

Human Fibronectin ELISA Kit

Enzyme-linked Immunosorbent Assay for quantitative detection of human Fibronectin

Catalog Numbers BMS2028 or BMS2028TEN

Pub. No. MAN0016487 **Rev.** A.0 (30)

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 Fibronectin ELISA Kit is an enzyme-linked immunosorbent assay for the quantitative detection of human Fibronectin.

Summary

Fibronectin is an ubiquitous extracellular glycoprotein that exists in a soluble form in body fluids and in an insoluble form in the extracellular matrix. It plays a major role in many important physiological processes, such as embryogenesis, wound healing, hemostasis and thrombosis. Fibronectin is secreted as a dimer with a monomer molecular weight of 220–250 kDa. Fibronectin is composed of three types of modules organized into functional domains that are resistant to proteolysis and contain binding sites for extracellular matrix proteins, cell surface receptors, and circulating blood proteins.

In general, Fibronectin is synthesized by and present around fibroblasts, endothelial cells, chondrocytes, glial cells, and myocytes. Fibronectin is abundant in the connective tissue matrix and in basement membranes. Extremely high levels of the glycoprotein are found in plasma.

Fibronectin has been reported to play a major role in the cardiovascular system, being functionally involved in blood clotting, atherosclerosis, hypertension, and myocardial infarction.

Fibronectin's importance during cancer progression has further been shown. It represents an active element in the process of T cell activation in the immune cascade triggered by organ transplantation. Fetal Fibronectin has been described as a predictor of term labor.

For literature updates refer to our website.

Principles of the test

An anti-human Fibronectin coating antibody is adsorbed onto microwells.

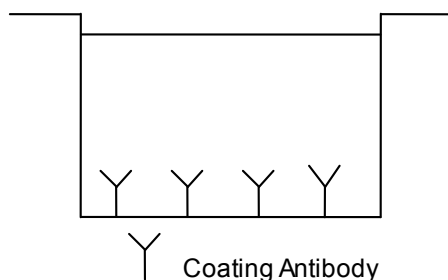


Fig. 1 Coated microwell.

Human Fibronectin present in the sample or standard binds to antibodies adsorbed to the microwells. A biotin-conjugated anti-human Fibronectin antibody is added and binds to human Fibronectin captured by the first antibody.

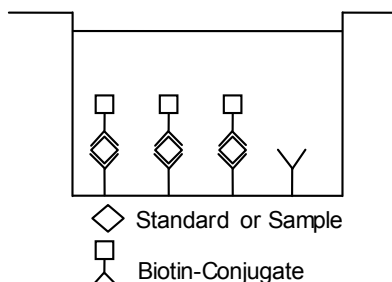


Fig. 2 First incubation.

Following incubation unbound biotin-conjugated anti-human Fibronectin antibody is removed during a wash step. Streptavidin-HRP is added and binds to the biotin-conjugated anti-human Fibronectin antibody.

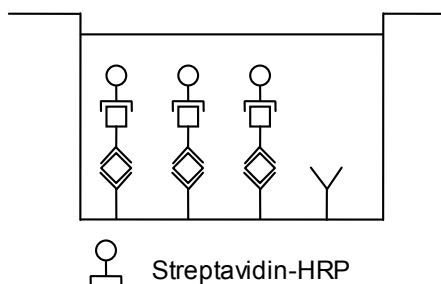


Fig. 3 Second incubation.

Following incubation unbound Streptavidin-HRP is removed during a wash step, and substrate solution reactive with HRP is added to the wells.

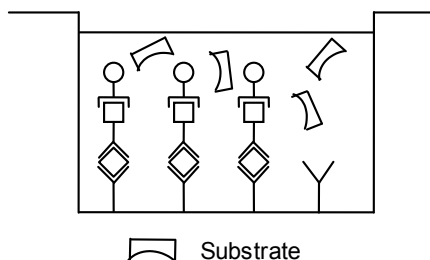


Fig. 4 Third incubation.

A colored product is formed in proportion to the amount of human Fibronectin 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 Fibronectin standard dilutions and human Fibronectin sample concentration determined.

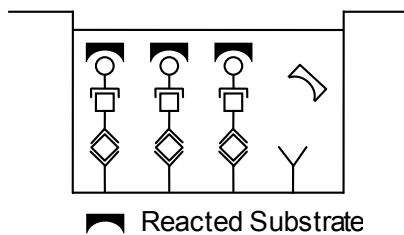


Fig. 5 Stop reaction.

Reagents provided

Reagents for human fibronectin ELISA BMS2028 (96 tests)

1 aluminum pouch with a Microwell Plate (12 strips of 8 wells each) coated with polyclonal antibody to human Fibronectin

1 vial (70 μ L) Biotin-Conjugate anti-human Fibronectin polyclonal antibody

1 vial (200 μ L) Streptavidin-HRP

2 vials human Fibronectin Standard lyophilized, 40 ng/mL upon reconstitution

3 vials (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)

4 Adhesive Films

Reagents for human fibronectin ELISA BMS2028TEN (10x96 tests)

10 aluminum pouches with a Microwell Plate (12 strips of 8 wells each) coated with polyclonal antibody to human Fibronectin

10 vials (70 μ L) Biotin-Conjugate anti-human Fibronectin polyclonal antibody

10 vials (200 μ L) Streptavidin-HRP

10 vials human Fibronectin Standard lyophilized, 40 ng/mL upon reconstitution

2 vials (50 mL) Assay Buffer Concentrate 20x (PBS with 1% Tween™ 20, 10% BSA)

6 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)

20 Adhesive Films

Storage instructions – ELISA kit

Store kit reagents between 2°C and 8°C. Immediately after use remaining reagents should be returned to cold storage (2°C to 8°C). 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, 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.

Pay attention to a possible *Hook Effect* due to high sample concentrations (see “Calculation of results” on page 4).

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 Fibronectin. 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 chemicals 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. For BMS2028:
 - a. 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.
 - b. Store at 2°C to 8°C. The Assay Buffer (1x) is stable for 30 days.
2. For BMS2028TEN:
 - a. Pour the entire contents (50 mL) of the Assay Buffer Concentrate (20x) into a clean 1000 mL graduated cylinder. Bring to final volume of 1000 mL with distilled water. Mix gently to avoid foaming.
 - b. 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

Biotin-Conjugate

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

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

Number of Strips	Biotin-Conjugate (mL)	Assay Buffer (1x) (mL)
1–6	0.03	2.97
1–12	0.06	5.94

Streptavidin-HRP

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

Make a 1:200 dilution of the concentrated Streptavidin-HRP solution with Assay Buffer (1x) in a clean plastic tube as needed according to the following table:

Number of Strips	Streptavidin-HRP (mL)	Assay Buffer (1x) (mL)
1–6	0.03	5.97
1–12	0.06	11.94

Human Fibronectin standard

1. Reconstitute human Fibronectin standard by addition of distilled water.
2. Reconstitution volume is stated on the label of the standard vial. Swirl or mix gently to insure complete and homogeneous solubilization (concentration of reconstituted standard = 40 ng/mL).
3. Allow the reconstituted standard to sit for 10–30 minutes. Mix well prior to making dilutions.

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: Pipet 225 µL of Assay Buffer (1x) into each tube.
3. Pipet 225 µL of reconstituted standard (concentration of standard = 40.00 ng/mL) into the first tube, labeled S1, and mix (concentration of standard 1 = 20.00 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 6).

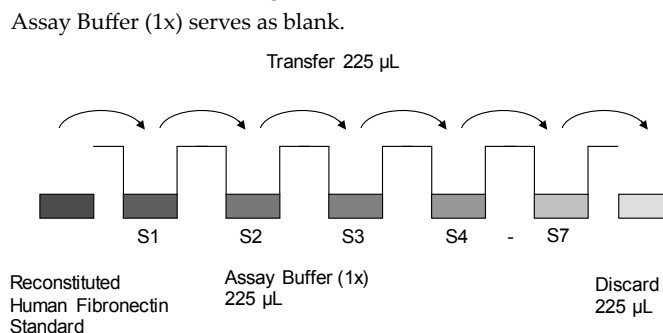


Fig. 6 Dilute standards - tubes.

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. Predilute your samples before starting with the test procedure. Dilute serum and plasma samples 1:10,000 with Assay Buffer (1x) according to the following scheme:
 - Dilution 1: 10 µL sample + 990 µL Assay Buffer (1x).
 - Dilution 2: 10 µL of dilution 1 + 990 µL Assay Buffer (1x).
 Use serum-free cell culture supernatants and urine without predilution.
2. 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.
3. 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 Fibronectin standard” on page 3, concentration = 40.00 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 = 20.00 ng/mL), and transfer 100 µL to wells B1 and B2, respectively (see Figure 7). Take care not to scratch the inner surface of the microwells. Continue this procedure 5 times, creating two rows of human Fibronectin standard dilutions ranging from 20.00 to 0.31 ng/mL. Discard 100 µL of the contents from the last microwells (G1, G2) used.

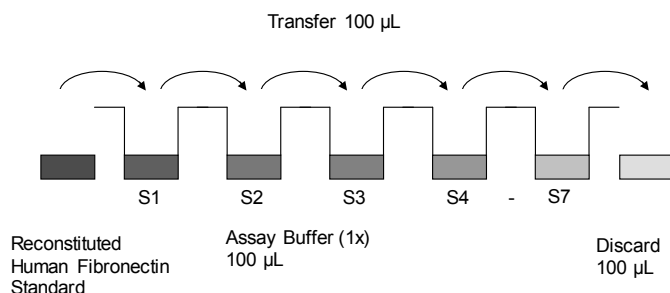


Fig. 7 Dilute standards - microwell plate.

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 20.00 ng/mL	Standard 1 20.00 ng/mL	Sample 1	Sample 1
B	Standard 2 10.00 ng/mL	Standard 2 10.00 ng/mL	Sample 2	Sample 2
C	Standard 3 5.00 ng/mL	Standard 3 5.00 ng/mL	Sample 3	Sample 3
D	Standard 4 2.50 ng/mL	Standard 4 2.50 ng/mL	Sample 4	Sample 4
E	Standard 5 1.25 ng/mL	Standard 5 1.25 ng/mL	Sample 5	Sample 5
F	Standard 6 0.63 ng/mL	Standard 6 0.63 ng/mL	Sample 6	Sample 6
G	Standard 7 0.31 ng/mL	Standard 7 0.31 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 50 µL of Assay Buffer (1x) to the sample wells.
- Add 50 µL of each sample (prediluted serum or plasma samples, undiluted serum-free cell culture supernatants or urine) in duplicate to the sample wells.
- Prepare Biotin-Conjugate (see “Biotin-Conjugate” on page 3).
- Add 50 µL of Biotin-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.
- Prepare Streptavidin-HRP (see “Streptavidin-HRP” on page 3).
- Remove adhesive film and empty wells. Wash microwell strips 6 times according to step 3. Proceed immediately to the next step.
- Add 100 µL of diluted Streptavidin-HRP to all wells, including the blank wells.
- Cover with an adhesive film and incubate at room temperature (18°C to 25°C) for 1 hour on a microplate shaker.
- Remove adhesive film and empty wells. Wash microwell strips 6 times according to step 3. 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 Fibronectin 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 Fibronectin 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 Fibronectin concentration.
- If instructions in this protocol have been followed, serum or plasma samples have been diluted 1:20,000 (1: 10,000 predilution, 50 µL sample + 50 µL Assay Buffer (1x)) and serum-free cell culture supernatants or urine samples 1:2 (50 µL sample + 50 µL Assay Buffer (1x)) and the concentration read from the standard curve must be multiplied by the dilution factor (x 20,000 or x 2, respectively).
- Calculation of samples with a concentration exceeding standard 1 will result in incorrect, low human Fibronectin levels (Hook Effect). Such samples require further external predilution according to expected human Fibronectin values with Assay Buffer (1x) in order to precisely quantitate the actual human Fibronectin level.
- It is suggested that each testing facility establishes a control sample of known human Fibronectin 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 8.
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.

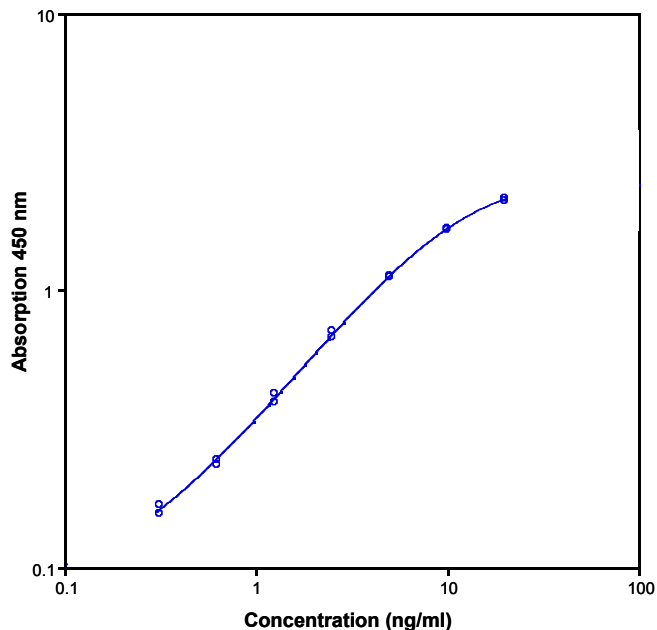


Fig. 8 Representative standard curve for Human Fibronectin ELISA Kit. Human Fibronectin was diluted in serial 2-fold steps in assay buffer (1x).

Table 2 Typical data using the Human Fibronectin ELISA Kit.
Measuring wavelength: 450 nm
Reference wavelength: 620 nm

Standard	Human Fibronectin concentration (ng/mL)	O.D. at 450 nm	Mean O.D. at 450 nm	C.V. (%)
1	20.00	2.103 2.149	2.126	1.1
2	10.00	1.661 1.680	1.671	0.6
3	5.00	1.125 1.118	1.122	0.3
4	2.50	0.675 0.710	0.693	2.5
5	1.25	0.395 0.422	0.409	3.3
6	0.63	0.235 0.245	0.240	2.1
7	0.31	0.157 0.169	0.163	3.7
Blank	0.00	0.035 0.031	0.033	6.1

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.

Performance characteristics

Sensitivity

The limit of detection of human Fibronectin defined as the analyte concentration resulting in an absorbance significantly higher than that of the dilution medium (mean plus two standard deviations) was determined to be 0.1 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 Fibronectin. Two standard curves were run on each plate. Data below show the mean human Fibronectin concentration and the coefficient of variation for each sample. The calculated overall intra-assay coefficient of variation was 5.3%.

Table 3 The mean human Fibronectin concentration and the coefficient of variation for each sample.

Sample	Experiment	Mean concentration (µg/mL)	Coefficient of variation (%)
1	1	31.68	4
	2	32.43	6
	3	26.99	5
2	1	38.06	6
	2	34.99	4
	3	33.56	5
3	1	47.28	6
	2	42.54	5
	3	41.69	3
4	1	45.88	5
	2	40.18	4
	3	42.68	5
5	1	16.24	8
	2	14.34	6
	3	15.45	4
6	1	13.81	5
	2	12.02	4
	3	12.43	4
7	1	18.75	3
	2	16.67	8
	3	18.50	2
8	1	30.66	4
	2	28.53	9
	3	30.45	10

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 plasma samples containing different concentrations of human Fibronectin. Two standard curves were run on each plate. Data below show the mean human Fibronectin concentration and the coefficient of variation calculated on

18 determinations of each sample. The calculated overall inter-assay coefficient of variation was 6.7%.

Table 4 The mean human Fibronectin concentration and the coefficient of variation of each sample.

Sample	Mean human Fibronectin concentration (µg/mL)	Coefficient of variation (%)
1	30.37	9.7
2	35.54	6.5
3	43.84	6.9
4	42.92	6.7
5	15.35	6.2
6	12.75	7.3
7	17.97	6.3
8	29.88	7.8

Spike recovery

The spike recovery was evaluated by spiking four levels of human Fibronectin into serum. Recoveries were determined in 4 independent experiments with 4 replicates each. The amount of endogenous human Fibronectin in unspiked serum was subtracted from the spike values. The overall mean recovery was 110.6%.

Dilution parallelism

Serum samples with different levels of human Fibronectin were analyzed at serial 2-fold dilutions with four replicates each. The recovery ranged from 93.2–122.6% with an overall recovery of 109.4%.

Sample	Dilution	Expected human Fibronectin concentration (µg/mL)	Observed human Fibronectin concentration (µg/mL)	Recovery of expected human Fibronectin concentration (%)
1	1:2	–	42.31	–
	1:4	21.16	19.72	93.2
	1:8	9.86	11.11	112.7
	1:16	5.54	6.59	118.7
2	1:2	–	66.32	–
	1:4	33.16	34.58	104.3
	1:8	17.29	18.13	104.8
	1:16	9.07	10.52	116.0
3	1:2	–	34.58	–
	1:4	17.29	17.06	98.6
	1:8	8.53	9.72	114.0
	1:16	4.86	5.42	111.6
4	1:2	–	42.80	–
	1:4	21.40	22.07	103.1
	1:8	11.04	12.48	113.1
	1:16	6.24	7.65	122.6

Sample stability

Freeze-thaw stability

Aliquots of serum samples (undiluted and 1:10,000 prediluted) were stored at –20°C and thawed five times, and the human Fibronectin levels determined. There was no significant loss of human Fibronectin immunoreactivity detected by freezing and thawing in undiluted samples.

A decrease of ~30% of human Fibronectin immunoreactivity was detected in prediluted serum samples after one freeze/thaw cycle.

Therefore samples should be stored in aliquots at –20°C and thawed only once.

Storage stability

Aliquots of serum (undiluted and 1:10,000 prediluted) were stored at –20°C, 2°C to 8°C, room temperature, and at 37°C, and the human Fibronectin level determined after 72 hours. There was no significant loss of human Fibronectin immunoreactivity detected during storage under above conditions.

Specificity

The interference of circulating factors of the immune system was evaluated by spiking these proteins at physiologically relevant concentrations into positive serum. No cross-reactivity was detected.

Expected values

A panel of 40 sera and 8 plasma and urine samples from randomly selected apparently healthy donors (males and females) was tested for human Fibronectin. The detected human Fibronectin level in urine is 4–11 ng/mL.

Sample matrix	Number of samples evaluated	Range (µg/mL)
Serum	40	12–124
Plasma (EDTA)	8	117–338
Plasma (heparin)	8	19–106

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. Add Assay Buffer Concentrate 20x (50 mL) to 950 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

Biotin-Conjugate

Make a 1:100 dilution of Biotin-Conjugate in Assay Buffer (1x).

Number of Strips	Biotin-Conjugate (mL)	Assay Buffer (1x) (mL)
1–6	0.03	2.97
1–12	0.06	5.94

Streptavidin-HRP

Make a 1:200 dilution of Streptavidin-HRP in Assay Buffer (1x).

Number of Strips	Streptavidin-HRP (mL)	Assay Buffer (1x) (mL)
1 - 6	0.03	5.97
1 - 12	0.06	11.94

Human fibronectin standard

Reconstitute lyophilized human Fibronectin standard with distilled water. (Reconstitution volume is stated on the label of the standard vial.)

Test protocol summary

Note: If instructions in this protocol have been followed, serum or plasma samples have been diluted 1:20,000 (1:10,000 predilution, 50 µL sample + 50 µL Assay Buffer (1x)) and serum-free cell culture supernatants or urine samples 1:2 (50 µL sample + 50 µL Assay Buffer (1x)) and the concentration read from the standard curve must be multiplied by the dilution factor (x 20,000 or x 2, respectively).

1. Predilute serum and plasma samples 1:10,000 in Assay Buffer (1x), use serum-free cell culture supernatants and urine samples undiluted.
2. Determine the number of microwell strips required.
3. Wash microwell strips twice with Wash Buffer.

- Standard dilution on the microwell plate: Add 100 µL Assay Buffer (1x), in duplicate, to all standard wells. Pipette 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): Pipette 100 µL of these standard dilutions in the microwell strips.

- Add 100 µL Assay Buffer (1x), in duplicate, to the blank wells.
- Add 50 µL Assay Buffer (1x) to sample wells.
- Add 50 µL sample in duplicate, to designated sample wells.
- Prepare Biotin-Conjugate.
- Add 50 µL Biotin-Conjugate to all wells.
- Cover microwell strips and incubate 2 hours at room temperature (18°C to 25°C).
- Prepare Streptavidin-HRP.
- Empty and wash microwell strips 6 times with Wash Buffer.
- Add 100 µL diluted Streptavidin-HRP to all wells.
- Cover microwell strips and incubate 1 hour at room temperature (18°C to 25°C).
- Empty and wash microwell strips 6 times with Wash Buffer.
- Add 100 µL of TMB Substrate Solution to all wells.
- Incubate the microwell strips for about 10 minutes at room temperature (18°C to 25°C).
- Add 100 µL Stop Solution to all wells.
- Blank microwell reader and measure color intensity at 450 nm.

Customer and technical support

Visit thermofisher.com/support for the latest service and support information.

- Worldwide contact telephone numbers
- Product support information
 - Product FAQs
 - Software, patches, and updates
 - Training for many applications and instruments
- Order and web support
- Product documentation
 - User guides, manuals, and protocols
 - Certificates of Analysis
 - Safety Data Sheets (SDSs; also known as MSDSs)

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

Limited product warranty

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