Anti-SLA/LP ELISA (IgG)

- **Quantitative serological test system to support the diagnosis of autoimmune hepatitis (AIH)**
- **Highest diagnostic accuracy for AIH through the detection of anti-SLA/LP**

Technical data

Antigen	Recombinant human SLA/LP (soluble liver antigen/liver-pancreas antigen)
Calibration	Quantitative, in relative units per millilitre (RU/ml)
	Calibrator 1: 200 RU/ml
	Calibrator 2: 20 RU/ml
	Calibrator 3: 2 RU/ml
	Recommended upper threshold of the normal range (cut-off value): 20 RU/ml
Sample dilution	Serum or plasma, 1 : 101 in sample buffer
Reagents	Ready for use, with the exception of the wash buffer (10x); colour-coded solutions, in most cases exchangeable with those in other EUROIMMUN ELISA kits.
Test procedure	30 min / 30 min / 15 min. Room temperature. Fully automatable.
Measurement	450 nm, reference wavelength between 620 nm and 650 nm
Test kit format	96 break-off wells; kit includes all necessary reagents
Order number	**EA 1302-9601 G**

Clinical significance

The incidence of autoimmune hepatitis (AIH) in western Europe is 1.9 cases per 100,000 inhabitants per year. Untreated, AIH soon develops into liver cirrhosis. With early and consequent life-long therapy based on low-dosed immunosuppressives, patients have a normal life expectancy.

Circulating autoantibodies play a significant role in the diagnosis. Antibodies against the following antigens are associated with AIH: soluble liver antigen/liver-pancreas antigen (SLA/LP), cell nuclei (ANA), DNA, smooth muscle (SMA, the most important target antigen being F-actin), liver-kidney microsomes (LKM-1, target antigen: cytochrome P450 IID6), liver cytosolic antigen type 1 (LC-1, target antigen: formiminotransferase cyclodeaminase) and granulocytes (pANCA). Antibodies against mitochondria (AMA) are also investigated for the exclusion of primary biliary cirrhosis (PBC). 10 to 20% of patients with PBC develop secondary autoimmune hepatitis (overlap). In these cases, AIH-associated autoantibodies are also often found.

In literature, AIH is sometimes classified according to its autoantibody status: subtype I (ANA, ASMA), subtype II (antibodies against LKM-1 and LC-1) and subtype III (antibodies against SLA/LP). This classification is probably neither of clinical nor of therapeutic or prognostic significance. Anti-SLA and anti-LP, which have both been described as being associated with AIH by two independent work groups, have been proven to have the same target antigen and are therefore named anti-SLA/LP antibodies. The target antigen is a UGA supressor serine tRNA-associated protein (tRNP(Ser)Sec).

Autoantibodies against SLA/LP, which can be detected using the various enzyme immunoassays from EUROIMMUN, probably offer the highest diagnostic accuracy for AIH. Their prevalence is only between 10 and 30%, but their predictive value is nearly 100%. Basically every positive anti-SLA/LP result confirms autoimmune hepatitis (as long as the corresponding clinical symptoms are present). In many AIH patients this enables exact delimitation to viral hepatitis, which has to be excluded by investigation of the respective serological parameters.

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Detection limit

The lower detection limit is defined as a value of three times the standard deviation of an analyte-free sample and is the lowest clearly detectable concentration of antibodies. The lower detection limit of the Anti- SLA/LP ELISA is approximately 1 RU/ml.

Reference range

Levels of anti- SLA/LP antibodies (IgG) were analysed in a group of 200 healthy blood donors using the EUROIMMUN ELISA. With a cut-off value of 20 RU/ml, all blood donors were anti-SLA/LP negative.

Reproducibility

The reproducibility of the test was investigated by determining the intra- and inter-assay coefficients of variation (CV) using 3 sera with values at different points on the calibration curve. The intra-assay CVs are based on 20 measurements for each serum and the inter-assay CVs on 4 measurements repeated on 6 different days.

Intra-assay variation, n = 20		
Serum	Mean value (RU/ml)	CV (%)
1	41	2.6
2	110	2.3
3	154	3.7

Inter-assay variation, n = 4 x 6		
Serum	Mean value (RU/ml)	CV (%)
1	44	4.4
2	118	3.6
3	169	3.8

Prevalence and specificity

Sera from 472 patients with autoimmune hepatitis, 147 patients with other liver diseases and 200 healthy blood donors were investigated using the Anti-SLA/LP ELISA. The prevalence in all cohorts, except for the Japanese panel, were between 15% and 19%. All control samples were negative for anti-SLA/LP. Thus, the specificity of the ELISA was 100%.

Patient group (n = 819)	Origin of sera	n	anti-SLA/LP positive
Autoimmune hepatitis	Prof. Lohse, Univ. of Mainz	108	21 (19%)
	Brazilian cohort	154	25 (16%)
	Japanese cohort	43	2 (5%)
	American cohort	149	23 (15%)
Anti-LKM-1-positive AIH	Dr. Gruber, Univ. of Munich	18	0
Primary biliary cirrhosis (PBC)	Dr. Gruber, Univ. of Munich PD Dr. Wick, Clin. Centre Großhadern	30	0
Hepatitis B infection	Clin. Immun. Laboratory Prof. Dr. med. Stöcker, Lübeck	40	0
Hepatitis C infection	Prof. Lohse, Univ. of Mainz Clin. Immun. Laboratory Prof. Dr. med Stöcker, Lübeck	39	0
Steatohepatitis	Prof. Lohse, Univ. of Mainz	24	0
Toxic liver damage	Prof. Lohse, Univ. of Mainz	14	0
Blood donors	Med. Univ. of Lübeck	200	0

Literature

1. Baeres M, Herkel J, Czaja AJ, Wies I, Kanzler S, Cancado ELR, Porta G, Nishioka M, Simon T, Daehnrich C, Schlumberger W, Galle PR, Lohse AW. **Establishment of standardized SLA/LP immunoassays: specificity for autoimmune hepatitis, worldwide occurrence, and clinical characteristics.** Gut 51: 259-264 (2002).
2. Beretta-Piccoli, Mieli-Vergani, Vergani. **Serology in autoimmune hepatitis: A clinical-practice approach.** European Journal of Internal Medicine 48: 35-43 (2018).
3. European Association for the Study of the Liver. **EASL Clinical Practice Guidelines: Autoimmune hepatits.** Journal of Hepatology 63: 971-1004 (2015).
4. Liberal R, Vergani D, Mieli-Vergani G. **Update on Autoimmune Hepatitis.** Journal of Clinial and Translational Hepatology 3: 42-52 (2015).
5. Lohse AW, Gerken G, Mohr H, Löhr HF, Treichel U, Dienes HP, et al. **Relation between autoimmune liver diseases and viral hepatitis: Clinical and serological characteristics in 859 patients.** Zeitschrift für Gastroenterologie 33: 571-578 (1995).
6. Strassburg CP, Beckebaum S, Geier A, Gotthardt D, Klein R, Melter M, Schott E, Spengler U, Tacke F, Trauner M, Weiler-Normann C, Weismüller TJ, Tannapfel A, Tischendorf JJ, Schramm C. **S2k Leitlinie Autoimmune Lebererkrankungen.** [in German] AWMF online 21/27 (2017).

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