



Human IL-6 ELISA

Catalog Number EA-0206

(For Research Use Only)

Introduction

Interleukin-6 (IL-6) is a multifunctional cytokine that regulates the immune response, hematopoiesis, the acute phase response, and inflammation. Deregulation of IL-6 production is implicated in the pathology of several disease processes. Its levels are observed in several diseases, including rheumatoid arthritis (RA). IL-6 plays roles in both a pro-inflammatory and anti-inflammatory cytokine. It is secreted by T cells and macrophages to stimulate immune response. In addition, like TNF α , IL-6 is another adipocyte secretory product that may be involved in insulin resistance. IL-6 is a cytokine secreted by many cells, including adipocytes and adipose stromal cells. IL-6 secretion is increased in the adipocytes of obese subjects (1) and may be important either as a circulating hormone or as a local regulator of insulin action (2-4). IL-6 has been implicated in the development of insulin resistance and type 2 diabetes in obese individuals. Like TNF, IL-6 inhibits the expression of LPL, but, unlike TNF, IL-6 does not stimulate lipolysis (5, 6).

Principle of the assay

IL-6 ELISA is based on the principle of a solid phase enzyme-linked immunosorbent assay. The assay utilizes a mouse anti-human IL-6 antibody for immobilization on the microtiter wells and goat anti-human IL-6 antibodies along with streptavidin conjugated to horseradish peroxidase (HRP) for detection. The test sample is allowed to react simultaneously with the two antibodies, resulting in the IL-6 molecules being sandwiched between the solid phase and enzyme-linked antibodies. After incubation, the wells are washed to remove unbound-labeled antibodies. A HRP substrate, TMB, is added to result in the development of a blue color. The color development is then stopped with the addition of Stop Solution changing the color to yellow. The concentration of IL-6 is directly proportional to the color intensity of the test sample. Absorbance is measured spectrophotometrically at 450 nm.

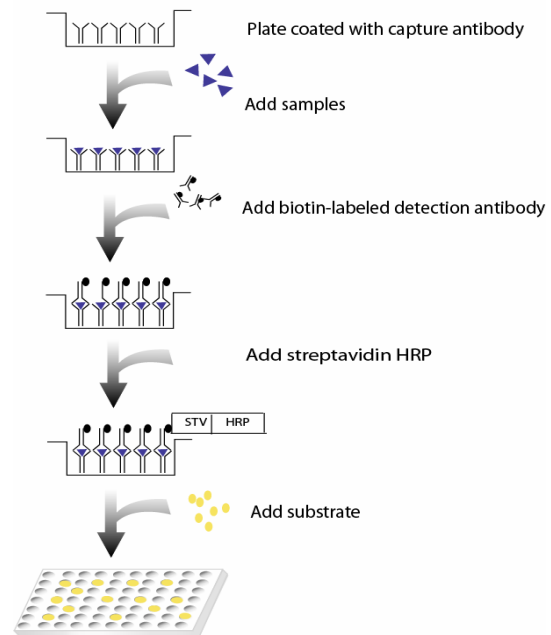


Diagram of ELISA

Materials provided with the kit

Component	Qty	Store at
8x12 96-well microplate coated with a mouse anti-human IL-6 antibody	1	4°C
Biotin labeled anti-human IL-6 antibody	25 μ L	-20°C
Recombinant Human IL-6 standard (400ng/ml)	10 μ L	-20°C
Streptavidin-HRP conjugate	50 μ L	4°C
1xDiluent buffer	40mL	4°C
5X Assay wash buffer	40mL	4°C
Substrate	10mL	4°C
Stop solution	5mL	4°C

Material required but not provided

- Microplate reader capable of measuring absorbance at 450 nm
- Deionized or distilled water.

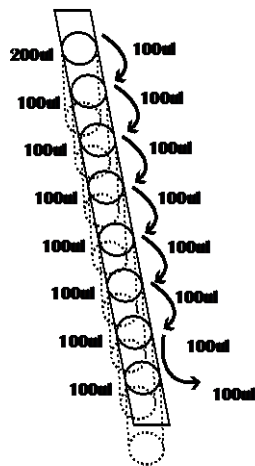
Reagent preparation before starting experiment

- Dilute the 5x Assay wash buffer to 1x buffer
40ml 5x Assay wash buffer
160ml ddH₂O
- Use serum-free conditioned media or original or 10-fold diluted sera. Sera can be diluted with 1 X Diluent buffer. When serum-containing conditioned media is required, be sure to use serum as a control.
- Dilute 100 times of human recombinant IL-6 (400ng/ml) with 1X Diluent buffer to 4000pg/ml and then 2-fold serial dilutions. To dilute 100 times of Human IL-6, add 2ul Human Recombinant IL-6 in 200ul 1X Diluent Buffer (See Step 2 below for detailed instruction).
- Dilute 400 times of biotin labeled goat anti-human IL-6 antibody with 1X Diluent buffer before use.
- Dilute 200 times of streptavidin-HRP with 1X Diluent buffer before use.

7. Add 100 μ l of diluted streptavidin-HRP conjugate to each well and incubate for 45 min at room temperature with gentle shaking.
8. Repeat the aspiration/wash as in step 4.
9. Add 100 μ l of substrate to each well and incubate for 5-30 minutes.
10. Add 50 μ l of Stop solution to each well. The color in the wells should change from blue to yellow.
11. Determine the optical density of each well with a microplate reader at 450 nm within 30 minutes.

Assay procedure

1. Calculate the number of samples to decide how many strips need to be used.
2. See instruction and diagram below for standard preparation.



- a. Add 200ul 1X Diluent buffer to the 1st well. Add 100ul 1X Diluent Buffer to the rest wells of strip.
- b. Add appropriate amount of protein recombinant (follow instruction in "Reagent Preparation")
- c. Mix dilutions in 1st well and transfer 100ul from the 1st well to the next dilution. (See picture) Incubate each well for 1 hr at room temperature with gentle shaking

3. Add 100ul of sample per well and incubate for 1 hour at room temperature with gentle shaking.
4. Aspirate each well and wash by adding 200 μ l of 1X Assay wash buffer. Repeat the process three times for a total of three washes. Complete removal of liquid at each wash. After the last wash, remove any remaining liquid by inverting the plate against clean paper towels.
5. Add 100 μ l of diluted biotin-labeled anti-human IL-6 antibody to each well and incubate for 1 hour at room temperature with gentle shaking.
6. Repeat the aspiration/wash as in step 4.