Technical Manual

Rat TIMP-1 PharmaGenie ELISA Kit

- **Catalogue Code: SBRS1701**
- **Sandwich Principle**
- **Research Use Only**

Contents

Key Features and Sample Types

Aliases:

TIMP-1

Gene ID:

116510

Uniprot:

P30120

Detection Method:

Sandwich-based (Quantitative)

Range:

4 pg/ml - 3000 pg/ml

Sensitivity:

4 pg/ml

Sample Types:

Cell Lysates, Tissue Lysates

Reactivity:

Rat

Storage & Expiry

The entire kit may be stored at -20°C for up to 6 months from the date of shipment. Avoid repeated freeze-thaw cycles. For extended storage, it is recommended to store at -80°C. For prepared reagent storage, see table below.

Introduction

How do our ELISA kits work?

The Assay Genie Rat TIMP-1 ELISA kit is an in vitro enzyme-linked immunosorbent assay for the quantitative measurement of Rat TIMP-1 cell lysate and tissue lysate. This assay employs an antibody specific for Rat TIMP-1 coated on a 96-well plate. Standards and samples are pipetted into the wells and TIMP-1 present in a sample is bound to the wells by the immobilized antibody. The wells are washed and biotinylated anti-Rat TIMP-1 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 TIMP-1 bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm.

Kit Contents

Each kit contains reagents for 96 assays including:

No.	Component	96-Well Kit	Storage
1	Microplate coated with anti-Rat TIMP-1	8 x 12	1 month at 4°C*
2	Wash Buffer Concentrate (20X)	25ml	1 month at 4°C*
3	Standard Protein	2 vials	1 week at -80°C
4	Detection Antibody TIMP-1	2 vials	5 days at 4°C
5	HRP-Streptavidin Concentrate (200X)	200µl	Do not store and reuse.
6	TMB One-Step Substrate Reagent	12ml	N/A
7	Stop Solution	8ml	N/A
8	Sample Diluent (5X concentrated buffer)	10 ml	1 month at 4°C
9	Assay Diluent (5X concentrated buffer)	15 ml	1 month at 4°C
10	Lysis Buffer (2X cell lysate buffer)	5 ml	1 month at 4°C

*Return unused wells to the pouch containing desiccant pack, reseal along entire edge.

Additional materials required:

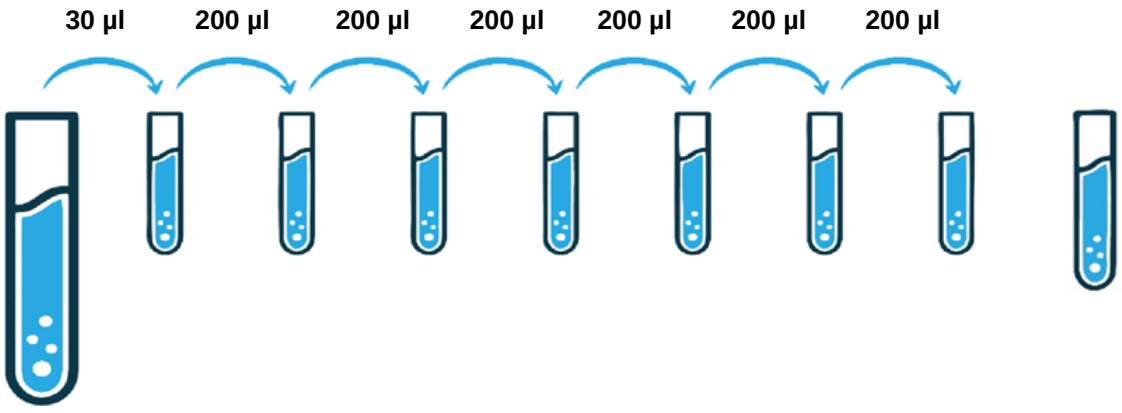
1. Microplate reader capable of measuring absorbance at 450 nm.
2. Precision pipettes to deliver 2 µl to 1 ml volumes.
3. Adjustable 1-25 ml pipettes for reagent preparation.
4. 100 ml and 1 liter graduated cylinders.
5. Absorbent paper.
6. Distilled or deionized water.
7. Log-log graph paper or computer and software for ELISA data analysis.
8. Tubes to prepare the positive control or sample dilutions.

Reagent Preparation

1. Bring all reagents and samples to room temperature (18 - 25°C) before use.
2. Sample Diluent Buffer and Assay Diluent should be diluted 5-fold with deionized or distilled water before use. Lysis Buffer should be diluted 2-fold with deionized or distilled water (for cell lysate and tissue lysate).
3. Sample dilution: Tissue lysate and cell lysate samples should be diluted at least 5-fold with 1X Sample Diluent Buffer. Generally we recommend a minimum of 1 mg of protein per 1 ml of original lysate solution, though more concentrated is better. We also recommend the addition of protease inhibitors (not included) to the lysis buffer prior to use. Detailed recommendations on lysis preparation may be found here: www.raybiotech.com/tips-on-sample-preparation.htmlThe suggested dilution for normal serum/plasma is .

   Note: Levels of TIMP-1 may vary between different samples. Optimal dilution factors for each sample must be determined by the investigator.
4. Preparation of standard: Briefly spin a vial of Standard Protein. Add 400 µl 1X Sample Diluent Buffer (Sample Diluent Buffer should be diluted 5-fold with deionized or distilled water before use) into Standard Protein vial to prepare a 50 ng/ml standard. Dissolve the powder thoroughly by a gentle mix. Add 30 µl TIMP-1 standard from the vial of Standard Protein, into a tube with 470 µl Sample Diluent Buffer to prepare a 3,000 pg/ml stock standard solution. Pipette 400 µl 1X Sample Diluent Buffer into each tube. Use the stock standard solution to produce a dilution series (shown below). Mix each tube thoroughly before the next transfer. 1X Sample Diluent Buffer serves as the zero standard (0 pg/ml).

DILUTION SERIES



		Std1	Std2	Std3	Std4	Std5	Std6	Std7	Zero Standard
Diluent volume	**Standard Protein + 400 µl**	470 µl	400 µl	400 µl	400 µl	400 µl	400 µl	400 µl	400 µl
Conc.	**50 ng/ml**	3000 pg/ml	1000 pg/ml	333.3 pg/ml	111.1 pg/ml	37 pg/ml	12.3 pg/ml	4.1 pg/ml	0 pg/ml

5. If the Wash Concentrate (20X) contains visible crystals, warm to room temperature and mix gently until dissolved. Dilute 20 ml of Wash Buffer Concentrate into deionized or distilled water to yield 400 ml of 1X Wash Buffer.
6. Briefly spin the Detection Antibody vial before use. Add 100 µl of 1X Assay Diluent into the vial to prepare a detection antibody concentrate. Pipette up and down to mix gently (the concentrate can be stored at 4°C for 5 days). The detection antibody concentrate should be diluted 80-fold with 1X Assay Diluent and used in step 5 of the Assay Procedure.
7. Briefly spin the HRP-Streptavidin concentrate vial and pipette up and down to mix gently before use, as precipitates may form during storage. HRP-Streptavidin concentrate should be diluted 400 with 1X Assay Diluent.

For example: Briefly spin the vial (HRP-Streptavidin Concentrate) and pipette up and down to mix gently. Add 30 µl of HRP-Streptavidin concentrate into a tube with 12 ml 1X Assay Diluent to prepare a 400-fold diluted HRP- Streptavidin solution (don't store the diluted solution for next day use). Mix well.

Assay Procedure

1. Bring all reagents and samples to room temperature (18 - 25°C) before use. It is recommended that all standards and samples be run at least in duplicate.
2. Label removable 8-well strips as appropriate for your experiment.
3. Add 100 µl of each standard (see Reagent Preparation step 3) and sample into appropriate wells. Cover wells and incubate for 2.5 hours at room temperature with gentle shaking.
4. Discard the solution and wash 4 times with 1X Wash Solution. Wash by filling each well with Wash Buffer (300 µl) 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.
5. Add 100 µl of 1X prepared biotinylated antibody (Reagent Preparation step 6) to each well. Incubate for 1 hour at room temperature with gentle shaking.

6. Discard the solution. Repeat the wash as in step 4.
7. Add 100 µl of prepared Streptavidin solution (see Reagent Preparation step 7) to each well. Incubate for 45 minutes at room temperature with gentle shaking.
8. Discard the solution. Repeat the wash as in step 4.
9. Add 100 µl of TMB One-Step Substrate Reagent to each well. Incubate for 30 minutes at room temperature in the dark with gentle shaking.
10. Add 50 µl of Stop Solution to each well. Read at 450 nm immediately.

Assay Procedure Summary

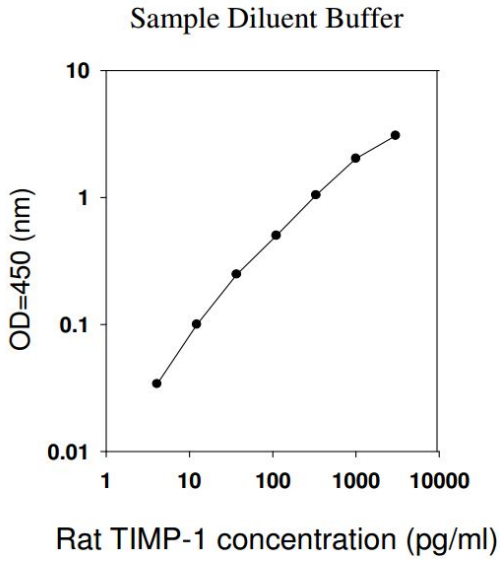
1. Prepare all reagents, samples and standards as instructed.
2. Add 100 µl standard or sample to each well. Incubate 2.5 hours at room temperature.
3. Add 100 µl prepared biotin antibody to each well. Incubate 1 hour at room temperature.
4. Add 100 µl prepared Streptavidin solution. Incubate 45 minutes at room temperature.
5. Add 100 µl TMB One-Step Substrate Reagent to each well. Incubate 30 minutes at room temperature.
6. Add 50 µl Stop Solution to each well. Read at 450 nm immediately.

Calculation of Results

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 or using Sigma plot software, with standard concentration on the x-axis and absorbance on the y-axis. Draw the best-fit straight line through the standard points.

Typical Data

These standard curves are for demonstration only. A standard curve must be run with each assay.



Sensitivity

The minimum detectable dose of Rat TIMP-1 was determined to be 4 pg/ml.

Minimum detectable dose is defined as the analyte concentration resulting in an absorbance that is 2 standard deviations higher than that of the blank (diluent buffer).

Spike and Recovery

Recovery was determined by spiking various levels of Rat TIMP-1 into the sample types listed below. Mean recoveries are as follows:

Sample Type	Average % Recovery	Range (%)
Cell Lysates	93	82-102
Tissue Lysates	93	84-103

Linearity

Sample Type	Cell Lysates	Tissue Lysates
1:2 Average % of Expected	88	92
Range (%)	82-101	83-103
1:4 Average % of Expected	91	94
Range (%)	83-103	84-102

Reproducibility

Intra-Assay CV%: <10%

Inter-Assay CV%: <12%

Specificity

The antibody pair provided in this kit recognizes rat TIMP-1.

Troubleshooting

Problem	Causes	Solutions
Poor standard curve	• Inaccurate pipetting • Improper standard dilution	• Check pipettes • Briefly centrifuge Standard Protein and dissolve the powder thoroughly by gently mixing
Low signal	• Improper preparation of standard and/or biotinylated antibody • Too brief incubation times • Inadequate reagent volumes or improper dilution	• Briefly spin down vials before opening. Dissolve the powder thoroughly. • Ensure sufficient incubation time. Assay procedure step 3 may be done overnight at 4°C with gently shaking (note: may increase overall signals including background) • Check pipettes and ensure correct preparation
Large CV	• Inaccurate pipetting • Air bubbles in wells	• Check pipettes • Remove bubbles in wells
High background	• Plate is insufficiently washed • Contaminated wash buffer	• Review the manual for proper wash. If using a plate washer, ensure that all ports are unobstructed. • Make fresh wash buffer
Low sensitivity	• Improper storage of the ELISA kit • Stop solution	• Store your standard at <-70°C after reconstitution, others at 4°C. Keep substrate solution protected from light. • Add stop solution to each well before reading plate

Assay Genie 100% money-back guarantee!

If you are not satisfied with the quality of our products and our technical team cannot resolve your problem, we will give you 100% of your money back.

Contact Details

Email: info@ASSAYGenie.com
Web: www.ASSAYGenie.com