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ab277464
Human LAMP1 ELISA Kit

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Human LAMP1 ELISA Kit datasheet:
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For the quantitative measurement of Human LAMP1 in cell culture supernatants, plasma and serum.

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1. Overview

Human LAMP1 ELISA Kit (ab277464) is an *in-vitro* enzyme-linked immunosorbent assay for the quantitative measurement of Human LAMP1 in serum, plasma and cell culture supernatants.

This assay employs an antibody specific for Human LAMP1 coated on a 96-well plate. Standards and samples are pipetted into the wells and Human LAMP1 present in a sample is bound to the wells by the immobilized antibody. The wells are washed, and biotinylated anti-Human LAMP1 antibody is added. After washing away unbound biotinylated antibody, HRP-conjugated streptavidin is pipetted to the wells. The wells are again washed, a TMB substrate solution is added to the wells and color develops in proportion to the amount of Human LAMP1 bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.

2. Protocol Summary

Prepare all reagents, samples, and standards as instructed.

Add 100 µL standard or sample to each well.
Incubate 2.5 hours at room temperature.

Add 100 µL prepared biotin antibody to each well.
Incubate 1 hour at room temperature.

Add 100 µL prepared Streptavidin solution.
Incubate 45 minutes at room temperature.

Add 100 µL TMB Substrate Reagent to each well.
Incubate 30 minutes at room temperature.

Add 50 µL Stop Solution to each well.
Read at 450 nm immediately.

3. Precautions

Please read these instructions carefully prior to beginning the assay.

- All ELISA kit components have been formulated and quality control tested to function successfully as a kit.
- We understand that, occasionally, experimental protocols might need to be modified to meet unique experimental circumstances. However, we cannot guarantee the performance of the product outside the conditions detailed in this protocol booklet.
- Reagents should be treated as possible mutagens and should be handle with care and disposed of properly. Please review the Safety Datasheet (SDS) provided with the product for information on the specific components.
- Observe good laboratory practices. Gloves, lab coat, and protective eyewear should always be worn. Never pipette by mouth. Do not eat, drink or smoke in the laboratory areas.
- All biological materials should be treated as potentially hazardous and handled as such. They should be disposed of in accordance with established safety procedures.

4. Storage and Stability

The entire ELISA kit may be stored at -20°C for up to 1 year from the date of shipment. Avoid repeated freeze-thaw cycles. The kit may be stored at 4°C for up to 6 months. For extended storage, it is recommended to store at -80°C.

Observe the storage conditions for individual prepared components in the Reagent Preparation section 9.

5. Limitations

- ELISA kit intended for research use only. Not for use in diagnostic procedures.
- Do not mix or substitute reagents or materials from other kit lots or vendors. Kits are QC tested as a set of components and performance cannot be guaranteed if utilized separately or substituted.

6. Materials Supplied

Item	Quantity	Storage Condition
350X HRP-Streptavidin Concentrate	200 µL	-20°C
20X Wash Buffer	25 mL	-20°C
5X Assay Diluent B	15 mL	-20°C
Assay Diluent C	30 mL	-20°C
Stop Solution	8 mL	-20°C
TMB Substrate Solution	12 mL	-20°C
Biotinylated Anti-Human LAMP1 Antibody	2 vials	-20°C
Anti-Human LAMP1 Coated Microplate	1 unit	-20°C
Human LAMP1 Standard (Lyophilized)	2 vials	-20°C

7. Materials Required, Not Supplied

These materials are not included in the kit, but will be required to successfully perform this assay:

- Microplate reader capable of measuring absorbance at 450 nm.
- Deionized water.
- Tubes for standard dilution or sample dilutions.
- 100 mL and 1 L graduated cylinders.
- Precision pipettes to deliver 2 µl to 1 ml volumes.
- Adjustable 1-25 ml pipettes for reagent preparation.

8. Technical Hints

- Samples generating values higher than the highest standard should be further diluted in the appropriate sample dilution buffers.
- Avoid foaming or bubbles when mixing or reconstituting components.
- Avoid cross contamination of samples or reagents by changing tips between sample, standard and reagent additions.
- Ensure plates are properly sealed or covered during incubation steps.
- Complete removal of all solutions and buffers during wash steps is necessary to minimize background.
- All samples should be mixed thoroughly and gently.
- Avoid multiple freeze/thaw of samples.
- When generating positive control samples, it is advisable to change pipette tips after each step.
- This kit is sold based on number of tests. A 'test' simply refers to a single assay well. The number of wells that contain sample, control or standard will vary by product. Review the protocol completely to confirm this kit meets your requirements. Please contact our Technical Support staff with any questions.

9. Reagent Preparation

- Equilibrate all reagents to room temperature (18-25°C) prior to use. The kit contains enough reagents for 96 wells.
- Prepare only as much reagent as is needed on the day of the experiment.

9.1 5X Assay Diluent B:

Dilute 5X Assay Diluent 5-fold with deionized or distilled water before use.

9.2 Biotinylated Anti-Human LAMP1 Detection Antibody:

Add 100 µL of 1X Assay Diluent B into the vial to prepare a detection antibody concentrate. Pipette up and down to mix gently (the concentrate can be stored at 4°C for 5 days). The detection antibody concentrate should be diluted 80-fold with 1X Assay Diluent B for use in the assay.

9.3 20X Wash Buffer:

If the Wash Concentrate (20X) contains visible crystals, warm to room temperature and mix gently until dissolved. Dilute 20 mL of Wash Buffer Concentrate into deionized or distilled water to yield 400 mL of 1X Wash Buffer.

9.4 HRP-Streptavidin Concentrate:

Briefly spin the vial of HRP-Streptavidin concentrate before use. HRP-Streptavidin should be diluted 350-fold with 1X Assay Diluent B.

For example: Briefly spin the vial and pipette up and down to mix gently. Add 40 µL of HRP-Streptavidin concentrate into a tube with 14 mL 1X Assay Diluent B to prepare a 350-fold diluted HRP-Streptavidin solution (don't store the diluted solution for next day use). Mix well.

10. Standard Preparation

- Always prepare a fresh set of standards for every use.
- Discard working standard dilutions after use as they do not store well.
- The following section describes the preparation of a standard curve for duplicate measurements (recommended).

10.1 Briefly spin the Standard Vial.
10.2 Add 600 µL of Assay Diluent C into Standard Vial to prepare a 300 ng/mL Standard stock solution. Gently mix the powder to allow it to dissolve thoroughly.
10.3 Pipette 300 µL Assay Diluent C into each tube.
10.4 Use the Standard solution to produce a dilution series. Adding 200 µL from #1 to #2, then from #2 to #3, etc.
10.5 Mix each tube thoroughly before the next transfer.
10.6 Tube #8 contains no protein and is the Blank control.

Tube #	Volume to dilute	Volume of Assay Diluent C	Final Concentration ng/mL
1	300 ng/mL Standard Stock Solution	---	300
2	200 µL of tube #1	300 µL	120
3	200 µL of tube #2	300 µL	48
4	200 µL of tube #3	300 µL	19.2
5	200 µL of tube #4	300 µL	7.660
6	200 µL of tube #5	300 µL	3.072
7	200 µL of tube #6	300 µL	1.229
8	---	300 µL	0

11. Assay Procedure

- Equilibrate all materials and prepared reagents to room temperature prior to use.
- We recommend that you assay all standards, controls and samples in duplicate.
- Prepare all reagents, working standards, and samples as directed in the previous sections.

Δ **Note:** Assay Diluent C should be used for dilution of serum, plasma, and cell culture supernatant samples. The suggested dilution for normal serum/plasma is 2-fold.

11.1 Label removable 8-well strips as appropriate for your experiment.

11.2 Add 100 µL of standard or sample into appropriate wells. Cover the wells and incubate for 2.5 hours at room temperature with gentle shaking.

11.3 Discard the solution and wash 4 times with 1X Wash Solution. Wash by filling each well with Wash Buffer (300 µL) using a multi-channel Pipette or auto-washer. Complete removal of liquid at each step is essential for good performance. After the last wash, remove any remaining Wash Buffer by aspirating or decanting. Invert the plate and blot it against clean paper towels.

11.4 Add 100 µL of 1X prepared biotinylated antibody to each well. Incubate for 1 hour at room temperature with gentle shaking.

11.5 Discard the solution. Repeat the wash as in step 11.3.

11.6 Add 100 µL of prepared Streptavidin solution each well. Incubate for 45 minutes at room temperature with gentle shaking.

11.7 Discard the solution. Repeat the wash as in step 11.3.

11.8 Add 100 µL of TMB Substrate Reagent to each well. Incubate for 30 minutes at room temperature in the dark with gentle shaking.

11.9 Add 50 µL of Stop Solution to each well. Read at 450 nm immediately.

12. Calculations

12.1 Calculate the mean absorbance for each set of duplicate standards, controls and samples.
12.2 Subtract the average zero standard optical density.
12.3 Plot the standard curve on log-log, with standard concentration on the x-axis and absorbance on the y-axis.
12.4 Draw the best-fit straight line through the standard points.

13. Typical Data

Typical standard curve – data provided **for demonstration purposes only.** A new standard curve must be generated for each assay performed.

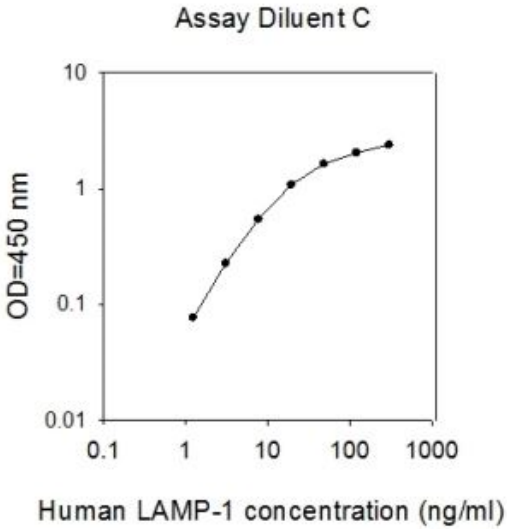

Figure 1. Human LAMP1 ELISA kit (ab277464) Standard curve.

Sensitivity:

The minimum detectable dose of Human LAMP1 was determined to be 1.0 ng/mL.

Minimum detectable dose is defined as the analyte concentration resulting in an absorbance that is 2 standard deviations higher than that of the blank (diluent buffer).

Reproducibility:

Intra-Assay CV%: <10%

Inter-Assay CV%: <12%

Spiking and Recovery:

Recovery was determined by spiking various levels of Human LAMP1 into the sample types listed below. Mean recoveries are as follows:

Sample Type	Average % recovery	Range %
Serum	89.24	69-114
Plasma	92.01	76-102
Cell culture media	116.9	100-143

Linearity:

Sample Type		Serum	Plasma	Cell culture media
1:2	Average % of expected	96.48	98.98	109.1
	Range %	94-99	88-106	100-118
1:4	Average % of expected	136.9	122.0	114.3
	Range %	133-141	102-132	142-146

Specificity:

This ELISA antibody pair detects human LAMP1. Other species not determined.

14. Troubleshooting

Problem	Reason	Solution
Poor standard curve	Inaccurate Pipetting	Check pipettes
	Improper standard dilution	Prior to opening, briefly spin the stock standard tube and dissolve the powder thoroughly by gentle mixing
Low Signal	Improper preparation of standard and/or biotinylated antibody	Briefly spin down vials before opening. Dissolve the powder thoroughly.
	Too brief incubation times	Ensure sufficient incubation time. Sample and standard addition may be done overnight at 4°C with gentle shaking (note: may increase overall signals including background).
	Inadequate reagent volumes or improper dilution	Check pipettes and ensure correct preparation
Large CV	Inaccurate pipetting	Check pipettes
	Air bubbles in wells	Remove bubbles in wells
High background	Plate is insufficiently washed	Review the manual for proper wash. If using a plate washer, ensure that all ports are unobstructed.
	Contaminated wash buffer	Make fresh wash buffer
Low sensitivity	Improper storage of the ELISA kit	Store your standard at <-70°C after reconstitution, others at 4°C. Keep substrate solution protected from light.
	Stop solution	Add stop solution to each well before reading plate

15. Notes

Technical Support

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