



Human IL1 alpha ELISA Kit

ARG80191 Human IL1 alpha ELISA Kit is an Enzyme Immunoassay kit for the quantification of Human Interleukin-1alpha in serum, plasma, cell culture supernatants

Catalog number: ARG80191

Package: 96 wells

For research use only. Not for use in diagnostic procedures.

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INTRODUCTION

The protein encoded by this gene is a member of the interleukin 1 cytokine family. This cytokine is a pleiotropic cytokine involved in various immune responses, inflammatory processes, and hematopoiesis. This cytokine is produced by monocytes and macrophages as a proprotein, which is proteolytically processed and released in response to cell injury, and thus induces apoptosis. This gene and eight other interleukin 1 family genes form a cytokine gene cluster on chromosome 2. It has been suggested that the polymorphism of these genes is associated with rheumatoid arthritis and Alzheimer's disease. [provided by RefSeq]

PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. An antibody specific for IL1 alpha has been pre-coated onto a microtiter plate. Standards or samples are pipetted into the wells and any IL1 alpha present is bound by the immobilized antibody. After washing away any unbound substances, a biotin-conjugated antibody specific for IL1 alpha is added to each well and incubate. Following a washing to remove unbound substances, streptavidin conjugated to Horseradish Peroxidase (HRP) is added to each microplate well and incubated. After washing away any unbound antibody-enzyme reagent, a substrate solution (TMB) is added to the wells and color develops in proportion to the amount of IL1 alpha bound in the initial step. The color development is stopped by the addition of acid and the intensity of the color is measured at a wavelength of 450nm \pm 2nm. The concentration of IL1 alpha in the sample is then determined by comparing the O.D of samples to the standard curve.

MATERIALS PROVIDED & STORAGE INFORMATION

Store the unopened kit at 2-8 °C. Use the kit before expiration date.

Component	Quantity	Storage information
Antibody-coated microplate	8 X 12 strips	4°C. Unused strips should be sealed tightly in the air-tight pouch.
Standard (Lyophilized)	3 X 1 ng/vial	4°C
Standard diluent buffer	20 ml	4°C
Antibody conjugate concentrate	1 vial (400 µl)	4°C
Antibody diluent buffer	16 ml	4°C
HRP-Streptavidin concentrate	1 vial (400 µl)	4°C (Protect from light)
HRP-Streptavidin diluent buffer	16 ml	4°C
20X Wash buffer	50 ml	4°C
TMB substrate	12 ml	4°C (Protect from light)
STOP solution	12 ml	4°C
Plate sealer	4 strips	Room temperature

MATERIALS REQUIRED BUT NOT PROVIDED

- Microplate reader capable of measuring absorbance at 450nm
- Pipettes and pipette tips
- Deionized or distilled water
- Automated microplate washer (optional)

TECHNICAL HINTS AND PRECAUTIONS

- Wear protective gloves, clothing, eye, and face protection especially while handling blood or body fluid samples.
- Store the kit at 4°C at all times.
- Briefly spin down the antibody conjugate concentrate and HRP-Streptavidin concentrate before use.
- If crystals are observed in the 20X Wash buffer, warm to RT (not more than 50°C) until the crystals are completely dissolved.
- Ensure complete reconstitution and dilution of reagents prior to use.
- It is highly recommended that the standards, samples and controls be assayed in duplicates.
- Change pipette tips between the addition of different reagent or samples.

SAMPLE COLLECTION & STORAGE INFORMATION

The sample collection and storage conditions listed below are intended as general guidelines. Sample stability has not been evaluated.

Cell Culture Supernatants - Remove particulates by centrifugation and aliquot & store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

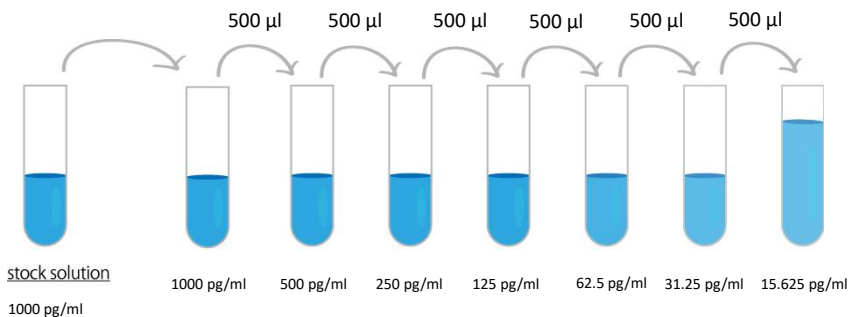
Serum - Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 x g. Remove serum and assay immediately or aliquot and store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

Plasma - Collect plasma using EDTA or heparin as an anticoagulant. Centrifuge for 15 minutes at 1000 x g within 30 minutes of collection. Assay immediately or aliquot and store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

REAGENT PREPARATION

- **1X Wash buffer:** Dilute 20X Wash buffer into distilled water to yield 1X Wash buffer.
- **1X Antibody conjugate:** Dilute 30X antibody conjugate concentrate into 1X antibody diluent buffer to yield 1X Detection antibody solution.
- **1X HRP-Streptavidin Solution:** Dilute 30X HRP-Streptavidin concentrate solution into 1X HRP-Streptavidin diluent buffer to yield 1X HRP-Streptavidin Solution buffer.
- **Sample:** If the initial assay found samples contain IL1 alpha higher than the highest standard, the samples can be diluted with Standard diluent buffer and then re-assay the samples. For the calculation of the concentrations this dilution factor has to be taken into account.
(It is recommended to do pre-test to determine the suitable dilution factor).
- **Standards:** Reconstitute the standard with 1000 μ l standard diluent buffer to yield a stock concentration of 1000 pg/ml. Keep the buffer in the vial for at least **15 min at RT** to make sure the standard is dissolved completely before making serial dilutions. The standard diluent buffer serves as zero standard (0 pg/ml), and the rest of the standard serial dilution can be diluted as according to the suggested concentration below: **1000 pg/ml, 500 pg/ml, 250 pg/ml, 125 pg/ml, 62.5 pg/ml, 31.25 pg/ml, 15.625 pg/ml.**

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Dilute IL1 alpha standard as according to the table below:

Standard	IL1 alpha Conc.	µl of Standard diluent	µl of standard
S7	1000 pg/ml	0	1000 (1000 pg/ml Stock)
S6	500 pg/ml	500	500 (S7)
S5	250 pg/ml	500	500 (S6)
S4	125 pg/ml	500	500 (S5)
S3	62.5 pg/ml	500	500 (S4)
S2	31.25 pg/ml	500	500 (S3)
S1	15.625 pg/ml	500	500 (S2)
S0	0	500	0

ASSAY PROCEDURE

All materials should be equilibrated to room temperature (RT) before use. Standards, samples and controls should be assayed in duplicates.

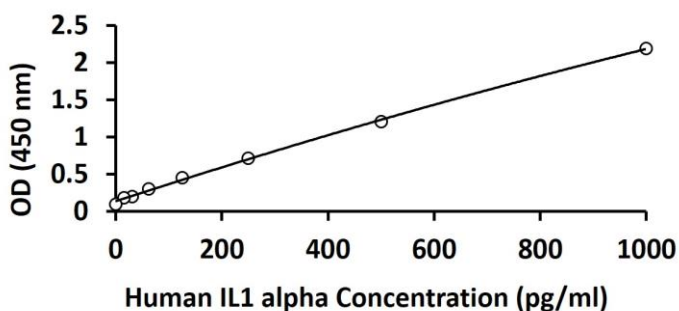
1. Remove excess microplate strips from the plate frame, return them to the foil pouch containing the desiccant pack, and reseal it.
2. Add **100 µl** of standards, samples and zero controls (standard diluent buffer) into wells. Incubate for **1.5 h at 37 °C**.
3. Aspirate each well and wash, repeating the process four times for a total **five washes**. Wash by filling each well with 1x Wash Buffer (350 µl) using a squirt bottle, manifold dispenser, or autowasher. Complete removal of liquid at each is essential to good performance. After the last wash, remove any remaining Wash Buffer by aspirating, decanting or blotting against clean paper towels.
4. Add **100 µl** 1X Antibody conjugate into each well. Cover wells and incubate for **1 hour at 37°C**.
5. Aspirate each well and **wash as step 3**.
6. Add **100 µl** of 1X HRP-Streptavidin solution to each well. Cover wells and incubate for **30 minutes at 37°C** in dark.
7. Aspirate each well and **wash as step 3**.
8. Add **100 µl** of TMB Reagent to each well. Incubate for **15 minutes at 37°C** in dark.
9. Add **100 µl** of Stop Solution to each well. The color of the solution should change from blue to yellow.
10. Read the OD with a microplate reader **at 450nm immediately**.

CALCULATION OF RESULTS

1. Calculate the average absorbance values for each set of standards, controls and patient samples.
2. Using linear graph paper, construct a standard curve by plotting the mean absorbance obtained from each standard against its concentration with absorbance value on the vertical (Y) axis and concentration on the horizontal (X) axis.
3. Using the mean absorbance value for each sample determine the corresponding concentration from the standard curve.
4. Automated method: The results in the IFU have been calculated automatically using a 4 PL (4 Parameter Logistics) curve fit. 4 Parameter Logistics is the preferred method. Other data reduction functions may give slightly different results.
5. arigo provides GainData®, an in-house development ELISA data calculator, for ELISA data result analysis. Please refer our GainData® website for details. (<https://www.arigobio.com/elisa-analysis>)
6. If the samples have been diluted, the concentration read from the standard curve must be further converted by the appropriate dilution factor according to the sample preparation procedure as described above.

EXAMPLE OF TYPICAL STANDARD CURVE

The following data is for demonstration only and cannot be used in place of data generations at the time of assay.



QUALITY ASSURANCE

Sensitivity

The minimum detectable dose (MDD) of Human IL1 alpha ranged from 15.6-1000 pg/ml. The mean MDD was 8 pg/ml.

Specificity

This assay recognizes natural and recombinant Human IL1 alpha. No significant cross-reactivity or interference with the factors below was observed:

Human IL-1 β , IL-1ra, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10

Intra-assay and Inter-assay precision

The CV values of both intra and inter precision fall below 10%.