AUG 21, 2020

OPEN ACCESS

DOI:
dx.doi.org/10.17504/protocols.io.bj3akqie

Protocol Citation: Angel A Justiz-Vaillant 2020. ELISA for quantification of IL-11 in human serum.. **protocols.io**
<https://dx.doi.org/10.17504/protocols.io.bj3akqie>

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

Protocol status: In development
 We are still developing and optimizing this protocol

Created: Aug 21, 2020

Last Modified: Aug 21, 2020

PROTOCOL integer ID:
 40770

ELISA for quantification of IL-11 in human serum.

Angel A Justiz-Vaillant¹

¹University of the West Indies St. Augustine

Angel A 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.

Bone marrow stromal cells and fibroblasts produce IL-11. The IL-11 principal targets are hemopoietic progenitors and osteoclasts. The IL-11 primary effects include osteoclast formation, colony stimulating factor, raised platelet count in vivo, and inhibition of pro-inflammatory cytokine production. [\[1\]](#)

Reference

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

- 1 An anti-human IL-11 coating antibody is adsorbed onto microwells by incubation overnight at 4°C.

- 2 Add 50 µl of human serum. Human IL-11 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) µl of biotin-conjugated anti-human IL-11 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 µl of streptavidin-HRP conjugate is added and it binds to the biotin-conjugated anti-human IL-11 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 µl of 3,3',5,5'- tetramethylbenzidine (TMB; Sigma-Aldrich) to each well.
- 9 Incubate the microwells in the dark for 15 min.

A colored product is formed in proportion to the quantity of human IL-11 present in the sample or

- 10 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-11 standard dilutions and the human IL-11 sample concentration is determined.
- 13 For better results place the microplate on a plate shaker in every incubation.