Datasheet for ABIN625024

IL-4 ELISA Kit

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Overview

Quantity:	96 tests
Target:	IL-4 (IL4)
Reactivity:	Human
Method Type:	Sandwich ELISA
Detection Range:	5-200 pg/mL
Minimum Detection Limit:	5 pg/mL
Application:	ELISA

Product Details

Purpose:	Human IL-4 ELISA Kit for cell culture supernatants, plasma, and serum samples.
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-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:	< 5 pg/mL
Characteristics:	• Strip plates and additional reagents allow for use in multiple experiments

Product Details

	• 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:	IL-4 (IL4)
Alternative Name:	IL-4 (IL4 Products)
Background:	IL-4 is a protein of 129 amino acids that is synthesized as a precursor containing a hydrophobic secretory signal sequence. IL-4 is glycosylated at two arginine residues (positions 38 and 105) and contains six cysteine residues involved in disulfide bond formation. The disulfide bonds are essential for biological activity. Some glycosylation variants of IL-4 have been described that differ in their biological activities. IL-4 enhances expression of class II MHC antigens on B-cells. It can promote their capacity to respond to other B-cell stimuli and to present antigens for T-cells. IL-4 inhibits cell activation of NK-cells induced by IL-2. IL-4 stimulates the proliferation of thymocytes with the marker spectrum CD4 (-) CD8 (-), CD4 (+) CD8 (-), CD4 (-) CD8(+). The Human IL-4 ELISA (Enzyme-Linked Immunosorbent Assay) kit is an in vitro enzyme-linked immunosorbent assay for the quantitative measurement of human IL-4 in serum, plasma, cell culture supernatants and urine. This assay employs an antibody specific for human IL-4 coated on a 96-well plate. Standards and samples are pipetted into the wells and IL-4 present in a sample is bound to the wells by the immobilized antibody. The wells are washed and

Target Details

	biotinylated anti-human IL-4 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 IL-4 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:	3565
UniProt:	P05112
Pathways:	JAK-STAT Signaling, Regulation of Leukocyte Mediated Immunity, Positive Regulation of Immune Effector Process, Production of Molecular Mediator of Immune Response, Proton Transport, Activated T Cell Proliferation

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 supernatants 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) into Item C vial to prepare a 110 ng/mL standard. Dissolve the powder thoroughly by a gentle mix. Add 2 µL IL-4 standard from the vial of Item C, into a tube with 1098 µL Assay Diluent A or 1x Assay Diluent B to prepare a 200 pg/mL stock standard solution. Pipette 300 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). 300 µL 300myl 300 µL 300 µL 300 µL 300 µL 2 µL standard + 1098 µL 200 100 50 25 12.5 6.25 3.13 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 200-fold with 1x Assay Diluent B. For example: Briefly spin the vial (Item G) and pipette up and down to mix gently . Add 60 µL of HRP-Streptavidin concentrate into a tube with 12 ml 1x Assay Diluent B to prepare a final 200 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. 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.

Application Details

	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 IL-4 concentration (pg/mL) 1 10 100 1000 O D =4 50 n m 0.1 1 10 Assay Diluent B Human IL-4 concentration (pg/mL) 1 10 100 1000 O D =4 50 n m 0.1 1 10 Sensitivity: The minimum detectable dose of IL-4 is typically less than 5 pg/mL. Recovery: Recovery was determined by spiking various levels of human IL-4 into human serum, plasma and cell culture media. Mean recoveries are as follows: Sample Type Average % Recovery Range (%) Serum 94.58 83-103 Plasma 96.24 84-104 Cell culture media 101.43 85-106 Linearity: Sample Type Serum Plasma Cell Culture Media 1:2 Average % of Expected 94 95 97 Range (%) 83-102 84-104 84-103 1:4 Average % of Expected 98 97 101 Range (%) 84-104 86-105 85-105 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.
Expiry Date:	6 months

Product cited in:

Hegazy, Salama, Mansour, Hassan: "Renoprotective Effect of Lactoferrin against Chromium-Induced Acute Kidney Injury in Rats: Involvement of IL-18 and IGF-1 Inhibition." in: **PLoS ONE**, Vol. 11, Issue 3, pp. e0151486, (2016) (PubMed).

Koob, Lim, Zabek, Massee: "Cytokines in single layer amnion allografts compared to multilayer amnion/chorion allografts for wound healing." in: **Journal of biomedical materials research. Part B, Applied biomaterials**, Vol. 103, Issue 5, pp. 1133-40, (2015) (PubMed).

Yang, Lei, Chen, Ren, Shi et al.: "Roles of the programmed cell death 1, T cell immunoglobulin mucin-3, and cluster of differentiation 288 pathways in the low reactivity of invariant natural killer T cells after chronic hepatitis B ..." in: **Archives of virology**, Vol. 160, Issue 10, pp. 2535-45, (2015) (PubMed).

Abdallah, Attia, Saad, El-Khateeb, Lotfi, Abdallah, El-Shennawy: "Serum Th1/Th2 and macrophage lineage cytokines in leprosy; correlation with circulating CD4(+) CD25(high) FoxP3(+) T-regs cells." in: **Experimental dermatology**, Vol. 23, Issue 10, pp. 742-7, (2014) (PubMed).

Lu, Bocca, Anderson, Wang, Manhua, Beydoun, Oehninger: "Modulation of the expression of the transcription factors T-bet and GATA-3 in immortalized human endometrial stromal cells (HESCs) by sex steroid hormones and cAMP." in: **Reproductive sciences (Thousand Oaks, Calif.)**, Vol. 20, Issue 6, pp. 699-709, (2013) (PubMed).

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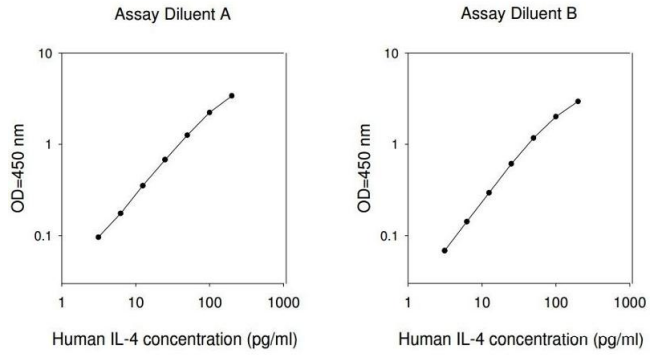

ELISA

Image 1.