

Human sTNF-R (60kDa) ELISA Kit

Enzyme-linked Immunosorbent Assay for quantitative detection of human sTNF-R (60kDa)

Catalog Numbers BMS203 or BMS203TEN

Pub. No. MAN0016490 Rev. D.0 (33)

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from thermofisher.com/support.

Product description

The Human sTNF-R (60kDa) ELISA Kit is an enzyme-linked immunosorbent assay for the quantitative detection of human sTNF-R (60kDa).

Summary

Tumor Necrosis Factor (TNF) was originally discovered in sera of animals and was found to cause hemorrhagic necrosis of some transplantable mouse and human tumors and to exhibit primarily cytotoxic activities against tumor but not normal cells in vitro. The TNF family consists of two proteins designated TNF α , also called cachectin, and TNF β , also called lymphotoxin, which are pleiotropic cytokines that can mediate a wide variety of biological effects.

Both TNF α and TNF β have been shown to interact with a cell through specific high affinity receptors with a few hundred up to more than 20,000 copies per cell. TNF-receptors have been demonstrated on a wide variety of human somatic cells including fibroblasts, endothelial cells, adipocytes, liver membranes, granulocytes and several tumor cell lines. Normal and malignant human myeloid cells as well as mitogen-stimulated lymphocytes express similar numbers of TNF receptors (400–1900 per cell), whereas resting lymphoid cells have fewer, red blood cells and platelets have no detectable TNF receptors.

In most cases no correlation is observed between receptor number and sensitivity to TNF. Based on gel filtration experiments the receptor appears to be a complex of different proteins with a molecular weight of 350kDa. In a variety of cell lines two different types of TNF receptors with 75–80 and 55–60kDa, respectively, have been identified.

The cDNAs encoding the two different TNF receptors have been cloned. The exact mechanism of signal transduction after binding of TNF to the receptor is still unclear. The extracellular fragment of the 60kDa TNF receptor, with a molecular mass of about 30kDa, was purified, partially sequenced, and the respective cDNA was cloned. This TNF binding protein is liberated from the intact molecule by proteolytic cleavage and comprises most of the extracellular portion of the receptor, including all three N-glycosylation sites.

The present assay provides a simple, rapid, and highly sensitive method for the determination of soluble TNF-R (60kDa) levels in body fluids or cell culture supernatants. This assay will help to clarify the possible diagnostic and prognostic value of circulating sTNF-R (60kDa) in various neoplastic and inflammatory diseases.

For literature update refer to our website.

Principles of the test

An anti-human sTNF-R (60kDa) coating antibody is adsorbed onto microwells.

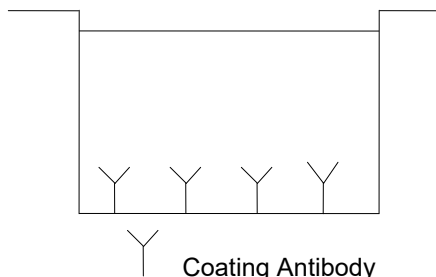


Fig. 1 Coated microwell.

Human sTNF-R (60kDa) present in the sample or standard binds to antibodies adsorbed to the microwells, and the HRP-conjugated anti-human sTNF-R (60kDa) antibody is added and binds to human sTNF-R (60kDa) captured by the first antibody.

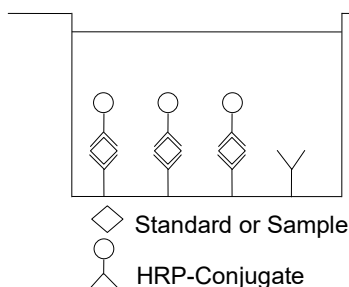


Fig. 2 First incubation.

Following incubation unbound HRP-conjugated anti-human sTNF-R (60kDa) is removed during a wash step, and substrate solution reactive with HRP is added to the wells.

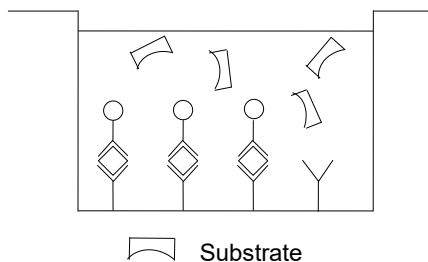


Fig. 3 Second incubation.

A colored product is formed in proportion to the amount of human sTNF-R (60kDa) present in the sample or standard. The reaction is terminated by addition of acid and absorbance is measured at 450 nm. A standard curve is prepared from 7 human sTNF-R (60kDa) standard dilutions and human sTNF-R (60kDa) concentration determined.

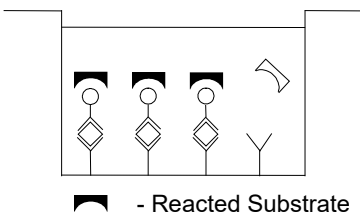


Fig. 4 Principles of the test.

Reagents Provided

Reagents for human sTNF-R (60kDa) ELISA BMS203 (96 tests)

- 1 aluminum pouch with a Microwell Plate (12 strips of 8 wells each) coated with monoclonal antibody to human sTNF-R (60kDa)
- 1 vial (200 μ L) HRP-Conjugate anti-human sTNF-R (60kDa) monoclonal antibody
- 2 vials (50 μ L) human sTNF-R (60kDa) Standard, 10 ng/mL upon dilution
- 1 vial Control high, lyophilized
- 1 vial Control low, lyophilized
- 1 vial (5 mL) Assay Buffer Concentrate 20x (PBS with 1% Tween™ -20, 10% BSA)
- 1 bottle (50 mL) Wash Buffer Concentrate 20x (PBS with 1% Tween™ -20)
- 1 vial (15 mL) Substrate Solution (tetramethyl-benzidine)
- 1 vial (15 mL) Stop Solution (1M Phosphoric acid)
- 2 Adhesive Films

Reagents for human sTNF-R (60kDa) ELISA BMS203TEN (10x96 tests)

- 10 aluminum pouches with a Microwell Plate (12 strips of 8 wells each) coated with monoclonal antibody to human sTNF-R (60kDa)
- 10 vials (200 μ L) HRP-Conjugate anti-human sTNF-R (60kDa) monoclonal antibody
- 10 vials (50 μ L) human sTNF-R (60kDa) Standard, 10 ng/mL upon dilution
- 10 vials Control high, lyophilized
- 10 vials Control low, lyophilized
- 2 vials (5 mL) Assay Buffer Concentrate 20x (PBS with 1% Tween™ 20, 10% BSA)
- 3 bottles (50 mL) Wash Buffer Concentrate 20x (PBS with 1% Tween™ 20)
- 10 vials (15 mL) Substrate Solution (tetramethyl-benzidine)
- 1 vial (100 mL) Stop Solution (1M Phosphoric acid)
- 10 Adhesive Films

Storage instructions – ELISA kit

Store kit reagents between 2°C and 8°C except controls. Store lyophilized controls at -20°C.

Immediately after use remaining reagents should be returned to cold storage (2°C to 8°C), or to -20°C, respectively. Expiry of the kit and reagents is stated on labels.

Expiry of the kit components can only be guaranteed if the components are stored properly, and if, in case of repeated use of one component, this reagent is not contaminated by the first handling.

Sample collection and storage instructions

Cell culture supernatant, serum, plasma (EDTA, citrate, heparin), and urine were tested with this assay. Other biological samples might be suitable for use in the assay. Remove serum or plasma from the clot or cells as soon as possible after clotting and separation.

Samples containing a visible precipitate must be clarified prior to use in the assay. Do not use grossly hemolyzed or lipemic samples.

Samples should be aliquoted and must be stored frozen at -20°C to avoid loss of bioactive human sTNF-R (60kDa). If samples are to be run within 24 hours, they may be stored at 2°C to 8°C (for sample stability refer to “Sample stability” on page 6).

Avoid repeated freeze-thaw cycles. Prior to assay, the frozen sample should be brought to room temperature slowly and mixed gently.

Materials required but not provided

- 5 mL and 10 mL graduated pipettes
- 5 μ L to 1000 μ L adjustable single channel micropipettes with disposable tips
- 50 μ L to 300 μ L adjustable multichannel micropipette with disposable tips
- Multichannel micropipette reservoir
- Beakers, flasks, and cylinders necessary for preparation of reagents
- Device for delivery of wash solution (multichannel wash bottle or automatic wash system)
- Microwell strip reader capable of reading at 450 nm (620 nm as optional reference wave length)
- Glass-distilled or deionized water
- Statistical calculator with program to perform regression analysis

Precautions for Use

- All reagents should be considered as potentially hazardous. We therefore recommend that this product is handled only by those persons who have been trained in laboratory techniques and that it is used in accordance with the principles of good laboratory practice. Wear suitable protective clothing such as laboratory overalls, safety glasses and gloves. Care should be taken to avoid contact with skin or eyes. In the case of contact with skin or eyes wash immediately with water. See material safety data sheet(s) and/or safety statement(s) for specific advice.
- Reagents are intended for research use only and are not for use in diagnostic or therapeutic procedures.
- Do not mix or substitute reagents with those from other lots or other sources.
- Do not use kit reagents beyond expiration date on label.
- Do not expose kit reagents to strong light during storage or incubation.
- Do not pipet by mouth.
- Do not eat or smoke in areas where kit reagents or samples are handled.
- Avoid contact of skin or mucous membranes with kit reagents or samples.
- Rubber or disposable latex gloves should be worn while handling kit reagents or samples.
- Avoid contact of substrate solution with oxidizing agents and metal.
- Avoid splashing or generation of aerosols.
- To avoid microbial contamination or cross-contamination of reagents or samples that may invalidate the test, use disposable pipette tips and/or pipettes.
- Use clean, dedicated reagent trays for dispensing the conjugate and substrate reagent.
- Exposure to acid inactivates the conjugate.
- Glass-distilled water or deionized water must be used for reagent preparation.
- Substrate solution must be at room temperature prior to use.

- Decontaminate and dispose samples and all potentially contaminated materials as if they could contain infectious agents. The preferred method of decontamination is autoclaving for a minimum of 1 hour at 121.5°C.
- Liquid wastes not containing acid and neutralized waste may be mixed with sodium hypochlorite in volumes such that the final mixture contains 1.0% sodium hypochlorite. Allow 30 minutes for effective decontamination. Liquid waste containing acid must be neutralized prior to the addition of sodium hypochlorite.

Preparation of Reagents

1. Buffer Concentrates should be brought to room temperature and should be diluted before starting the test procedure.
2. If crystals have formed in the Buffer Concentrates, warm them gently until they have completely dissolved.

Wash buffer (1x)

1. Pour entire contents (50 mL) of the Wash Buffer Concentrate (20x) into a clean 1000 mL graduated cylinder. Bring to final volume of 1000 mL with glass-distilled or deionized water.
2. Mix gently to avoid foaming.
3. Transfer to a clean wash bottle and store at 2°C to 25°C. The Wash Buffer (1x) is stable for 30 days.
4. Wash Buffer (1x) may also be prepared as needed according to the following table:

Number of Strips	Wash Buffer Concentrate (20x) (mL)	Distilled Water (mL)
1–6	25	475
1–12	50	950

Assay buffer (1x)

1. Pour the entire contents (5 mL) of the Assay Buffer Concentrate (20x) into a clean 100 mL graduated cylinder. Bring to final volume of 100 mL with distilled water. Mix gently to avoid foaming.
2. Store at 2°C to 8°C. The Assay Buffer (1x) is stable for 30 days.
3. Assay Buffer (1x) may also be prepared as needed according to the following table:

Number of Strips	Assay Buffer Concentrate (20x) (mL)	Distilled Water (mL)
1–6	2.5	47.5
1–12	5.0	95.0

HRP-Conjugate

Note: The HRP-Conjugate should be used within 30 minutes after dilution.

Make a 1:100 (1:300 for urine samples) dilution of the concentrated HRP-Conjugate solution with Assay Buffer (1x) in a clean plastic tube as needed according to the following table:

Number of Strips	HRP-Conjugate (mL)	Assay Buffer (1x) (mL)
1–6	0.03	2.97 (8.97) ^[1]
1–12	0.06	5.94 (17.94) ^[1]

^[1] For urine samples

Human sTNF-R (60kDa) standard

1. Prepare human sTNF-R (60kDa) standard by addition of Assay Buffer (1x) as stated on the label and mix gently (concentration of diluted standard = 10 ng/mL).
2. It is recommended to centrifuge vials for a few seconds in a microcentrifuge before opening to collect standard at the bottom.

The standard has to be used immediately after reconstitution and cannot be stored.

External standard dilution

1. Label 7 tubes, one for each standard point: S1, S2, S3, S4, S5, S6, S7.
2. Prepare 1:2 serial dilutions for the standard curve as follows: Pipette 225 µL of Assay buffer (1x) into each tube.
3. Pipette 225 µL of diluted standard (concentration of standard = 10 ng/mL) into the first tube, labeled S1, and mix (concentration of standard 1 = 5 ng/mL).
4. Pipet 225 µL of this dilution into the second tube, labeled S2, and mix thoroughly before the next transfer.
5. Repeat serial dilutions 5 more times thus creating the points of the standard curve (see Figure 5).

Assay buffer (1x) serves as blank.

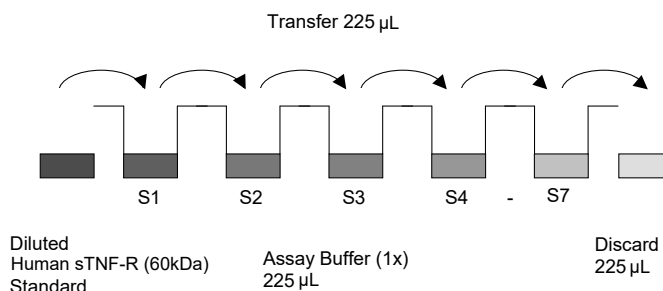


Fig. 5 Dilute standards - tubes.

Controls

Reconstitute lyophilized controls by addition of distilled water (10-30 minutes). Reconstitution volume is stated on the label of the control vial. Swirl or mix gently to ensure complete and homogeneous solubilization. Further treat the controls like your samples in the assay. For control range please refer to certificate of analysis. Store reconstituted controls aliquoted at -20°C.

Avoid repeated freeze and thaw cycles.

Test protocol

Note: In case of incubation without shaking the obtained O.D. values may be lower than indicated below. Nevertheless the results are still valid.

1. Determine the number of microwell strips required to test the desired number of samples plus appropriate number of wells needed for running blanks and standards. Each sample, standard, blank and optional control sample should be assayed in duplicate. Remove extra microwell strips from holder and store in foil bag with the desiccant provided at 2°C to 8°C sealed tightly.
2. Wash the microwell strips twice with approximately 400 µL Wash Buffer per well with thorough aspiration of microwell contents between washes. Allow the Wash Buffer to sit in the wells for about 10–15 seconds before aspiration. Take care not to scratch the surface of the microwells.

After the last wash step, empty wells and tap microwell strips on absorbent pad or paper towel to remove excess Wash Buffer. Use the microwell strips immediately after washing. Alternatively microwell strips can be placed upside down on a wet absorbent paper for not longer than 15 minutes. Do not allow wells to dry.

- Standard dilution on the microwell plate (alternatively, the standard dilution can be prepared in tubes, see “External standard dilution” on page 3):

Add 100 μL of Assay buffer (1x) in duplicate to all standard wells. Pipet 100 μL of prepared standard (see “Human sTNF-R (60kDa) standard” on page 3, concentration = 10.00 ng/mL) in duplicate into well A1 and A2 (see Table 1). Mix the contents of wells A1 and A2 by repeated aspiration and ejection (concentration of standard 1, S1 = 5.00 ng/mL), and transfer 100 μL to wells B1 and B2, respectively (see Figure 6). Take care not to scratch the inner surface of the microwells. Continue this procedure 5 times, creating two rows of human sTNF-R (60kDa) standard dilutions ranging from 5.00 to 0.08 ng/mL. Discard 100 μL of the contents from the last microwells (G1, G2) used.

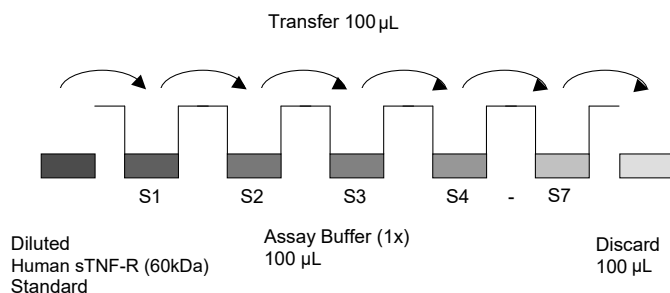


Fig. 6 Dilute standards - microwell plate.

In case of an external standard dilution (see “External standard dilution” on page 3), pipet 100 μL of these standard dilutions (S1–S7) in the standard wells according to Table 1.

Table 1 Example of the arrangement of blanks, standards, and samples in the microwell strips.

	1	2	3	4
A	Standard 1 5.00 ng/mL	Standard 1 5.00 ng/mL	Sample 1	Sample 1
B	Standard 2 2.50 ng/mL	Standard 2 2.50 ng/mL	Sample 2	Sample 2
C	Standard 3 1.25 ng/mL	Standard 3 1.25 ng/mL	Sample 3	Sample 3
D	Standard 4 0.63 ng/mL	Standard 4 0.63 ng/mL	Sample 4	Sample 4
E	Standard 5 0.31 ng/mL	Standard 5 0.31 ng/mL	Sample 5	Sample 5
F	Standard 6 0.16 ng/mL	Standard 6 0.16 ng/mL	Sample 6	Sample 6
G	Standard 7 0.08 ng/mL	Standard 7 0.08 ng/mL	Sample 7	Sample 7
H	Blank	Blank	Sample 8	Sample 8

- Add 100 μL of Assay buffer (1x) in duplicate to the blank wells.
- Add 90 μL of Assay buffer (1x) to the sample wells.
- Add 10 μL of each sample in duplicate to the sample wells.
- Prepare HRP-Conjugate (see “HRP-Conjugate” on page 3).
- Add 50 μL (100 μL for urine samples) of HRP-Conjugate to all wells.
- Cover with an adhesive film and incubate at room temperature (18°C to 25°C) for 2 hours on a microplate shaker.
- Remove adhesive film and empty wells. Wash microwell strips 3 times according to step 2. Proceed immediately to the next step.
- Pipet 100 μL of TMB Substrate Solution to all wells.

- Incubate the microwell strips at room temperature (18°C to 25°C) for about 10 minutes. Avoid direct exposure to intense light.

The color development on the plate should be monitored and the substrate reaction stopped (see next step) before positive wells are no longer properly recordable. Determination of the ideal time period for color development has to be done individually for each assay.

It is recommended to add the stop solution when the highest standard has developed a dark blue color. Alternatively the color development can be monitored by the ELISA reader at 620 nm. The substrate reaction should be stopped as soon as Standard 1 has reached an OD of 0.9–0.95.

- Stop the enzyme reaction by quickly pipetting 100 μL of Stop Solution into each well. It is important that the Stop Solution is spread quickly and uniformly throughout the microwells to completely inactivate the enzyme. Results must be read immediately after the Stop Solution is added or within one hour if the microwell strips are stored at 2°C to 8°C in the dark.
- Read absorbance of each microwell on a spectrophotometer using 450 nm as the primary wave length (optionally 620 nm as the reference wave length; 610 nm to 650 nm is acceptable). Blank the plate reader according to the manufacturer's instructions by using the blank wells. Determine the absorbance of both the samples and the standards.

Calculation of results

- Calculate the average absorbance values for each set of duplicate standards and samples. Duplicates should be within 20% of the mean value.
- Create a standard curve by plotting the mean absorbance for each standard concentration on the ordinate against the human sTNF-R (60kDa) concentration on the abscissa. Draw a best fit curve through the points of the graph (a 5-parameter curve fit is recommended).
- To determine the concentration of circulating human sTNF-R (60kDa) for each sample, first find the mean absorbance value on the ordinate and extend a horizontal line to the standard curve. At the point of intersection, extend a vertical line to the abscissa and read the corresponding human sTNF-R (60kDa) concentration.
- If instructions in this protocol have been followed, samples have been diluted 1:10 (10 μL sample + 90 μL Assay buffer (1x)) and the concentration read from the standard curve must be multiplied by the dilution factor (x 10).
- Calculation of samples with a concentration exceeding standard 1 may result in incorrect, low human sTNF-R (60kDa) levels. Such samples require further external predilution according to expected human sTNF-R (60kDa) values with Assay buffer (1x) in order to precisely quantitate the actual human sTNF-R (60kDa) level.
- It is suggested that each testing facility establishes a control sample of known human sTNF-R (60kDa) concentration and runs this additional control with each assay. If the values obtained are not within the expected range of the control, the assay results may be invalid.

- A representative standard curve is shown in Figure 7.

Note: Do not use this standard curve to derive test results. Each laboratory must prepare a standard curve for each group of microwell strips assayed.

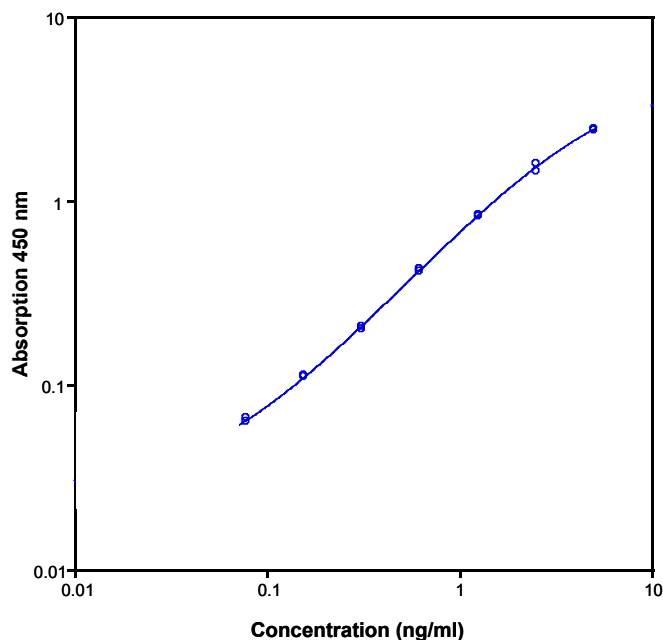


Fig. 7 Representative standard curve for Human sTNF-R (60kDa) ELISA Kit. Human sTNF-R (60kDa) was diluted in serial 2-fold steps in Assay buffer (1x).

Table 2 Typical data using the Human sTNF-R (60kDa) ELISA Kit.

Measuring wavelength: 450 nm

Reference wavelength: 620 nm

Standard	Human sTNF-R (60kDa) concentration (ng/mL)	O.D. at 450 nm	Mean O.D. at 450 nm	C.V. (%)
1	5.00	2.413 2.437	2.425	0.5
2	2.50	1.431 1.589	1.510	5.2
3	1.25	0.820 0.834	0.827	0.9
4	0.63	0.414 0.424	0.419	1.2
5	0.31	0.201 0.208	0.205	1.6
6	0.16	0.112 0.110	0.111	0.7
7	0.08	0.063 0.066	0.065	2.9
Blank	0.0	0.016 0.017	0.017	3.0

The OD values of the standard curve may vary according to the conditions of assay performance (e.g., operator, pipetting technique, washing technique, or temperature effects). Furthermore, shelf life of the kit may affect enzymatic activity and thus color intensity. Values measured are still valid.

Limitations

- Because exact conditions may vary from assay to assay, a standard curve must be established for every run.
- Bacterial or fungal contamination of either screen samples or reagents or cross-contamination between reagents may cause erroneous results.

- Disposable pipette tips, flasks, or glassware are preferred, reusable glassware must be washed and thoroughly rinsed of all detergents before use.
- Improper or insufficient washing at any stage of the procedure will result in either false positive or false negative results. Empty wells completely before dispensing fresh wash solution, fill with Wash Buffer as indicated for each wash cycle, and do not allow wells to sit uncovered or dry for extended periods.
- The use of radioimmunotherapy has significantly increased the number of patients with human anti-mouse IgG antibodies (HAMA). HAMA may interfere with assays utilizing murine monoclonal antibodies leading to both false positive and false negative results. Serum samples containing antibodies to murine immunoglobulins can still be analyzed in such assays when murine immunoglobulins (serum, ascitic fluid, or monoclonal antibodies of irrelevant specificity) are added to the sample.

Performance characteristics

Sensitivity

The limit of detection of human sTNF-R (60kDa) defined as the analyte concentration resulting in an absorbance significantly higher than that of the dilution medium (mean plus 2 standard deviations) was determined to be 0.05 ng/mL (mean of 6 independent assays).

Reproducibility

Intra-assay

Reproducibility within the assay was evaluated in 3 independent experiments. Each assay was carried out with 6 replicates of 8 serum samples containing different concentrations of human sTNF-R (60kDa). Two standard curves were run on each plate. Data below show the mean human sTNF-R (60kDa) concentration and the coefficient of variation for each sample. The calculated overall intra-assay coefficient of variation was 1.9%.

Table 3 Mean human sTNF-R (60kDa) concentration and the coefficient of variation for each sample.

Sample	Experiment	Mean concentration (ng/mL)	Coefficient of variation (%)
1	1	–	–
	2	1.57	0.9
	3	1.46	5.3
2	1	5.13	3.3
	2	5.84	1.7
	3	6.07	2.0
3	1	6.43	2.2
	2	6.45	1.0
	3	7.90	4.0
4	1	7.43	2.3
	2	7.60	1.2
	3	9.12	2.5
5	1	10.09	2.0
	2	9.87	1.2
	3	11.81	2.2
6	1	10.48	0.8
	2	10.86	0.4
	3	12.25	2.2
7	1	12.82	1.2
	2	12.83	0.4
	3	15.42	1.1
8	1	18.54	2.3
	2	17.30	0.8
	3	22.22	2.6

Inter-assay

Assay-to-assay reproducibility within one laboratory was evaluated in 3 independent experiments. Each assay was carried out with 6 replicates of 8 serum samples containing different concentrations of human sTNF-R (60kDa). Two standard curves were run on each plate.

Data below show the mean human sTNF-R (60kDa) concentration and the coefficient of variation calculated on 18 determinations of each sample. The calculated overall inter-assay coefficient of variation was 8.6%.

Table 4 Mean human sTNF-R (60kDa) concentration and the coefficient of variation of each sample.

Sample	Mean concentration (ng/mL)	Coefficient of variation (%)
1	1.52	5.0
2	5.68	7.5
3	6.92	10.1
4	8.05	9.7
5	10.59	8.4
6	11.28	7.9
7	13.69	9.0
8	19.35	11.0

Spike recovery

The spike recovery was evaluated by spiking 2 levels of human sTNF-R (60kDa) into pooled normal serum diluted 1:10. Recoveries were determined in 3 independent experiments with 8 replicates each. The amount of endogenous human sTNF-R (60kDa) in unspiked serum was subtracted from the spike values. The recovery ranged from 91–96% with an overall mean recovery of 93%.

Dilution parallelism

Three serum samples with different levels of human sTNF-R (60kDa) were analyzed at serial 2-fold dilutions with 4 replicates each. The recovery ranged from 92–111% with an overall recovery of 103%.

Sample	Dilution	Expected human sTNF-R (60kDa) concentration (ng/mL)	Observed human sTNF-R (60kDa) concentration (ng/mL)	Recovery of expected human sTNF-R (60kDa) concentration (%)
1	1:5	–	2.21	–
	1:10	1.11	1.12	100.9
	1:20	0.55	0.60	109.9
	1:40	0.28	0.31	110.7
2	1:5	–	21.99	–
	1:10	11.00	11.58	105.2
	1:20	5.50	5.53	100.6
	1:40	2.75	2.53	91.8
3	1:5	–	50.51	–
	1:10	25.26	27.27	107.8
	1:20	12.63	13.09	103.6
	1:40	6.31	6.18	97.9

Sample stability

Freeze-thaw stability

Aliquots of serum samples (spiked or unspiked) were stored at –20°C and thawed 5 times, and the human sTNF-R (60kDa) levels determined. There was no significant loss of human sTNF-R (60kDa) immunoreactivity detected by freezing and thawing.

Storage stability

Aliquots of serum samples (spiked or unspiked) were stored at –20°C, 2°C to 8°C, room temperature, and at 37°C, and the human sTNF-R (60kDa) level determined after 24 hours. There was no significant loss of human sTNF-R (60kDa) immunoreactivity detected during storage under above conditions.

Comparison of serum and plasma

From 2 individuals, serum as well as EDTA, citrate, and heparin plasma obtained at the same time point were evaluated. Human sTNF-R (60kDa) concentrations were not significantly different, and therefore all of these body fluids are suitable for the assay. Nevertheless, we highly recommend to ensure the uniformity of blood preparations.

Sample	Human sTNF-R (60kDa) donor 1	Concentration (ng/mL) donor 2
Serum	1.72	1.79
Plasma (EDTA)	1.97	1.84
Plasma (citrate)	1.55	1.77
Plasma (heparin)	1.91	1.87

Specificity

The cross-reactivity and interference of circulating factors of the immune system were evaluated by spiking these proteins at physiologically relevant concentrations into a human sTNF-R (60kDa) positive serum (50% calf serum containing 5 ng/mL sTNF-R (60kDa)). No cross-reactivity or interference was detected, notably not with human TNF α (<10 ng/mL) and TNF β (<100 μ g/mL).

Expected values

A panel of 37 sera samples from randomly selected apparently healthy donors (males and females) was tested for human sTNF-R (60kDa). The detected human sTNF-R (60kDa) levels ranged between 1.47 and 4.16 ng/mL with a mean level of 2.67 ng/mL and a standard deviation of 0.69 ng/mL.

Reagent preparation summary

Wash buffer (1x)

Add Wash Buffer Concentrate 20x (50 mL) to 950 mL distilled water.

Number of Strips	Wash Buffer Concentrate (mL)	Distilled Water (mL)
1–6	25	475
1–12	50	950

Assay buffer (1x)

Add Assay Buffer Concentrate 20x (5 mL) to 95 mL distilled water.

Number of Strips	Assay Buffer Concentrate (mL)	Distilled Water (mL)
1–6	2.5	47.5
1–12	5.0	95.0

HRP-Conjugate

Make a 1:100 dilution (1:300 for urine samples) of HRP-Conjugate in Assay buffer (1x):

Number of Strips	HRP-Conjugate (mL)	Assay buffer (1x) (mL)
1–6	0.03	2.97 (8.97) ^[1]
1–12	0.06	5.94 (17.94) ^[1]

^[1] For urine samples

Human sTNF-R (60kDa) standard

Prepare human sTNF-R (60kDa) standard by addition of Assay buffer (1x) as stated on the label and swirl or mix gently.

Controls

Reconstitute lyophilized controls by addition of distilled water (10–30 minutes). Reconstitution volume is stated on the label of the control vial.

Test protocol summary

Note: If instructions in this protocol have been followed, samples have been diluted 1:10 (10 µL sample + 90 µL Assay buffer (1x)) and the concentration read from the standard curve must be multiplied by the dilution factor (x 10).

1. Determine the number of microwell strips required.
2. Wash microwell strips twice with Wash Buffer.
3. Standard dilution on the microwell plate: Add 100 µL Assay buffer (1x), in duplicate, to all standard wells. Pipet 100 µL prepared standard into the first wells and create standard dilutions by transferring 100 µL from well to well. Discard 100 µL from the last wells.

Alternatively, external standard dilution in tubes (see “External standard dilution” on page 3): Pipet 100 µL of these standard dilutions in the microwell strips.
4. Add 100 µL Assay buffer (1x), in duplicate, to the blank wells.
5. Add 90 µL Assay buffer (1x) to sample wells.
6. Add 10 µL sample in duplicate, to designated sample wells.
7. Prepare HRP-Conjugate.
8. Add 50 µL (100 µL for urine samples) HRP-Conjugate to all wells.
9. Cover microwell strips and incubate 2 hours at room temperature (18°C to 25°C).
10. Empty and wash microwell strips 3 times with Wash Buffer.
11. Add 100 µL of TMB Substrate Solution to all wells.
12. Incubate the microwell strips for about 10 minutes at room temperature (18°C to 25°C).

13. Add 100 µL Stop Solution to all wells.
14. Blank microwell reader and measure color intensity at 450 nm.

Customer and technical support

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 - Safety Data Sheets (SDSs; also known as MSDSs)

Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

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