

## HUMAN LIPOCALIN-1 ELISA KIT

FOR THE QUANTITATIVE DETERMINATION OF HUMAN LIPOCALIN-1 CONCENTRATIONS IN SERUM AND PLASMA.



FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

### PURCHASE INFORMATION:

ELISA NAME	HUMAN LIPOCALIN-1 ELISA
Catalog No.	SK00487-01
Formulation	96 T
Standard Range	31-2000 pg/ml
Sensitivity	10 pg/mL
Sample Volume	100 µl per well
Sample Type	Serum, plasma
Specificity	Human lipocalin-1
Sample Dilution	
Intra-assay Precision	6-8%
Inter-assay Precision	8-12%
Storage	2 °C-8 °C

### ORDER CONTACT:

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## INTRODUCTION

This Human lipocalin-1 ELISA Kit contains the necessary components required for the quantitative measurement of natural and recombinant human lipocalin-1 from serum and plasma in a sandwich ELISA format.

This immunoassay contains recombinant human lipocalin-1 and antibody raised against this protein. Results from this immunoassay have shown to accurately quantify natural and recombinant human lipocalin-1 samples.

## PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. An antibody specific for human CD147 has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any human CD147 present is bound by the immobilized antibody. After washing away any unbound substances, antibody HRP conjugate specific for human CD147 is added to the wells. Following a wash to remove any unbound enzyme reagent, a substrate solution is added to the wells and color develops in proportion to the amount of human CD147 bound in the initial step. The color development is stopped and the intensity of the color is measured.

## LIMITATIONS OF THE PROCEDURE

\_ FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

\_ The kit should not be used beyond the expiration date on the kit label.

\_ Do not mix or substitute reagents with those from other lots or sources.

\_ It is important that the Dilution Buffer selected for the standard curve be consistent with the samples being assayed.

\_ If samples generate values higher than the highest standard, dilute the samples with the appropriate Dilution Buffer and repeat the assay.

\_ Any variation in standard diluent, operator, pipetting technique, washing technique, incubation time or temperature, and kit age can cause variation in binding.

\_ This assay is designed to eliminate interference by soluble receptors, binding proteins, and other factors present in biological samples. Until all factors have been tested in the Immunoassay, the possibility of interference cannot be excluded.

## MATERIALS PROVIDED

DESCRIPTION	CODE	QUANTITY
<b>Lipocalin-1 Microplate</b> - 96 well polystyrene microplate (12 strips of 8 wells) coated with antibody against human lipocalin-1	487-01-01	1 plate
<b>Lipocalin-1 Standard</b> – 2000 pg/vial of recombinant human lipocalin-1 in a buffered protein base with preservatives; lyophilized.	487-01-02	1 vial
<b>Detection Antibody HRP Conjugate</b> – 110 µL / vial, 100-fold concentrated of Antibody HRP conjugate against human lipocalin-1 with preservatives;	487-01-03	1 vial
<b>Positive Control</b> - one of human lipocalin-1, lyophilized	487-01-04	1 vial
<b>Dilution Buffer</b> - 60 mL/vial of buffered protein based solution with preservatives	DB10	1 vial
<b>HRP Diluent Solution</b> - 12 mL/vial of buffered protein based solution with preservatives	DB06	1 vial
<b>Wash Buffer</b> -50 ml/vial, 10-fold concentrated buffered surfactant, with preservative.	WB01	1 vial
<b>Substrate Solution</b> -11 ml / vial of TMB substrate solution	TMB01	1 vial
<b>Stop Solution</b> -11 ml /vial of 0.5M HCl	S-STOP	1 vial
<b>Plate Sealer.</b>	EAPS	1

## STORAGE

**Unopened Kit:** Store at 2 - 8° C. Do not use past kit expiration date.

**Opened / Reconstituted Reagents: Reconstituted Detection Antibody and Standard Stock** may be stored for up to 1 month at -70°C. Streptavidin HRP conjugate 100 fold concentrated should be stored at 2 - 8° C .

**Microplate Wells:** Return unused wells to the plastic zip bag containing the desiccant pack, reseal along

entire edge of zip-seal. May be stored for up to 1 month at 2 - 8° C.

**ADDITIONAL MATERIALS REQUIRED**

- Microplate reader capable of absorbance measurement at 450 nm.
- Microplate shaker (250 – 300 rpm).
- Microplate washer or manifold dispenser.
- 100 mL and 500 mL graduated cylinders.
- Multi-channel Pipette, Pipettes and pipette tips.
- Deionized or distilled water.

**PRECAUTION**

This kit should be handled by those persons who have been trained in and can follow the principles of good laboratory practice. Wear protective clothing such as laboratory overalls, safety glasses and gloves. Care should be taken while handling solutions in this kit to avoid contact with skin or eyes, especially with the stop solution because it contains diluted hydrochloric acid. Wash immediately with water in case of contact on skin or eyes.

**SAMPLE COLLECTION AND STORAGE**

**Serum** – Use a serum separator tube (SST). Allow blood to clot for 30 minutes. Centrifuge at 1000 x g for 15 minutes and collect serum. Assay samples immediately or aliquot and store at ≤ -20° C. Avoid repeated freeze-thaw cycles.

**Plasma** – Collect plasma using EDTA, heparin, or citrate as an anticoagulant. Centrifuge at 1000 x g for 15 minutes and collect plasma. Assay samples immediately or aliquot and store at ≤ -20° C. Avoid repeated freeze-thaw cycles.

**Optional: Use Aprotinin (enzyme inhibitor) for ALL sample collection to prevent sample degradation. 0.5 TIU per mL of sample solution.**

**REAGENT PREPARATION**

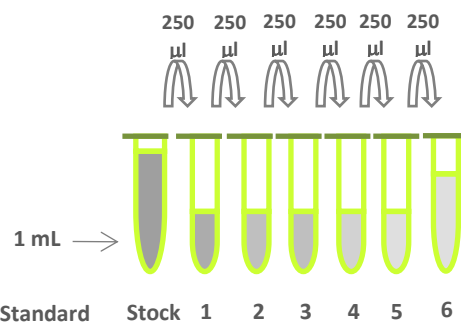
**Bring all reagents to room temperature before use.**

**Wash Buffer** – If crystals have formed in the concentrate, warm bottle in a water bath until the crystals have completely dissolved. Dilute 50 mL of Wash Buffer Concentrate into 450 mL distilled or deionized water to make 500 mL of 1x Wash Buffer.

**Human lipocalin-1 Standard** – Reconstitute the standard with 1.0 mL of Dilution Buffer. The concentration of the reconstituted stock solution is

2000 pg/mL. Allow the stock standard to sit for at least 15 minutes with gentle agitation until completely dissolved prior to making standard dilutions (see below). Mix each tube thoroughly before the next transfer.

STANDARD	STANDARD	DILUTION BUFFER	CONCENTRATION
Stock	Powder	1000 µl	2000 pg/ml
# 1	250 µl of stock	250 µl	1000 pg/ml
# 2	250 µl of 1	250 µl	500 pg/ml
# 3	250 µl of 2	250 µl	250 pg/ml
# 4	250 µl of 3	250 µl	125 pg/ml
# 5	250 µl of 4	250 µl	62.5 pg/ml
# 6	250 µl of 5	250 µl	31.25 pg/ml



Concentration 2000 1000 500 250 125 62.5 31.25 pg/ml

**Positive Control** - Reconstitute the Positive Control with 1 mL Dilution Buffer. **Note:** Positive Control could be used within a few days if stored at -20° C or -70° C.

**Detection Antibody-HRP Conjugate** - Pipette 10.89 mL of **Detection Antibody-HRP Diluent Solution (DB10)** into a 15 mL centrifuge tube and transfer 110 µL of 100-fold concentrated stock solution to prepare working solution. **Note:** 1x working solution of Detection Antibody-HRP should be used within a few days (**protect from light**). **DO NOT FREEZE.**

**ELISA PROTOCOL**

**Bring all reagents and samples to room temperature before the start of the assay. Blank, standard dilutions, positive control and samples**

should be assayed in duplicate. ELISA Protocol may need further optimization.

1. Prepare all reagents, standard dilutions, positive control and samples as directed previously.
2. Remove unneeded microplate strips from the plate frame and return them to the plastic pouch with the desiccant pack.
3. Add 100 µL per well of **Dilution Buffer** to Blank wells (A2, A3).
4. Add 100 µL per well of **Standard Dilutions** in reverse order of serial dilution from #6-S (B2, B3 to H2, H3), **sample**, or **positive control** (H4, H5). Cover with plate sealer and incubate for 2 hours on microplate shaker at room temperature.
5. Aspirate and wash each well with 300 µL of **1x Wash Buffer** four times. After the last wash, aspirate any remaining 1x Wash Buffer, invert the plate and blot against clean paper towel(s).
6. Add 100 µL per well of **Detection Antibody-HRP Conjugate working solution**. Cover with plate sealer and incubate for 1 hour on microplate shaker at room temperature. **Protect from light.**
7. Repeat the aspiration and wash as in step 5.
8. Add 100 µL per well of **Substrate Solution**. Incubate for 10-15 minutes on microplate shaker at room temperature. **Protect from light.**
9. Add 100 µL per well of **Stop Solution**. The color in the wells should change from blue to yellow. If the color change does not appear uniform, gently tap the plate to ensure thorough mixing.
10. Read plate using a microplate reader set to 450 nm within 15 minutes.

**CALCULATION OF RESULTS**

Create a standard curve by plotting the log of the known concentrations of the standard dilutions (x-axis) versus the log of its corresponding O.D. (y-axis) and draw the best fit line through the points. It is recommended to use computer software capable of generating a log-log curve fit to more accurately quantify the standard dilutions.

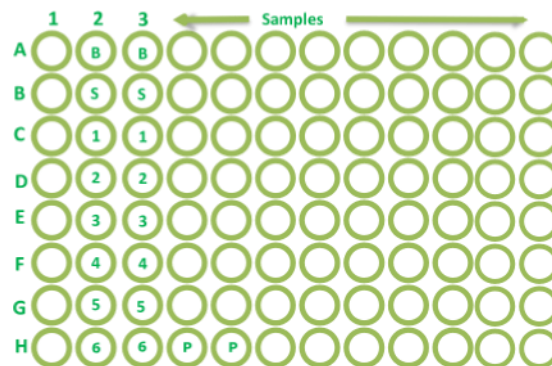
If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor.

**CALIBRATION**

This immunoassay is calibrated against a highly purified recombinant human lipocalin-1.

**SENSITIVITY**

Twenty-five assays were evaluated and the minimum detectable dose (MDD) of human lipocalin-1 was 10 pg/mL.



**TYPICAL DATA**

These standard curves\* are provided for demonstration only. A standard curve should be generated for each set of samples assayed.

STANDARD (PG/ML)	CORRECTED (450NM)
Blank	0 (0.089)
31.25	0.046
62.5	0.104
125	0.189
250	0.347
500	0.661
1000	1.137
2000	1.964

**SPECIFICITY**

PROTEINS	CROSS-REACTIVITY(%)
Human Lipocalin-1	100
Human Lipocalin-2	0

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**SUMMARY OF ASSAY PROCEDURE**

<b>PREPARE REAGENTS, SAMPLES AND STANDARD DILUTIONS</b>
↓
Add 100 $\mu$ L of standard dilutions, samples and positive control. Cover with plate sealer and incubate 2 hours on microplate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 $\mu$ L per well of Detection Antibody-HRP conjugate working solution. Cover with plate sealer and incubate 1 hour on microplate shaker at RT. <b>Protect from light.</b>
↓
Aspirate and wash 4 times.
↓
Add 100 $\mu$ L per well of Substrate Solution. Incubate 10-15 min on microplate shaker at RT. <b>Protect from light.</b>
↓
Add 100 $\mu$ L per well of Stop Solution. Read at 450 nm within 15 minutes.