

## HUMAN SOLUBLE IL-1 RECEPTOR ANTAGONIST (sIL-1RN) ELISA KIT

For the quantitative determination of human sIL-1RN concentrations in cell culture supernates, serum, and plasma.



### PURCHASE INFORMATION:

ELISA Name	Human sIL-1RN ELISA
Catalog No.	SK00133-01
Formulation	96 T
Standard Range	0.78-100 ng/mL
Sensitivity	0.39 ng/mL
Sample Volume	100 µl
Sample Type	Serum, EDTA Plasma, cell culture
Specificity	Human sIL-1RN only
Intra-assay Precision	4-6%
Inter-assay Precision	8-12%
Storage	2 °C-8 °C

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

**INTRODUCTION**

Human sIL-1RN immunoassay is a 3.5 - 4.5 hour solid phase ELISA designed to measure human sIL-1RN in cell culture supernates, serum, and plasma. It contains recombinant human sIL-1RN and antibodies raised against this protein. It has been shown to accurately quantitate recombinant human sIL-1RN. Results obtained with naturally occurring sIL-1RN samples showed linear curves that were parallel to the standard curves obtained using the kit standards. These results indicate that the Immunoassay kit can be used to determine relative mass values for natural human sIL-1RN.

**PRINCIPLE OF THE ASSAY**

This assay employs the quantitative sandwich enzyme immunoassay technique. A monoclonal antibody specific for sIL-1RN has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any sIL-1RN present is bound by the immobilized antibody. After washing away any unbound substances, a polyclonal antibody specific for sIL-1RN is added to the wells. Following a wash to remove any unbound antibody reagent, A Anti Rabbit IgG HRP conjugated is add to the wells. After washing away any unbound enzyme, a substrate solution is added to the wells and color develops in proportion to the amount of sIL-1RN bound in the initial step. The color development is stopped and the intensity of the color is measured.

**LIMITATIONS OF THE PROCEDURE**

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\_ 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 Calibrator Diluent 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 Calibrator Diluent 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>Microplate</b> - 96 well polystyrene microplate (12 strips of 8 wells) coated with a mouse monoclonal antibody against sIL-1RN.	133-01-01	1 plate
<b>sIL-1RN Standard</b> – 100 ng/vial of recombinant human sIL-1RN in a buffered protein base with preservatives; lyophilized.	133-01-02	1 vial
<b>Detection Antibody Concentrate</b> – 120 µL / vial, 100-fold concentrated of polyclonal antibody against sIL-1RN with preservatives; lyophilized.	133-01-03	1 vial
<b>Positive Control</b> - one of recombinant human sIL-1RN, lyophilized	133-01-04	1 vial
<b>Anti Rabbit IgG HRP Conjugate</b> -120 ul/vial, 100-fold concentrated solution of Goat anti Rabbit IgG (H+L) HRP conjugated	ARIGHRP	1 vial
<b>Dilution Buffer</b> - 60mL/vial of buffered protein based solution with preservatives	DB01	1 vial
<b>Wash Buffer</b> -50 ml/vial, 10-fold concentrated buffered surfactant, with preservative.	WB01	1 vial
<b>TMB Substrate Solution</b> -13 ml / vial of TMB substrate solution	TMB01	1 vial
<b>Stop Solution</b> (0.5MHCl) , 13 ml /vial of 0.5 MHCl	S-STOP	1 vial
<b>Plate Covers</b> – Plate sealer.	EAPS	1

**STORAGE**

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

**Opened / Reconstituted Reagents:** May be stored for up to 1 month at 2 - 8°C.

**Standard** should be stored for up to 1 month at -70° C.

**Microplate Wells:** Return unused wells to the foil pouch containing the desiccant pack, reseal along entire edge of zip-seal. May be stored for up to 1 month at 2 - 8° C.

**OTHER SUPPLIES REQUIRED**

- Microplate reader capable of measuring absorbance at 450 nm, with the correction wavelength set at 540 nm or 570 nm.
- Microplate shaker (250-300rpm).
- Pipettes and pipette tips.
- Deionized or distilled water.
- Squirt bottle, manifold dispenser, or automated microplate washer.
- 100 mL and 500 mL graduated cylinders.

**SAMPLE COLLECTION AND STORAGE**

**Cell Culture Supernates** - Remove particulates by centrifugation and assay immediately or aliquot and store samples at ≤-20° C. Avoid repeated freeze-thaw cycles.

**Serum** - Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 x g. Remove serum and assay immediately or aliquot and store samples at ≤ -20° C. Avoid repeated freeze-thaw cycles.

**Plasma** - Collect plasma using EDTA, heparin, or citrate 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.

**REAGENT PREPARATION**

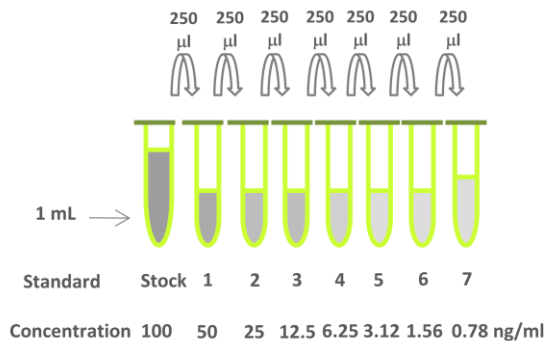
**Bring all reagents to room temperature before use.**

**Wash Buffer** - If crystals have formed in the concentrate, warm to room temperature and mix gently until the crystals have completely dissolved. Dilute 50 mL of Wash Buffer Concentrate into deionized or distilled water (450 mL) to prepare 500 mL of Wash Buffer.

**sIL-1RN Standard** - Refer to vial label for reconstitution volume. Reconstitute the sIL-1RN Standard with 1 ml of Dilution Buffer. This reconstitution produces a stock solution of 100

ng/mL. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 250µL of the appropriate Dilution Buffer into the tube #1 to #6. Use the stock solution to produce a dilution series (below). Mix each tube thoroughly before the next transfer. The 100 ng/mL standard serves as the high standard. The appropriate Dilution Buffer serves as the zero standard (0 ng/mL).

Standard	Standard	Reagent Diluent	Concentration
Stock	Powder	1000 µl	100 ng/ml
# 1	250 µl of stock	250 µl	50 ng/ml
# 2	250 µl of 1	250 µl	25 ng/ml
# 3	250 µl of 2	250 µl	12.5 ng/ml
# 4	250 µl of 3	250 µl	6.25 ng/ml
# 5	250 µl of 4	250 µl	3.12 ng/ml
# 6	250 µl of 5	250 µl	1.56 ng/ml
# 7	250 µl of 6	250 µl	0.78 ng/ml



**Detection Antibody-** Reconstitute the **Detection Antibody concentrated** with 120 µl of Dilution Buffer to produce a 100-fold concentrated stock solution. Pipette 11. 88 mL of the appropriate Dilution Buffer into the 15 ml centrifuge tube and transfer 120 µl of 100-fold concentrated stock solution to prepare working solution.

**Anti Rabbit IgG-HRP Conjugate** - Pipette 11. 88 mL of Dilution Buffer into the 15 ml centrifuge tube and transfer 120 µl of 100-fold concentrated stock solution to prepare working solution.

**ASSAY PROCEDURE**

Bring all reagents and samples to room temperature before use. It is recommended that standards be assayed in duplicate.

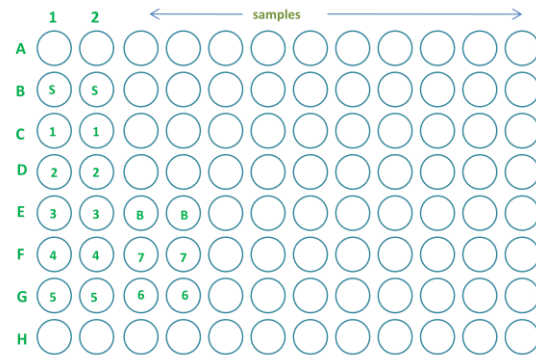
1. Prepare all reagents and working standards as directed in the previous sections.
2. Remove excess micro-plate strips from the plate frame, return them to the foil pouch containing the desiccant pack, reseal.
3. Add 100 µL of Dilution Buffer to Blank well (E3, E4).
4. Add 100 µL of Standard (from B1 to G2, from G3 to F4), sample, or control per well. Cover with the Sealer. Incubate for 2 hours on micro-plate shaker at room temperature. A plate layout is provided to record standards and samples assayed.
5. Aspirate each well and wash, repeating the process three times for a total of four washes. Wash by filling each well with Wash Buffer (250 µL) using a squirt bottle, manifold dispenser, or autowasher. Complete removal of liquid at each step is essential to 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.
6. Add 100 µL of Detection Antibody working solution to each well. Cover with sealer. Incubate for 2 hours on micro-plate shaker at room temperature.
7. Repeat the aspiration/wash as in step 5.
8. Add 100 µL of **Anti Rabbit IgG-HRP Conjugate** working solution to each well. Incubate for 1 hour on micro-plate shaker at room temperature.
9. Repeat the aspiration/wash as in step 5.
10. Add 100 µL of Substrate Solution to each well. Incubate for 10-20 minutes at room temperature. **Protect from light.**
11. Add 100 µL of Stop Solution to each well. The color in the wells should change from blue to yellow. If the color in the wells is green or if the color change does not appear uniform, gently tap the plate to ensure thorough mixing.
12. Determine the optical density of each well within 15 minutes, using a micro-plate reader set to 450 nm.

### CALCULATION OF RESULTS

Average the duplicate readings for each standard, control, and sample and subtract the average zero standard optical density. Create a standard curve by reducing the data using computer software capable of generating a four parameter logistic (4-PL) curve fit. As an alternative, construct a standard curve by plotting the mean absorbance for each standard on the y-axis against the concentration on the x-axis and draw a best fit curve through the points on the graph. The data may be linearized by plotting the log

of the sIL-1RN concentrations versus the log of the O.D. and the best fit line can be determined by regression analysis. This procedure will produce an adequate but less precise fit of the data.

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



### TYPICAL DATA

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

### CALIBRATION

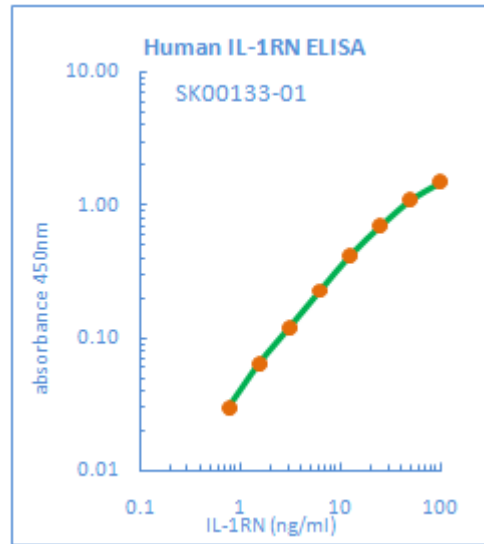
This immunoassay is calibrated against a highly purified E. Coli-expressed recombinant human sIL-1RN.

### SENSITIVITY

Twenty-five assays were evaluated and the minimum detectable dose (MDD) of sIL-1RN was 390 pg/mL.

**SUMMARY OF ASSAY PROCEDURE**

Prepare reagents, samples and standards
↓
Add 100µl of standard, samples, positive control to each well. Incubate 2 hours on the plate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µl Detection Antibody to each well. Incubate 2 hours on the plate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µl Streptatvin HRP conjugate to each well. Incubate 1 hour on the plate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µl Substrate to each well. Incubate 10-20min on the bench top. Protect from light.
↓
Add 100 µl Stop Solution to each well. Read 450nm within 15 min



**SPECIFICITY**

This assay recognizes both natural and recombinant human sIL-1RN. The factors listed below were prepared at 1000 ng/mL in Dilution Buffer, and assayed for cross reactivity. Preparations of the following factors at 1000 ng/mL in a mid-range rh sIL-1RN control were assayed for interference. No significant cross-reactivity or interference was observed.

Human Recombinant Proteins:  
 IL-1alpha, IL-1beta; sIL-1R I