

Anti-LKM1 (Liver-Kidney Microsomes) ELISA

Catalog Number:
LK131-K01

Enzyme immunoassay for the determination of
IgG antibodies to cytochrome p450 IID6
in human serum and plasma



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v. 1.0

INTENDED USE

The Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit is used for the quantitative determination of IgG antibodies to cytochrome P450 IID6 in human serum or plasma.

The group of primary autoimmune liver disease (PAL) comprises AIH, primary biliary cirrhosis (PBC) and primary sclerosing cholangitis (PSC).

The clinical picture of PAL is in most cases not different from other chronic liver diseases. About 15% of all cases with chronic liver diseases show an autoimmune pathogenesis. Therefore, after exclusion of infectious etiology especially by viruses, the determination of different autoantibodies is recommended.

PRINCIPLE OF THE TEST

Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit is an enzyme immunoassay for the quantitative determination of IgG antibodies to cytochrome P450 IID6.

The antibodies of the standards, controls, and diluted samples react with human recombinant cytochrome P450 IID6 immobilized on the solid phase of microtiter plates. The use of highly purified sample recombinant cytochrome P450 IID6 guarantees the specific binding of LKM-1 antibodies of the specimen under investigation. Following an incubation period of 30 min at room temperature (RT), unbound serum components are removed by a wash step.

The bound IgG antibodies react specifically with anti-human-IgG conjugated to horseradish peroxidase (HRP) within the incubation period of 30 min at RT. Excessive conjugate is separated from the solid-phase immune complexes by the following wash step.

HRP converts the colorless substrate solution of 3,3',5,5'-tetramethylbenzidine (TMB) added into a blue product. The enzyme reaction is stopped by dispensing an acidic solution (HCl) into the wells after 30 min at RT turning the solution from blue to yellow.

The optical density (OD) of the solution at 450 nm is directly proportional to the amount of specific antibodies bound. The standard curve is established by plotting the antibody concentrations of the standards (x-axis) and their corresponding OD values (y-axis) measured. The concentration of antibodies of the specimen is directly read off the standard curve.

SAMPLES

Specimen collection and storage

Blood is taken by venipuncture. Serum is separated after clotting by centrifugation. Plasma can be used, too. Lipaemic, hemolytic or contaminated samples should not be run. Repeated freezing and thawing should be avoided. If samples are to be used for several assays, initially aliquot samples and keep at -20 °C.

Preparation before use

Allow samples to reach room temperature prior to the use of Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit. Take care to agitate serum samples gently in order to ensure homogeneity.

Note: *Samples have to be diluted 1 + 100 (v/v), e.g. 10 µl sample + 1.0 ml sample diluent (C), prior to assay.*

The samples may be kept at 2 - 8 °C for up to three days. Long-term storage requires -20 °C.

TEST COMPONENTS FOR 96 DETERMINATIONS

A		Microtiter plate , 12 breakable strips per 8 wells coated with human recombinant cytochrome P450 IID6	1 vacuum sealed with desiccant
Ag	96		
B		Concentrated wash buffer sufficient for 1000 ml solution	20 ml concentrate capped white
BUF	WASH		
	50x		
C		Concentrated sample diluent	20 ml concentrate capped white
DIL			
	5x		
D		Conjugate containing anti-human-IgG- (sheep) coupled with HRP	15 ml ready for use capped blue
CONJ	G		
E		Substrate 3,3',5,5'-tetramethylbenzidine in	15 ml ready for use capped
SOLN	TMB		

citrate buffer containing hydrogen peroxide

black

F		Stop solution 1.0 hydrochloric acid	15 ml ready for use capped white
HCl	1.0 M		

1 - 6		Standards (diluted serum) conc.: 0, 3, 10, 30, 100, 300 U/ml	1.5 ml each ready for use
CAL			

P		Positive control (diluted serum) conc.: see leaflet enclosed	1.5 ml ready for use capped red
CONTROL	+		

N		Negative control (diluted serum) conc.: see leaflet enclosed	1.5 ml ready for use capped green
CONTROL	-		

Materials required

- micropipette 100 - 1000 µl
- micropipette 10 - 100 µl
- 8-channel wash comb with vacuum pump and waste bottle or microplate washer
- microplate reader with optical filters for 450 nm and 620 nm or 690 nm
- distilled or de-ionized water

ASSAY PROCEDURE

Size and storage

The Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit has been designed for 96 determinations.

The expiry date of each component is reported on its respective label that of the complete Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit on the box labels.

Upon receipt, all components of the Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit have to be kept at 2 - 8 °C, preferably in the original kit box.

After opening all kit components are stable for at least 2 months, provided proper storage.

Preparation before use

Allow all components to reach room temperature prior to use in the Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit.

The microtiter plate is vacuum-sealed in a foil with desiccant. The plate consists of a frame and strips with breakable wells. Allow the sealed microplate to reach room temperature before opening. Unused wells should be stored refrigerated and protected from moisture in the original cover carefully resealed.

Prepare a sufficient amount of wash solution by diluting the concentrated wash buffer 50 times with de-ionized or distilled water. For example, dilute 1 ml of the concentrate with 49 ml of distilled water per strip. The wash solution prepared is stable at 2 - 8 °C up to 30 days.

Prepare a sufficient amount of sample diluent by diluting the concentrated diluent 5 times with de-ionized or distilled water. For example, dilute 10 ml of the concentrate with 40 ml of distilled water. The sample diluent prepared is stable at 2 - 8 °C up to 30 days.

Make sure the soak time of the wash buffer in the wells is at least 5 seconds per wash cycle.

Avoid exposure of the TMB substrate solution to light!

- Dilute sample sera with sample diluent (C) 1 + 100 (v/v),
e.g. 10 µl serum + 1.0 ml sample diluent (C).
- Avoid any time shift during pipetting of reagents and samples.

1. Bring all reagents to room temperature (18-25°C) before use. Mix gently without causing foam.
2. Dispense
100 µl standards (1 - 6)
100 µl positive (P) and negative (N) control
100 µl diluted samples
into the respective wells.
3. Incubate **30 min** at room temperature (18-25°C).
4. Decant, then wash each well **three** times using **300 µl** wash solution (made of B).
5. Add **100 µl** of conjugate (D) to each well.
6. Incubate **30 min** at room temperature (18-25°C).
7. Decant, then wash each well **three** times using **300 µl** wash solution (made of B).
8. Add **100 µl** of substrate (E) to each well.
9. Incubate **30 min protected from light** at room temperature (18-25°C).
10. Add **100 µl** of stop solution (F) to each well and mix gently.
11. Read the OD at **450 nm** versus 620 or 690 nm within **30 min** after adding the stop solution.

DATA PROCESSING

We recommend log / lin processing for best results.

The standard curve is established by plotting the mean OD-values of the standards 1 - 6 on the ordinate, y-axis, (lin. scale) versus their respective Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit IgG concentrations on the abscissa, x-axis, (log. scale).

LKM-1 antibody concentrations of the unknown samples are directly read off in U/ml against the respective OD values.

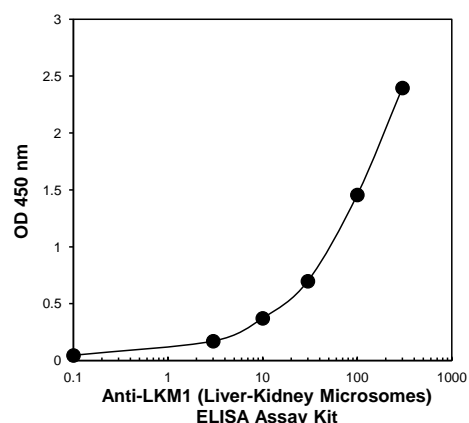
Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit may be used also with Computer Assisted Analysis using software able to plot log/lin curves with four-parameter fit.

Using the recommended dilution of 1 + 100 (v/v) for sample's sera, no correction factor is necessary, as all other components of Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit are supplied accordingly.

Example of Typical Assay Results

Well	OD (a)	OD (b)	OD (mean)	U/ml
Standard 1	0.043	0.049	0.046	0
Standard 2	0.167	0.175	0.171	3
Standard 3	0.363	0.382	0.372	10
Standard 4	0.690	0.706	0.698	30
Standard 5	1.444	1.468	1.456	100
Standard 6	2.381	2.411	2.396	300
Sample 1	0.533	0.569	0.551	20

TYPICAL STANDARD CURVE



Specimens with an OD > standard 6, should be diluted with LKM-1 antibody negative serum and tested again. Results are multiplied with the dilution factor chosen.

Do not use this example for interpreting results.

Test validity

The test run is valid if:

- the mean OD of the standard 1 is ≤ 0.15
- the mean OD of the standard 6 is ≥ 1.3

If the above mentioned quality criteria are not met, repeat the test and make sure that the test procedure is followed correctly (incubation times and temperatures, sample and wash buffer dilution, wash steps etc.). In case of repeated failure of the quality criteria contact your supplier.

REFERENCE VALUES

LKM-1 antibodies	U/ml
positive	> 15
negative	≤ 15

It is recommended that each laboratory establishes its own normal and pathological reference ranges for serum Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit levels, as usually done for other diagnostic parameters, too. Therefore, the above mentioned reference values provide a guide only to values which might be expected.

CHARACTERISTIC ASSAY DATA

Calibration

No international reference material for this parameter is available thus Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit is calibrated in arbitrary units.

Linearity

Selected positive serum samples have been tested by Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit and found to dilute linearly. However, due to the heterogeneous nature of human autoantibodies there might be sera that do not follow this rule.

Sensitivity

The analytical sensitivity of Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit was determined at 1.0 U/ml.

Specificity

No cross reactivity to other autoantigens have been found.

Precision

Intraassay variability

sample	mean IU/ml	standard deviation	CV (%)
1	210.0	3.4	1.6
2	77.5	2.2	2.8
3	18.4	0.66	3.6

Interassay variability

sample	mean IU/ml	standard deviation	CV (%)
1	207.0	3.6	4.2
2	73.8	1.7	2.3
3	17.6	0.26	1.5

INCUBATION SCHEME

Anti-LKM1 (Liver-Kidney Microsomes) ELISA

Dilute sample 10 µl serum + 1.0 ml sample diluent (C)

1	Bring all ready for use reagents to room temperature (18-25°C) before use.			
2	Pipette	Standards (1 - 6) Control (P + N) prediluted 1 + 100 sample sera	100 µl	100 µl 100 µl
3	Incubate 30 minutes at room temperature (18-25°C)			
4	Wash Decant, 3 x 300 µl (made of B)			
5	Pipette conjugate (D)		100 µl	100 µl 100 µl
6	Incubate 30 minutes at room temperature (18-25°C)			
7	Wash Decant, 3 x 300 µl (made of B)			
8	Pipette substrate (E)		100 µl	100 µl 100 µl
9	Incubate protected from light 30 minutes at room temperature (18-25°C)			
10	Pipette stop solution (F)		100 µl	100 µl 100 µl
11	Measure 450 nm versus 620 (690) nm within 30 min.			

SAFETY PRECAUTIONS

- **This Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit is for research use only.**
- The expiration dates stated on the respective labels are to be observed. The same relates to the stability stated for reconstituted reagents.
- Do not use or mix reagents from different lots.
- Do not use reagents from other manufacturers.
- Avoid time shift during pipetting of reagents.
- All reagents of Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit should be kept at 2 - 8 °C before use in the original shipping container.
- Some of the reagents contain small amounts of Thimerosal (< 0.1 % w/v) and Kathon (1.0 % v/v) as preservative. They must not be swallowed or allowed to come into contact with skin or mucosa.
- Source materials derived from human body fluids or organs used in the preparation of this kit were tested and found negative for HBsAg and HIV as well as for HCV antibodies. However, no known test guarantees the absence

of such viral agents. Therefore, handle all components and all samples as if potentially hazardous.

- Since the Anti-LKM1 (Liver-Kidney Microsomes) ELISA Assay Kit contains potentially hazardous materials, the following precautions should be observed:
 - Do not smoke, eat or drink while handling kit material,
 - Always use protective gloves,
 - Never pipette material by mouth,
 - Wipe up spills promptly, washing the affected surface thoroughly with a decontaminant.

Warranty Information

Eagle Biosciences, Inc. warrants its Product(s) to operate or perform substantially in conformance with its specifications, as set forth in the accompanying package insert. This warranty is expressly limited to the refund of the price of any defective Product or the replacement of any defective Product with new Product. This warranty applies only when the Buyer gives written notice to the Eagle Biosciences within the expiration period of the Product(s) by the Buyer. In addition, Eagle Biosciences has no obligation to replace Product(s) as result of a) Buyer negligence, fault, or misuse, b) improper use, c) improper storage and handling, d) intentional damage, or e) event of force majeure, acts of God, or accident.

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For further information about this kit, its application or the procedures in this kit, please contact the Technical Service Team at Eagle Biosciences, Inc. at info@eaglebio.com or at 866-411-8023.