

## Immunoglobulin

Immunoglobulins are proteins that are secreted by white blood cells called B-lymphocytes in response to the presence of a substance that is foreign to the body (an antigen). One of the features of MS is that there are higher than normal amounts of certain immunoglobulins present in the cerebrospinal fluid (CSF).

Research has shown that these immunoglobulins are produced within the brain (which, together with the spinal cord and optic nerves, make up the central nervous system). This means that the immunoglobulins do not spill over into the CSF from the blood, but are being produced by a specific group of immune cells that have been activated within the central nervous system.

### **Some Immunoglobulin Is Specific for Myelin**

Some of this immunoglobulin has been found to be directed against measles antigen, and some has been found to be directed against components of myelin, the fatty sheath that surrounds and protects nerve fibers. Nerves whose myelin has been destroyed do not conduct nerve impulses efficiently, thereby producing the symptoms of MS.

### **Oligoclonal Bands Useful in Diagnosing MS**

When analyzed by a biochemical technique known as electrophoresis—which separates out a mixture of proteins according to their weight and electric charge—the immunoglobulin present in the CSF of people with MS forms a series of discrete bands known as *oligoclonal bands*.

Over 90% of people with MS have oligoclonal bands in their CSF. While increased immunoglobulin in the CSF and oligoclonal bands are seen in many other neurologic conditions as well as MS, their presence is often useful in helping to establish a diagnosis of MS. For this reason, a lumbar puncture ("spinal tap") may be performed to take a sample of CSF as part of a diagnostic evaluation.

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**See also...**

### **Sourcebook**

- Cerebrospinal Fluid (CSF)
- Diagnosis
- Diagnosis of Demyelinating Diseases

- Expanded Disability Status Scale
- Intravenous Immunoglobulin (IVIG)
- Myelin

The National Multiple Sclerosis Society is proud to be a source of information about multiple sclerosis. Our comments are based on professional advice, published experience, and expert opinion, but do not represent individual therapeutic recommendations or prescription. For specific information and advice, consult your personal physician.

To contact your chapter, call **1-800-FIGHT-MS** (1-800-344-4867) or visit the National MS Society web site: [www.nationalmssociety.org](http://www.nationalmssociety.org).

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