Cycle Start Date	May 23, 2023
Certificate Number	1459.230523	Effective Date	May 23, 2023
Initial Issue Date	June 26, 2018	Expiry Date	May 22, 2026

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of UL Medical and Regulatory Services of UL LLC® (UL Solutions). Certificates may be verified by visiting the Online Certifications Directory on UL.com.

UL Medical and Regulatory Services UL, LLC is an MDSAP Recognized Auditing Organization

UL Solutions
333 Pfingsten Road
Northbrook, IL 60062-2096 USA

CERTIFICATE OF REGISTRATION

Lorne Laboratories Ltd

Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire RG6 4UT UNITED KINGDOM

Facility ID: F001410

Additional Regulatory Requirements

Brazil:
- RDC ANVISA n. 665/2022
- RDC ANVISA n. 551/2021
- RDC ANVISA n. 67/2009

Canada:
- Medical Devices Regulations – Part 1- SOR 98/282

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UL Solutions
333 Pfingsten Road
Northbrook, IL 60062-2096 USA

CERTIFICATE

EC Certificate No. 1434-IVDD-075/2022

Full Quality Assurance System
Directive 98/79/EC concerning
***in vitro* diagnostic medical devices**

Polish Centre for Testing and Certification certifies
that the quality assurance system in the organization:

Lorne Laboratories Ltd

Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire RG6 4UT, UNITED KINGDOM

for the design, manufacture and final inspection of *in vitro* diagnostic medical device
List A

The list of medical devices covered by this certificate is provided
in the Annex 1 to EC Design-examination Certificate No. 1434-IVDD-074/2022

complies with requirements
of Annex IV (excluding Section 4, 6) to Directive 98/79/EC (as amended)
implemented into Polish law,
as evidenced by the audit conducted by the PCBC

Validity of the Certificate: from 28.04.2022 to 27.05.2025

The date of issue of the Certificate: 28.04.2022

The date of the first issue of the Certificate: 10.04.2019

CE 1434

Issued under the Contract No. MD-004/2022
Application No: 505/2022
Certificate bears the qualified signature.
Warsaw, 28/04/2022
Module H7

Aleksandra Kostrzewa
Digitally signed by Aleksandra Kostrzewa
President

CERTIFICATE OF REGISTRATION

Lorne Laboratories Ltd

Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire RG6 4UT UNITED KINGDOM

Facility ID: F001410

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ISO 13485:2016
EN ISO 13485:2016

with additional regulatory requirements listed on final page of this certificate.

The design and manufacture of in vitro diagnostic reagents for the detection of the blood groups.

MDSAP
MEDICAL DEVICE SINGLE AUDIT PROGRAM

Authorized by

Paul Hilgeman
Senior Business Manager - Medical
CMIT – Medical Regulatory

Check Certificate Status:
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UL Medical and Regulatory Services UL, LLC is an MDSAP Recognized Auditing Organization

UL Solutions
333 Pfingsten Road
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CERTIFICATE OF REGISTRATION

Lorne Laboratories Ltd

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Berkshire RG6 4UT UNITED KINGDOM

REPs Facility ID: F001410

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ISO 13485:2016

with additional regulatory requirements listed on final page of this certificate.

The design and manufacture of in vitro diagnostic reagents for the detection of the blood groups.

MDSAP
MEDICAL DEVICE SINGLE AUDIT PROGRAM

Authorized by

Michael J. Windler, P.E.
Manager of Global Regulatory Service
Distinguished Member of the Technical Staff
UL Life and Health Sciences
UL LLC

Check Certificate Status: here

File Number	A12241	Cycle Start Date	May 23, 2020
Certificate Number	1459.200523	Effective Date	May 23, 2020
Initial Issue Date	June 26, 2018	Expiry Date	May 22, 2023

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UL REGISTERED FIRM

UL Medical and Regulatory Services UL, LLC is an MDSAP Recognized Auditing Organization

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096 USA

CERTIFICATE OF REGISTRATION

Lorne Laboratories Ltd

Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire RG6 4UT UNITED KINGDOM

REPs Facility ID: **F001410**

Additional Regulatory Requirements

Brazil:
- RDC ANVISA n. 16/2013
- RDC ANVISA n. 23/2012
- RDC ANVISA n. 67/2009

Canada:
- Medical Devices Regulations – Part 1- SOR 98/282

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UL Medical and Regulatory Services UL, LLC is an MDSAP Recognized Auditing Organization

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096 USA

CE

Declaration of Conformity

EUROIMMUN Medizinische Labordiagnostika AG
Seekamp 31, D-23560 Lübeck, Germany

declare under our sole responsibility that the ELISA products

Anti-West Nile Virus ELISA (IgG)	*EI 2662-9601 G*
Anti-West Nile Virus ELISA (IgM)	*EI 2662-9601 M*
Avidity: Anti-West Nile Virus ELISA (IgG)	*EI 2662-9601-1 G*

(product name, order no)

meet the demands of

Directive 98/79/EC on in vitro diagnostic medical devices of 27 October 1998 and its transpositions in national laws which apply to it.

Conformity assessment procedure: Annex III

Lübeck, 13.10.2016
(Place and date of issue)

Susanne Aleksandrowicz
- Member of the Board -

Dr. Wolfgang Schlumberger
- Member of the Board -

Anti-West Nile Virus ELISA (IgG)
Test instruction

ORDER NO.	ANTIBODIES AGAINST	IG CLASS	SUBSTRATE	FORMAT
EI 2662-9601 G	West Nile virus	IgG	Ag-coated microplate wells	96 x 01 (96)

Principle of the test: The ELISA test kit provides a semiquantitative or quantitative in vitro assay for human antibodies of the IgG class against West Nile virus in serum or plasma. The test kit contains microtiter strips each with 8 break-off reagent wells coated with West Nile virus antigens. In the first reaction step, diluted patient samples are incubated in the wells. In the case of positive samples, specific IgG (also IgA and IgM) antibodies will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled anti-human IgG (enzyme conjugate) catalysing a colour reaction.

Contents of the test kit:

Component	Colour	Format	Symbol
1. Microplate wells coated with antigens: 12 microplate strips each containing 8 individual break-off wells in a frame, ready for use	---	12 x 8	STRIPS
2. Calibrator 1 200 RU/ml (IgG, human), ready for use	dark red	1 x 2.0 ml	CAL1
3. Calibrator 2 20 RU/ml (IgG, human), ready for use	red	1 x 2.0 ml	CAL2
4. Calibrator 3 2 RU/ml, (IgG, human), ready for use	light red	1 x 2.0 ml	CAL3
5. Positive control (IgG, human), ready for use	blue	1 x 2.0 ml	POS CONTROL
6. Negative control (IgG, human), ready for use	green	1 x 2.0 ml	NEG CONTROL
7. Enzyme conjugate peroxidase-labelled anti-human IgG (rabbit), ready for use	green	1 x 12 ml	CONJUGATE
8. Sample buffer ready for use	light blue	1 x 100 ml	SAMPLE BUFFER
9. Wash buffer 10x concentrate	colourless	1 x 100 ml	WASH BUFFER 10x
10. Chromogen/substrate solution TMB/H_2O_2, ready for use	colourless	1 x 12 ml	SUBSTRATE
11. Stop solution 0.5 M sulphuric acid, ready for use	colourless	1 x 12 ml	STOP SOLUTION
12. Test instruction	---	1 booklet	
13. Quality control certificate	---	1 protocol	
14. Protective foil	---	2 pieces	

LOT Lot description
IVD In vitro diagnostics
CE
Storage temperature
Unopened usable until

Storage and stability: The test kit has to be stored at a temperature between +2°C to +8°C. Do not freeze. Unopened, all test kit components are stable until the indicated expiry date.

Waste disposal: Patient samples, calibrators, controls and incubated microplate strips should be handled as infectious waste. All reagents must be disposed of in accordance with local disposal regulations.

Preparation and stability of the reagents

Note: All reagents must be brought to room temperature (+18°C to +25°C) approx. 30 minutes before use. After first use, the reagents are stable until the indicated expiry date if stored at +2°C to +8°C and protected from contamination, unless stated otherwise below.
The thermostat adjusted ELISA incubator must be set at 37°C +/- 1°C.

- **Coated wells:** Ready for use. Tear open the resealable protective wrapping of the microplate at the recesses above the grip seam. Do not open until the microplate has reached room temperature to prevent the individual strips from moistening. Immediately replace the remaining wells of a partly used microplate in the protective wrapping and tightly seal with the integrated grip seam (Do not remove the desiccant bag).
  Once the protective wrapping has been opened for the first time, the wells coated with antigens can be stored in a dry place and at a temperature between +2°C and +8°C for 4 months.

- **Calibrators and controls:** Ready for use. The reagents must be mixed thoroughly before use.

- **Enzyme conjugate:** Ready for use. The enzyme conjugate must be mixed thoroughly before use.

- **Sample buffer:** Ready for use.

- **Wash buffer:** The wash buffer is a 10x concentrate. If crystallisation occurs in the concentrated buffer, warm it to 37°C and mix well before diluting. The quantity required should be removed from the bottle using a clean pipette and diluted with deionized or distilled water (1 part reagent plus 9 parts distilled water).
  For example: For 1 microplate strip, 5 ml concentrate plus 45 ml water.
  The working strength diluted wash buffer is stable for 4 weeks when stored at +2°C to +8°C and handled properly.

- **Chromogen/substrate solution:** Ready for use. Close the bottle immediately after use, as the contents are sensitive to light. The chromogen/substrate solution must be clear on use. Do not use the solution if it is blue coloured.

- **Stop solution:** Ready for use.

Warning: The controls used have been tested negative for HBsAg, anti-HCV, anti-HIV-1 and anti-HIV-2 using enzyme immunoassays and indirect immunofluorescence methods. Nonetheless, all materials should be treated as being a potential infection hazard and should be handled with care. Some of the reagents contain the toxic agent sodium azide. Avoid skin contact.

Preparation and stability of the patient samples

Samples: Human serum or EDTA, heparin or citrate plasma.

Stability: Patient samples to be investigated can generally be stored at +2°C to +8°C for up to 14 days. Diluted samples should be incubated within one working day.

Sample dilution: Patient samples are diluted **1:101** in sample buffer. For example: dilute 10 µl serum in 1.0 ml sample buffer and mix well by vortexing (sample pipettes are not suitable for mixing).

NOTE: Calibrators and controls are prediluted and ready for use, do not dilute them.

Incubation

For **semiquantative analysis** incubate **calibrator 2** along with the positive and negative controls and patient samples. For **quantitative analysis** incubate **calibrators 1, 2 and 3** along with the positive and negative controls and patient samples.

(Partly) manual test performance

Sample incubation: (1st step)
Transfer 100 µl of the calibrator, positive and negative controls or diluted patient samples into the individual microplate wells according to the pipetting protocol.
For manual processing of microplate wells, cover the finished test plate with the protective foil. When using an automated microplate processor for incubation, follow the instrument manufacturer's recommendations with regard to microwell plate sealing.
Incubate **60 minutes at 37°C ± 1°C**.

Washing:
Manual: Remove the protective foil and empty the wells and subsequently wash 3 times using 300 µl of working strength wash buffer for each wash.
Automatic: Remove the protective foil and empty the wells and subsequently wash 3 times with 450 µl of working strength wash buffer (program setting: e.g. TECAN Columbus Washer "Overflow Modus").

Leave the wash buffer in each well for 30 to 60 seconds per washing cycle, then empty the wells. After washing (manual and automated tests), thoroughly dispose of all liquid from the microplate by tapping it on absorbent paper with the openings facing downwards to remove all residual wash buffer.

Note: Residual liquid (> 10 µl) in the reagent wells after washing can interfere with the substrate and lead to false low extinction values. Insufficient washing (e.g., less than 3 wash cycles, too small wash buffer volumes, or too short reaction times) can lead to false high extinction values.
Free positions on the microplate strip should be filled with blank wells of the same plate format as that of the parameter to be investigated.

Conjugate incubation: (2nd step)
Pipette 100 µl of enzyme conjugate (peroxidase-labelled anti-human IgG) into each of the microplate wells.
When using an automated microplate processor for incubation, follow the instrument manufacturer´s recommendations with regard to microwell plate sealing.
Incubate **30 minutes at room temperature (+18°C to +25°C)**

Washing:
Empty the wells. Wash as described above.

Substrate incubation: (3rd step)
Pipette 100 µl of chromogen/substrate solution into each of the microplate wells. Incubate for **15 minutes at room temperature** (+18°C to +25°C) (protect from direct sunlight).

Stopping the reaction:
Pipette 100 µl of stop solution into each of the microplate wells in the same order and at the same speed as the chromogen/substrate solution was introduced.

Measurement:
Photometric measurement of the colour intensity should be made at a wavelength of 450 nm and a reference wavelength between 620 nm and 650 nm **within 30 minutes of adding the stop solution.** Prior to measuring, slightly shake the microplate to ensure a homogeneous distribution of the solution.

Test performance using fully automated analysis devices

Sample dilution and test performance are carried out fully automatically using the analysis device. The incubation conditions programmed in the respective software authorised by EUROIMMUN may deviate slightly from the specifications given in the ELISA test instruction. However, these conditions were validated in respect of the combination of the EUROIMMUN Analyzer I, Analyzer I-2P or the DSX from Dynex and this EUROIMMUN ELISA. Validation documents are available on inquiry. Automated test performance using other fully automated, open system analysis devices is possible, however, the combination should be validated by the user.

Pipetting protocol

	1	2	3	4	5	6	7	8	9	10	11	12
A	**C 2**	**P 6**	**P 14**	**P 22**			**C 1**	**P 4**	**P 12**	**P 20**		
B	**pos.**	**P 7**	**P 15**	**P 23**			**C 2**	**P 5**	**P 13**	**P 21**		
C	**neg.**	**P 8**	**P 16**	**P 24**			**C 3**	**P 6**	**P 14**	**P 22**		
D	**P 1**	**P 9**	**P 17**				**pos.**	**P 7**	**P 15**	**P 23**		
E	**P 2**	**P 10**	**P 18**				**neg.**	**P 8**	**P 16**	**P 24**		
F	**P 3**	**P 11**	**P 19**				**P 1**	**P 9**	**P 17**			
G	**P 4**	**P 12**	**P 20**				**P 2**	**P 10**	**P 18**			
H	**P 5**	**P 13**	**P 21**				**P 3**	**P 11**	**P 19**			

The pipetting protocol for microtiter strips 1-4 is an example for the **semiquantitative analysis** of 24 patient samples (P 1 to P 24).
The pipetting protocol for microtiter strips 7-10 is an example for the **quantitative analysis** of 24 patient samples (P 1 to P 24).

The calibrators (C 1 to C 3), the positive (pos.) and negative (neg.) controls, and the patient samples have each been incubated in one well. The reliability of the ELISA test can be improved by duplicate determinations for each sample.
The wells can be broken off individually from the strips. This makes it possible to adjust the number of test substrates used to the number of samples to be examined and minimizes reagent wastage.
Both positive and negative controls serve as internal controls for the reliability of the test procedure. They should be assayed with each test run.

Calculation of results

Semiquantitative: Results can be evaluated semiquantitatively by calculating a ratio of the extinction value of the control or patient sample over the extinction value of the calibrator 2. Calculate the ratio according the following formula:

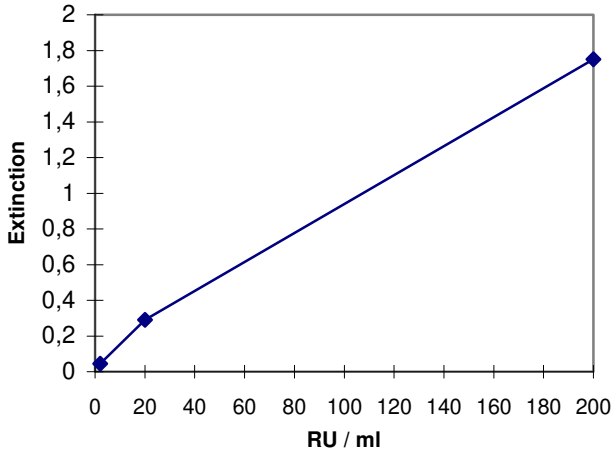
$$\frac{\textbf{Extinction of the control or patient sample}}{\textbf{Extinction of calibrator 2}} = \textbf{Ratio}$$

EUROIMMUN recommends interpreting results as follows:

Ratio <0.8:	**negative**
Ratio ≥0.8 to <1.1:	**borderline**
Ratio ≥1.1:	**positive**

In cases of borderline test results, an additional patient sample should be taken 7 days later and re-tested in parallel with the first patient sample. The results of both samples allow proper evaluation of titer changes.

Quantitative: The standard curve from which the concentration of antibodies in the patient samples can be taken is obtained by point-to-point plotting of the extinction values measured for the 3 calibration sera against the corresponding units (linear/linear). Use “point-to-point” plotting for calculation of the standard curve by computer. The following plot is an example of a typical calibration curve. Please do not use this curve for the determination of antibody concentrations in patient samples.



If the extinction of a serum sample lies above the value of calibrator 1 (200 RU/ml). The result should be given as “>200 RU/ml“. It is recommended that the sample be re-tested at a dilution of 1:400. The result in RU/ml read from the calibration curve for this sample must then be multiplied by a factor of 4.

The upper limit of the normal range of non-infected persons (**cut-off value**) recommended by EUROIMMUN is **20 relative units (RU)/ml**. EUROIMMUN recommends interpreting results as follows:

<16 RU/ml:	**negative**
≥16 to <22 RU/ml:	**borderline**
≥22 RU/ml:	**positive**

Evaluation information: For duplicate determinations the mean of the two values should be taken. If the two values deviate substantially from one another the sample should be retested.

For the interpretation of borderline results an investigation using further tests (e.g. avidity determination of antibody class IgG) can be helpful. Diagnosis can be secured by the determination of the titer change in two serum samples taken at an interval of at least 7 days and analysed in parallel.

For diagnosis, the clinical symptoms of the patient should always be taken into account along with the serological results.

Test characteristics

Calibration: As no quantificated international reference serum exists for antibodies against West Nile virus, the calibration is performed in relative units (RU).

For every group of tests performed, the extinction values of the calibrators and the relative units and/or ratios determined for the positive and negative controls must lie within the limits stated for the relevant test kit lot. A quality control certificate containing these reference values is included. If the values specified for the controls are not achieved, the test results may be inaccurate and the test should be repeated.
The activity of the enzyme used is temperature-dependent and the extinction values may vary if a thermostat is not used. The higher the room temperature during substrate incubation, the greater will be the extinction values. Corresponding variations apply also to the incubation times. However, the calibration sera are subject to the same influences, with the result that such variations will be largely compensated in the calculation of the result.

Antigen: The antigen source is a recombinant, detergent-extracted glycoprotein E of WNV from the membrane fraction of human cells.

Linearity: The linearity of the Anti-West Nile Virus ELISA (IgG) was determined by assaying 4 serial dilutions of different patient samples. The coefficient of determination R^2 for all sera was > 0.95. The Anti-West Nile Virus ELISA (IgG) is linear at least in the tested concentration range (10 RU/ml to 160 RU/ml).

Detection limit: The lower detection limit is defined as the mean value of an analyte-free samples plus three times the standard deviation and is the smallest detectable antibody titer. The lower detection limit of the Anti-West Nile Virus ELISA (IgG) is 0.4 RU/ml.

Cross reactivity: Cross reactivities to other flaviviruses cannot be excluded. They were recognized with anti-TBE positive and anti-Dengue virus positive samples.

Antibodies against	n	Anti-West Nile Virus ELISA (IgG)
Adenovirus	12	0%
Chlamydia pneumoniae	12	0%
CMV	12	0%
EBV-CA	12	0%
Helicobacter pylori	12	0%
HSV-1	12	0%
Influenza virus A	12	0%
Influenza virus B	12	0%
Measles virus	12	0%
Mumps virus	12	0%
Mycoplasma pneumoniae	12	0%
Parainfluenza virus Pool	12	0%
RSV	12	0%
Rubella virus	12	0%
Toxoplasma gondii	9	0%
VZV	12	0%

Interference: Haemolytic, lipaemic and icteric samples showed no influence on the result up to a concentration of 10 mg/ml for haemoglobin, 20 mg/ml for triglycerides and 0.4 mg/ml for bilirubin in this ELISA.

Reproducibility: The reproducibility of the test was investigated by determining the intra- and inter-assay coefficients of variation using 3 sera. The intra-assay CVs are based on 20 determinations and the inter-assay CVs on 4 determinations performed in 6 different test runs.

Intra-assay variation, n = 20		
Serum	**Mean value (RU/ml)**	**CV (%)**
1	101	6.1
2	104	3.3
3	149	2.7

Inter-assay variation, n = 4 x 6		
Serum	**Mean value (RU/ml)**	**CV (%)**
1	103	5.1
2	120	4.9
3	171	4.2

Sensitivity and specificity: Samples from 295 patients (origin: Europe) were investgated using the EUROIMMUN Anti-West Nile Virus ELISA and a neutralization test (NT) (performed by RKI, Berlin) as a reference method. The specificity was 96.9%, with a sensitivity of 99.5%. Values for 4 of the samples were borderline and were not included in the calculation.

Reference range: The levels of anti-West Nile virus antibodies (IgG) were analyzed with this EUROIMMUN ELISA in a panel of 500 healthy blood donors. With a cut-off of 20 RU/ml, 1.0% of the blood donors were anti-West Nile virus positive (IgG).

Clinical significance

West Nile virus (WNV) is an enveloped single-stranded RNA virus of the Flaviviridae family [1]. This family comprises around 100 virus types that are presently categorized into the three known species Flavivirus, Pestivirus and Hepacivirus [1, 2, 3, 4, 5]. West Nile virus received its name in 1937 when it was first isolated from a blood sample of an elderly woman living in the West Nile district in Uganda, who had fever of unknown cause accompanied by neurological disorders [6]. Further isolates were achieved only in 1951 from the sera of children with weak, unspecific symptoms, namely in Egypt where the virus is endemically distributed. At that time mice and embryonated hen's eggs were used for virus detection [1].

WNV is present not only in tropical areas, but also in moderate climate regions [2, 3, 4, 5]. Significant epidemics were observed in 1951/52 and 1957 in Israel and 1974 and 1983/84 in South Africa [1]. In the mid 90's the virus changed its virulence causing an epidemic accumulation of WNV encephalitis in Algeria (1994), Rumania (1996/97), the Czech Republic (1997), the Democratic Republic of Congo (1998), Russia, North America (1999) and Israel (2000) [2, 3, 7, 8, 9, 10, 11, 12].

In the USA 149 infections with 18 cases of death were recorded from 1999 to 2001. In 2002 this number rose to 4156 infections and 284 deaths, in 2003 to 9858 infections and 262 deaths [7, 8, 10]. Currently the virus has been detected in seven Canadian provinces, in 48 USA states and in Mexico, as well as in Puerto Rico, the Dominican Republic, Jamaica, Guadeloupe and El Salvador [3, 9, 11].

Since 1958, when antibodies against the WNV were first detected in the sera of two Albanians, repeated outbreaks of West Nile fever have occurred in Southern and Eastern Europe and meanwhile also in Central and West Europe [8, 9, 10, 12, 14, 15]. Its emergence and rapid spread is credited to world climate change, long-distance travel and globalization of economic trade [9, 12, 13, 15, 16, 17]. Consequent monitoring of West Nile activity by controlling sera of exposed persons is essential [15, 17, 18, 19]. Seroprevalence studies in endemic regions have shown an infection spread of up to 40% [14]. West Nile virus is therefore the Flavivirus with the largest distribution area [2, 3, 4, 5, 9].

WNV is transmitted by a number of mosquitoes. In the Mediterranean region and in Africa mosquitoes of the Culex univittatus complex species are the main arthropod hosts, while in North America WNV could be detected in 37 mosquito species, with Culex pipiens being the main vector [1, 2, 3, 4, 7, 9]. In India Culex vishnui and in France Culex modestus were identified as the main vectors [1]. In total WNV could be found in more than 40 mosquito and in several tick species [3, 4, 5].

Birds represent the vertebrate reservoir [1, 20, 21]. Alone in the USA WNV has been found in more than 162 species of birds. Many of them showed clinical symptoms and thousands of birds died after contracting a natural infection [7, 8, 10, 20, 21]. Birds that survive develop lifelong immunity. Acting as coincidental hosts mammals can also become infected when bitten by an infected mosquito [10, 13, 14]. Transmission has additionally been documented via breast milk, bone marrow transplantations, liver and heart transplants, blood transfusions, lab accidents such as open wounds during handling of infected brain tissue as well as transplacental transmission [2, 3, 4, 5, 8, 22, 23, 24, 25, 26, 27, 28]. Other than humans, mostly only horses became ill after an infection [2, 13, 21]. As well as WNV infection via a mosquito bite, a second natural infection source is possible in animals, namely via feeding on infected prey [3, 5]. An experimental infection of cats was successfully achieved by feeding them infected mice [20, 21].

70% to 80% of the humans infected with WNV showed no symptoms [8]. In the remaining 20%-30%, signs of sudden flu-like symptoms appear after an incubation period of 2-6 days with fever ranging from 38.5 to 40°C lasting for 3-5 days, nausea, shivering, head and back aches, joint and muscle pain and other unspecific symptoms such as loss of appetite, dizziness, vomiting, diarrhoea, coughing and a sore throat [1, 2, 3, 4, 5].

Typical for epidemical occurring fever are exanthema on the breast, back and upper extremities and general lymph node swelling [1, 3, 26]. Severe clinical cases of WNV infections are characterized by myocarditis, pancreatitis and hepatitis and since 1996, also neurological disorders, as WNV is now capable of crossing the blood-brain barrier [3]. The neurological symptoms begin after a short febrile prodome phase approximately 1-7 days after infection and become manifest in the form of encephalitis and meningoencephalitis accompanied by stiffness, spasms and shivering as the result of damage done to the basal ganglia [3, 8, 29, 30].

Another widespread symptom is general muscle weakness similar to the Guillain-Barré syndrome and also polio-like paralysis [29, 30]. Approximately 4%-14% of the hospitalized patient cases are fatal [29]. High risk factors are old age and a weak immune system [1, 3, 29].

An infection with WNV during pregnancy can cause miscarriages, congenital meningitis, birth defects in approx. 10% of the cases and in an additional 10% of newborns growth disturbances [3, 8, 27, 28].

The diagnosis of WNV can be performed by virus detection or by detection of specific antibodies [1, 4, 17, 18, 19]. As virus isolation from serum or cerebrospinal fluid or virus detection using Real-Time Reverse Transcription-Polymerase Chain Reaction (RT-PCR) is usually unsuccessful due to short viraemia and low virus titers, the detection of specific WNV antibodies using ELISA and IFA has gained importance [11, 17, 18, 19, 31, 32, 33, 34, 35, 36, 37, 38].

Specific IgM antibodies in serum can be determined using ELISA or IIFT [19]. Antibodies of class IgM are detectable in serum from the second day after initial symptoms of the illness occur. A four-fold increase in titer of the respective class of antibody is considered proof of a WNV infection.

If the IgM test is negative, even though the symptoms indicate a WNV infection, a second serum sample should be taken and tested for IgM antibodies a few days later. A combination of ELISA and IIFT provides close to 100% reliability [17, 18, 31, 32, 33, 34]. Anti-WNV IgM antibodies persist for 2 to 3 months, often for more than a year [4, 17, 18, 19, 22].

Antibodies of class IgG are detectable approx. 2 days after the appearance of IgM antibodies [11, 19, 32, 33, 34, 40]. Two to four weeks after a positive IgM result the infection can be confirmed and its severity and prognosis evaluated using a qualitative and quantitative test for the detection of specific WNV IgG antibodies in the patient serum [34].

For the reliable differentiation between acute and past infections the detection of low-avidity IgG antibodies gives evidence for a primary or an acute WNV infection, while high-avidity antibodies indicate a past or reactivated WNV infection [39, 40, 41]. EUROIMMUN offers additional test systems for determination of IgG avidity in both ELISA and IIFT formats. The detection of low-avidity antibodies using ELISA and IIFT in parallel is possible for WNV as it is for Toxoplasma gondii, rubella virus, EBV-EA, EBV-CA and Corona virus [39, 40, 41].

As the degree of similarity within the Flavivirus family is high antibody cross reactions can occur [19, 31, 42]. Therefore samples that are positive for specific IgM and/or IgG antibodies against WNV should be titrated and investigated on all relevant Flavivirus IIFT substrates for cross reactions. By comparing the titer strengths the initial result can be confirmed or disproved by the second detection and an infection with another Flavivirus identified as the source of illness [17, 32, 34].

To supplement and extend the current Anti-West Nile Virus ELISA and Anti-West Nile Virus IIFT (each IgG or IgM or avidity) BIOCHIP Mosaics and Profiles for the detection (IIFT) of infections with Flaviviruses and the BIOCHIP Mosaic Fever Profile 1: South-East Asia have been developed. With these tests specific antibodies (IgG and IgM) against several infectious agents can be investigated simultaneously [36, 37, 38, 43, 44, 45]. These supplementary tests allow similar or ambiguous disease symptoms and potential cross reactions to be clarified and differential diagnostic issues to be addressed [1].

A specific antiviral therapy for WNV encephalitis is not available at present [1, 2, 3, 4, 5, 14, 35]. Intensive medical care is the only possibility to positively influence the illness. Eradication of WNV is impossible due to the natural bird-mosquito cycle [1]. A vaccine with formalin inactivated WNV is only available for horses [2, 10]. Therefore public education, individual precautionary measures and protection against insect bites are essential contributions to preventing WNV infections [2, 3, 4, 5, 14, 16].

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Anti-West Nile Virus ELISA (IgM)
Test instruction

ORDER NO.	ANTIBODIES AGAINST	IG CLASS	SUBSTRATE	FORMAT
EI 2662-9601 M	West Nile Virus	IgM	Ag-coated microplate wells	96 x 01 (96)

Principle of the test: The ELISA test kit provides a semiquantitative in vitro assay for human antibodies of the IgM class against West Nile virus in serum or plasma. The test kit contains microtiter strips each with 8 break-off reagent wells coated with West Nile virus antigens. In the first reaction step, diluted patient samples are incubated in the wells. In the case of positive samples, specific IgM (also IgA and IgG) antibodies will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled anti-human IgM (enzyme conjugate) catalysing a colour reaction.

Contents of the test kit:

Component	Colour	Format	Symbol
1. Microplate wells coated with antigens: 12 microplate strips each containing 8 individual break-off wells in a frame, ready for use	---	12 x 8	STRIPS
2. Calibrator (IgM, human), ready for use	dark red	1 x 2.0 ml	CAL
3. Positive control (IgM, human), ready for use	blue	1 x 2.0 ml	POS CONTROL
4. Negative control (IgM, human), ready for use	green	1 x 2.0 ml	NEG CONTROL
5. Enzyme conjugate peroxidase-labelled anti-human IgM (goat), ready for use	red	1 x 12 ml	CONJUGATE
6. Sample buffer buffer containing IgG/RF-Absorbent (Anti-human IgG antibody preparation obtained from goat), ready for use	green	1 x 100 ml	SAMPLE BUFFER
7. Wash buffer 10x concentrate	colourless	1 x 100 ml	WASH BUFFER 10x
8. Chromogen/substrate solution TMB/H_2O_2, ready for use	colourless	1 x 12 ml	SUBSTRATE
9. Stop solution 0.5 M sulphuric acid, ready for use	colourless	1 x 12 ml	STOP SOLUTION
10. Test instruction	---	1 booklet	
11. Quality control certificate	---	1 protocol	
12. Protective foil	---	3 pieces	
LOT Lot description IVD In vitro diagnostics	CE	Storage temperature Unopened usable until	

Storage and stability: The test kit has to be stored at a temperature between +2°C to +8°C. Do not freeze. Unopened, all test kit components are stable until the indicated expiry date.

Waste disposal: Patient samples, calibrators, controls and incubated microplate strips should be handled as infectious waste. All reagents must be disposed of in accordance with local disposal regulations.

Preparation and stability of the reagents

Note: All reagents must be brought to room temperature (+18°C to +25°C) approx. 30 minutes before use. After first use, the reagents are stable until the indicated expiry date if stored at +2°C to +8°C and protected from contamination, unless stated otherwise below.
The thermostat adjusted ELISA incubator must be set at 37°C +/- 1°C.

- **Coated wells:** Ready for use. Tear open the resealable protective wrapping of the microplate at the recesses above the grip seam. Do not open until the microplate has reached room temperature to prevent the individual strips from moistening. Immediately replace the remaining wells of a partly used microplate in the protective wrapping and tightly seal with the integrated grip seam (Do not remove the desiccant bag).
  Once the protective wrapping has been opened for the first time, the wells coated with antigens can be stored in a dry place and at a temperature between +2°C and +8°C for 4 months.

- **Calibrator and controls:** Ready for use. The reagents must be mixed thoroughly before use.

- **Enzyme conjugate:** Ready for use. The enzyme conjugate must be mixed thoroughly before use.

- **Sample buffer:** Ready for use. The green coloured sample buffer contains IgG/RF absorbent. Serum or plasma samples diluted with this sample buffer are only to be used for the determination of IgM antibodies.

- **Wash buffer:** The wash buffer is a 10x concentrate. If crystallization occurs in the concentrated buffer, warm it to 37°C and mix well before diluting. The quantity required should be removed from the bottle using a clean pipette and diluted with deionized or distilled water (1 part reagent plus 9 parts distilled water).
  For example: For 1 microplate strip, 5 ml concentrate plus 45 ml water.
  The working strength diluted wash buffer is stable for 4 weeks when stored at +2°C to +8°C and handled properly.

- **Chromogen/substrate solution:** Ready for use. Close the bottle immediately after use, as the contents are sensitive to light. The chromogen/substrate solution must be clear on use. Do not use the solution if it is blue coloured.

- **Stop solution:** Ready for use.

Warning: The control sera used have been tested negative for HBsAg, anti-HCV, anti-HIV-1 and anti-HIV-2 using enzyme immunoassays and indirect immunofluorescence methods. Nonetheless, all materials should be treated as being a potential infection hazard and should be handled with care. Some of the reagents contain the toxic agent sodium azide. Avoid skin contact.

Preparation and stability of the patient samples

Samples: Human serum or EDTA, heparin or citrate plasma.

Stability: Patient samples to be investigated can generally be stored at +2°C to +8°C for up to 14 days. Diluted samples should be incubated within one working day.

Introduction: Before the determination of specific antibodies of class IgM, antibodies of class IgG should be removed from the patient sample. This procedure must be carried out in order to prevent any rheumatoid factors from reacting with specifically bound IgG, which would lead to false positive IgM test results, and to prevent specific IgG displacing IgM from the antigen, which would lead to false IgM negative test results.

Functional principle: The sample buffer (green coloured!) contains an anti-human antibody preparation from goat. IgG from a serum sample is bound with high specificity by these antibodies and precipitated. If the sample also contains rheumatoid factors, these will be absorbed by the IgG/anti-human IgG complex.

Separation properties:
- All IgG subclasses are bound and precipitated by the anti-human IgG antibodies.
- Human serum IgG in concentrations of up to 15 mg per ml are removed (average serum IgG concentration in adults: 12 mg per ml).
- Rheumatoid factors are also removed.
- The recovery rate of the IgM fraction is almost 100%.

Performance: The **patient samples** for analysis are diluted **1:101** with sample buffer. For example, add 10 µl serum to 1.0 ml sample buffer and mix well. Incubate the mixture for at least **10 minutes** at room temperature. Subsequently, it can be pipetted into the microplate wells according to the pipetting protocol.

Notes:
- Antibodies of the class IgG should not be analyzed with this mixture.
- It is possible to check the efficacy of the IgG/RF absorbent for an individual patient sample by performing an IgG test in parallel to the IgM test using the mixture. If the IgG test is negative, the IgM result can be considered as reliable.
- The calibrator and controls containing IgM antibodies are pre-diluted and ready for use, do not dilute them.

Incubation

(Partly) manual test performance

Sample incubation: (1st step)
Transfer 100 µl of the calibrator, positive and negative controls or diluted patient samples into the individual microplate wells according to the pipetting protocol.
For manual processing of microplate wells, cover the finished test plate with the protective foil. When using an automated microplate processor for incubation, follow the instrument manufacturer´s recommendations with regard to microwell plate sealing.
Incubate **60 minutes at 37°C ± 1°C**.

Washing:
Manual: Remove the protective foil and empty the wells and subsequently wash 3 times using 300 µl of working strength wash buffer for each wash.
Automatic: Remove the protective foil and empty the wells and subsequently wash 3 times with 450 µl of working strength wash buffer (program setting: e.g. TECAN Columbus Washer "Overflow Modus").

Leave the wash buffer in each well for 30 to 60 seconds per washing cycle, then empty the wells. After washing (manual and automated tests), thoroughly dispose of all liquid from the microplate by tapping it on absorbent paper with the openings facing downwards to remove all residual wash buffer.

Note: Residual liquid (> 10 µl) in the reagent wells after washing can interfere with the substrate and lead to false low extinction values. Insufficient washing (e.g., less than 3 wash cycles, too small wash buffer volumes, or too short reaction times) can lead to false high extinction values.
Free positions on the microplate strip should be filled with blank wells of the same plate format as that of the parameter to be investigated.

Conjugate incubation: (2nd step)
Pipette 100 µl of enzyme conjugate (peroxidase-labelled anti-human IgM) into each of the microplate wells.
When using an automated microplate processor for incubation, follow the instrument manufacturer´s recommendations with regard to microwell plate sealing.
Incubate **30 minutes at room temperature (+18°C to +25°C)**.

Washing:
Empty the wells. Wash as described above.

Substrate incubation: (3. step)
Pipette 100 µl of chromogen/substrate solution into each of the microplate wells. Incubate for **15 minutes at room temperature** (+18°C to +25°C) (protect from direct sunlight).

Stopping the reaction: (3rd step)
Pipette 100 µl of stop solution into each of the microplate wells in the same order and at the same speed as the chromogen/substrate solution was introduced.

Measurement:
Photometric measurement of the colour intensity should be made at a wavelength of 450 nm and a reference wavelength between 620 nm and 650 nm **within 30 minutes of adding the stop solution.** Prior to measuring, slightly shake the microplate to ensure a homogeneous distribution of the solution.

Test performance using fully automated analysis devices

Sample dilution and test performance are carried out fully automatically using the analysis device. The incubation conditions programmed in the respective software authorised by EUROIMMUN may deviate slightly from the specifications given in the ELISA test instruction. However, these conditions were validated in respect of the combination of the Analyzer I, Analyzer I-2P and the DSX from Dynex and this EUROIMMUN ELISA. Validation documents are available on inquiry. Automated test performance using other fully automated, open system analysis devices is possible, however, the combination should be validated by the user.

Pipetting protocol

	1	2	3	4	5	6	7	8	9	10	11	12
A	**C**	**P 6**	**P 14**	**P 22**								
B	**pos.**	**P 7**	**P 15**	**P 23**								
C	**neg.**	**P 8**	**P 16**	**P 24**								
D	**P 1**	**P 9**	**P 17**									
E	**P 2**	**P 10**	**P 18**									
F	**P 3**	**P 11**	**P 19**									
G	**P 4**	**P 12**	**P 20**									
H	**P 5**	**P 13**	**P 21**									

The above pipetting protocol is an example of the **semiquantitative analysis** of antibodies in 24 patient samples (P 1 to P 24).

Calibrator (C), positive (pos.) and negative (neg.) control as well as the patient samples have been incubated in one well each. The reliability of the ELISA test can be improved by duplicate determinations of each sample.
The wells can be broken off individually from the strips. This makes it possible to adjust the number of test substrates used to the number of samples to be examined and minimizes reagent wastage.
Both positive and negative controls serve as internal controls for the reliability of the test procedure. They should be assayed with each test run.

Calculation of results

The extinction value of the calibrator defines the upper limit of the reference range of non-infected persons (**cut-off**) recommended by EUROIMMUN. Values above the indicated cut-off are to be considered as positive, those below as negative.

Semiquantitative: Results can be evaluated semiquantitatively by calculating a ratio of the extinction value of the control or patient sample over the extinction value of calibrator. Use the following formula to calculate the ratio:

$$\frac{\textbf{Extinction of the control/patient sample}}{\textbf{Extinction of calibrators}} = \textbf{Ratio}$$

EUROIMMUN recommends interpreting results as follows:

Ratio <0.8: **negative**
Ratio ≥0.8 to <1.1: **borderline**
Ratio ≥1.1: **positive**

Evaluation information: For duplicate determinations the mean of the two values should be taken. If the two values deviate substantially from one another the sample should be retested.

For the interpretation of borderline results an investigation using further tests (e.g. avidity determination of antibody class IgG) can be helpful. Diagnosis can be secured by the determination of the titer change in two serum samples taken at an interval of at least 7 days and analysed in parallel.

For diagnosis, the clinical symptoms of the patient should always be taken into account along with the serological results.

Test characteristics

Calibration: As no quantificated international reference serum exists for antibodies of the IgM class against West Nile virus, results are provided in the form of ratios which are a relative measure for the concentration of antibodies.

For every group of tests performed, the extinction values of the calibrators and the ratios determined for the positive and negative controls must lie within the limits stated for the relevant test kit lot. A quality control certificate containing these reference values is included. If the values specified for the control sera are not achieved, the test results may be inaccurate and the test should be repeated.

The activity of the enzyme used is temperature-dependent and the extinction values may vary if a thermostat is not used. The higher the room temperature during substrate incubation, the greater will be the extinction values. Corresponding variations apply also to the incubation times. However, the calibrators are subject to the same influences, with the result that such variations will be largely compensated in the calculation of the result.

Antigen: The antigen source is a recombinant, detergent-extracted glycoprotein E of WNV from the membrane fraction of human cells.

Detection limit: The lower detection limit is defined as the mean value of an analyte-free sample plus three times the standard deviation and is the smallest detectable antibody titer. The lower detection limit of the Anti-West Nile ELISA (IgM) is a ratio value of 0.03.

Cross reactivity: Cross reactivities to other flaviviruses cannot be excluded. They were recognized with anti-TBE positive and anti-Dengue virus positive samples.

Antibodies against	n	Anti-West Nile ELISA (IgM)
Borrelia burgdoferi	9	0%
CMV	8	0%
EBV-CA	9	0%
HSV-1/2	2	0%
Measles virus	10	0%
Mumps virus	9	0%
Parvovirus B19	8	0%
Rubella virus	10	0%
Toxoplasma gondii	10	0%
VZV	4	0%

Interference: Haemolytic, lipaemic and icteric samples showed no influence on the result up to a concentration of 10 mg/ml for haemoglobin, 20 mg/ml for triglycerides and 0.4 mg/ml for bilirubin in this ELISA.

Reproducibility: The reproducibility of the test was investigated by determining the intra- and inter-assay coefficients of variation using 3 sera. The intra-assay CVs are based on 20 determinations and the inter-assay CVs on 4 determinations performed in 6 different test runs.

Intra-assay variation, n = 20		
Serum	**Mean value (Ratio)**	**CV (%)**
1	1.9	5.9
2	2.0	2.2
3	2.4	4.0

***Inter-assay variation,* n = 4 x 6**		
Serum	**Mean value (Ratio)**	**CV (%)**
1	1.9	3.9
2	2.1	9.4
3	2.4	6.8

Sensitivity and specificity: Study I: For the determination of the sensitivity 18 clinically and serologically precharacterised sera (Robert Koch Institute, Berlin, Germany) were tested with the EUROIMMUN Anti-West Nile Virus ELISA (IgM). The sensitivity amounted to 94.4%.

Study II: 99 patient sera, characterised as positive at the Saskatchewan Disease Control Laboratory (Canada) using several serological methods, were investigated with the EUROIMMUN Anti-West Nile Virus ELISA (IgM). The sensitivity was 93.7%. For the determination of the specificity 500 blood donor samples were investigated. The specificity was 99.8%.

Reference range: The levels of anti-West Nile virus antibodies (IgM) were analyzed with this EUROIMMUN ELISA in a panel of 500 healthy blood donors. With a cut-off ratio of 1.0, 0.2% of the blood donors were anti-West Nile virus positive (IgM).

Clinical significance

West Nile virus (WNV) is an enveloped single-stranded RNA virus of the Flaviviridae family [1]. This family comprises around 100 virus types that are presently categorized into the three known species Flavivirus, Pestivirus and Hepacivirus [1, 2, 3, 4, 5]. West Nile virus received its name in 1937 when it was first isolated from a blood sample of an elderly woman living in the West Nile district in Uganda, who had fever of unknown cause accompanied by neurological disorders [6]. Further isolates were achieved only in 1951 from the sera of children with weak, unspecific symptoms, namely in Egypt where the virus is endemically distributed. At that time mice and embryonated hen's eggs were used for virus detection [1].

WNV is present not only in tropical areas, but also in moderate climate regions [2, 3, 4, 5]. Significant epidemics were observed in 1951/52 and 1957 in Israel and 1974 and 1983/84 in South Africa [1]. In the mid 90's the virus changed its virulence causing an epidemic accumulation of WNV encephalitis in Algeria (1994), Rumania (1996/97), the Czech Republic (1997), the Democratic Republic of Congo (1998), Russia, North America (1999) and Israel (2000) [2, 3, 7, 8, 9, 10, 11, 12]. In the USA 149 infections with 18 cases of death were recorded from 1999 to 2001. In 2002 this number rose to 4156 infections and 284 deaths, in 2003 to 9858 infections and 262 deaths [7, 8, 10]. Currently the virus has been detected in seven Canadian provinces, in 48 USA states and in Mexico, as well as in Puerto Rico, the Dominican Republic, Jamaica, Guadeloupe and El Salvador [3, 9, 11].

Since 1958, when antibodies against the WNV were first detected in the sera of two Albanians, repeated outbreaks of West Nile fever have occurred in Southern and Eastern Europe and meanwhile also in Central and West Europe [8, 9, 10, 12, 14, 15]. Its emergence and rapid spread is credited to world climate change, long-distance travel and globalization of economic trade [9, 12, 13, 15, 16, 17]. Consequent monitoring of West Nile activity by controlling sera of exposed persons is essential [15, 17, 18, 19]. Seroprevalence studies in endemic regions have shown an infection spread of up to 40% [14]. West Nile virus is therefore the Flavivirus with the largest distribution area [2, 3, 4, 5, 9].

WNV is transmitted by a number of mosquitoes. In the Mediterranean region and in Africa mosquitoes of the Culex univittatus complex species are the main arthropod hosts, while in North America WNV could be detected in 37 mosquito species, with Culex pipiens being the main vector [1, 2, 3, 4, 7, 9]. In India Culex vishnui and in France Culex modestus were identified as the main vectors [1]. In total WNV could be found in more than 40 mosquito and in several tick species [3, 4, 5].

Birds represent the vertebrate reservoir [1, 20, 21]. Alone in the USA WNV has been found in more than 162 species of birds. Many of them showed clinical symptoms and thousands of birds died after contracting a natural infection [7, 8, 10, 20, 21]. Birds that survive develop lifelong immunity. Acting as coincidental hosts mammals can also become infected when bitten by an infected mosquito [10, 13, 14]. Transmission has additionally been documented via breast milk, bone marrow transplantations, liver and heart transplants, blood transfusions, lab accidents such as open wounds during handling of infected brain tissue as well as transplacental transmission [2, 3, 4, 5, 8, 22, 23, 24, 25, 26, 27, 28]. Other than humans, mostly only horses became ill after an infection [2, 13, 21]. As well as WNV infection via a mosquito bite, a second natural infection source is possible in animals, namely via feeding on infected prey [3, 5]. An experimental infection of cats was successfully achieved by feeding them infected mice [20, 21].

70% to 80% of the humans infected with WNV showed no symptoms [8]. In the remaining 20%-30%, signs of sudden flu-like symptoms appear after an incubation period of 2-6 days with fever ranging from 38.5 to 40°C lasting for 3-5 days, nausea, shivering, head and back aches, joint and muscle pain and other unspecific symptoms such as loss of appetite, dizziness, vomiting, diarrhoea, coughing and a sore throat [1, 2, 3, 4, 5].

Typical for epidemical occurring fever are exanthema on the breast, back and upper extremities and general lymph node swelling [1, 3, 26]. Severe clinical cases of WNV infections are characterized by myocarditis, pancreatitis and hepatitis and since 1996, also neurological disorders, as WNV is now capable of crossing the blood-brain barrier [3]. The neurological symptoms begin after a short febrile prodome phase approximately 1-7 days after infection and become manifest in the form of encephalitis and meningoencephalitis accompanied by stiffness, spasms and shivering as the result of damage done to the basal ganglia [3, 8, 29, 30].

Another widespread symptom is general muscle weakness similar to the Guillain-Barré syndrome and also polio-like paralysis [29, 30]. Approximately 4%-14% of the hospitalized patient cases are fatal [29]. High risk factors are old age and a weak immune system [1, 3, 29].

An infection with WNV during pregnancy can cause miscarriages, congenital meningitis, birth defects in approx. 10% of the cases and in an additional 10% of newborns growth disturbances [3, 8, 27, 28].

The diagnosis of WNV can be performed by virus detection or by detection of specific antibodies [1, 4, 17, 18, 19]. As virus isolation from serum or cerebrospinal fluid or virus detection using Real-Time Reverse Transcription-Polymerase Chain Reaction (RT-PCR) is usually unsuccessful due to short viraemia and low virus titers, the detection of specific WNV antibodies using ELISA and IFA has gained importance [11, 17, 18, 19, 31, 32, 33, 34, 35, 36, 37, 38].

Specific IgM antibodies in serum can be determined using ELISA or IIFT [19]. Antibodies of class IgM are detectable in serum from the second day after initial symptoms of the illness occur. A four-fold increase in titer of the respective class of antibody is considered proof of a WNV infection.

If the IgM test is negative, even though the symptoms indicate a WNV infection, a second serum sample should be taken and tested for IgM antibodies a few days later. A combination of ELISA and IIFT provides close to 100% reliability [17, 18, 31, 32, 33, 34]. Anti-WNV IgM antibodies persist for 2 to 3 months, often for more than a year [4, 17, 18, 19, 22].

Antibodies of class IgG are detectable approx. 2 days after the appearance of IgM antibodies [11, 19, 32, 33, 34, 40]. Two to four weeks after a positive IgM result the infection can be confirmed and its severity and prognosis evaluated using a qualitative and quantitative test for the detection of specific WNV IgG antibodies in the patient serum [34].

For the reliable differentiation between acute and past infections the detection of low-avidity IgG antibodies gives evidence for a primary or an acute WNV infection, while high-avidity antibodies indicate a past or reactivated WNV infection [39, 40, 41].

EUROIMMUN offers additional test systems for determination of IgG avidity in both ELISA and IIFT formats. The detection of low-avidity antibodies using ELISA and IIFT in parallel is possible for WNV as it is for Toxoplasma gondii, rubella virus, EBV-EA, EBV-CA and Corona virus [39, 40, 41].

As the degree of similarity within the Flavivirus family is high antibody cross reactions can occur [19, 31, 42]. Therefore samples that are positive for specific IgM and/or IgG antibodies against WNV should be titrated and investigated on all relevant Flavivirus IIFT substrates for cross reactions. By comparing the titer strengths the initial result can be confirmed or disproved by the second detection and an infection with another Flavivirus identified as the source of illness [17, 32, 34].

To supplement and extend the current Anti-West Nile Virus ELISA and Anti-West Nile Virus IIFT (each IgG or IgM or avidity) BIOCHIP Mosaics and Profiles for the detection (IIFT) of infections with Flaviviruses and the BIOCHIP Mosaic Fever Profile 1: South-East Asia have been developed. With these tests specific antibodies (IgG and IgM) against several infectious agents can be investigated simultaneously [36, 37, 38, 43, 44, 45]. These supplementary tests allow similar or ambiguous disease symptoms and potential cross reactions to be clarified and differential diagnostic issues to be addressed [1].

A specific antiviral therapy for WNV encephalitis is not available at present [1, 2, 3, 4, 5, 14, 35]. Intensive medical care is the only possibility to positively influence the illness. Eradication of WNV is impossible due to the natural bird-mosquito cycle [1]. A vaccine with formalin inactivated WNV is only available for horses [2, 10]. Therefore public education, individual precautionary measures and protection against insect bites are essential contributions to preventing WNV infections [2, 3, 4, 5, 14, 16].

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NovaTec Immundiagnostica GmbH

Product List – CE Marked

Certified by

ISO 13485:2016

EC – Directive 98 / 79 EC
For In-Vitro-Diagnostics

2020-02-1

NovaTec Immundiagnostica GmbH

NovaLisa® Virology

Prod. No.	Name
ADVA0010	Adenovirus IgA
ADVG0010	Adenovirus IgG
ADVM0010	Adenovirus IgM
CHIG0590	Chikungunya Virus IgG capture
CHIM0590	Chikungunya Virus IgM µ-capture
CMVG0110	Cytomegalovirus (CMV) IgG
ACMV7110	Avidity Cytomegalovirus (CMV) IgG
CMVM0110	Cytomegalovirus (CMV) IgM
DENG0120	Dengue Virus IgG
DENM0120	Dengue Virus IgM
DVM0640	Dengue Virus IgM µ-capture
NS1D4020	Dengue Virus NS1 Antigen
EBVA0150	Epstein-Barr Virus (VCA) IgA
EBVG0150	Epstein-Barr Virus (VCA) IgG
AEBV7150	Avidity Epstein-Barr Virus (VCA) IgG
EBVM0150	Epstein-Barr Virus (VCA) IgM
EBVG0580	Epstein-Barr Virus (EBNA) IgG
HANG0670	Hantavirus IgG
HANM0670	Hantavirus IgM
HEVG0780	Hepatitis E Virus (HEV) IgG
HEVM0780	Hepatitis E Virus (HEV) IgM
HSVG0250	Herpes simplex Virus 1+2 (HSV) IgG
HSVM0250	Herpes simplex Virus 1+2 (HSV) IgM
HSV1G0500	Herpes simples Virus 1 (HSV 1) IgG
HSV1M0500	Herpes simplex Virus 1 (HSV 1) IgM
HSV2G0540	Herpes simplex Virus 2 (HSV 2) IgG
HSV2M0540	Herpes simplex Virus 2 (HSV 2) IgM
INFA0290	Influenza Virus A IgA
INFG0290	Influenza Virus A IgG
INFM0290	Influenza Virus A IgM
INFA0300	Influenza Virus B IgA
INFG0300	Influenza Virus B IgG
INFM0300	Influenza Virus B IgM
MEAG0330	Measles Virus IgG
AMEA7330	Avidity Measles Virus IgG
MEAM0330	Measles Virus IgM
MUMG0340	Mumps Virus IgG
MUMM0340	Mumps Virus IgM
PAIA0360	Parainfluenza Virus 1,2,3 IgA
PAIG0360	Parainfluenza Virus 1,2,3 IgG
PARG0370	Parvovirus B 19 IgG
PARM0370	Parvovirus B 19 IgM
RSVA0380	Respiratory syncytial Virus IgA
RSVG0380	Respiratory syncytial Virus IgG
RSVM0380	Respiratory syncytial Virus IgM
RUBG0400	Rubella Virus IgG

ARUB7400	Avidity Rubella Virus IgG
RUBM0400	Rubella Virus IgM µ-capture
TICG0440	TBE / FSME IgG
TICM0440	TBE / FSME IgM
PTICG044	TBE / FSME IgG plus
VZVA0490	Varicella-Zoster Virus (VZV) IgA
VZVG0490	Varicella-Zoster Virus (VZV) IgG
VZVM0490	Varicella-Zoster Virus (VZV) IgM
ZVG0790	Zika Virus IgG capture
ZVM0790	Zika Virus IgM µ-capture

NovaLisa ® Bacteriology

Prod. No.	Name
BAR0900	Bartonella
BOPA0030	Bordetella pertussis IgA
BOPG0030	Bordetella pertussis IgG
BOPM0030	Bordetella pertussis IgM
BPTA0610	Bordetella pertussis toxin (PT) IgA
BPTG0610	Bordetella pertussis toxin (PT) IgG
BORG0040	Borrelia burgdorferi IgG
BORM0040	Borrelia burgdorferi IgM
BRUG0050	Brucella IgG
BRUM0050	Brucella IgM
CHLA0070	Chlamydia trachomatis IgA
CHLG0070	Chlamydia trachomatis IgG
CHLM0070	Chlamydia trachomatis IgM
CHLA0510	Chlamydia pneumoniae IgA
CHLG0510	Chlamydia pneumoniae IgG
CHLM0510	Chlamydia pneumoniae IgM
CORG0090	Corynebacterium diphtheriae toxin IgG
CORG5009	Corynebacterium diphtheriae toxin 5S IgG
PCORG009	Corynebycterium diphtheriae toxin 5S IgG plus
COX1G0600	Coxiella burnetii (Q-Fever) Phase 1 IgG
COX2G0600	Coxiella burnetii (Q-Fever) Phase 2 IgG
COX2M0600	Coxiella burnetii (Q-Fever) Phase 2 IgM
HELA0220	Helicobacter pylori IgA
HELG0220	Helicobacter pylori IgG
PHELA022	Helicobacter pylori IgA plus
PHELG022	Helicobacter pylori IgG plus
LEGG0650	Legionella Pneumophila IgG
LEGM0650	Legionella Pneumophila IgM
LEPG0660	Leptospira IgG
LEPM0660	Leptospira IgM

MYCA0350	Mycoplasma pneumoniae IgA
MYCG0350	Mycoplasma pneumoniae IgG
MYCM0350	Mycoplasma pneumoniae IgM
TETG0430	Clostridium tetani toxin IgG
TETG5043	Clostridium tetani toxin 5S IgG
PTETG043	Clostridium tetani toxin 5S IgG plus

NovaLisa ® Parasites

Prod. No.	Name
CHAG0560	Chagas (Trypanosoma cruzi) IgG
TRYP0570	Chagas
ENTG0140	Entamoeba histolytica IgG
LEIG0310	Leishmania infantum IgG
MAL0620	Malaria
TOXA0460	Toxoplasma gondii IgA
TOXG0460	Toxoplasma gondii IgG
ATOX7460	Avidity Toxoplasma gondii IgG
TOXM0460	Toxoplasma gondii IgM µ-capture

NovaLisa ® Worms

Prod. No.	Name
ASCG0020	Ascaris lumbricoides IgG
ECHG0130	Echinococcus IgG
FIL0760	Filariasis
SCHG0410	Schistosoma mansoni IgG
SCHM0410	Schistosoma mansoni IgM
STRO0690	Strongyloides
TAEG0420	Taenia solium IgG
TOCG0450	Toxocara canis IgG
TRIG0480	Trichinella spiralis IgG

NovaLisa ® Fungi

Prod. No.	Name
ASPG0680	Aspergillus fumigatus IgG
ASPM0680	Aspergillus fumigatus IgM
CANA0060	Candida albicans IgA
CANG0060	Candida albicans IgG
CANM0060	Candida albicans IgM

NovaLisa ® Hormones

THYROID HORMONES
(ELISAs for the determination of thyroid hormones and antibodies)

Prod. No.	Name
ATG1010	Anti-TG
ATPO1020	Anti-TPO
FT41050	Free T4
TSH1030	TSH

Hormones

STEROID HORMONES
(ELISAs for the determination of steroid hormones in plasma and serum)

Prod. No.	Name
DNOV001	Cortisol
DNOV002	Testosterone
DNOV003	17 beta-Estradiol
DNOV004	17-OH Progesterone
DNOV005	DHEA-S
DNOV006	Progesterone
DNOV008	Androstenedione
DNOV009	Free Testosterone
DNOV011	Total Estriol
DNOV012	Aldosterone

STEROID HORMONES IN URINE
(ELISAs for the determination of steroid hormones in urine)

Prod. No.	Name
DNOV010	Urinary Cortisol

STEROID HORMONES IN SALIVA
(ELISAs for the determination of steroid hormones in saliva)

Prod. No.	Name
DSNOV20	Cortisol Saliva
DSNOV21	Testosterone Saliva
DSNOV24	DHEA-S Saliva
DSNOV27	Androstenedione Saliva

PROTEIN HORMONES
(ELISAs for the determination of proteins in plasma and serum)

Prod. No.	Name
DNOV030	LH
DNOV031	FSH
DNOV032	Prolactin
DNOV033	AFP
DNOV034	beta HCG

THYROID HORMONES
(ELISAs for the determination of thyroid hormones and antibodies)

Prod. No.	Name
DNOV051	Free T3
DNOV053	Total T3
DNOV054	Total T4
DNOV057	Thyroglobulin

DIABETES MONITORING
(ELISAs for the determination of specific analytes in plasma and serum)

Prod. No.	Name
DNOV111	Insulin
DNOV112	C-Peptide

CIRCULATING IMMUNO COMPLEXES
(ELISAs for the determination of specific analytes in plasma and serum)

Prod. No.	Name
DNOV093	CIC-C1q
DNOV094	CIC-C3d
DNOV096	CH-50

TUMOR MARKERS
(ELISAs for the determination of specific analytes in plasma and serum)

Prod. No.	Name
DNOV 060	CEA
DNOV061	CA 125
DNOV062	CA 15-3
DNOV063	CA 19-9

MISCELLANEOUS
(ELISAs for the determination of specific analytes in plasma and serum)

Prod. No.	Name
DNOV100	Ferritin
DNOV101	HGH
DNOV102	IgE

NovaLisa ® Autoimmune

Autoimmune
(ELISAs for the determination of specific autoimmune antibodies)

Prod. No.	Name
ATG1010	Anti-TG
ATPO1020	Anti-TPO

Rheumatology
(ELISAs for the determination of specific analytes in plasma and serum)

Prod. No.	Name
RFM3010	Rheumatoid Factor IgM

NovaLisa ® Recombinant Antigens

Prod. No.	Name
BORG0040	Borrelia burgdorferi IgG
BORM0040	Borrelia burgdorferi IgM
CHAG0560	Chagas (Trypanosoma cruzi) IgG
TRYP0570	Chagas
HANG0670	Hantavirus IgG
HANM0670	Hantavirus IgM
HELA0220	Helicobacter pylori IgA
PHELA022	Helicobacter pylori IgA plus
HEVG0780	Hepatitis E Virus (HEV) IgG
HEVM0780	Hepatitis E Virus (HEV) IgM
HSV1G0500	Herpes simples Virus 1 (HSV 1) IgG
HSV1M0500	Herpes simplex Virus 1 (HSV 1) IgM
HSV2G0540	Herpes simplex Virus 2 (HSV 2) IgG
HSV2M0540	Herpes simplex Virus 2 (HSV 2) IgM
MAL0620	Malaria
STRO0690	Strongyloides
ZVG0790	Zika Virus IgG capture
ZVM0790	Zika Virus IgM µ-capture

NovaLisa ® Quantitative Assays (WHO standardized)

Prod. No.	Name
BPTA0610	Bordetella pertussis toxin (PT) IgA
BPTG0610	Bordetella pertussis toxin (PT) IgG
CORG0090	Corynebacterium diphtheriae toxin IgG
CORG5009	Corynebacterium diphtheriae toxin 5S IgG
PCORG009	Corynebycterium diphtheriae toxin 5S IgG plus
RFM3010	Rheumatoid Factor IgM
RUBG0400	Rubella Virus IgG
TETG0430	Clostridium tetani toxin IgG
TETG5043	Clostridium tetani toxin 5S IgG
PTETG043	Clostridium tetani toxin 5S IgG plus
TOXG0460	Toxoplasma gondii IgG
ATOX7460	Avidity Toxoplasma gondii IgG
TSH1030	TSH

NovaLisa ® Quantitative Assays

Prod. No.	Name
ATG1010	Anti-TG
ATPO1020	Anti-TPO
BPTA0610	Bordetella pertussis toxin (PT) IgA
BPTG0610	Bordetella pertussis toxin (PT) IgG
CORG0090	Corynebacterium diphtheriae toxin IgG
CORG5009	Corynebacterium diphtheriae toxin 5S IgG
PCORG009	Corynebacterium diphtheriae toxin 5S IgG plus
FT41050	Free T4
HELA0220	Helicobacter pylori IgA
HELG0220	Helicobacter pylori IgG
PHELA022	Helicobacter pylori IgA plus
PHELG022	Helicobacter pylori IgG plus
RFM3010	Rheumatoid Factor IgM
RUBG0400	Rubella Virus IgG
ARUB7400	Avidity Rubella Virus IgG
TETG0430	Clostridium tetani toxin IgG
TETG5043	Clostridium tetani 5S toxin IgG
PTETG043	Clostridium tetani toxin 5S IgG plus
TICG0440	TBE / FSME IgG
PTICG044	TBE / FSME IgG plus
TOXG0460	Toxoplasma gondii IgG
ATOX7460	Avidity Toxoplasma gondii IgG
TSH1030	TSH

Antigen Assays

Prod. No.	Name
NS1D4020	Dengue Virus NS1 Antigen

NovaLisa ® IgM µ-capture Assays

Prod. No.	Name
CHIM0590	Chikungunya Virus IgM µ-capture
DVM0640	Dengue Virus IgM µ-capture
RUBM0400	Rubella Virus IgM µ-capture
TOXM0460	Toxoplasma gondii IgM µ-capture
ZVM0790	Zika Virus IgM µ-capture

NovaLisa ® Antibody Assays

Prod. No.	Name
ASCG0020	Ascaris lumbricoides IgG
CHAG0560	Chagas (Trypanosoma cruzi) IgG
TRYP0570	Chagas
ENTG0140	Entamoeba histolytica IgG
LEIG0310	Leishmania infantum IgG
MAL0620	Malaria
STRO0690	Strongyloides
TAEG0420	Taenia solium IgG
TOCG0450	Toxocara canis IgG
TRIG0480	Trichinella spiralis IgG

NovaLisa ® Avidity Assays

Prod. No.	Name
ACMV7110	Avidity Cytomegalovirus (CMV) IgG
AEBV7150	Avidity Epstein-Barr Virus (VCA) IgG
AMEA7330	Avidity Measles Virus IgG
ARUB7400	Avidity Rubella Virus IgG
ATOX7460	Avidity Toxoplasma gondii IgG

NovaLisa ® Liquor Diagnostic

Prod. No.	Name
BORG0040	Borrelia burgdorferi IgG
BORM0040	Borrelia burgdorferi IgM

EC Certificate

mdc medical device certification GmbH
Notified Body 0483
herewith certifies that

NovaTec Immundiagnostica GmbH
Waldstraße 23 A6
63128 Dietzenbach
Germany

for the scope

immunodiagnostics for the determination of antibodies against Toxoplasma gondii, Rubella virus, Cytomegalovirus and Chlamydia (see attachment)

has introduced and applies a

Quality System

for the design, manufacture and final inspection.

The mdc audit has proven that this quality system meets all requirements according to

Annex IV – excluding Section 4 and 6 of the Council Directive 98/79/EC

of the European Parliament and of the Council of 27 October 1998 on in vitro diagnostic medical devices.

The surveillance will be held as specified in Annex IV, Section 5.

Valid from	2022-05-03
Valid until	2025-05-26
Registration no.	D1055500019
Report no.	P21-01539-236808
Stuttgart	2022-05-03

Head of Certification Body

medical device certification mdc

Benannt durch/Designated by Zentralstelle der Länder für Gesundheitsschutz bei Arzneimitteln und Medizinprodukten www.zlg.de
ZLG-BS-247.10.05

mdc medical device certification GmbH
Kriegerstraße 6
D-70191 Stuttgart, Germany
Phone: +49-(0)711-253597-0
Fax: +49-(0)711-253597-10
Internet: http://www.mdc-ce.de

Сертификат соответствия

Настоящий сертификат удостоверяет, что организация

АО «Вектор-Бест»

Российская Федерация, 630559, Новосибирская область, р. п. Кольцово,
Научно-производственная зона, корпус 36

подтвердила соответствие Системы Менеджмента Качества требованиям

ISO 13485:2016

В отношении области деятельности, представленной ниже

Проектирование, разработка и производство медицинских изделий для диагностики in vitro (ИФА)

Номер сертификата **209535/A/0001/UK/RUS**

Сертификат с номером 0001, подтверждает, что клиент имеет одну сертифицированную площадку, которая является головным офисом или основной площадкой применительно к области, сертифицированной в URS. Сертификат с номером 0002, или более (например: xxxx/B/0002/UK/En), выдается клиенту, у которого есть более одной площадки, сертифицированной в URS, соответственно, применяется следующее заявление - "Действительность данного сертификата, зависит от действительности основного сертификата".

Начало сертификационного цикла	Номер версии	Дата окончания срока действия сертификата	Сертификационный цикл
05 октября 2022	**1**	**04 октября 2025**	**1**
Дата редакции	Номер редакции	Первоначальная дата выпуска сертификата	Номер схемы
06 октября 2022	**1**	**05 октября 2022**	**Не применяется**

Подробное описание данных выше см. на http://www.urs-holdings.com/logos-and-regulations

Выпущен *От имени менеджера по сертификации*

EC DECLARATION OF CONFORMITY

ZAO "Vector-Best" hereby ensures under own responsibility and declares that the products listed on pages 2-4 are in conformity with applicable provisions and fulfill the essential requirements of Annex I Directive 98/79/EC of 27 October 1998 regarding in vitro diagnostic medical devices.

Classification of products:	Other devices (all devices except Annex II and self-testing devices)
Conformity assessment procedure:	Annex III (not including section 6).
Manufacturer:	ZAO "Vector-Best" Address: AHC, Koltsovo, Novosibirsk Region, 630559, Russia, Tel. +7 (383) 363 20 60, Fax: +7 (383) 363 35 55
European authorized representative:	Bioron GmbH, Rheinhorststr. 18, D-67071 Ludwigshafen, Germany. tel.: +49 (0) 621 5720 915, fax: +49 (0) 621 5720 916

Date: 2013/04/12

Murat Khusainov
General Director ZAO «Vector-Best»

No.	Product name	Identification data	REF
1.	Vectohep A-IgM	ELISA kit for determination of IgM to hepatitis A virus	D-0352
2.	Vectohep A-IgG	ELISA kit for quantitative and qualitative determination of IgG to hepatitis A virus	D-0362
3.	Vectohep TTV-IgG	ELISA kit for determination of IgG to TT virus	D-0802
4.	Vectohep E-IgG	ELISA kit for determination of IgG to hepatitis E virus	D-1056
5.	Vectohep E-IgM	ELISA kit for determination of IgM to hepatitis E virus	D-1058
6.	Vectohep G-IgG	ELISA kit for determination of IgG to hepatitis G virus	D-1252
7.	LymeBest-IgG	ELISA kit for determination of IgG to infectious borreliosis agents	D-1452
8.	LymeBest-IgM	ELISA kit for determination of IgM to infectious borreliosis agents	D-1454
9.	RecombiBest antipallidum-IgG	ELISA kit for determination of IgG to Treponema pallidum	D-1852
10.	RecombiBest antipallidum-total antibodies	ELISA kit for determination of total antibodies to Treponema pallidum	D-1856
11.	RecombiBest antipallidum-IgM	ELISA kit for determination of IgM to Treponema pallidum	D-1858
12.	RecombiBest antipallidum-total antibodies	ELISA kit for determination of total antibodies to Treponema pallidum	D-1857
13.	VectoHSV-1,2 - IgG	ELISA kit for determination of IgG to herpes simplex virus types 1 and 2	D-2152
14.	VectoHSV - IgM	ELISA kit for determination of IgM to herpes simplex virus types 1 and 2	D-2154
15.	VectoHHV-8 - IgG	ELISA kit for determination of IgG to human herpes virus type 8	D-2160
16.	VectoHHV-6 - IgG	ELISA kit for determination of IgG to human herpes virus type 6	D-2166
17.	Ureaplasma urealyticum – IgG-EIA-BEST	ELISA kit for determination of IgG to Ureaplasma urealyticum antigens	D-2254
18.	Ureaplasma urealyticum – IgA-EIA-BEST	ELISA kit for determination of IgA to Ureaplasma urealyticum antigens	D-2258
19.	VectoParotitis-IgG	ELISA kit for determination of IgG to parotitis virus	D-2602
20.	VectoParotitis-IgM	ELISA kit for determination of IgM to parotitis virus	D-2604
21.	Toxocara-IgG-EIA-BEST	ELISA kit for determination of IgG to toxocara antigens	D-2752
22.	Opisthorchiasis – IgG-EIA-BEST	ELISA kit for determination of IgG to opisthorchiasis antigens	D-2952
23.	Echinococcus-IgG-EIA-BEST	ELISA kit for determination of IgG to Echinococcus	D-3356

		antigens	
24.	Ascarid-IgG-EIA-BEST	ELISA kit for determination of IgG to Ascaris lumbricoides	D-3452
25.	Lamblia-antibodies-EIA-BEST	ELISA kit for determination of IgG, IgM and IgA to Lamblia antibodies	D-3552
26.	Lamblia-IgM-EIA-BEST	ELISA kit for determination of IgM to Lamblia antibodies	D-3554
27.	Lamblia-antigen-EIA-BEST	ELISA kit for determination of Lamblia antigen	D-3556
28.	Helicobacter pylori-CagA-antigen-EIA-BEST	ELISA kit for determination of total antibodies to CagA Helicobacter pylori	D-3752
29.	TSH-EIA-BEST	ELISA kit for determination of concentration of thyroid-stimulating hormone	X-3952
30.	T3 total-EIA-BEST	ELISA kit for determination of concentration of total triiodothyronine	X-3954
31.	T4 total-EIA-BEST	ELISA kit for determination of concentration of total thyroxine	X-3956
32.	Anti-TPO-EIA-BEST	ELISA kit for determination of antibody concentration to thyroperoxidase	X-3968
33.	PAPP-A-EIA-BEST	ELISA kit for determination of concentration of pregnancy-associated plasma protein A	D-4160
34.	Mycoplasma hominis-IgG-EIA-BEST	ELISA kit for determination of IgG to Mycoplasma hominis	D-4352
35.	Mycoplasma hominis-IgA-EIA-BEST	ELISA kit for determination of IgA to Mycoplasma hominis	D-4358
36.	Mycoplasma pneumoniae-IgG-EIA-BEST	ELISA kit for determination of IgG to Mycoplasma pneumoniae	D-4362
37.	Mycoplasma pneumoniae-IgM-EIA-BEST	ELISA kit for determination of IgM to Mycoplasma pneumoniae	D-4366
38.	Vectocrimean – CHF – IgG	ELISA kit for determination of IgG to Crimean-Congo hemorrhagic fever virus	D-5052
39.	Vectocrimean – CHF – IgM	ELISA kit for determination of IgM to Crimean-Congo hemorrhagic fever virus	D-5054
40.	CEA-EIA-BEST	ELISA kit for determination of concentration of carcinoembryonic antigen	T-8454
41.	AFP-EIA-BEST	ELISA kit for determination of concentration of Alpha-Fetal Protein	T-8456
42.	CA-125-EIA-BEST	ELISA kit for determination of concentration of oncomarker CA-125	T-8466
43.	CA 19-9-EIA-BEST	ELISA kit for determination of concentration of CA 19-9	T-8470
44.	CA 15-3-EIA-BEST	ELISA kit for determination of concentration of oncomarker CA 15-3	T-8472
45.	NSE-EIA-BEST	ELISA kit for determination of concentration of neuron specific enolase	T-8476

46.	Ferritin-EIA-BEST	ELISA kit for determination of concentration of ferritin	T-8552
47.	IgE total-EIA-BEST	ELISA kit for determination of concentration of total IgE	A-8660
48.	IgG total-EIA-BEST	ELISA kit for determination of concentration of total IgG	A-8662
49.	IgM total-EIA-BEST	ELISA kit for determination of concentration of total IgM	A-8664
50.	IgA total-EIA-BEST	ELISA kit for determination of concentration of total IgA	A-8666
51.	Gamma-Interferon-EIA-BEST	ELISA kit for determination of concentration of gamma-interferon	A-8752
52.	Interleukine-4-EIA-BEST	ELISA kit for determination of concentration of Interleukine-4	A-8754
53.	Alpha-TNF-EIA-BEST	ELISA kit for determination of concentration of alpha-tumor necrosis factor	A-8756
54.	Alpha-Interferon-EIA-BEST	ELISA kit for determination of concentration of alpha-interferon	A-8758
55.	Interleukine-6-EIA-BEST	ELISA kit for determination of concentration of Interleukine-6	A-8768
56.	Interleukine-2-EIA-BEST	ELISA kit for determination of concentration of Interleukine-2	A-8772
57.	Procalcitonin-EIA-BEST	ELISA kit for determination of concentration of procalcitonin	A-9004
58.	NTproBNP-EIA-BEST	ELISA kit for determination of concentration of N-terminal prohormone of brain natriuretic peptide	A-9102
59.	Troponin I-EIA-BEST	ELISA kit for determination of concentration of troponin I	A-9106

Certificate

mdc medical device certification GmbH
certifies that

VECTOR BEST

AO Vector-Best
Research and Production Area
Building 36,Office 211, Koltsovo
630559 Novosibirsk region
Russian Federation

with the locations listed in the attachment

for the scope

Design and development, production and distribution of medical devices for in vitro diagnostics (PCR, ELISA, Biochemistry)

has introduced and applies a

Quality Management System

The mdc audit has proven that this quality management system meets all requirements of the following standard

EN ISO 13485

Medical devices – Quality management systems – Requirements for regulatory purposes

EN ISO 13485:2016 + AC:2016 - ISO 13485:2016

Valid from	2020-07-04
Valid until	2023-07-03
Registration no.	D1213100019
Report no.	P20-00568-173687
Stuttgart	2020-06-02

Head of Certification Body

medical device certification mdc

DAkkS Deutsche Akkreditierungsstelle D-ZM-16002-06-00

mdc medical device certification GmbH
Kriegerstraße 6
D-70191 Stuttgart, Germany
Phone: +49-(0)711-253597-0
Fax: +49-(0)711-253597-10
Internet: http://www.mdc-ce.de

Attachment of the certificate

No. D1213100019 date 2020-06-02

Location	Scope
AO Vector-Best Arbuzova str. 1/1, 630117 Novosibirsk Russian Federation	design and development, production and distribution of medical devices for in vitro diagnostics
AO Vector-Best Research and Production area, building 36, Koltsovo, 630559 Novosibirsk region Russian Federation	design and development, production of medical devices for in vitro diagnostics
AO Vector-Best Pasechnaya str, 3, 630117 Novosibirsk Russian Federation	design and development, production of medical devices for in vitro diagnostics

medical device certification mdc

Head of Certification Body

mdc medical device certification GmbH
Kriegerstraße 6
D-70191 Stuttgart, Germany
Phone: +49-(0)711-253597-0
Fax: +49-(0)711-253597-10
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LORNE LABORATORIES LTD.

MAREA BRITANIE

KIT SEROLOGIE SIFILIS

INSTRUCŢIUNI DE UTILIZARE

VDRL Stabilised Reagent Kit: Pentru serodiagnosticul sifilisului.

REZUMAT

Sifilisul este o boală venerică provocată de microorganismul spirochetă *Treponema pallidum.* Întrucât acest organism nu poate fi cultivat în mediul artificial, diagnosticarea sifilisului depinde de corelarea datelor clinice cu anticorpul specific demonstrat prin teste serologice. Există două tehnici diferite de detectare a sifilisului. Testele TPHA, care detectează anticorpii la *Treponemal pallidum,* şi testele serologice non-treponemice, care detectează o substanţă asemănătoare anticorpului la persoanele infectate numită reagină.

SCOPUL PROPUS

Acesta este un reactiv de test pentru determinarea calitativă şi semicantitativă a prezenţei sau absenţei reaginei (anticorpi împotriva sifilisului) în serul sau plasma pacienţilor în cazul testării conform tehnicilor recomandate şi prezentate în aceste instrucţiuni de utilizare.

PRINCIPIUL

Atunci când este utilizat conform tehnicilor recomandate, reactivul se va agrega în prezenţa reaginei. Neagregarea (neaglomerarea) indică, de obicei, absenţa reaginei (consultaţi **Limitări**).

DESCRIEREA KITULUI

VDRL Stabilised Reagent Kit Lorne este un test non-treponemic pentru serodiagnosticul sifilisului. Kitul include un antigen VDRL stabilizat şi un martor pozitiv şi negativ. Antigenul VDRL stabilizat este o soluţie etanolică care conţine colesterol (0,9%), cardiolipină din cordul bovin (0,03%) şi lecitină (0,21%). Reactivii nu conţin sau nu sunt compuşi din substanţe CMR, substanţe perturbatoare pentru sistemul endocrin sau care ar putea provoca sensibilizare sau o reacţie alergică în cazul utilizatorului. Pentru numărul de referinţă al lotului şi data de expirare, consultaţi **Eticheta flaconului**.

DEPOZITARE

A nu se congela. Flacoanele cu reactiv trebuie depozitate la temperaturi cuprinse între 2 şi 8 ºC după primire. Depozitarea prelungită la temperaturi în afara acestui interval poate duce la pierderea accelerată a reactivităţii.

SPECIMENE

Ser proaspăt, plasmă sau lichid cefalorahidian. Stabile 7 zile la 2-8 ºC sau trei luni la -20 ºC.
Probele care prezintă fibrină trebuie centrifugate înainte de utilizare. Nu utilizaţi probe intens hemolizate sau lipemice. Specimenele trebuie prelevate cu sau fără anticoagulant folosind o tehnică de flebotomie aseptică. Dacă testarea este întârziată, specimenele pot fi depozitate la 2-8 ºC timp de 7 zile sau pentru până la 3 luni la maximum –20 ºC. Specimenele nu trebuie să prezinte contaminare de bacterii şi hemoliză.

PRECAUŢII

1. Kitul este destinat exclusiv pentru diagnosticare *in-vitro*.
2. Nu utilizaţi kitul după data de expirare (consultaţi **Eticheta de pe flacon şi de pe cutie**).
3. Purtaţi echipament de protecţie când manipulaţi reactivii, cum ar fi mănuşi de unică folosinţă şi un halat de laborator.
4. Reactivii din acest kit au fost procesaţi pentru a reduce încărcătura biologică, dar nu sunt livraţi sterili. După deschiderea flaconului, conţinutul ar trebuie să rămână viabil până la data de expirare.
5. Nu se cunosc teste care să garanteze faptul că produsele derivate din surse umane sau animale nu prezintă agenţi infecţioşi. Fiţi atenţi când utilizaţi şi când eliminaţi un flacon şi conţinutul acestuia.
6. Martor +: H319 - Provoacă iritare gravă a ochilor. Respectaţi declarația de precauţie din fişa cu date de securitate.

ELIMINAREA REACTIVULUI DIN KIT ŞI CUM SE ACŢIONEAZĂ ÎN CAZ DE STROPIRE

Pentru informaţii privind eliminarea reactivului din kit şi metodele de decontaminare a unui loc în caz de stropire, consultaţi **Fişele cu date de securitate ale materialului**, disponibile la cerere.

MARTORI ŞI RECOMANDĂRI

1. Se recomandă testarea în paralel a martorilor pozitivi şi negativi cu fiecare lot de teste. Testele trebuie considerate nevalide dacă probele martor nu prezintă rezultatele prevăzute.
2. Înainte de utilizare, trebuie să aşteptaţi ca reactivii să ajungă la 18-25 ºC.
3. Agitaţi bine reactivii înainte de utilizare pentru a asigura omogenitatea.
4. Nu schimbaţi între ele componentele de la diferite kituri.
5. Utilizarea kitului şi interpretarea rezultatelor trebuie efectuate de personal calificat şi instruit în mod corespunzător în conformitate cu cerinţele ţării în care se utilizează kitul.
6. Utilizatorul trebuie să stabilească în ce măsură se poate utiliza kitul în alte tehnici.

COMPONENTELE KITULUI FURNIZATE

1) Antigen stabilizat VDRL (Capac alb, 5 ml); soluţie care conţine cardiolipină 0,3 g/l, lecitină 2,1 g/l şi colesterol 9 g/l în tampon fosfat 1,5 mmol/l, pH 7,0, conservant.
2) Martor + (Capac roşu, 1 ml); ser artificial cu un titru de reagină ≥ 1/8.
3) Martor – (Capac albastru, 1 ml); ser de animal, conservant.

MATERIALE ŞI ECHIPAMENTE CARE SUNT NECESARE, DAR NU SUNT FURNIZATE

a) Lame de sticlă.
b) Pipetă reglabilă.
c) Agitator mecanic rotativ cu turaţie reglabilă de circa 180 rot/min.
d) Microscop cu lumină (lentile obiectiv 10 x)

TEHNICA DE EVALUARE CALITATIVĂ RECOMANDATĂ

1. Puneţi în cercuri separate ale lamei de sticlă: 50 µl de ser nediluat de la pacient, 50 µl de martor pozitiv şi 50 µl de martor negativ.
2. Amestecaţi uşor antigenul stabilizat VDRL şi adăugaţi 20 µl de reactiv VDRL la fiecare probă.
3. Amestecaţi reactivul şi picăturile de probă cu un amestecător şi întindeţi pe toată suprafaţa fiecărui cerc de testare.
4. Rotiţi uşor lama timp de patru (4) minute pe un agitator mecanic rotativ reglat la 180 rot/min.
5. După 4 minute, examinaţi fiecare cerc de testare pentru aglutinare folosind un microscop cu lumină şi înregistraţi rezultatele.

INTERPRETAREA REZULTATELOR CALITATIVE

1) **Pozitiv:** Aglutinarea vizibilă folosind un microscop cu lumină constituie un rezultat pozitiv şi, în limitele acceptate ale procedurii de testare, indică prezenţa reaginei asociate cu sifilisul.
2) **Negativ:** Neaglutinarea vizibilă folosind un microscop cu lumină constituie un rezultat negativ şi, în limitele acceptate ale procedurii de testare, indică absenţa reaginei asociate cu sifilisul.

TEHNICA DE EVALUARE SEMICANTITATIVĂ RECOMANDATĂ

1. Dublaţi diluţiile specimenului în 9 g/l de soluţie salină până la 1/16 după cum urmează:

Diluţie	Ser	9 g/l soluţie salină
1/2	100 µl de ser nediluat	100 µl

1/4	100 µl de ser nediluat	300 µl
1/8	100 µl de ser nediluat	700 µl
1/16	100 µl de ser nediluat	1500 µl

2. Testaţi fiecare diluţie a specimenului de ser exact la fel ca în cazul **Tehnicii de evaluare calitativă** de mai sus.

INTERPRETAREA REZULTATELOR SEMICANTITATIVE

1. Titrul este exprimat ca reciprocă a celui mai înalt grad de diluare care prezintă aglutinare microscopică: de ex., dacă aceasta are loc în diluţie 1/8, titrul este 8.

INTERPRETAREA REZULTATELOR

1. **Reactiv:** Conglomeratele medii până la mari constituie un rezultat pozitiv şi, în limitele acceptate ale procedurii de testare, indică prezenţa reaginei.
2. **Slab reactiv:** Particulele dispersate fin cu conglomerate mici constituie un rezultat pozitiv slab şi, în limitele acceptate ale procedurii de testare, indică prezenţa reaginei.
3. **Negativ:** Particulele dispersate fin fără conglomerate constituie un rezultat negativ şi, în limitele acceptate ale procedurii de testare, indică absenţa reaginei.

STABILITATEA REACŢIILOR

Testele cu lamă ar trebui interpretate imediat după o perioadă de rotaţie de 4 minute pentru a evita riscul de a interpreta incorect un rezultat negativ ca fiind pozitiv din cauza uscării reactivului.

LIMITĂRI

1. Testul VDRL este nespecific pentru sifilis. Toate probele reactive trebuie retestate cu metode treponemice, cum ar fi TPHA şi FTA-Abs, pentru a confirma rezultatele.
2. Un rezultat nereactiv în sine nu exclude diagnosticul de sifilis.
3. Au fost raportate rezultate fals pozitive în cazul unor afecţiuni cum ar fi mononucleoza infecţioasă, pneumonia virală, toxoplasmoza, precum şi în cazul unei sarcini şi al unei boli autoimune.
4. Hemoglobina (≤ 10 g/l), bilirubina (≤ 20 mg/dl), lipemia (≤ 10 g/l) şi factorii reumatoizi (≤ 300 IU/ml) nu influenţează rezultatele. Alte substanţe pot influenţa rezultatele[4].
5. Rezultatele fals pozitive sau fals negative pot fi generate şi de:
   - Contaminarea materialelor folosite în testare
   - Depozitarea necorespunzătoare a materialelor de testare sau omiterea reactivilor
   - Abaterea de la tehnicile recomandate

CARACTERISTICI DE PERFORMANŢĂ SPECIFICE

1. Kitul a fost caracterizat prin procedurile menţionate în **Tehnici recomandate**.
2. Înainte de a fi pus pe piaţă, fiecare lot de VDRL Kit Lorne este testat conform **Tehnicilor recomandate** pentru a se asigura reactivitatea adecvată.
3. Sensibilitatea reactivului este calibrată conform Primului standard internaţional OMS pentru plasma sifilizată umană (număr de referinţă NIBSC 05/132).
4. Efect de prozonă: Nu a fost detectat niciun efect de prozonă la titre de 1/128.
5. Sensibilitate diagnostic: 100%.
6. Specificitate diagnostic: 100%.

DECLINAREA RESPONSABILITĂŢII

1. Utilizatorul este singurul responsabil pentru performanţa kitului în cazul utilizării altor metode decât cele menţionate de producător în **Tehnici recomandate**.
2. Orice abatere trebuie validată înainte de utilizare cu ajutorul procedurilor de laborator stabilite.

BIBLIOGRAFIE

1. David S.Jacobs et al. Laboratory Test Handbook, 3rd edition, Lexi-Comp Inc, 1994.

DIMENSIUNI DE KIT DISPONIBILE

Dimensiune kit	Număr de catalog
250 de teste	046511A

Lorne Laboratories Limited
Unit 1 Cutbush Park Industrial Estate
Danehill
Lower Earley
Berkshire, RG6 4UT
Regatul Unit
Tel.: +44 (0) 118 921 2264
Fax: +44 (0) 118 986 4518
E-mail: info@lornelabs.com

EC REP Advena Ltd. Tower Business Centre, 2nd Flr., Tower Street, Swatar, BKR 4013, Malta