



Aug 21, 2020

ELISA for quantification of IL-12 in human serum.

Angel A Justiz-Vaillant¹¹University of the West Indies St. Augustine

1

Works for me

dx.doi.org/10.17504/protocols.io.bj3bkqin

University of the West Indies

angel.vaillant@sta.uwi.edu

Angel Justiz-Vaillant

University of the West Indies St. Augustine

ABSTRACT

Interleukins (IL) are a type of cytokine first thought to be expressed by leukocytes alone but have later been found to be produced by many other body cells. They play essential roles in the activation and differentiation of immune cells, as well as proliferation, maturation, migration, and adhesion. They also have pro-inflammatory and anti-inflammatory properties. The primary function of interleukins is, therefore, to modulate growth, differentiation, and activation during inflammatory and immune responses. Interleukins consist of a large group of proteins that can elicit many reactions in cells and tissues by binding to high-affinity receptors in cell surfaces.

Monocytes produce IL-12. Its principal targets are T cells. It causes induction of Th1 cells. Besides, it is a potent inducer of interferon gamma production by T lymphocytes and NK cells. [\[1\]](#)

Reference

1. Justiz Vaillant AA, Qurie A. Interleukin. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; June 12, 2019.

DOI

dx.doi.org/10.17504/protocols.io.bj3bkqin

PROTOCOL CITATION

Angel A Justiz-Vaillant 2020. ELISA for quantification of IL-12 in human serum.. **protocols.io**
<https://dx.doi.org/10.17504/protocols.io.bj3bkqin>

LICENSE

— This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

CREATED

Aug 21, 2020

LAST MODIFIED

Aug 21, 2020

PROTOCOL INTEGER ID

40771

- 1 An anti-human IL-12 coating antibody is adsorbed onto microwells by incubation overnight at 4°C.
- 2 Add 50 µl of human serum. Human IL-12 present in the serum sample binds to antibodies adsorbed to the microwells.

- 3 The microplate is blocked with 3% non-fat milk-PBS buffer and later wash to remove unbound proteins.
- 4 Fifty (50) μ l of biotin-conjugated anti-human IL-12 antibody is added. The optimal dilution must be investigated.
- 5 The microplate is rewashed with PBS-Tween 20 buffer, pH 7.4.
- 6 One hundred μ l of streptavidin-HRP conjugate is added and it binds to the biotin-conjugated anti-human IL-12 antibody. The optimal dilution of this conjugate must be investigated.
- 7 The plate is washed following incubation to remove the unbound Streptavidin-HRP.
- 8 Add 100 μ l of 3,3',5,5'- tetramethylbenzidine (TMB; Sigma-Aldrich) to each well.
- 9 Incubate the microwells in the dark for 15 min.
- 10 A colored product is formed in proportion to the quantity of human IL-12 present in the sample or standard.
- 11 The reaction is terminated by addition of 100 μ l 3M H₂SO₄ and absorbance is measured at 450 nm.
- 12 A standard curve is made from 7 human IL-12 standard dilutions and the human IL-12 sample concentration is determined.
- 13 For better results place the microplate on a plate shaker in every incubation.