



National MS Society Information Sourcebook

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Monoclonal Antibodies

Techniques developed over the last few decades have made it possible to produce large quantities of antibodies in the laboratory. These antibodies are highly specific and may prove to be useful for the treatment of many diseases, including MS.

Monoclonal antibodies are produced by injecting an animal with a specific antigen, thereby inducing a correspondingly specific antibody response by the animal's immune cells. These antibody producing cells are then extracted and fused with rapidly growing cells. The combined hybrid cell that both produces antibodies and grows rapidly is called a hybridoma.

Because they are produced by one genetically identical group of cells, called a clone, which has been stimulated to make only one specific antibody, these hybridomas can produce large quantities of antibodies, called monoclonal antibodies.

Can Be Used to Suppress Activity of Immune Cells

Monoclonal antibodies that react with immune cells, thus stopping their activity, can be used as immunomodulating agents. This would be helpful in treating MS, because an abnormal immune response is believed to be responsible for the destruction of myelin that occurs in the disease. Myelin is the fatty sheath that surrounds and protects nerve fibers. Its destruction causes nerve impulses to be slowed or halted and produces the symptoms of MS.

Monoclonal antibodies have been shown to be effective in treating the animal model for MS, experimental allergic encephalomyelitis (EAE). In addition, researchers have demonstrated that monoclonal antibodies directed against specific T-lymphocytes that are involved in the autoimmune process in people with MS can "down-regulate" the activity of these T cells. The monoclonal antibodies injected into volunteers in this pilot clinical trial were tolerated well.

There is a problem with continual use of monoclonal antibodies. Since they contain components of the hybrid cells in which they were produced, patients receiving them tend to develop antibodies to them. Newer genetic engineering techniques may help to solve this problem.

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See also...

Sourcebook

- Experimental Allergic Encephalomyelitis (EAE)
- Myelin
- Research

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.

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