HIGH SENSITIVITY HUMAN TGF-β3 ELISA KIT

FOR THE QUANTITATIVE DETERMINATION OF HUMAN TGF-β3 CONCENTRATIONS IN SERUM AND 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.

PURCHASE INFORMATION:

THIS KIT IS FOR ONE TIME USE ONLY.

ELISA NAME	**HIGH SENSITIVITY HUMAN TGF-β3 ELISA KIT**
Catalog No.	SK00058-02
Lot No.	
Formulation	96 T
Standard range	3.9 - 500 pg/mL
Sensitivity	2 pg/mL
Sample Volume	100 µL
Dilution Factor	**7.8 (Optimal dilutions should be determined by each laboratory for each application)**
Sample Type	Serum, EDTA Plasma
Pretreatment	Require
Specificity	Human TGF-β3 only
Calibration	Human TGF-β3 recombinant
Intra-assay Precision	4 - 6%
Inter-assay Precision	4 - 9%
Storage	8 months. See page 3 for detail.
This kit contains sufficient materials to run 35-40 samples duplicated provided that assay is run according to protocol.	

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DESCRIPTION

This High Sensitivity Human TGF-β3 ELISA Kit contains the necessary components required for the quantitative measurement of recombinant and/or natural human TGF-β3 from serum and plasma in a sandwich ELISA format.

This immunoassay contains recombinant human TGF-β3 and antibodies raised against this protein. Results from this immunoassay have shown to accurately quantify recombinant and natural TGF-β3 samples.

ASSAY OVERVIEW

This assay employs the quantitative sandwich ELISA format. The plate is pre-coated with an antibody specific for human TGF-β3. The capture antibody can bind to the human TGF-β3 in the standard and samples. After washing the plate of any unbound substances, a biotinylated antibody against human TGF-β3 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 is added to the wells and color develops in direct proportion to the amount of human TGF-β3 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.
_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
TGF-β3 Microplate - 96 well polystyrene microplate (12 strips of 8 wells) coated with an antibody against TGF-β3.	**058-02-01**	**1 plate**
TGF-β3 Standard – 1000 pg/vial of recombinant human TGF-β3 in a buffered protein base with preservative; lyophilized.	**058-02-02**	**1 vial**
Detection Antibody Concentrate – 1.05 mL/vial, 10-fold concentrate of biotinylated antibody against TGF-β3 with preservative; lyophilized.	**058-02-03**	**1 vial**
Positive Control - one vial of recombinant human TGF-β3; lyophilized.	**058-02-04**	**1 vial**
Streptavidin HRP Conjugate – 120 µL/vial, 100-fold concentrated solution of Streptavidin conjugate to HRP.	**SAHRP**	**1 vial**
Dilution Buffer – 45 mL of buffered protein based solution with preservative.	**DB10**	**1 bottle**
HRP Diluent Solution – 12 mL of buffered protein based solution with preservative.	**DB08B**	**1 bottle**
Wash Buffer 20X – 25 mL of 20-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 0.25M HCl.	**S-STOP**	**1 bottle**
Plate Sealer	**EAPS**	**1**
Plastic Pouch	**P01**	**1**

STORAGE

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

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.
- **1N HCl (100ml)**
- **1.2N NaOH/0.5 M HEPES (100ml)**

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

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) for ALL sample collection to prevent sample degradation. 0.5 TIU per ml of sample solution.

ACTIVATION PROCEDURE

All samples may require activation of latent TGF-β3 to the immunoreactive form before assay performance. **DO NOT ACTIVATE THE STANDARD.**

- 1N HCl (100ml): to 91.67 mL deionized water slowly add 8.33 ml of 12 N HCl. Mix well.
- 1.2N NaOH/0.5M HEPES (100ml): to 75 ml deionized water, slowly add 12 mL 10N NaOH. Mix well. Add 11.9 g HEPES. Mix well. Bring final volume to 100 mL with deionized water.

1. To 125 µL of sample add 25 µL of 1N HCl. Mix well.
2. Incubate for 10 minutes at room temperature.
3. Add 25 µL of 1.2 N NaOH/0.5M HEPES. Mix well.
4. Add 800 µl of Dilution Buffer. Mix well and assay within 2 hours.

Note: 1) Sample results must be multiplied by the dilution factor, **7.8**. If samples generate values higher than the highest standard, further dilute the samples after activation with Dilution Buffer and repeat the assay. 2) Do not activate the standard as it already contains active TGF-β3.

Use polypropylene 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.

TGF-β3 Standard - Reconstitute the TGF-β3 standard with 1.0 mL of Dilution Buffer. This reconstitution produces a stock solution of 1000 pg/mL. Pipette 250 µL of Dilution Buffer into tubes #1 to #7. Use the stock solution to produce a dilution series (next page). Mix each tube thoroughly before the next transfer. The **500 pg/mL** standard serves as the high standard. The Dilution Buffer serves as the zero standard (0 pg/mL). Store the stock solution at -70 °C for a few days.

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
stock	Powder	1000 µl	1000 pg/ml
# 1	250 µl of stock	250 µl	500 pg/ml
# 2	250 µl of 1	250 µl	250 pg/ml
# 3	250 µl of 2	250 µl	125 pg/ml
# 4	250 µl of 3	250 µl	62.5 pg/ml
# 5	250 µl of 4	250 µl	31.25 pg/ml
# 6	250 µl of 5	250 µl	15.6 pg/ml
# 7	250 µl of 6	250 µl	7.8 pg/ml
# 8	250 µl of 7	250 µl	3.9 pg/ml

Positive Control - Reconstitute the Positive Control with 1.0 mL of Dilution Buffer. Discard the positive control after use. It is for one time use only.

Detection Antibody Concentrate - Reconstitute the Detection Antibody Concentrate with 1.05 mL of Dilution Buffer to produce a 10-fold concentrated stock solution. For 96 wells test, freshly Pipette 9.45 mL of Dilution Buffer into a 15 mL centrifuge tube and transfer 1.05 mL of 10-fold concentrated stock solution to prepare working solution. For partial strip test, freshly prepare 900 µl per strip of working solution. Store the stock solution at -20 °C for a few days.

Streptavidin-HRP Conjugate – For 96 wells test, freshly Pipette 11.88 mL of **HRP Diluent Solution (DB08B)** into a 15 mL centrifuge tube and transfer 120 µL of 100-fold concentrated stock solution to prepare working solution. For partial strip test, freshly prepare 900 µl per strip of 1 x working solution. Always Store the stock solution (100-fold) at 2 ~ 8 °C for 8 months. The 1x working solution should be used in 20 minutes.

Protect from light.

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 and working standards as directed in the previous sections.
2. Add 100 µL of **Dilution Buffer** to Blank wells.
3. Add 100 µL of **Standard dilutions** in reverse order of serial dilution, **samples**, or **positive control** per well. Cover with plate sealer. Incubate for 2 hours on microplate shaker at room temperature.
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 **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 4.
9. Add 100 µL of **Substrate Solution** to each well. Incubate for 10-15 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 2 minutes, using a microplate reader set to 450 nm.

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.

The concentration read from the standard curve need to be multiplied by its dilution factor of 7.8 if samples were directly assayed after activation procedure. If samples required further dilution, then the concentration need to be multiplied by its dilution factor.

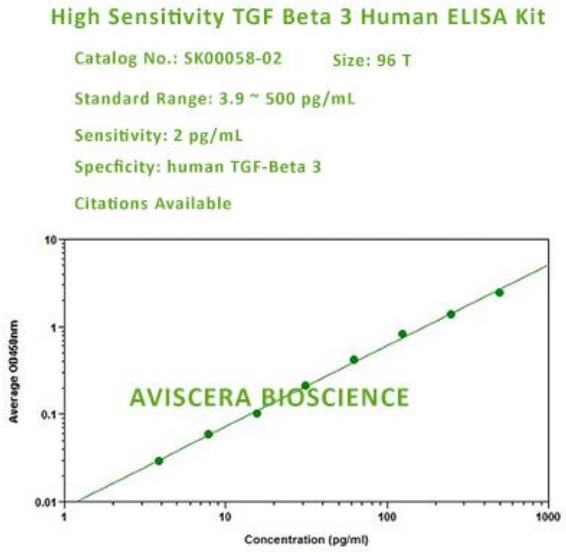
SPECIFICITY

PROTEINS	CROSS-REACTIVITY (%)
Human TGF-β3	100
Human TGF-β1	0
Human TGF-β2	0
Human TGF-β4	0

TYPICAL DATA

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

STANDARD (PG/ML)	CORRECTED (450NM)
Blank	0 (0.107)
3.9	0.029
7.8	0.069
15.6	0.112
31.25	0.219
62.5	0.429
125	0.899
250	1.399
500	2.049



SUMMARY OF ASSAY PROCEDURE

PREPARE REAGENTS, SAMPLES AND STANDARDS
↓
Add 100 µl of standard dilutions, Pre-treated samples, or positive control to the well. Incubate 2 hours on the plate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µl Detection Antibody working solution to each well. Incubate 2 hours on the plate shaker at RT.
↓
Aspirate and wash 4 times.
↓
Add 100 µl Streptavidin-HRP Conjugate working solution to each well. Incubate 60 minutes on the plate shaker at RT. **Protect from light.**
↓
Aspirate and wash 4 times.
↓
Add 100 µl Substrate Solution to each well. Incubate 10-15 min on the plate shaker at RT. **Protect from light.**
↓
Add 100 µl Stop Solution to each well. Read 450nm within 2 min.