

ab155440 – SOST Human ELISA Kit

Instructions for Use

For the quantitative measurement of SOST in Human serum, plasma and cell culture supernatants.

This product is for research use only and is not intended for diagnostic use.

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1. BACKGROUND

Abcam's SOST Human ELISA (Enzyme-Linked Immunosorbent Assay) kit is an *in vitro* enzyme-linked immunosorbent assay for the quantitative measurement of Human SOST in serum, plasma and cell culture supernatants.

This assay employs an antibody specific for Human SOST coated on a 96-well plate. Standards and samples are pipetted into the wells and SOST present in a sample is bound to the wells by the immobilized antibody. The wells are washed and biotinylated anti-Human SOST antibody is added. After washing away unbound biotinylated antibody, HRP-conjugated streptavidin is pipetted to the wells. The wells are again washed, a TMB substrate solution is added to the wells and color develops in proportion to the amount of SOST bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.

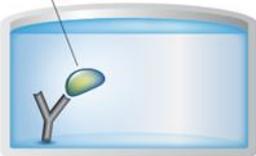
2. ASSAY SUMMARY

Primary capture antibody



Prepare all reagents, samples and standards as instructed.

Sample



Add standard or sample to each well used. Incubate at room temperature.

Primary detector antibody



Add prepared biotin antibody to each well. Incubate at room temperature.

Conjugated secondary antibody



Add prepared Streptavidin solution. Incubate at room temperature.

Substrate **Colored product**



Add TMB One-Step Development Solution to each well. Incubate at room temperature. Add Stop Solution to each well. Read at 450nm immediately.

3. PRECAUTIONS

Please read these instructions carefully prior to beginning the assay.

Modifications to the kit components or procedures may result in loss of performance.

4. STORAGE AND STABILITY

Store kit at -20°C immediately upon receipt.

Refer to list of materials supplied for storage conditions of individual components. Observe the storage conditions for individual prepared components in section 9. Reagent Preparation.

5. MATERIALS SUPPLIED

| Item | Amount | Storage Condition (Before Preparation) |
|-----------------------------------|----------|--|
| SOST Microplate (12 x 8 wells) | 96 Wells | -20°C |
| 20X Wash Buffer Concentrate | 25 mL | -20°C |
| Recombinant Human SOST Standard | 2 vials | -20°C |
| 5X Assay Diluent | 15 mL | -20°C |
| Biotinylated anti-Human SOST | 2 vials | -20°C |
| 500X HRP-Streptavidin Concentrate | 200 µL | -20°C |
| TMB One-Step Substrate Reagent | 12 mL | -20°C |
| Stop Solution | 8 mL | -20°C |

6. MATERIALS REQUIRED, NOT SUPPLIED

These materials are not included in the kit, but will be required to successfully utilize this assay:

- Microplate reader capable of measuring absorbance at 450 nm
- Precision pipettes to deliver 2 μ L to 1 mL volumes
- Adjustable 1-25 mL pipettes for reagent preparation
- 100 mL and 1 liter graduated cylinders
- Absorbent paper
- Distilled or deionized water
- Tubes to prepare standard or sample dilutions
- Log-log graph paper or computer and software for ELISA data analysis.

7. LIMITATIONS

- Do not mix or substitute reagents or materials from other kit lots or vendors.

8. TECHNICAL HINTS

- Samples generating values higher than the highest standard should be further diluted in the appropriate sample dilution buffers
- Avoid foaming or bubbles when mixing or reconstituting components
- Avoid cross contamination of samples or reagents by changing tips between sample, standard and reagent additions.
- Ensure plates are properly sealed or covered during incubation steps
- Complete removal of all solutions and buffers during wash steps.

9. REAGENT PREPARATION

Equilibrate all reagents and samples to room temperature (18-25°C) prior to use.

9.1 1X Assay Diluent

Dilute with 5-fold deionized or distilled water before use.

9.2 1X Wash Concentrate

If the 20X Wash Concentrate contains visible crystals, equilibrate to room temperature and mix gently until dissolved. Dilute 20 mL of 20X Wash Concentrate into 380 mL deionized or distilled water to yield 400 mL of 1X Wash Buffer.

9.3 1X Biotinylated SOST Detection Antibody

Briefly spin the Biotinylated anti-Human SOST vial before use. Add 100 μ L of 1X Assay Diluent into the vial to prepare a detection antibody concentrate. Pipette up and down to mix gently (the concentrate can either be stored at 4°C for 5 days or aliquoted and frozen at -20°C for 2 months). The detection antibody concentrate should be diluted 80-fold with 1X Assay Diluent and used in Assay Procedure.

9.4 1X HRP-Streptavidin Solution

Briefly spin the 500X HRP-Streptavidin concentrate vial and pipette up and down to mix gently before use. HRP-Streptavidin concentrate should be diluted 500-fold with 1X Assay Diluent.

For example: Briefly spin the vial (Item G) and pipette up and down to mix gently. Add 20 μ L of HRP-Streptavidin concentrate into a tube with 10 mL 1X Assay Diluent to prepare a 500-fold diluted HRP-Streptavidin solution (don't store the diluted solution for next day use). Mix well.

10. STANDARD PREPARATIONS

- Prepare serially diluted standards immediately prior to use. Always prepare a fresh set of standards for every use.
 - Standard (recombinant protein) should be stored at -20°C or -80°C (recommended at -80°C) after reconstitution.
- 10.1 Briefly spin the vial of SOST Standard. Prepare a 50 ng/mL **Stock Standard** by adding 400 μL Assay Diluent into the vial (see table below).
 - 10.2 Ensure the powder is thoroughly dissolved by gentle mixing.
 - 10.3 Label tubes #1-8.
 - 10.4 Prepare **Standard #1** by adding 100 μL 50 ng/mL **Stock Standard** to 400 μL Assay Diluent into tube #1. Mix thoroughly and gently.
 - 10.5 Pipette 300 μL Assay Diluent into each tube.
 - 10.6 Prepare **Standard #2** by transferring 200 μL from tube #1 to tube #2, mix thoroughly.
 - 10.7 Prepare **Standard #3** by transferring 200 μL from tube #2 to tube #3, mix thoroughly.
 - 10.8 Using the table below as a guide, prepare further serial dilutions.
 - 10.9 Assay Diluent serves as the zero standard (0 ng/mL).

ASSAY PREPARATION

Standard Dilution Preparation Table

| Standard # | Volume to Dilute (μL) | Diluent (μL) | Total Volume (μL) | Starting Conc. (pg/mL) | Final Conc. (pg/mL) |
|------------|------------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|
| 1 | 100 | 400 | 500 | 50,000 | 10,000 |
| 2 | 200 | 300 | 500 | 10,000 | 4,000 |
| 3 | 200 | 300 | 500 | 4,000 | 1,600 |
| 4 | 200 | 300 | 500 | 1600 | 640 |
| 5 | 200 | 300 | 500 | 640 | 256 |
| 6 | 200 | 300 | 500 | 256 | 102.4 |
| 7 | 200 | 300 | 500 | 102.4 | 40.96 |
| 8 | 0 | 200 | 200 | 0 | 0 |



11. SAMPLE PREPARATION

General Sample Information:

- If your samples need to be diluted, Assay Diluent (Item E) should be used for dilution of serum, plasma and culture supernatants.
- Suggested dilution for normal serum/plasma: 2-10 fold.
- Please note that levels of the target protein may vary between different specimens. Optimal dilution factors for each sample must be determined by the investigator.

12. PLATE PREPARATION

- The 96 well plate strips included with this kit is supplied ready to use. It is not necessary to rinse the plate prior to adding reagents.
- Unused well plate strips should be returned to the plate packet and stored at 4°C.
- For statistical reasons, we recommend each sample should be assayed with a minimum of two replicates (duplicates).
- Well effects have not been observed with this assay. Contents of each well can be recorded on the template sheet included in the Resources section.

13. ASSAY PROCEDURE

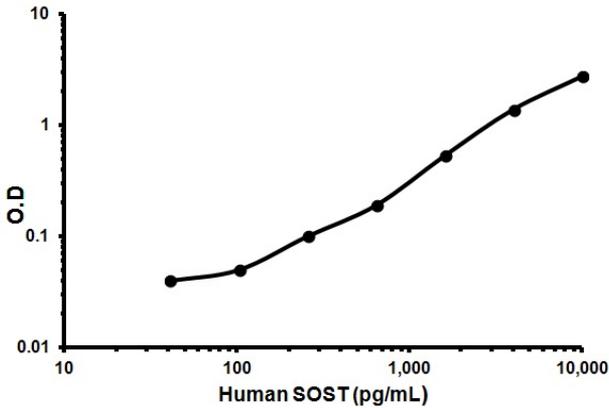
- **Equilibrate all materials and prepared reagents to room temperature (18 - 25°C) prior to use.**
 - **It is recommended to assay all standards, controls and samples in duplicate.**
- 10** Add 100 μ L of each standard (see Standard Preparations, section 10) and sample into appropriate wells. Cover well and incubate for 2.5 hours at room temperature or over night at 4°C with gentle shaking.
 - 13.2 Discard the solution and wash 4 times with 1X Wash Solution. Wash by filling each well with Wash Buffer (300 μ L) using a multi-channel Pipette 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.
 - 13.3 Add 100 μ L of 1X prepared biotinylated antibody (see Reagent Preparation, section 9) to each well. Incubate for 1 hour at room temperature with gentle shaking.
 - 13.4 Discard the solution. Repeat the wash as in step 13.2.
 - 13.5 Add 100 μ L of prepared Streptavidin solution (see Reagent Preparation, section 9) to each well. Incubate for 45 minutes at room temperature with gentle shaking.
 - 13.6 Discard the solution. Repeat the wash as in step 13.2.
 - 13.7 Add 100 μ L of TMB One-Step Substrate Reagent to each well. Incubate for 30 minutes at room temperature in the dark with gentle shaking.
 - 13.8 Add 50 μ L of Stop Solution to each well. Read at 450 nm immediately.

14. CALCULATIONS

Calculate the mean absorbance for each set of duplicate standards, controls and samples, and subtract the average zero standard optical density. Plot the standard curve on log-log graph paper, with standard concentration on the x-axis and absorbance on the y-axis. Draw the best-fit straight line through the standard points.

15. TYPICAL DATA

TYPICAL STANDARD CURVE – Data provided for demonstration purposes only. A new standard curve must be generated for each assay performed.



| Conc. (pg/mL) | O.D. |
|---------------|------|
| 40.96 | 0.04 |
| 102.40 | 0.05 |
| 256 | 0.10 |
| 640 | 0.19 |
| 1,600 | 0.53 |
| 4,000 | 1.38 |
| 10,000 | 2.73 |

16. TYPICAL SAMPLE VALUES

SENSITIVITY –

The minimum detectable dose of SOST is typically less than 15 pg/mL.

RECOVERY –

Recovery was determined by spiking various levels of Human SOST into Human serum, plasma (citrate and EDTA) and cell culture media. Mean recoveries are as follows:

| Sample Type | Average % Recovery | Range (%) |
|--------------------|--------------------|-----------|
| Serum | 123.3 | 110-136 |
| Plasma | 125.7 | 118-134 |
| Cell culture media | 96.04 | 86-105 |

LINEARITY OF DILUTION -

| Serum Dilution | Average % Expected Value | Range (%) |
|----------------|--------------------------|-----------|
| 1:2 | 90.70 | 83-99 |
| 1:4 | 80.32 | 72-88 |

| Plasma Dilution | Average % Expected Value | Range (%) |
|-----------------|--------------------------|-----------|
| 1:2 | 88.17 | 80-96 |
| 1:4 | 77.00 | 69-85 |

| Cell Culture Media Dilution | Average % Expected Value | Range (%) |
|-----------------------------|--------------------------|-----------|
| 1:2 | 115.2 | 107-123 |
| 1:4 | 104.2 | 96-113 |

PRECISION –

| | Intra- Assay | Inter- Assay |
|-----|-------------------------|-------------------------|
| %CV | <10% | <12% |

17. ASSAY SPECIFICITY

This ELISA kit detects Human SOST. Other species not determined yet.

18. TROUBLESHOOTING

| Problem | Cause | Solution |
|---------------------|---|---|
| Poor standard curve | Inaccurate pipetting | Check pipettes |
| | Improper standard dilution | Ensure briefly spin the vial of standard and dissolve the powder thoroughly by a gentle mix. |
| Low Signal | Incubation times too brief | Ensure sufficient incubation times; change to overnight standard/sample incubation |
| | Inadequate reagent volumes or improper dilution | Check pipettes and ensure correct preparation |
| Large CV | Inaccurate pipetting | Check pipettes |
| High background | Plate is insufficiently washed | Review the manual for proper wash. If using an a plate washer, check that all ports are unobstructed. |
| | Contaminated wash buffer | Make fresh wash buffer |
| Low sensitivity | Improper storage of the ELISA kit | Store the reconstituted protein at -80°C, all other assay components 4°C. Keep substrate solution protected from light. |
| | Stop solution | Stop solution should be added to each well before measure |

19. NOTES

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