HUMAN SOLUBLE IL1R1 ELISA KIT

FOR THE QUANTITATIVE DETERMINATION OF HUMAN SOLUBLE IL1R1 CONCENTRATIONS IN SERUM, EDTA PLASMA

ALWAYS REFER TO LOT SPECIFIC PROTCOL PROVIDED WITH EACH KIT FOR INSTRUCTIONS. PROTOCOL MUST BE READ BEFORE USING THIS PRODUCT.

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

PRODUCT INFORMATION:
THIS KIT IS FOR ONE TIME USE ONLY.

ELISA NAME	HUMAN SOLUBLE IL1R1 ELISA KIT
Catalog No.	SK000118-06
Formulation	96 T
Lot No.	
Standard range	62.5 -8000 pg/mL
Sensitivity	20 pg/mL
Sample Volume	100 µL
Dilution Factor	10 (Optimal dilutions should be determined by each laboratory for each application)
Sample Type	Serum, EDTA Plasma
Specificity	Human Soluble IL1R1
Calibration	Human Soluble IL1R1 ECD HEK293 derived
Intra-assay Precision	4 - 6%
Inter-assay Precision	8 - 10%
Storage	2 – 8° C for 1 month. See page 2-3 for detail
This kit contains sufficient materials to run approximately 40 samples duplicated provided that assay is run according to protocol.	

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DESCRIPTION

This Human Soluble IL1R1 ELISA Kit contains the necessary components required for the quantitative measurement of recombinant human soluble (extracellular domain) IL1R1 derived from HEK293 cells and/or natural human IL1R1 from serum and EDTA plasma in a sandwich ELISA format.

This immunoassay contains recombinant human IL1R1 derived from HEK293 cells and antigen affinity purified antibodies raised against this protein. Results from this immunoassay have shown to accurately quantify recombinant and natural IL1R1 in samples.

ASSAY OVERVIEW

This assay employs the quantitative sandwich ELISA format. The plate is pre-coated with an antibody specific for human IL1R1. The capture antibody can bind to the human IL1R1 in the standard and samples. After washing the plate of any unbound substances, the biotinylated antibody against human IL1R1 is added to the wells. After another washing of the plate, Streptavidin-HRP Conjugate is added. After the last wash to remove any unbound enzyme, a substrate solution (TMB) is added to the wells and color develops in direct proportion to the amount of human IL1R1 bound in the standard solutions or samples. A standard curve can be established and sample values can be read off the standard curve.

PROCEDURAL LIMITATIONS

_FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
_This ELISA kit should not be used beyond the expiration date on the kit label.
_Do not mix 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.
_Each laboratory must determine the optimal dilution factors for the samples being assayed.
_Any modifications in buffers, pipetting technique, washing technique, incubation time or temperature, as well as kit age can cause a change in signal.
_Not all interfering factors have been tested in the immunoassay, therefore the possibility of interference cannot be excluded.

COMPONENTS PROVIDED

DESCRIPTION	CODE	QUANTITY
IL1R1 Microplate – 96 well microplate coated with antibody specific for human IL1R1.	**118-06-01**	**1 plate**
IL1R3 Standard – 8000 pg per vial of lyophilized recombinant human IL1R1 (HEK293).	**118-06-02**	**1 vial**
Detection Antibody Concentrate – 1.05 mL of 10-fold concentrate of lyophilized biotinylated antibody against human IL1R1.	**118-06-03**	**1 vial**
Positive Control– one vial of lyophilized recombinant human IL1R1.	**118-06-04**	**1 vial**
Streptavidin-HRP Conjugate – 120 µL/vial of 100-fold concentrated solution of Streptavidin-HRP conjugate.	**SAHRP**	**1 vial**
Dilution Buffer – 45 mL of buffered solution with preservative.	**DB08C**	**1 bottle**
Wash Buffer – 50 mL of 10-fold concentrated buffered surfactant with preservative.	**WB01**	**1 bottle**
TMB Substrate Solution – 11 mL of TMB substrate solution.	**TMB01**	**1 bottle**
Stop Solution – 11 mL of 0.5M HCl.	**S-STOP**	**1 bottle**
Plate Sealer	**EAPS**	**1 piece**
Plastic Pouch	**P01**	**1 piece**

STORAGE

Unopened Kit: Store at 2 – 8° C for up to 1month. For longer storage for up to 10 months, unopened Standard, Positive Control, Detection Antibody Concentrate, Dilution Buffer should be stored at -20° C. Streptavidin-HRP Conjugate and TMB Substrate Solution should be stored only at 2 ~ 8˚C. Do not use kit past expiration date.

ADDITIONAL MATERIALS REQUIRED

- Microplate reader capable of absorbance measurement at 450 nm.
- Microplate shaker (350 – 400 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

Plasma - Collect plasma using EDTA as an anticoagulant. Centrifuge for 15 minutes at 1000 x g within 30 minutes of collection. Assay immediately or aliquot and store samples at ≤ -20° C. Avoid repeated freeze-thaw cycles.

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.

Optional: Use Aprotinin (enzyme inhibitor) (Aviscera Bioscience's Catalog No: 00700-01-25) for ALL sample collection to prevent sample degradation. 0.5 TIU per mL of sample solution.

SAMPLE PREPARATION

EDTA Plasma or Serum samples may require at least a 10-fold dilution. A suggested 10-fold dilution is 25 µl sample + 225 µl Dilution Buffer.
Optimal dilutions should be determined by each laboratory for each application with a sample pretest.
Use polypropylene test tubes.

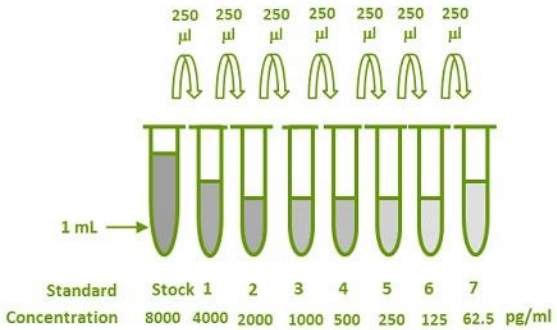
REAGENT PREPARATION

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.

IL1R1 **Standard** – Reconstitute the IL1R1standard with 1 mL of **Dilution Buffer (DB08C)**. 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. Create a standard curve using a 2-fold serial dilution in Dilution Buffer with a high standard of **8000 pg/mL** is recommended.

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
Stock	powder	1mL	**8000 pg/mL**
# 1	250 µL of stock	250 µL	**4000 pg/mL**
# 2	250 µL of 1	250 µL	**2000 pg/mL**
# 3	250 µL of 2	250 µL	**1000 pg/mL**
# 4	250 µL of 3	250 µL	**500 pg/mL**
# 5	250 µL of 4	250 µL	**250 pg/mL**
# 6	250 µL of 5	250 µL	**125 pg/mL**
# 7	250 µL of 6	250 µL	**62.5 pg/mL**



Positive Control - Reconstitute the Positive Control with 1 ml of **Dilution Buffer (DB08C)** to prepare working solution.

Detection Antibody - Reconstitute the Detection Antibody Concentrate with 1.05 mL of **Dilution Buffer (DB08C)** to produce a 10-fold concentrated stock solution. Allow the concentrated solution to sit for at least 5 minutes until completely dissolved. Pipette 9.45 mL of **Dilution Buffer (DB08C)**into a 15

mL centrifuge tube and transfer 1.05 mL of 10-fold concentrated stock solution to prepare working solution.

Streptavidin HRP Conjugate - Pipette 9.395 mL of **Dilution Buffer (DB08C)** into a 15 mL centrifuge tube and transfer 105 µL of 100-fold concentrated stock solution to prepare working solution **(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. Add 100 µL per well of **Dilution Buffer (DB08C)** to Blank wells (BL).
3. Add 100 µL per well of **Standard dilutions 7 to S and samples,** or **positive control (P)**. See page 5 for more information. Cover with plate sealer and incubate for 2 hours on microplate shaker at room temperature.
4. 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).
5. Add 100 µL per well of **Detection Antibody working solution**. Cover with plate sealer and incubate for 2 hours on microplate shaker at room temperature.
6. Repeat the aspiration and wash as in step 4.
7. Add 100 µL per well of **Streptavidin HRP Conjugate working solution**. Cover with plate sealer and incubate for 60 minutes on microplate shaker at room temperature. **Protect from light.**
8. Repeat the aspiration and wash as in step 4.
9. Add 100 µL per well of **Substrate Solution**. Incubate for refer to lot on microplate shaker at room temperature. **Protect from light.**
10. 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.
11. Read plate using a microplate reader set to 450 nm within 3 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 or 4-parameter 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.**

SPECIFICITY

Protein	Cross-reactivity (%)
Human Soluble IL1R1	100
Human Soluble IL1R4 /ST2	0
Human Soluble IL1R3	0
Human IL1R2	0
Human IL-33	0

TYPICAL STANDARD CURVE

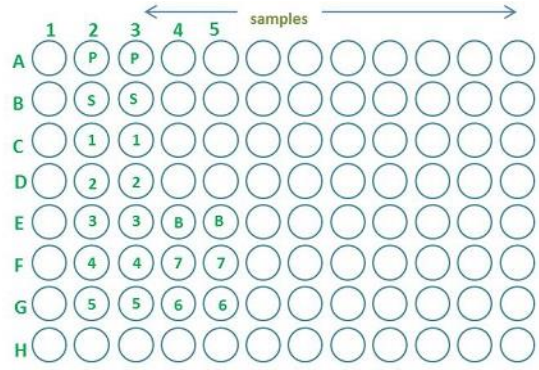
This standard curve is for demonstration only. A new standard curve should be made for each set of samples assayed.

STANDARD (PG/ML)	AVERAGE OD450 (CORRECTED)
Blank	0 (refer to lot)
62.5	0.061
125	0.111
250	0.210
500	0.372
1000	0.571
2000	1.113
4000	1.589
8000	2.238

SUMMARY OF ASSAY PROCEDURE

PREPARE REAGENTS, SAMPLES AND STANDARD DILUTIONS
↓
Add 100 µL of standard dilutions, samples or positive control. Cover with plate sealer and incubate 2 hours on microplate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µL per well of Detection Antibody working solution. Cover with plate sealer and incubate 2 hours on microplate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µL per well of Streptavidin HRP Conjugate working solution. Cover with plate sealer and incubate 60 minutes on microplate shaker at RT. **Protect from light.**
↓
Aspirate and wash 4 times.
↓
Add 100 µL per well of Substrate Solution. Incubate refer to lot on microplate shaker at RT. **Protect from light.**
↓
Add 100 µL per well of Stop Solution. Read at 450 nm within 3 min.

Well Position



Research Samples Test

The research samples were diluted by Dilution Buffer DB08C. The linearity and recovery was assayed by Human Soluble IL1R1 ELISA Kit SK00118-06

Sample Type	Dilution Factor	Assayed (pg/mL)	Final (pg/mL)	Recovery (%)
Human EDTA Plasma	1 X	3380.938	3380.938	100
Human EDTA Plasma	10 X	322.611	3226.110	95.4
Human Serum	1 X	1745.110	1745.110	100
Human Serum	10 X	191.012	1910.120	109.5