

# neopterin biopterin profile

## Neopterin and Biopterin Measurement in Urine



**Conditions and diseases Neopterin is evaluated in:**

- Infections
- Autoimmune diseases: Rheumatoid arthritis, systemic lupus, and atopic asthma
- Malignant diseases
- Psychiatric disorders
- Sleep-disordered breathing
- Children with Autism Spectrum Disorders

**Restricted BH4 cofactor availability has been suggested as a factor in:**

- Neurological Disease: Alzheimer's disease, Parkinson's disease, autism, depression, DOPA-responsive Dystonia
- Insulin resistance
- Cardiovascular disease
- Inborn-errors of metabolism: phenylketonuria, hyperphenylalaninemia

**Neopterin** and **biopterin** are by-products of the redox reactions involving tetrahydrobiopterin. Tetrahydrobiopterin (BH4) is a cofactor in the production of the neurotransmitters epinephrine, norepinephrine, DOPA, and serotonin. Neurotransmitters are chemical signals used in the brain. BH4 is also needed for the production of nitric oxide which helps to lower blood pressure. BH4 deficiencies can range from mild to severe. Measuring BH4 levels is extremely difficult, but looking at the levels of the by-products, neopterin and biopterin, can give you an idea of BH4 status.

### **What are Neopterin and Biopterin?**

**Neopterin** is a marker of inflammation, allowing detection and monitoring of inflammatory processes. The origin of the inflammation may be the small intestine pathology that so often requires treatment in children with Autism Spectrum Disorders.

**Biopterin** and dihydrobiopterin (BH2) are the oxidative products of BH4. Autistic children were found to have significantly higher urinary biopterin compared to control children; biopterin levels of siblings of autistic children were also higher than controls.<sup>1</sup> Severely depressed patients were found to have significantly lower plasma biopterin concentrations at baseline in comparison with healthy controls.<sup>2</sup>

The **Metamatrix Neopterin/Biopterin Profile** requires a simple overnight urine specimen; no blood draw is necessary!

1. Messahel S, Pheasant AE, Pall H, Ahmed-Choudhury J, Sungum-Paliwal RS, Vostanis P. Urinary levels of neopterin and biopterin in autism. *Neurosci Lett*. Jan 23 1998;241(1):17-20.
2. Blasko I, Knaus G, Weiss E, et al. Cognitive deterioration in Alzheimer's disease is accompanied by increase of plasma neopterin. *J Psychiatr Res*. Oct 2007;41(8):694-701.

## PATIENT INFORMATION SHEET



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