

# Immunoblots – an old friend with a new face

EUROIMMUN has been developing and marketing innovative immunoblot technologies for over 30 years. With broad antigen combinations and full automatability, EUROIMMUN multiplex immunoblots represent a staple of laboratory diagnostics. The company's successful EUROLINE range is now complemented by new EUROMicroblot tests consisting of miniaturized line blots in microplate format. CLI caught up with Dr Philip Rosenstock, Head of Product Management at EUROIMMUN to find out more.

## Firstly, can you tell us why immunoblots are important in diagnostics?

Immunoblots enable monospecific detection and differentiation of many different antibodies in parallel. They thus enable detailed patient antibody profiles to be established with a single test. Immunoblots are used, for example, in the diagnosis of autoimmune diseases, infectious diseases and allergies.

## Why are large antigen panels needed?

Novel disease-associated antibodies are being characterized at an unprecedented rate. Many of these antibodies occur at low prevalences, and patients often exhibit only a single antibody specificity. This poses the dilemma of how many and which antibodies to test in a particular disease suspicion. Line blots are the ideal solution in these situations, providing a broad multiparameter antibody analysis and helping to minimize diagnostics gaps. Newly identified antigens can easily be added to the test strips.

## Tell us about EUROLINE

EUROLINE blot technology has been a trusted laboratory method among our customers since its introduction in the 1990s. Unlike on traditional line blots, the antigens on the EUROLINE test strips are contained on individual membrane chips. This enables native and recombinant antigens with widely differing properties to be combined on one test strip. Thus, profiles can be composed according to the disease application, regardless of the antigens involved, enabling comprehensive, relevant antibody testing. The EUROLINE series offers unique combinations of antigens, including many novel and exclusive parameters.

## Are automation solutions available to streamline the EUROLINE procedure?

Yes, the EUROLINE analysis can be fully automated from sample entry to report release using EUROBlotOne with EUROLineScan software. Our customers appreciate the fully automated procedure, which reduces workload to a minimum.



EUROBlotOne can process up to 44 test strips per run, and different tests can be combined in one run. The instrument includes an integrated barcode scanner to track samples, thus preventing mix-ups. EUROLiNEscan evaluation software subsequently identifies and assigns the bands on the membrane strips and generates patient reports. This automated workflow saves valuable time for laboratory staff and increases standardization.

### How are EUROLiNE profiles used in autoimmune diagnostics?

Autoimmune diagnostics often require analysis of a large repertoire of autoantibodies, for which EUROLiNE is ideally suited. For example, our EUROLiNE ANA Profiles enable specific confirmation of up to 23 autoantibodies that give rise to nuclear patterns in indirect immunofluorescence screening on HEP-2 cells. We are proud to say that they are among the top tests used by participants in quality assurance schemes such as INSTAND. Further EUROLiNE profiles provide targeted autoantibody detection in myositis, systemic sclerosis, paraneoplastic neurological syndromes, autoimmune liver diseases and coeliac disease.

Our EUROLiNE Myositis Profiles offer the largest antigen spectrum available in the line blot format for detection of myositis-relevant autoantibodies, encompassing 20 parameters including the exclusive cytosolic 5'-nucleotidase 1A (cN1A) antigen. The importance of wide antibody testing in idiopathic inflammatory myopathies is highlighted by a case story we featured recently on our blog (<https://www.euroimmunblog.com/a-life-saving-diagnosis-thanks-to-comprehensive-antibody-testing-a-motivating-success-story/>). It describes a patient who was negative for all the classic autoantibodies and was initially diagnosed with idiopathic lung fibrosis. Follow-up testing with the EUROLiNE revealed the presence of the rare anti-signal recognition particle (SRP) and anti-RNA polymerase III (RP11) autoantibodies, enabling a diagnosis of myositis to be secured and life-improving treatment to be started.

### What about allergies?

EUROLiNE technology is also ideal for broad-range allergy diagnostics, as up to 54 allergens can be analysed on a single test strip. Our EUROLiNE profiles are tailored to particular indications, for example, food, inhalation, atopy, insect venoms or pediatrics, or to specific regions. The product range includes more than 65 profiles for multiparameter detection of specific IgE antibodies. Our molecular allergy diagnostic (DPA-Dx) profiles enable precise identification of allergy-triggering components. The importance of different allergen components in risk assessment and immunotherapy decision-making is described in many scientific publications and allergy diagnostic guidelines.

### Which immunoblots are available for infection diagnostics?

We offer immunoblots for detection of antibodies against *Borrelia*, *Treponema pallidum*, Epstein-Barr virus (EBV), hepatitis E virus (HEV), parvovirus B19 and TORCH pregnancy-relevant pathogens, to name just a few. Our Anti-Borrelia EUROLiNE tests are worth a particular mention, as they provide exclusive combinations of early- and late-phase markers, including the major antigens variable major protein-like sequence expressed (VlsE) and outer surface protein C (OspC) from different *Borrelia* species, together with designer antigens and immunogenic lipids. With our new EUROMicroblot technology, the efficiency of Lyme disease diagnostics can now be increased even further.

### Tell us about the new EUROMicroblot

We are excited to introduce our new EUROMicroblot system, which meets our customers' needs for higher throughput blot analyses. It combines the best of two technologies, providing 96-well microplates fitted with miniaturized line blot strips. The microplates can be processed easily on ELISA instruments such as our EUROLab-Workstation ELISA or EUROIMMUN Analyzer I or 2-P. The technology helps to improve efficiency in labs, as free capacity on ELISA instruments can be used optimally, and screening and confirmatory tests can be processed in one run. The break-off wells of the microplates can be separated individually, so that the number of analyses can be adapted to the lab's actual needs. All samples, plates and reagents are tracked by barcodes, ensuring traceability throughout the analysis. EUROMicroblot images are subsequently acquired using the compact tabletop Microwell Imager and the results are evaluated using our established EUROLiNEscan software.



### Which applications are available as EUROMicroblot?

We have already launched our EUROMicroblot Anti-Borrelia (IgG, IgM), which includes a carefully selected combination of *Borrelia* antigens for the confirmatory step of Lyme disease diagnostics. Further products in the starting block are EUROMicroblots for detection of antibodies against *Treponema pallidum*, EBV and more. With the introduction of EUROMicroblot technology, we are excited to be helping laboratories streamline their workflow and increase the cost-efficiency of their diagnostics.

## EUROIMMUN

Contact	<b>EUROIMMUN AG</b>
Address	<b>Seekamp 31 23560 Luebeck Germany</b>
Phone	<b>+49 451 2032</b>
Website	<b><a href="http://www.euroimmun.com">www.euroimmun.com</a></b>