HUMAN CTRP1 ELISA KIT

FOR THE QUANTITATIVE DETERMINATION OF HUMAN CTRP1 CONCENTRATIONS IN SERUM AND PLASMA

THIS PROTOCOL OR DATA IS PROVIDED FOR DEMONSTRATION ONLY.
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.

PRODUCT INFORMATION:
THIS KIT IS FOR ONE TIME USE ONLY.

ELISA NAME	**HUMAN CTRP1 ELISA**
Catalog No.	SK00083-01
Lot No.	
Formulation	96 T
Standard range	1 ~ 64 ng/mL
Sensitivity	500 pg/mL
Sample Volume	100 µL
Dilution Factor	**Optimal dilutions should be determined by each laboratory for each application**
Sample Type	Serum and Plasma
Specificity	Human CTRP1
Calibration	Human CTRP1 recombinant
Intra-assay Precision	4 - 6%
Inter-assay Precision	4 - 9%
Storage	2 – 8° C for 2 months. See page 2 for detail.
This kit contains sufficient materials to run 40 samples duplicated provided that assay is run according to protocol.	

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DESCRIPTION

This Human CTRP1 /C1QTNF1 ELISA Kit contains the necessary components required for the quantitative measurement of recombinant and/or natural human CTRP1 from pretreated serum and plasma samples in a sandwich ELISA format. Other sample types need to be validated with this assay.

This immunoassay contains recombinant human CTRP1 and monoclonal antibodies raised against this protein. Results from this immunoassay have shown to accurately quantify recombinant and natural CTRP1 samples.

ASSAY OVERVIEW

This assay employs the quantitative sandwich enzyme immunoassay technique. The plate is pre-coated with a monoclonal antibody specific for human CTRP1. The capture antibody can bind to the CTRP1 in the standard and samples. After washing the plate of any unbound substances, a biotinylated monoclonal antibody against CTRP1 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 CTRP1 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.
_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
CTRP1 Microplate - 96 well polystyrene microplate (12 strips of 8 wells) coated with a monoclonal antibody specific for human CTRP1.	**083-01-01**	**1 plate**
CTRP1 Standard -64 ng of recombinant human CTRP1 in a buffered protein base with preservative; lyophilized.	**083-01-02**	**1 vial**
Detection Antibody Concentrate – 1.2 ml of 10-fold concentrate of biotinylated monoclonal antibody against CTRP1 with preservative; lyophilized.	**083-01-03**	**1 vial**
Streptavidin-HRP Conjugate - 120 µL of 100-fold concentrated solution of Streptavidin-HRP conjugate.	**SAHRP**	**1 vial**
Dilution Buffer - 45 mL of buffered protein based solution with preservative.	**DB03**	**1 bottle**
HRP Diluent Solution – 12 mL of buffered protein based solution with preservative.	**DB08B**	**1 bottle**
Wash Buffer - 50 mL of 10-fold concentrated buffered surfactant, with preservative.	**WB01**	**1 bottle**
TMB Substrate Solution - 11 mL of TMB substrate solution.	**TMB03**	**1 bottle**
Stop Solution - 11 mL of 0.25M HCl solution.	**S-STOP**	**1 bottle**
Plate Sealer	**EAPS**	**1**
Plastic Pouch	**P01**	**1**

STORAGE

Unopened Kit: Store at 2 – 8° C for 2 months. For longer storage for up to 10 months, unopened Standard, Detection Antibody Concentrate, Dilution Buffer and HRP Diluent Solution should be stored at -20° C or -70° C. **Streptavidin-HRP Conjugate and TMB substrate** 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.

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 ≤ -20° C. Avoid repeated freeze-thaw cycles.

Plasma - Collect plasma using EDTA 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.

SAMPLE PREPARATION

Serum or Plasma samples may require dilution.
Optimal dilutions should be determined by each laboratory for each application.
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 50 mL of Wash Buffer Concentrate into deionized or distilled water (450 mL) to prepare 500 mL of 1x Wash Buffer.

Dilution Buffer (DB03) - **Dilution Buffer (DB03) is highly viscous, warm in 30 - 37° C water bath until liquid flows more freely.**

CTRP1 Standard - Reconstitute the CTRP1 standard with 1ml of Dilution Buffer. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 250 µL of Dilution Buffer into tubes #1 - #6. Use the stock solution to produce a 2-fold dilution series (below). Mix each tube thoroughly before the next transfer. The **64 ng/mL** standard serves as the high standard. The Dilution Buffer serves as the zero standard (0 ng/mL). Store the stock solution of standard at -20 ~ -70 °C for a few days.

TUBE	STANDARD	DILUTION BUFFER	CONCENTRATION
stock	powder	1 mL	64 ng/ml
# 1	250µl of stock	250µl	32 ng/ml
# 2	250µl of 1	250µl	16 ng/ml
# 3	250µl of 2	250µl	8 ng/ml
# 4	250µl of 3	2500µl	4 ng/ml
# 5	250µl of 4	250µl	2 ng/ml
# 6	250µl of 5	250µl	1 ng/ml

Detection Antibody Concentrate - Reconstitute the Detection Antibody Concentrate with 1.2ml of Dilution Buffer to produce a 10-fold concentrated stock solution. For 96 wells test, freshly pipette 9.45 mL of Antibody Diluent Solution 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 ~ -70 °C for a few days.

Streptavidin-HRP Conjugate – For 96 wells test, freshly pipette 10.89 mL of **HRP Diluent Solution (DB08B)** into a 15 mL centrifuge tube and transfer 110 µL of 100-fold concentrated stock solution to prepare working solution **(protect from light)** that should be used in 20- 30 min. For partial strip test, freshly prepare 900 µL per strip of working solution. Store the stock solution (100-fold concentrated) at 2 ~ 8 °C for 10 months.

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 samples, 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 from #7 to #S, samples, or positive control per well. Cover with the 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 the plate sealer. Incubate for 90 minutes 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 45 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 refer to lot 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

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.

If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor (pretreated as suggested will have a dilution factor of 4).

TYPICAL STANDARD CURVE

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

STANDARD (NG/ML)	AVERAGE OD450NM (CORRECTED)
Blank	0 (0.099)
1	0.075
2	0.151
4	0.281
8	0.551
16	1.077
32	2.109
64	2.899

SPECIFICITY

PROTEINS	CROSS-REACTIVITY (%)
Human CTRP1	100
Human CTRP12	0
Human CTRP15	0
Human CTRP10	0

SUMMARY OF ASSAY PROCEDURE

PREPARE REAGENTS, SAMPLES AND STANDARDS

Add 100 µl of standard dilutions, samples, or positive control to each 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 90 minutes on the plate shaker at RT.

Aspirate and wash 4 times.

Add 100 µl Streptavidin-HRP conjugate working solution to each well. Incubate 60 min on the plate shaker at RT. **Protect from light.**

Aspirate and wash 4 times.

Add 100 µl Substrate Solution to each well. Incubate refer to lot on the plate shaker at RT. **Protect from light.**

Add 100 µl Stop Solution to each well. Read 450 nm within 3 min.