

Aug 21, 2020

## ELISA for quantification of IL-11 in human serum.

DOI

[dx.doi.org/10.17504/protocols.io.bj3akqie](https://dx.doi.org/10.17504/protocols.io.bj3akqie)

Angel A Justiz-Vaillant<sup>1</sup>

<sup>1</sup>University of the West Indies St. Augustine



Angel A Justiz-Vaillant

University of the West Indies St. Augustine

### Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://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:** August 21, 2020



**Last Modified:** August 21, 2020

**Protocol Integer ID:** 40770

**Keywords:** primary function of interleukin, interleukin, cytokine, leukocyte, immune cell, immune response, differentiation of immune cell, inflammatory, bone marrow stromal cell, elisa for quantification, affinity receptors in cell surface, hemopoietic progenitor, many other body cell, cell, il, platelet count in vivo, bone marrow, stromal cell, essential roles in the activation

## 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.

## Troubleshooting

- 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.
- 10 A colored product is formed in proportion to the quantity of human IL-11 present in the sample or standard.
- 11 The reaction is terminated by addition of 100 µl 3M H<sub>2</sub>SO<sub>4</sub> 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.