

# HUMAN CTRP5 / C1QTNF5 ELISA KIT

FOR THE QUANTITATIVE DETERMINATION  
OF HUMAN CTRP5 CONCENTRATIONS IN  
SERUM AND PLASMA



THIS IS DEMONSTRATION ONLY.  
ALWAYS REFER TO LOT SPECIFIC PROTOCOL  
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 CTRP5/C1QTNF5 ELISA KIT
Catalog No.	SK00594-08
Lot No.	
Formulation	96 T
Standard Range	1.561 - 200 ng/mL
Sensitivity	200 pg/mL
Sample Volume	100 µL per well
Sample Type	Serum, Plasma
Specificity	Human CTRP5
Calibration	Human CTRP5 (16-246) recombinant
Dilution Factor	<b>4-16 (Optimal dilutions should be determined by each laboratory for each application)</b>
Intra-assay Precision	6 - 8%
Inter-assay Precision	8 - 12%
Storage	2 – 8°C
This kit contains sufficient materials to run approximately 40 samples duplicated provided that assay is run according to protocol.	

## ORDER CONTACT:

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## DESCRIPTION

This Human CTRP5 ELISA Kit contains the necessary components required for the quantitative measurement of recombinant and/or natural human CTRP5 from serum and plasma in a sandwich ELISA format.

This immunoassay contains recombinant human CTRP5 and antibodies raised against this protein. Results from this immunoassay have shown to accurately quantify recombinant and natural CTRP5 samples. Due bovine CTRP5 was identical to human CTRP5 (97.8%), do not use any fetal bovine serum or other animal serum in assay matrix.

## ASSAY OVERVIEW

This assay employs the quantitative sandwich ELISA format. The plate is pre-coated with a monoclonal antibody specific for human CTRP5. The capture antibody can bind to the human CTRP5 in the standard and samples. After washing the plate of any unbound substances, a biotinylated monoclonal antibody against human CTRP5 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 CTRP5 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 with a pretest.

\_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
<b>CTRP5 Microplate</b> - 96 well polystyrene microplate coated with a monoclonal antibody against human CTRP5.	<b>594-08-01</b>	<b>1 plate</b>
<b>CTRP5 Standard</b> – refer to lot specific of CTRP5 in a buffered protein base with preservative; lyophilized.	<b>594-08-02</b>	<b>1 vial</b>
<b>Detection Antibody Concentrate</b> – refer to lot specific of biotinylated monoclonal antibody against human CTRP5 with preservative; lyophilized.	<b>594-08-03</b>	<b>1 vial</b>
<b>Positive Control</b> - one vial of recombinant CTRP5; lyophilized.	<b>594-08-04</b>	<b>1 vial</b>
<b>Streptavidin HRP Conjugate</b> - 160 µL of 75-fold concentrated Streptavidin-HRP Conjugate.	<b>SAHRP</b>	<b>1 vial</b>
<b>Dilution Buffer</b> - 30 mL of buffered protein based solution with preservative.	<b>DB06</b>	<b>1 bottle</b>
<b>Antibody &amp; HRP Diluent Solution</b> - 30 mL of buffered protein based solution with preservative.	<b>DB68C</b>	<b>1 bottle</b>
<b>Wash Buffer</b> - 50 mL of 10-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 0.5M 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 8 months. For longer storage, unopened Standard, Positive Control and Detection Antibody Concentrate should be stored at -20°C or -70°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.

**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**

**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  $\leq -20^{\circ}\text{C}$ . 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  $\leq -20^{\circ}\text{C}$ . Avoid repeated freeze-thaw cycles.

**SAMPLE PREPARATION**

Human Serum samples may need a 4~16 fold dilution. A suggested 4-fold dilution is 60  $\mu\text{L}$  sample + 180  $\mu\text{L}$  Dilution Buffer. A suggested 8-fold dilution is 30  $\mu\text{L}$  sample + 210  $\mu\text{L}$  Dilution Buffer. A suggested 16-fold dilution is 15  $\mu\text{L}$  sample + 225  $\mu\text{L}$  Dilution Buffer.

**Optimal dilutions should be determined by each laboratory for each application.**

**Use polypropylene test tubes.**

Use animal free cell culture media for cell culture sample assay.

**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 1x Wash Buffer.

**CTRP5 Standard** - Reconstitute the CTRP5 standard with refer to lot specific of Dilution Buffer. Pipette 250  $\mu\text{L}$  of Dilution Buffer into tubes #1 to #9. Use the stock solution to produce a dilution series (below). Mix each tube thoroughly before the next transfer. The **200 ng/mL** standard serves as the high standard. The Dilution Buffer serves as the zero standard (0 ng/mL).

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
Stock	Powder	Refer to lot specific	400 ng/ml
# 1	Refer to lot specific	Refer to lot specific	200 ng/ml
# 2	250 $\mu\text{L}$ of 1	250 $\mu\text{L}$	100 ng/ml
# 3	250 $\mu\text{L}$ of 2	250 $\mu\text{L}$	50 ng/ml
# 4	250 $\mu\text{L}$ of 3	250 $\mu\text{L}$	25 ng/ml
# 5	250 $\mu\text{L}$ of 4	250 $\mu\text{L}$	12.5 ng/ml
# 6	250 $\mu\text{L}$ of 5	250 $\mu\text{L}$	6.25 ng/ml
# 7	250 $\mu\text{L}$ of 6	250 $\mu\text{L}$	3.125 ng/ml
# 8	250 $\mu\text{L}$ of 7	250 $\mu\text{L}$	1.56 ng/ml

**Positive Control** – Reconstitute the Positive Control with refer to lot specific of Dilution Buffer.

**Detection Antibody Concentrate** – Reconstitute the Detection Antibody Concentrate with refer to lot specific of **Antibody Diluent Solution (DB68C)** to produce a concentrated stock solution. Pipette refer to lot specific of **Antibody & HRP Diluent Solution (DB68C)** into a 15 mL centrifuge tube and transfer refer to lot specific of 10-fold concentrated stock solution to prepare working solution.

**Streptavidin HRP Conjugate** – Pipette refer to lot specific of **Antibody & HRP Diluent Solution (DB68C)** into a 15 mL centrifuge tube and transfer refer to lot specific of concentrated stock solution to prepare working solution (**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  $\mu\text{L}$  per well of Dilution Buffer to Blank wells.
3. Add 100  $\mu\text{L}$  of Standard dilutions, 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  $\mu\text{L}$ ) 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  $\mu\text{L}$  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  $\mu\text{L}$  of Streptavidin-HRP working solution to each well. Cover with plate sealer. 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  $\mu\text{L}$  of TMB Substrate Solution to each well. Incubate for refer to lot specific on microplate shaker at room temperature. **Protect from light.**
10. Add 100  $\mu\text{L}$  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 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 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.

### TYPICAL STANDARD CURVE









This standard curve is provided for **demonstration only**. A new standard curve should be generated for each set of samples assayed refer to lot specific.

STANDARD (NG/ML)	CORRECTED (450NM)
Blank	0 (0.061)
0.781 (OPTIONAL)	0.044
1.563	0.089
3.125	0.179
6.25	0.321
12.5	0.533
25	1.039
50	1.442
100	1.751
200	2.293

### SPECIFICITY

PROTEINS	CROSS-REACTIVITY (%)
Human CTRP5 Full Length	100
Human CTRP12	0
Human CTRP13	0
Human CTRP9	0
Human CTRP3	0
Human CTRP2	0
Human CTRP7	0

**SUMMARY OF ASSAY PROCEDURE**

<b>PREPARE REAGENTS, SAMPLES AND STANDARDS</b>

Add 100 µl of standard dilutions, samples, or positive control to the well. Incubate 2 hours on the plate shaker at RT.

Aspirate and wash 4 times.

Add 100 µl of Detection Antibody working solution to each well. Incubate 2 hours on the plate shaker at RT.

Aspirate and wash 4 times.

Add 100 µl of Streptavidin-HRP working solution to each well. Incubate 60 minutes on the plate shaker at RT. <b>Protect from light.</b>

Aspirate and wash 4 times.

Add 100 µl of TMB Substrate Solution to each well. Incubate REFER TO LOT SPECIFIC min on the plate shaker at RT. <b>Protect from light.</b>

Add 100 µl of Stop Solution to each well. Read at 450nm.