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## Neopterin

**TEST: 140335** CPT: 83520

**Expected Turnaround Time** 5 - 8 days  
 Turnaround time is defined as the usual number of days from the date of pickup of a specimen for testing to when the result is released to the ordering provider. In some cases, additional time should be allowed for additional confirmatory or additional reflex tests. Testing schedules may vary.

**Related Documents**

- [Sample Report](#)

### SPECIMEN REQUIREMENTS

**Specimen** Serum **or** plasma

**Volume** 0.8 mL

**Minimum Volume** 0.3 mL (**Note:** This volume does **not** allow for repeat testing.)

**Container** Red-top tube, gel-barrier tube, **or** lavender-top (EDTA) tube

**Collection** If tube other than a gel-barrier tube is used, transfer separated serum or plasma to a plastic transport tube.

**Storage Instructions** Refrigerate. Protect from exposure to ultraviolet light and sunlight.

### TEST DETAILS

**Use** Increased levels of neopterin are found during impaired renal function and viral

infection in transplant patients. Elevated levels are also indicators for conditions related to impaired cellular immunity.

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**Limitations** This procedure may be considered by Medicare and other carriers as investigational and, therefore, may not be payable as a covered benefit for patients.

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**Methodology** Enzyme immunoassay (EIA)

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**Reference Interval** Adults: <2.5 ng/mL

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**Additional Information** Neopterin, a pyrazolopyridine compound, is produced by macrophages after induction by interferon  $\gamma$  and serves as a marker of cellular immune system activation. Measurable levels of neopterin have been detected in both the serum and urine of patients suffering from various types of malignancies<sup>1</sup> and viral infections. Changes in neopterin concentrations in serum or urine can predict complications such as graft rejection in organ transplant recipients. Elevated neopterin levels are found in autoimmune disorders such as rheumatoid arthritis and systemic lupus erythematosus (SLE). Neopterin levels can be used as prognostic predictors for certain types of malignancies. Measurement of neopterin levels has particular value for monitoring patients infected with HIV. Neopterin is eliminated primarily in the urine, so evaluation of urinary neopterin levels may be useful in assessing activation of the cellular immunity system even in the absence of typical clinical symptoms, since a correlation has been observed with the course of diseases involving cellular immunity activation and urinary neopterin levels.

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**Footnotes** 1. Werner ER, Bichler A, Daxenbichler G, et al. Determination of neopterin in serum and urine. *Clin Chem*. 1987 Jan; 33(1):62-66. [PubMed 3802497](#)

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**References** Fahey JL, Taylor JM, Detels R, et al. The prognostic value of cellular and serologic markers in infection with human immunodeficiency virus type I. *N Engl J Med*. 1990 Jan; 322(3):166-172. [PubMed 1967191](#)

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