

# HUMAN SOLUBLE TRAIL ELISA KIT

FOR THE QUANTITATIVE DETERMINATION OF HUMAN SOLUBLE TRAIL CONCENTRATIONS IN CELL CULTURE SUPERNATES, SERUM, AND PLASMA



ALWAYS REFER TO LOT SPECIFIC PROTOCOL PROVIDED WITH EACH KIT FOR INSTRUCTIONS. PROTOCOL MUST BE READ AND CHECK ALL ITEMS OF EACH KIT BEFORE USING THIS PRODUCT.

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

**PURCHASE INFORMATION:**  
**THIS KIT IS FOR ONE TIME USE ONLY.**

ELISA NAME	HUMAN SOLUBLE TRAIL ELISA KIT
Catalog No.	SK00252-01
Lot No.	20114830
Formulation	96 T
Standard range	15.6 - 1000 pg/mL
Sensitivity	5 pg/mL
Sample Volume	100 µL
Dilution Factor	Optimal dilutions should be determined by each laboratory for each application
Sample Type	Serum, EDTA Plasma, Cell Culture Supernates
Specificity	Human Soluble TRAIL
Intra-assay Precision	4 - 6%
Inter-assay Precision	4 - 9%
Storage	2 – 8 °C for 6 months. See page 3 for detail
This kit contains sufficient materials to run approximately 35-40 samples duplicated provided that assay is run according to protocol.	

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## INTRODUCTION

This Soluble TRAIL (Human) ELISA Kit contains the necessary components required for the quantitative measurement of recombinant and/or natural Soluble TRAIL from serum samples as well as cell culture supernates in a sandwich ELISA format.

This immunoassay contains recombinant Soluble TRAIL and antibodies raised against this protein. Results from this immunoassay have shown to accurately quantify recombinant and natural active Soluble TRAIL samples.

## PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. An antibody specific for soluble TRAIL has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any soluble TRAIL present is bound by the immobilized antibody. After washing away any unbound substances, a biotinylated antibody specific for soluble TRAIL is added to the wells. Following a wash to remove any unbound antibody-biotin reagent, HRP link Streptavidin is added 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 soluble TRAIL 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 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 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>sTRAIL Microplate</b> – 96 well polystyrene microplate (12 strips of 8 wells) coated with an antibody against soluble TRAIL.	<b>252-01-01</b>	<b>1 plate</b>
<b>sTRAIL Standard</b> – 1000 pg/vial of recombinant human soluble TRAIL in a buffered protein base with preservative; lyophilized.	<b>252-01-02</b>	<b>1 vial</b>
<b>Detection Antibody Concentrate</b> – 1.2 mL/vial, 10-fold concentrate of biotinylated antibody against soluble TRAIL with preservative; lyophilized.	<b>252-01-03</b>	<b>1 vial</b>
<b>Positive Control</b> – one vial of recombinant soluble TRAIL; lyophilized.	<b>252-01-04</b>	<b>1 vial</b>
<b>Streptavidin-HRP Conjugate</b> – 120 µL/vial, 100-fold concentrated solution of Streptavidin conjugate to HRP with preservative.	<b>SAHRP</b>	<b>1 vial</b>
<b>Dilution Buffer</b> – 45 mL of buffered protein based solution with preservative.	<b>DB06</b>	<b>1 bottle</b>
<b>Antibody Dilution Buffer</b> – 12 mL of buffered protein based solution with preservative.	<b>DB01</b>	<b>1 bottle</b>
<b>Antibody Diluent Solution Concentrate</b> – buffered protein based solution with preservative lyophilized .	<b>DB32</b>	<b>1 tube</b>
<b>HRP Diluent Solution</b> – 12 mL of buffered protein based solution with preservative.	<b>DB08B</b>	<b>1 bottle</b>
<b>Wash Buffer 20X</b> – 25 mL of 20-fold concentrated buffered surfactant, with preservative.	<b>WB01</b>	<b>1 bottle</b>

<b>TMB Substrate Solution</b> – 11 mL of TMB substrate solution.	<b>TMB01</b>	<b>1 bottle</b>
<b>Stop Solution</b> – 11 mL of 0.25M HCl.	<b>S-STOP</b>	<b>1 bottle</b>
<b>Plate Sealer</b>	<b>EAPS</b>	<b>1</b>
<b>Plastic Pouch</b>	<b>P01</b>	<b>1</b>

### STORAGE

**Unopened Kit:** Store at 2 – 8 °C for up to 6 months. For longer storage for up to 10 months, unopened Standard, Positive Control, Detection Antibody Concentrate, Dilution Buffer, Antibody Dilution Buffer, Antibody Diluent Solution Concentrate and HRP Diluent Solution 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.

### OTHER SUPPLIES REQUIRED

- Microplate reader capable of measuring absorbance at 450 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.

### PRECAUTIONS FOR USE

All reagents should be considered as potentially hazardous. The stop solution contains diluted hydrochloric acid. Appropriate care, therefore, should be taken while handling this solution. We therefore recommend that this product is handled only by those persons who have been trained in laboratory techniques and that it is used in accordance with the principles of good laboratory practice. Wear suitable protective clothing such as laboratory overalls, safety glasses and gloves. Care should be taken to avoid contact with skin or eyes. In the case of contact with skin or eyes wash immediately with water.

### 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.

**Optional: Use Aprotinin (enzyme inhibitor) (Aviscera Order Code: 00700-01-25, 25 TIU ) for ALL sample collection to prevent sample degradation. 0.5 TIU per ml of sample solution.**

### SAMPLE PREPARATION

Plasma or serum samples may not require any dilution, but **optimal dilutions should be determined by each laboratory for each application with a pretest.**

Use polypropylene test tubes.

### REAGENT PREPARATION

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

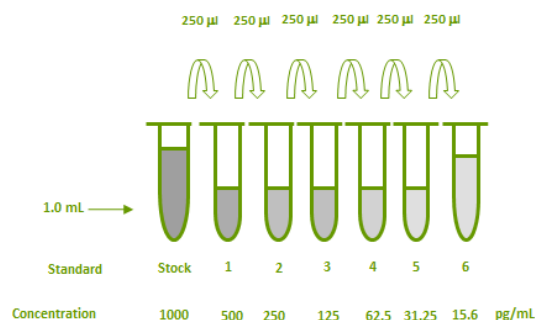
**Wash Buffer** - If crystals have formed in the concentrate, warm to room temperature and mix gently until the crystals have completely dissolved. Dilute 25 mL of Wash Buffer Concentrate 20X into deionized or distilled water (475 mL) to prepare 500 mL of 1x Wash Buffer.

**Dilution Buffer (DB06) - Dilution Buffer (DB06) is highly viscous, warm in 30 - 37° C water bath until liquid flows more freely.**

**Antibody Diluent Solution Concentrate** – Reconstitute the Antibody Diluent Solution Concentrate (DB32) with 12.0 mL of **Antibody Dilution Buffer (DB01)** in provided 13 mL bottle to prepare **Antibody Diluent Solution (DB32)**.

**sTRAIL Standard - Refer to vial label for reconstitution volume.** Reconstitute the sTRAIL standard with 1.0 mL of **Dilution Buffer (DB06)**. This reconstitution produces a stock solution of 1000 pg/mL. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 250 µL of **Dilution Buffer (DB06)** into tubes #1 to #6. Use the stock solution to produce a dilution series (below). Mix each tube thoroughly before the next transfer. The **1000 pg/mL** standard serves as the high standard. The **Dilution Buffer (DB06)** serves as the zero standard (0 pg/mL).

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
stock	powder	1.0 ml	1000 pg/ml
# 1	250µl of stock	250µl	500 pg/ml
# 2	250µl of 1	250µl	250 pg/ml
# 3	250µl of 2	250µl	125 pg/ml
# 4	250µl of 3	250µl	62.5 pg/ml
# 5	250µl of 4	250µl	31.25 pg/ml
# 6	250µl of 5	250µl	15.625 pg/ml



**Detection Antibody** - Reconstitute the Detection Antibody Concentrate with 1.2 mL of **Antibody Diluent Solution (DB32)** to produce a 10-fold concentrated stock solution. Freshly Pipette 9.45 mL of **Antibody Diluent Solution (DB32)** into a 15 mL centrifuge tube and transfer 1.05 mL of 10-fold concentrated stock solution to prepare working solution. **Note: Prepare 1 hour prior to use.**

**Streptavidin-HRP Conjugate** - Freshly Transfer 120 µL of 100-fold concentrated stock solution to 11.94 mL of **HRP Diluent Solution (DB08B)** to prepare working solution (**protect from light**). The 1 x working solution should be used in 10-20 minutes.

**Positive Control** - Reconstitute the positive control with 1.0 mL of **Dilution Buffer (DB06)** to prepare working solution.

### ASSAY PROCEDURE

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

1. Prepare all reagents and working standards as directed in the previous sections.
2. Add 100 µL of Dilution Buffer to Blank wells (F4, F5).
3. Add 100 µL of standard solutions in reverse order of serial dilutions (G4, G5 and G2, G3 to B2, B3), sample, or positive control (E4, E5) per well. Cover with plate sealer. Incubate for 2 hours on microplate shaker at room temperature. A plate layout is provided to record standards and samples assayed.
4. Aspirate each well and wash, repeating the process three times for a total of four washes. Wash by filling each well with 1x Wash Buffer (300 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.
5. Add 100 µL of Detection Antibody working solution to each well. Cover with plate sealer. Incubate for 2 hours on microplate shaker at room temperature.
6. Repeat the aspiration/wash as in step 4.
7. Add 100 µL of Streptavidin-HRP Conjugate working solution to each well. Incubate for 60 minutes on microplate shaker at room temperature. **Protect from light.**
8. Repeat the aspiration/wash as in step 5.
9. Add 100 µL of Substrate Solution to each well. Incubate for 15~20 minutes on microplate shaker at room temperature. **Protect from light.**
10. 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.
11. Determine the optical density of each well within 3 minutes, using a microplate reader set to 450 nm.

### CALCULATION OF RESULTS

Average the duplicate readings for each standard, positive control and samples, and subtract the average zero standard optical density. Create a standard curve by reducing the data using computer software capable of generating a log-log or 4-parameter curve fit.

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

Calculation of samples with a concentration exceeding that of standard 1000 pg/mL may result in inaccurate, low soluble TRAIL levels. Such samples require further external predilution according to expected soluble TRAIL values with Dilution Buffer (DB06) in order to precisely quantify the actual soluble TRAIL level. **Optimal dilutions should be determined by each laboratory for each application.**

**CALIBRATION**

This immunoassay is calibrated against a highly purified recombinant human soluble TRAIL.

**SENSITIVITY**

5 pg/mL

**TYPICAL DATA**

A standard curve should be generated for each set of samples assayed.

SOLUBLE TRAIL (PG/ML)	CORRECTED O.D. (450NM)
Blank	0 (0.087)
15.625	0.061
31.25	0.121
62.5	0.249
125	0.491
250	1.033
500	1.872
1000	2.917

- Lot No.: 20114830
- Positive Control : 50 – 200 pg/mL

**SPECIFICITY**

PROTEINS	CROSS-REACTIVITY (%)
Human sTRAIL	100%
Human OPG	0
Mouse sTRAIL	0

**SUMMARY OF ASSAY PROCEDURE**

