

## CONTENT

Multiple sclerosis, or MS, is a chronic disease that affects approximately 400,000 Americans. [Ref 1.NMS website. Available at: <http://www.nationalmssociety.org/about-multiple-sclerosis/what-we-know-about-ms/who-gets-ms/index.aspx>. Accessed July 9, 2010: pg2/col2/P2]

In the healthy individuals, the central nervous system, or CNS, sends and receives signals throughout the nerves of the body. [Ref 2. Lodish H. *Molecular Cell Biology*. 4th ed. 2000: 3, 5, 1-5]

For people with MS, these nerve signals are disrupted. This disruption can cause a wide range of symptoms, including fatigue, muscle weakness, issues with movement and sensory symptoms such as hearing loss or vision impairment. [Ref 3. Compston, A and Coles, A. *Lancet*. 2002;359:1221, B, 2, 1-5; 1222, A, 2, 8-13]

Though the signal disruption, and therefore many of the symptoms, appear in the nervous system, it is thought that MS begins in the immune system. Chun pg91/col2/P1/ln5-12

Let's look at how the immune system works. White blood cells are part of the body's immune system. Lymphocytes are one type of these white blood cells and they help protect you from infection and illness. Janeway CA, *Immunobiology. The Immune System in Health and Disease*. 5th ed. 2001: pg2/p5/all]

Most lymphocytes are found in the lymph nodes, a network of tiny bean-shaped glands, but they also travel into the blood to search for infections. [Westermann J, et al. *Clin Investig*. 1992;70:541, Fig 2.][ Janeway CA, *Immunobiology. The Immune System in Health and Disease*. 5th ed. 2001: 8, Figure legend, 1-7.]

These lymphocytes traveling in the blood can also enter the central nervous system, or CNS. Compston, A and Coles, A. *Lancet*. 2002;359: pg1225/col2/P2/all

In people with MS, it is believed that these lymphocytes mistakenly attack the protective covering around the nerves, causing scar tissue. Chun J, et al. *Clin Neuropharmacol*. 2010;33:91, B, 1, 5-12.]

It is the scar tissue from these attacks, called scleroses, which interrupts nerve signals and leads to the symptoms of MS. [Ref 1.NMS website. Available at: <http://www.nationalmssociety.org/about-multiple-sclerosis/what-we-know-about-ms/who-gets-ms/index.aspx>. Accessed July 9, 2010: pg3/col1/P1

GILENYA is an innovative treatment that may reduce the frequency of these attacks. Gilenya is a once-daily pill that can help slow the accumulation of physical problems and disability for people with relapsing MS. [Cohen JA, et al. *N Engl J Med*. 2010;362:411/col1/p3/ln3-6; pg407/col1/P2/ln1-10]

Gilenya does not cure MS, but may reduce the number of flare-ups a person with relapsing MS may experience. *Gilenya Prescribing Information*. 09/2010. pg18/P2/all

How does it work? Gilenya is thought to cause a temporary change in the lymphocytes that keeps more of them inside the lymph nodes, allowing fewer into the blood. *PI pg9/section12.1*

It is believed that this change helps keep lymphocytes out of the CNS, where they could cause damage. [[PI pg9/section12.1](#)]

Gilenya does not destroy lymphocytes: if treatment with Gilenya is stopped, the number of lymphocytes in the blood increases for a few days and generally returns to normal within one to two months. [Chun J, et al. \*Clin Neuropharmacol.\* 2010;33:94, A, 1, 9-14.](#) [[Gilenya Prescribing Information. pg9/col1/para8/lns 1-2](#)]

Gilenya is the first pill for MS that delays the accumulation of physical disability in relapsing forms of MS, and the first treatment that works by keeping some lymphocytes from leaving the lymph nodes. [Novartis Press Release. 2010:1, 1, 1; 2, 4, 2-3; 2, 3, 1 & 3-5.](#)

For people with relapsing forms of MS, Gilenya is a scientifically innovative treatment that can mean fewer relapses. [Gilenya Prescribing Information. /p2/para1/ln1-2](#)

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