# URINARY UROMODULIN / TAMM-HORSFALL URINARY GLYCOPROTEIN HUMAN ELISA KIT

**FOR THE QUANTITATIVE DETERMINATION OF HUMAN CTRP7/C1QTNF7 CONCENTRATIONS IN SERUM AND 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.**

**PRODUCT INFORMATION:**

**THIS KIT IS FOR ONE TIME USE ONLY.**

| **ELISA NAME** | **URINARY UROMODULIN (UMOD) HUMAN ELISA KIT** |
|---|---|
| Catalog No. | SK00927-01 |
| Formulation | 96 T |
| Lot No. | |
| Standard range | 0.39- 100 ng/ml |
| Sensitivity | 100 pg/ml |
| Sample Volume | 100 µl |
| Dilution Factor | **Optimal dilutions should be determined by each laboratory for each application** |
| Sample Type | Urine, Serum, EDTA Plasma |
| Specificity | Human Urine UMOD |
| Calibration | Human Urine Uromodulin |
| Intra-assay Precision | 4 - 6% |
| Inter-assay Precision | 8 - 10% |
| Storage | 2 – 8° C for 10 months. |
| 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 Urinary Uromodulin (UMOD) Tamm-Horsfall Urinary Glycoprotein (THGP) ELISA Kit contains the necessary components required for the quantitative measurement of recombinant and/or natural human uromodulin from urine, plasma, serum in a sandwich ELISA format.

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

## ASSAY OVERVIEW

This assay employs the quantitative sandwich ELISA format. The plate is pre-coated with an antibody specific for human uromodulin. The capture antibody can bind to the human uromodulin in the standard and samples. After washing the plate of any unbound substances, a biotinylated antibody against human uromodulin 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 uromodulin 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. If samples generate values that are not within the dynamic range of the standard curve, further concentrate or dilute the samples as required with Dilution Buffer and repeat the assay.
_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 |
|---|---|---|
| **UMOD Microplate** – 96 well microplate coated with an antibody specific for human uromodulin. | **927-01-01** | **1 plate** |
| **UMOD Standard** – 100 ng/vial of lyophilized human uromodulin. | **927-01-02** | **1 vial** |
| **Detection Antibody Concentrate** – 1.2 mL/vial of 10-fold concentrate of lyophilized biotinylated antibody against human uromodulin. | **927-01-03** | **1 vial** |
| **Positive Control** – one vial of uromodulin; lyophilized. | **927-01-04** | **1 vial** |
| **Streptavidin-HRP Conjugate** – 120 µL/vial of 100-fold concentrated solution of Streptavidin-HRP conjugate. | **SAHRP** | **1 vial** |
| **Dilution Buffer** – 45 mL of buffered solution with preservative. | **DB01** | **1 bottle** |
| **Antibody & HRP Diluent Solution** – 25 mL of buffered solution with preservative. | **DB08** | **1 bottle** |
| **Wash Buffer** – 50 mL of 10-fold concentrated buffered surfactant with preservative. | **WB01** | **1 bottle** |
| **Substrate Solution** – 11 mL of substrate solution. | **SS01** | **1 bottle** |
| **Stop Solution** – 11 mL of 0.5M HCl. | **S-STOP** | **1 bottle** |
| **Plate Sealer** | **EAPS** | **1 piece** |
| **Plastic Pouch** | **P01** | **1 piece** |

## STORAGE

**Unopened Kit:** Store at 2 – 8° C for up to 10 months. For longer storage, unopened Standard, Positive Control and Detection Antibody Concentrate should be stored at -20° C or -70° C.

For long term Storage for Dilution buffer (**DB01**), store in -20° 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). Allow blood to clot for 30 minutes. Centrifuge at 1000 x g for 15 minutes and collect serum. Assay samples immediately or aliquot and store at ≤ -20° C. Avoid repeated freeze-thaw cycles.
**Plasma** – Collect plasma using EDTA, heparin, or citrate as an anticoagulant. Centrifuge at 1000 x g for 15 minutes and collect plasma. Assay samples immediately or aliquot and store 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

Urine samples may require dilutions. **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 bottle in a water bath until the crystals have completely dissolved. Dilute 50 mL of Wash Buffer Concentrate into 450 mL distilled or deionized water to make 500 mL of 1x Wash Buffer.

**Human Uromodulin Standard -** Reconstitute the Uromodulin standard with 1 mL of **Dilution Buffer (DB01)**. This reconstitution produces a stock solution of 100 ng/mL. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 450 µL of Dilution Buffer into tubes #1 to #4. Use the stock solution to produce a dilution series (below). Mix each tube thoroughly before the next transfer. The **100 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 | 1 mL | 100 ng/mL |
| # 1 | 150 µL of stock | 450 µL | 25 ng/mL |
| # 2 | 150µL of 1 | 450µL | 6.25 ng/mL |
| # 3 | 150µL of 2 | 450µL | 1.56 ng/mL |
| # 4 | 150µL of 3 | 450µL | 0.39 ng/mL |

**Positive Control -** Reconstitute the Positive Control with 1.0 mL of Dilution Buffer.

**Detection Antibody -** Reconstitute the Detection Antibody Concentrate with 1.2 mL of **Antibody & HRP Diluent Solution (DB08)** to produce a 10-fold concentrated stock solution. Pipette 10.8 mL of Antibody & HRP Diluent Solution into a 15 mL centrifuge tube and transfer 1.2 mL of 10-fold concentrated stock solution to prepare working solution.

**Streptavidin-HRP Conjugate** - Pipette 11.88 mL of **Antibody & HRP Diluent Solution (DB08)** into a 15 mL centrifuge tube and transfer 120 µL of 100-fold concentrated stock solution to prepare working solution. **Note:** 1x working solution of Streptavidin-HRP should be used within a few days **(protect from light)**. **DO NOT FREEZE.**

## 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. Remove excess microplate strips from the plate frame, return them to the plastic pouch with the desiccant pack.
3. Add 100 µL of **Dilution Buffer (DB01)** to Blank wells.
4. Add 100 µL of **Standard dilutions from #4-S** or **samples** per well. Cover with plate sealer. Incubate for 2 hours on microplate shaker at room temperature.
5. 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.
6. 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.
7. Repeat the aspiration/wash as in step 5.
8. 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.**
9. Repeat the aspiration/wash as in step 5.
10. Add 100 µL of **Substrate Solution** to each well. Incubate for 8-12 minutes on microplate shaker at room temperature. **Protect from light.**
11. 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.
12. Determine the optical density of each well within 5 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 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 VURVE

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 OD450 NM (CORRECTED) |
|---|---|
| Blank | 0 (0.095) |
| 0.39 | 0.039 |
| 1.56 | 0.157 |
| 6.25 | 0.499 |
| 25 | 1.436 |
| 100 | 2.676 |

## SPECIFICITY

| Proteins | Cross-reactivity |
|---|---|
| Human Uromodulin | 100% |
| Human KIM-1 | 0 |
| Human NGAL | 0 |
| Human Albumin | 0 |
| Human Hemopexin | 0 |
| Human TIMP-1 | 0 |
| Human IGFBP-7 | 0 |
| Human RBP4 | 0 |

## SUMMARY OF ASSAY PROCEDURE

| PREPARE REAGENTS, SAMPLES AND STANDARDS |
|---|
| ↓ |
| Add 100 µL of standard dilutions or samples 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 min on the plate shaker at RT. **Protect from light.** |
| ↓ |
| Aspirate and wash 4 times. |
| ↓ |
| Add 100 µL Substrate Solution to each well. Incubate 8-12 min on plate shaker at RT. **Protect from light.** |
| ↓ |
| Add 100 µL Stop Solution to each well. Read 450nm within 5 min. |