Datasheet for ABIN625252

MIF ELISA Kit

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Overview

Quantity:	96 tests
Target:	MIF
Reactivity:	Human
Method Type:	Sandwich ELISA
Detection Range:	6-6000 pg/mL
Minimum Detection Limit:	6 pg/mL
Application:	ELISA

Product Details

Purpose:	Human MIF ELISA Kit for cell culture supernatants, heparin treated plasma, and serum samples. EDTA and Citrate are not recommended.
Sample Type:	Plasma, Cell Culture Supernatant, Serum
Analytical Method:	Quantitative
Detection Method:	Colorimetric
Specificity:	This ELISA kit shows no cross-reactivity with any of the cytokines tested: Human Angiogenin, BDNF, BLC, ENA-78, FGF-4, IL-1 alpha, IL-1 beta, IL-2, IL-3, IL-4, IL-5, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12 p70, IL-12 p40, IL-13, IL-15, I-309, IP-10, G-CSF, GM-CSF, IFN-gamma, Leptin, MCP-1, MCP-2, MCP-3, MDC, MIP-1 alpha, MIP-1 beta, MIP-1 delta, PARC, PDGF, RANTES, SCF, TARC, TGF-beta, TIMP-1, TIMP-2, TNF-alpha, TNF-beta, TPO, VEGF.
Sensitivity:	< 6 pg/mL

Product Details

Characteristics:	• Strip plates and additional reagents allow for use in multiple experiments • Quantitative protein detection • Establishes normal range • The best products for confirmation of antibody array data
Components:	• Pre-Coated 96-well Strip Microplate • Wash Buffer • Stop Solution • Assay Diluent(s) • Lyophilized Standard • Biotinylated Detection Antibody • Streptavidin-Conjugated HRP • TMB One-Step Substrate
Material not included:	• Distilled or deionized water • Precision pipettes to deliver 2 µL to 1 µL volumes • Adjustable 1-25 µL pipettes for reagent preparation • 100 µL and 1 liter graduated cylinders • Tubes to prepare standard and sample dilutions • Absorbent paper • Microplate reader capable of measuring absorbance at 450nm • Log-log graph paper or computer and software for ELISA data analysis

Target Details

Target:	MIF
Alternative Name:	MIF (MIF Products)
Background:	MIF (Migration Inhibitory Factor) is known as a mediator of cellular immunity with specific effects on the differentiation of mononuclear phagocytes. The expression of MIF activity correlates well with delayed hypersensitivity and cellular immunity in humans and MIF is now recognized as a principal cytokine modulating T-cell/macrophage interactions in the expression of delayed hypersensitivity and acquired cellular immunity. MIF activity can be detected in the synovia of patients with rheumatoid arthritis. The Human MIF ELISA (Enzyme-Linked Immunosorbent Assay) kit is an in vitro enzyme-linked immunosorbent assay for the quantitative measurement of human MIF in serum, plasma (collect plasma using heparin as an anticoagulant. EDTA and Citrate are not recommended), cell culture supernatants and urine. This assay employs an antibody specific for human MIF coated on a 96-well plate. Standards and samples are pipetted into the wells and MIF present in a sample is bound to the wells by the immobilized antibody. The wells are washed and biotinylated anti-human MIF antibody is

Target Details

	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 MIF bound. The Stop Solution changes the color from blue to yellow, and the intensity of the color is measured at 450 nm. Reproducibility: Intra-Assay: CV<10% Inter-Assay: CV<12%.
Gene ID:	4282
UniProt:	P14174
Pathways:	Regulation of Systemic Arterial Blood Pressure by Hormones, Positive Regulation of Immune Effector Process, Production of Molecular Mediator of Immune Response, Regulation of Carbohydrate Metabolic Process, Feeding Behaviour, Smooth Muscle Cell Migration, Negative Regulation of intrinsic apoptotic Signaling

Application Details

Application Notes:	Recommended Dilution for serum and plasma samples2 fold
Sample Volume:	100 µL
Plate:	Pre-coated
Protocol:	1. Prepare all reagents, samples and standards as instructed in the manual. 2. Add 100 µL of standard or sample to each well. 3. Incubate 2.5 h at RT or O/N at 4 °C. 4. Add 100 µL of prepared biotin antibody to each well. 5. Incubate 1 h at RT. 6. Add 100 µL of prepared Streptavidin solution to each well. 7. Incubate 45 min at RT. 8. Add 100 µL of TMB One-Step Substrate Reagent to each well. 9. Incubate 30 min at RT. 10. Add 50 µL of Stop Solution to each well. 11. Read at 450 nm immediately.
Reagent Preparation:	1. Bring all reagents and samples to room temperature (18 - 25 °C) before use. 2. Sample dilution: If your samples need to be diluted, Assay Diluent A (Item D) should be used for dilution of serum/plasma samples. 1x Assay Diluent B (Item E) should be used for dilution of culture supernates and urine. Suggested dilution for normal serum/plasma: 2 fold*. * Please note that levels of the target protein may vary between different specimens. Optimal dilution factors for each sample must be determined by the investigator. 3. Assay Diluent B should be diluted 5-fold with deionized or distilled water.

	4. Preparation of standard: Briefly spin the vial of Item C and then add 400 µL Assay Diluent A (for serum/plasma samples) or 1x Assay Diluent B (for cell culture medium and urine, Assay Diluent B should be diluted 5-fold with deionized or distilled water) into Item C vial to prepare a 50 ng/mL standard. Dissolve the powder thoroughly by a gentle mix. Add 80 µL MIF standard from the vial of Item C, into a tube with 586.7 µL Assay Diluent A or 1x Assay Diluent B to prepare a 6,000 pg/mL stock standard solution. Pipette 400 µL Assay Diluent A or 1x Assay Diluent B into each tube. Use the stock standard solution to produce a dilution series . Mix each tube thoroughly before the next transfer. Assay Diluent A or 1x Assay Diluent B serves as the zero standard (0 pg/mL). 200 µL 80 µL standard +586.7 µL 200myl 200 µL 200 µL 200 µL 200 µL 6000 2000 666.7 222.2 74.07 24.69 8.23 0 pg/mL pg/mL pg/mL pg/mL pg/mL pg/mL pg/mL pg/mL 5. If the Wash Concentrate (20x) (Item B) 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 (Item F) before use. Add 100 µL of 1x Assay Diluent B 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 B and used in step 4 of Part VI Assay Procedure. 7. Briefly spin the HRP-Streptavidin concentrate vial (Item G) and pipette up and down to mix gently before use. HRP-Streptavidin concentrate should be diluted 300-fold with 1x Assay Diluent B. For example: Briefly spin the vial (Item G) and pipette up and down to mix gently . Add 40 µL of HRP-Streptavidin concentrate into a tube with 12 ml 1x Assay Diluent B to prepare a final 300 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. Add 100 µL of each standard (see Reagent Preparation step 2) and sample into appropriate wells. Cover well and incubate for 2.5 hours at room temperature or over night at 4 °C with gentle shaking. 3. Discard the solution and wash 4 times with 1x Wash Solution. Wash by filling each well with Wash Buffer (300 myl) 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. 4. 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.

Application Details

	5. Discard the solution. Repeat the wash as in step 6. 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. 7. Discard the solution. Repeat the wash as in step 8. Add 100 µL of TMB One-Step Substrate Reagent (Item H) to each well. Incubate for 30 minutes at room temperature in the dark with gentle shaking. 9. Add 50 µL of Stop Solution (Item I) 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. Assay Diluent A Human MIF concentration (pg/mL) 1 10 100 1000 10000 O D =4 50 n m 0.001 0.01 0.1 1 10 Assay Diluent B Human MIF concentration (pg/mL) 1 10 100 1000 10000 O D =4 50 n m 0.01 0.1 1 10 Sensitivity: The minimum detectable dose of MIF is typically less than 6 pg/mL. Recovery: Recovery was determined by spiking various levels of human MIF into human serum, plasma and cell culture media. Mean recoveries are as follows: Sample Type Average % Recovery Range (%) Serum 93.48 82-102 Plasma 95.41 84-103 Cell culture media 94.68 83-103 Linearity: Sample Type Serum Plasma Cell Culture Media 1:2 Average % of Expected 93 92 94 Range (%) 83-103 82-102 83-103 1:4 Average % of Expected 94 95 93 Range (%) 84-103 83-103 84-104 1:8 Average % of Expected 95 93 94 Range (%) 83-103 82-102 84-103 Reproducibility: Intra-Assay: CV<10 % Inter-Assay: CV<12 %
Assay Precision:	Intra-Assay: CV< 10 % Inter-Assay: CV< 12 %
Restrictions:	For Research Use only

Handling

Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-20 °C
Storage Comment:	The entire kit may be stored at -20°C for up to 1 year from the date of shipment. Avoid repeated freeze-thaw cycles. The kit may be stored at 4°C for up to 6 months. For extended storage, it is recommended to store at -80°C.

Handling

Expiry Date:	6 months

Publications

Product cited in:

Yildirim, Dikmen, Terek, Akman, Gunel, Aktan, Zekioglu, Gunduz: "Do preoperative serum vascular endothelial growth factor and migration-inhibitory factor predict the nature of the adnexal masses? A prospective-controlled trial." in: **Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology**, Vol. 36, Issue 4, pp. 533-7, (2017) (PubMed).

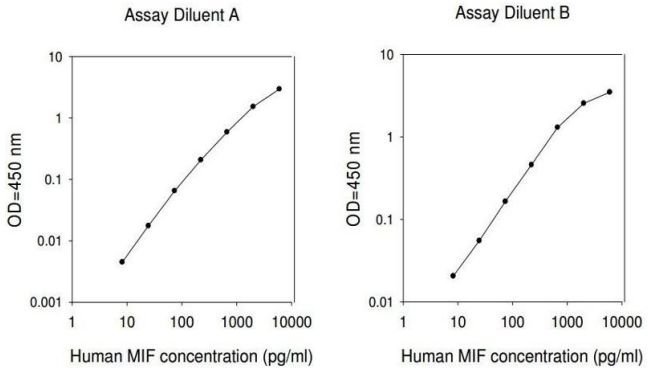
Brennan-Bourdon, De la Cruz-Mosso, Reyes-Castillo, Martínez-Bonilla, Ramírez-Dueñas, Islas-Carbajal, Rincón-Sánchez, Salazar-Páramo, Muñoz-Valle: "MIF and TNF? serum levels in rheumatoid arthritis patients treated with disease-modifying antirheumatic drugs: a cross-sectional study." in: **Immunopharmacology and immunotoxicology**, Vol. 37, Issue 2, pp. 207-13, (2015) (PubMed).

Müller, Chatterjee, Schneider, Borst, Seizer, Schönberger, Vogel, Müller, Geisler, Lang, Langer, Gawaz: "Gremlin-1 inhibits macrophage migration inhibitory factor-dependent monocyte function and survival." in: **International journal of cardiology**, Vol. 176, Issue 3, pp. 923-9, (2014) (PubMed).

Morales-Zambrano, Bautista-Herrera, De la Cruz-Mosso, Villanueva-Quintero, Padilla-Gutiérrez, Valle, Parra-Rojas, Rangel-Villalobos, Gutiérrez-Ureña, Muñoz-Valle: "Macrophage migration inhibitory factor (MIF) promoter polymorphisms (-794 CATT5-8 and -173 G>C): association with MIF and TNF? in psoriatic arthritis." in: **International journal of clinical and experimental medicine**, Vol. 7, Issue 9, pp. 2605-14, (2014) (PubMed).

Llamas-Covarrubias, Valle, Bucala, Navarro-Hernández, Palafox-Sánchez, Padilla-Gutiérrez, Parra-Rojas, Bernard-Medina, Reyes-Castillo, Muñoz-Valle: "Macrophage migration inhibitory factor (MIF): genetic evidence for participation in early onset and early stage rheumatoid arthritis." in: **Cytokine**, Vol. 61, Issue 3, pp. 759-65, (2013) (PubMed).

There are more publications referencing this product on: Product page



ELISA

Image 1.

