EUROLINE EBV Profile 2 (IgG/IgM)

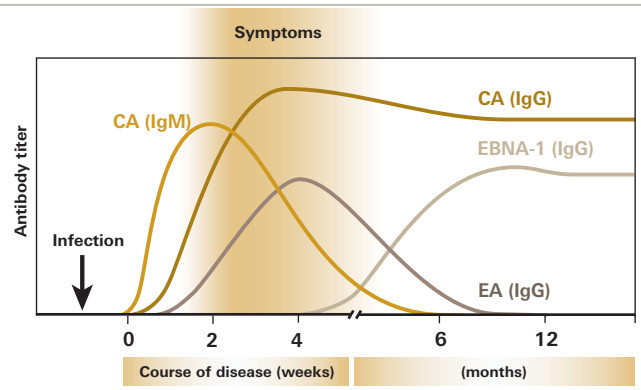
- **Line blot for the determination of IgG or IgM antibodies against Epstein-Barr virus (EBV)***
- **Monospecific detection based on five target antigens relevant in active and passed EBV infections**
- **Fully automated incubation and evaluation using EUROBlotOne and the EUROLineScan software**

Technical data

Antigen	Native VCA gp125 antigen, recombinant VCA p19, EBNA-1, EA-D and p22 antigens
Sample dilution	Serum or plasma, 1:51 in universal buffer
Test procedure	30 min / 30 min / 10 min (sample/conjugate/substrate incubation), room temperature, fully automatable
Test kit format	16, 50 or 64 membrane strips; kit includes all necessary reagents
Automation	Compatible with the EUROBlotOne or EUROBlotMaster from EUROIMMUN; the evaluation is performed using the EUROLineScan software
Order number	**DN 2790-1601-2 G or M (16 strips)** **DN 2790-6401-2 G or M (64 strips)** **DN 2790-5001-2 G Immunoblot PreQ (pre-equipped single channels, 50 strips)**** **DN 2790-0510-2 M Immunoblot PreQ (pre-equipped single channels, 50 strips)****

Clinical Significance

Epstein-Barr virus (EBV) is one of the most widely distributed human pathogenic herpes viruses. The virus is transmitted mainly by saliva, but also by blood transfusions or organ transplants. EBV infection can lead to infectious mononucleosis (glandular fever) a febrile disease usually accompanied by pharyngitis and lymphadenopathy. Serology is very important in infectious mononucleosis diagnostics: Characteristically, IgM antibodies against the virus capsid antigen (EBV-CA) are the first to appear. As the infection proceeds, anti-EBV-CA IgG is produced, which persists lifelong, while anti-EBV-CA IgM decreases and eventually falls under the limit of detection. Heterophile antibodies, which are typical for EBV infection, occur in the acute phase of disease. In 60% to 80% of patients, IgG and IgM against early antigen (EA) also correlate with an active infection. IgG against Epstein-Barr nuclear antigen (EBNA-1), on the other hand, is only detectable after a few weeks to months and allows the detection of passed infections. 5% to 10 % of patients with infectious mononucleosis do not produce antibodies against EBNA-1. In the case of unclear antibody findings such as lack of anti-EBV-CA IgM in primary infections or lack of anti-EBNA-1 IgG in passed infections, an investigation of the avidity of anti-EBV-CA IgG is recommended; low avidity indicates an acute infection. Differential diagnosis of infectious mononucleosis should also include cytomegaly, rubella, fifth disease and toxoplasmosis as well as HIV and streptococcus infections.



Anti-EBV antibodies over course of time

Stage of infection	Associated antibodies				
	Anti-VCA (IgG)	Anti-VCA (IgM)	Anti-EBNA-1 (IgG)	Anti-p22 (IgG)	Anti-EA-D (IgG)
Negative	–	–	–	–	–
Acute infection	+	+	–	–	+
Passed infection	+	–	+	+	–
Reactivation	For the characterisation of reactivated EVB infections in immunosuppressed or -compromised individuals the determination of the viral load is recommended since the serological results often do not correlate with the results of direct pathogen detection.				

* The test is not intended to be used for the determination of suitability of sample material for transfusion, transplantation or cell administration in accordance with EU regulation 2017/746.
** only compatible with the EUROBlotOne

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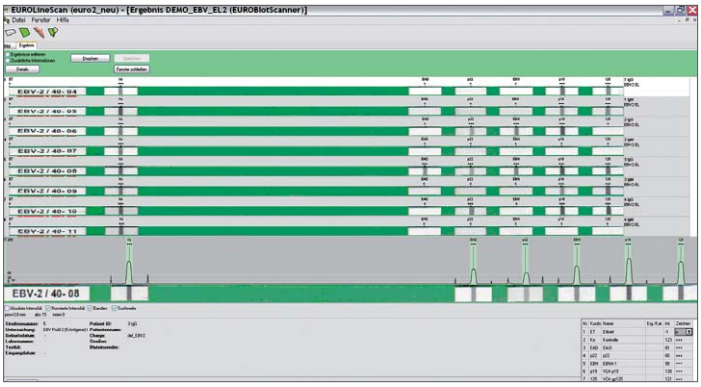
Principle of the test

The test kit contains test strips coated with parallel lines of highly purified antigens. In the first reaction step, the test strips are incubated with diluted patient samples. In the case of positive samples, specific IgG or IgM (and IgA) antibodies will bind to the corresponding antigenic site. In a second step, the bound antibodies are detected by incubating the samples with an enzyme-labelled anti-human IgG or IgM, which catalyses a colour reaction.

Automated processing

EUROBlotOne is a compact device for fully automated, standardised processing of EUROIMMUN line assays (EUROLINE, EUROLINE-WB, Westernblot) – from the sample identification to the final test result. The samples are pipetted by the device and all incubation and washing steps are carried out automatically. Finally, the images taken by the integrated camera are automatically evaluated and digitally archived by the EUROLineScan software. Alternatively, the immunoblot strips can be incubated by the EUROBlotMaster and scanned using a flatbed scanner. They are then also automatically evaluated by the EUROLineScan software. The bidirectional communication with a laboratory information system for the import of work lists and export of results is enabled by EUROLineScan or, optionally, the cross-system laboratory management software EUROLabOffice 4.0. A separate results sheet can be produced for each sample.



Clinical data

127 sera from patients at different stages of EBV infection (clinically and serologically characterised: Dr. Gärtner, University Clinic Saarland, Germany; EUROIMMUN) were investigated for antibodies of classes IgG and IgM against VCA gp125, VCA p19, EBNA-1, p22 and EA-D using the EUROLINE EBV Profile 2.

Fresh infections are characterised by antibodies of classes IgG and IgM against VCA gp125 and/or p19. Antibodies of class IgG against EA-D can also appear. The late phase of infection is characterised by antibodies of class IgG against VCA gp125 and/or p19 as well as against EBNA-1. In the case of secondary loss of antibodies against EBNA-1 the presence of antibodies of class IgG against p22 indicates the late phase of infection.

Infection status	Antibody prevalence in %				
	Anti-VCA IgG	Anti-VCA IgM	Anti-EBNA-1	Anti-p22	Anti-EA-D
Passed infection (n = 72)	100	13	99	97	19
Acute infection (n = 22)	100	96	9	27	73
Negative (n = 8)	13	0	0	0	0
Reactivation (n = 25)	100	8	92	100	68

Literature

1. Balandraud N, et al. **Epstein-Barr virus and rheumatoid arthritis.** Joint Bone Spine 85(2):165-170 (2018).
2. Centers for Disease Control and Prevention. **Epstein-Barr virus and infectious mononucleosis.** (2014). http://www.cdc.gov/epstein-barr/laboratory-testing.html.
3. Coghill AE, et al. **Epstein-Barr virus antibodies and the risk of associated malignancies: review of the literature.** Am J Epidemiol 180(7):687-695 (2014).

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