# Human IL17A / IL17F Heterodimer ELISA Kit

Enzyme Immunoassay for the quantification of Human IL17A / IL17F Heterodimer in Serum, plasma and cell culture supernatants.

Catalog number: ARG82673

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## INTRODUCTION

IL17A: The protein encoded by this gene is a proinflammatory cytokine produced by activated T cells. This cytokine regulates the activities of NF-kappaB and mitogen-activated protein kinases. This cytokine can stimulate the expression of IL6 and cyclooxygenase-2 (PTGS2/COX-2), as well as enhance the production of nitric oxide (NO). High levels of this cytokine are associated with several chronic inflammatory diseases including rheumatoid arthritis, psoriasis and multiple sclerosis. [provided by RefSeq, Jul 2008]<br><br>IL17F: The protein encoded by this gene is a cytokine that shares sequence similarity with IL17. This cytokine is expressed by activated T cells, and has been shown to stimulate the production of several other cytokines, including IL6, IL8, and CSF2/GM_CSF. This cytokine is also found to inhibit the angiogenesis of endothelial cells and induce endothelial cells to produce IL2, TGFB1/TGFB, and monocyte chemoattractant protein-1. [provided by RefSeq, Jul 2008]

IL17A: Ligand for IL17RA and IL17RC (PubMed:17911633). The heterodimer formed by IL17A and IL17F is a ligand for the heterodimeric complex formed by IL17RA and IL17RC (PubMed:18684971). Involved in inducing stromal cells to produce proinflammatory and hematopoietic cytokines (PubMed:8676080). [UniProt]<br><br>IL17F: Ligand for IL17RA and IL17RC (PubMed:17911633). The heterodimer formed by IL17A and IL17F is a ligand for the heterodimeric complex formed by IL17RA and IL17RC (PubMed:18684971). Involved in stimulating the production of other cytokines such as IL6, IL8 and CSF2, and in regulation of cartilage matrix turnover (PubMed:11591732, PubMed:11591768, PubMed:11574464). Also involved in stimulating the proliferation of peripheral blood mononuclear cells and T-cells and in inhibition

of angiogenesis (PubMed:11591732). Plays a role in the induction of neutrophilia in the lungs and in the exacerbation of antigen-induced pulmonary allergic inflammation (By similarity). [UniProt]

## PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. An antibody specific for IL17A / IL17F Heterodimer has been pre-coated onto a microtiter plate. Standards or samples are pipetted into the wells and any IL17A / IL17F Heterodimer present is bound by the immobilized antibody. After washing away any unbound substances, a biotin-conjugated antibody specific for IL17A / IL17F Heterodimer 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 IL17A / IL17F Heterodimer 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 ±2nm. The concentration of IL17A / IL17F Heterodimer 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.

| NO | Component | Quantity | Storage information |
|---|---|---|---|
| C1 | Antibody-coated microplate | 8 X 12 strips | 4°C. Unused strips should be sealed tightly in the air-tight pouch. |
| C2 | Standard (Lyophilized) | 2 X 5 ng/Vial | 4°C |
| C3 | Standard diluent buffer | 20 ml (ready to use) | 4°C |
| C4 | Antibody conjugate concentrate | 1 vial (400 µl) | 4°C |
| C5 | Antibody diluent buffer | 16 ml (ready to use) | 4°C |
| C6 | HRP-Streptavidin concentrate | 1 vial (400 µl) | 4°C (Protect from light) |
| C7 | HRP-Streptavidin diluent buffer | 16 ml (ready to use) | 4°C |
| C8 | 20X Wash buffer | 50 ml | 4°C |
| C9 | TMB substrate | 12 ml (ready to use) | 4°C (Protect from light) |
| C10 | STOP solution | 12 ml (ready to use) | 4°C |
| C11 | 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
- 37°C oven or incubator
- 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.
- 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.
- All materials should be equilibrated to room temperature (RT, 22-25°C) 20 min before use.
- All reagents should be mixed by gentle inversion or swirling prior to use. Do not induce foaming.
- Before using the kit, spin tubes and bring down all components to the bottom of tubes.
- Mix the contents of the microplate wells thoroughly by microplate shaker for 1 min or gently tap the plate to ensure good test results. Please mix carefully to avoid well-to-well contamination. Do not reuse microwells.
- The TMB Color developing agent should be colorless and transparent before using.
- Use reservoirs only for single reagents. This especially applies to the substrate reservoirs. Using a reservoir for dispensing a substrate solution that had previously been used for the conjugate solution may turn solution colored. Do not pour reagents back into vials as reagent contamination may occur.
- Do not let wells dry during assay; add reagents immediately after completing the rinsing steps.

- Avoid using reagents from different batches.
- 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 for 10 min at 1500 x g at 4°C and aliquot & store samples at -20°C up to 1 month or -80°C up to 6 months. 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. Collect serum and assay immediately or aliquot & store samples at -20°C up to 1 month or -80°C up to 6 months. 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. Collect the supernatants and assay immediately or aliquot and store samples at -20°C up to 1 month or -80°C up to 6 months. Avoid repeated freeze-thaw cycles.

Note:

a) Do not use haemolytic, icteric or lipaemic specimens.

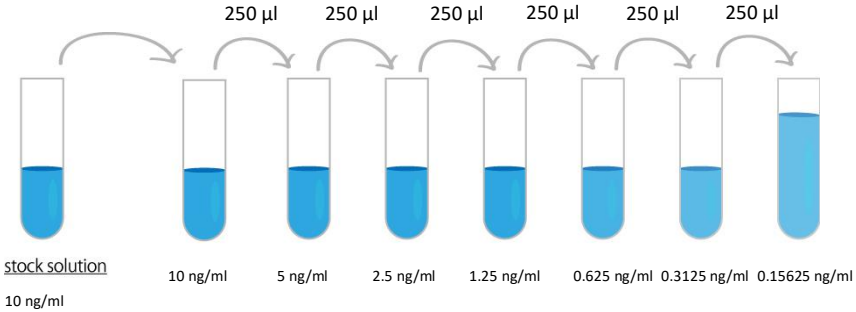
b) Samples containing sodium azide should not be used in the assay.

## REAGENT PREPARATION

- 1X Wash buffer: Dilute 20X Wash buffer (#C8) into distilled water to yield 1X Wash buffer. (E.g. 50 ml of 20X Wash buffer + 950 ml of distilled water) The diluted Wash buffer is stable for 4 weeks at 2°C to 8°C.
- 1X Antibody conjugate: 20 minutes before use, dilute 30X antibody conjugate concentrate (#C4) into antibody diluent buffer (#C5) to yield 1X Detection antibody solution.
- 1X HRP-Streptavidin Solution: 20 minutes before use, dilute 30X HRP-Streptavidin concentrate solution (#C6) into HRP-Streptavidin diluent buffer (#C7) to yield 1X HRP-Streptavidin Solution buffer. Keep diluted HRP-Streptavidin Solution in dark before use.
- Sample: If the initial assay found samples contain IL17A / IL17F Heterodimer higher than the highest standard, the samples can be diluted with Standard diluent buffer (#C3) 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 (#C2) with 0.5 ml standard diluent buffer (#C3) to yield a stock concentration of 10 ng/ml. Keep the buffer in the vail 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 ng/ml), and the rest of the standard serial dilution can be diluted as according to the suggested concentration below: 10 ng/ml, 5 ng/ml, 2.5 ng/ml, 1.25 ng/ml, 0.625 ng/ml, 0.3125

ng/ml, 0.15625 ng/ml. DO NOT reuse the reconstituted standard.




Dilute IL17A / IL17F Heterodimer standard as according to the table below:

| Standard | IL17A / IL17F Heterodimer Conc. | µl of Standard diluent | µl of standard |
|---|---|---|---|
| S7 | 10 ng/ml | 0 | 500 (10 ng/ml Stock) |
| S6 | 5 ng/ml | 250 | 250 (S7) |
| S5 | 2.5 ng/ml | 250 | 250 (S6) |
| S4 | 1.25 ng/ml | 250 | 250 (S5) |
| S3 | 0.625 ng/ml | 250 | 250 (S4) |
| S2 | 0.3125 ng/ml | 250 | 250 (S3) |
| S1 | 0.15625 ng/ml | 250 | 250 (S2) |
| S0 | 0 | 250 | 0 |

## ASSAY PROCEDURE

**All materials should be equilibrated to room temperature (RT) 20 min 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, gently tap the plate to mix well. 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 1× Wash Buffer (**350 µl**) using a squirt bottle, manifold dispenser, or autowasher, keep the Wash Buffer in the wells for 30 sec before remove. 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, gently tap the plate to mix 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, gently tap the plate to mix 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 (#C9) to each well, gently tap the plate to mix well. Incubate for **15 minutes at 37°C** in dark.
9. Add **100 µl** of Stop Solution (#C10) to each well, gently tap the plate to mix well. The color of the solution should change from blue to yellow.
10. Read the OD with a microplate reader at **450 nm immediately**. It is

recommended read the absorbance within 3 min after adding STOP solution.

## 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.

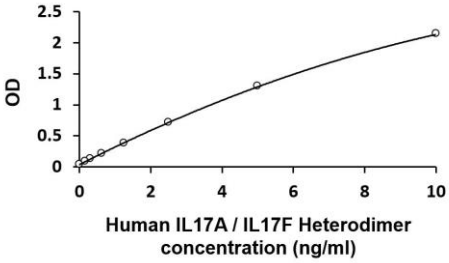
3. Using the mean absorbance value for each sample determine the corresponding concentration from the standard curve.

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. 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 IL17A / IL17F Heterodimer ranged from 0.156- 10 ng/ml. The mean MDD was 0.08 ng/ml.

### Specificity

This assay recognizes natural and recombinant Human IL17A / IL17F Heterodimer. No significant cross-reactivity or interference with the factors below was observed:

Not react with Human IL17B, IL17C, IL17D, IL17E, IL17RC, IL17RD, IL10, IL12 and IL16.

### Intra-assay and Inter-assay precision

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