

**Overview****Useful For**

Evaluation of patients with disorders known to be associated with hypereosinophilia

**Method Name**

Electrochemiluminescence (ECL)

**NY State Available**

Yes

**Specimen****Specimen Type**

Plasma EDTA

**Specimen Required**

**Collection Container/Tube:** Lavender top (EDTA)

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 0.5 mL

**Collection Instructions:**

1. Immediately after specimen collection, place the tube on wet ice.
2. Centrifuge at 1,500 x g for 10 minutes and aliquot plasma.
3. Freeze specimen within 30 minutes.

**Specimen Minimum Volume**

0.3 mL

**Reject Due To**

Gross hemolysis	Reject
Gross lipemia	OK
Gross icterus	OK

**Specimen Stability Information**

Specimen Type	Temperature	Time	Special Container
Plasma EDTA	Frozen (preferred)	21 days	
	Refrigerated	24 hours	

## Clinical and Interpretive

### Clinical Information

Interleukin-5 (IL-5) is a homodimer composed of two 20-kD subunits.(1) It is expressed primarily by CD4+ Th2 (helper T cells, subset 2) cells and, to a lesser extent, by activated mast cells.(2) IL-5 acts on mature eosinophils, leading to proliferation, activation, and differentiation. IL-5 is a critical part of the immune response to helminths. Eosinophils activated by IL-5 will bind, through Fc receptors, to helminths that have been opsonized by IgG or IgA.

Elevations in IL-5 may be observed in conditions associated with hypereosinophilia. Hypereosinophilia is most commonly seen in various forms of atopic disease, including urticaria, asthma, allergic bronchopulmonary aspergillosis, and drug allergies.(3) Elevated numbers of eosinophils may also be observed in certain vasculitides, specifically eosinophilic granulomatosis with polyangiitis (EGPA). EGPA is characterized by asthma, pulmonary infiltrates, history of allergies, and hypereosinophilia usually above 1500/mL. Hypereosinophilia may also be observed in certain primary immunodeficiencies (such as Job syndrome), leukemias, and lymphomas. IL-5 is thought to be important in driving eosinophil proliferation in these various conditions.(4) Recently, an advisory committee of the FDA has recommended that mepolizumab, a monoclonal anti-IL-5 antibody, be approved for the treatment of severe eosinophilic asthma in adults.(5) Other IL-5 blocking antibodies (reslizumab and benralizumab) are also in development, with clinical trials designed to determine specific clinical utility.

### Reference Values

< or =1.0 pg/mL

### Interpretation

Elevated concentrations of interleukin-5 (IL-5) may indicate an expanded Th2 (helper T cells, subset 2)-immune response, which may be associated with hypereosinophilia.

### Cautions

Interleukin-5 (IL-5) is a nonspecific marker associated with a Th2 (helper T cells, subset 2)-immune response, and is not diagnostic for any specific disease or disease process. Elevated concentrations of IL-5 must be interpreted within the clinical context of the patient.

Normal concentrations of IL-5 do not exclude the possibility of a Th2-immune response or hypereosinophilia.

IL-5 has limited stability. Following centrifugation, plasma must be either immediately frozen or refrigerated. Samples can only be stored at refrigerated temperatures for 24 hours, after which time samples must be frozen. Storage of plasma for any length of time at room temperature is not acceptable.

### Clinical Reference

1. Kouro T and Takatsu K: IL-5 and eosinophil-mediated inflammation: from discovery to therapy. *Int Immunol* 2009;21:1303-1309
2. Kusano S, Kukimoto-Niino M, Hino N, et al: Structural basis of interleukin-5 dimer recognition by its alpha receptor. *Protein Sci* 2012;21:850-864
3. Joseph J, Benedict S, Safa W, et al: Serum interleukin-5 levels are elevated in mild and moderate persistent asthma irrespective of regular inhaled glucocorticoid therapy. *BMC Pulm Med* 2004;4:2
4. Corren J: Anti-interleukin-5 antibody therapy in asthma and allergies. *Curr Opin Allergy Clin Immunol* 2011;11:565-570

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5. Sutton SA, Assa'ad AH, Rothenberg ME: Anti-IL-5 and hypereosinophilic syndromes. Clin Immunol 2005;115:51-60

## Performance

### Method Description

The interleukin-5 (IL-5) cytokine assay measures human cytokines in a 96-well spotted plate. The assay employs a sandwich immunoassay format where capture antibodies are coated on a single spot on the bottom of each well. Diluted samples, calibrators, and controls are added and to the plate. If present, IL-5 will bind to the capture antibodies. After incubation, a solution containing detection antibodies conjugated with electrochemiluminescent labels is added. After a final incubation, a buffer is added that creates the appropriate chemical environment for electrochemiluminescence. The plate is then read on the Sector Imager 2400. The machine applies a voltage that causes bound labels to emit measurable light. The Sector Imager 2400 measures the intensity of emitted light and correlates it to a set of standards of known quantity via a 4-point logistics curve fitting method. (Package insert: Human IL-5 V-plex, Mesoscale Discovery, Rockville, MD 20850 USA, 18095-v2-2014 Jan)

### PDF Report

No

### Day(s) and Time(s) Test Performed

Thursday; 3 p.m.

### Analytic Time

1 day

### Maximum Laboratory Time

8 days

### Specimen Retention Time

14 days

### Performing Laboratory Location

Rochester

## Fees and Codes

### Fees

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

### Test Classification

This test was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

### CPT Code Information

83520

### LOINC® Information



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Test ID	Test Order Name	Order LOINC Value
IL5P	Interleukin 5, P	33938-2

Result ID	Test Result Name	Result LOINC Value
36519	Interleukin 5, P	33938-2