New data show Novartis’ Gilenya® reduced brain volume loss by one third and confirm brain volume loss link with disability in MS patients

- New four-year data showed that continued Gilenya treatment reduced brain volume loss by one third when compared to delaying Gilenya by two years.

- MS patients with higher rates of brain volume loss were more likely to experience disease progression.

- Patients who remained free of disease had consistently lower rates of brain volume loss compared to patients who experienced disease activity.

Basel, October 4, 2013 – Novartis announced today new data indicating that continued treatment with Gilenya® (fingolimod) led to a reduction in brain volume loss in patients with relapsing forms of multiple sclerosis (MS), and was associated with a higher proportion of patients remaining free of disability progression\(^1,2\). These data were presented at the ongoing 29\(^{th}\) Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS) in Copenhagen, Denmark.

Brain volume loss is emerging as one of the best indicators of disability progression over the long-term in MS, and is a topic of much interest within the MS medical community\(^3\). Increasingly, research focus is on treatments that will reduce the rate of brain volume loss. Gilenya is the only oral treatment for MS that has shown early and consistent slowing of brain volume loss, and the new data presented at ECTRIMS add to the growing evidence base of Gilenya’s efficacy in MS and reinforce the correlation between brain volume loss and disability progression over the long-term\(^1\).

“The data presented today are very encouraging because they are from studies that took place over four years and show that Gilenya both reduces brain volume loss and slows the pace of disability progression for patients with MS,” said Dr. Timothy Wright, Global Head Development, Novartis Pharmaceuticals. “These are key treatment goals for patients with this chronic and debilitating illness.

**Key findings**

- Collective four-year results from the pivotal FREEDOMS and FREEDOMS extension studies showed that patients who were treated continuously with Gilenya 0.5 mg experienced up to one-third less brain volume loss than patients who switched to Gilenya after receiving placebo for two years. Thus, delay in starting treatment with Gilenya by two years was associated with more brain volume loss\(^2\).

- Overall, patients who remained free of disease had consistently lower rates of brain volume loss compared to patients who experienced disease activity and MS progression. However, the benefit of Gilenya on brain volume loss was seen irrespective of whether patients were disease-free or had active disease\(^2\). (Disease activity was evaluated by assessing measures that give a broad evaluation of MS: disability progression, relapses and new brain lesions detected on magnetic resonance imaging scans.)
A separate analysis of three key studies (FREEDOMS, FREEDOMS II and TRANFORMS) showed a correlation between disability progression and increased brain volume loss, and this correlation increased over time.

Higher baseline MRI lesion volume and baseline active lesions both predicted subsequent loss of brain volume during the studies but patients treated with Gilenya had less brain volume loss than those treated with placebo or IFN beta 1a IM, irrespective of baseline lesion volume and count.

MS patients with higher brain volume loss were more likely to experience disability progression.

Minimizing disease progression in people with MS is a key treatment goal because MS can have a significant impact on the quality of life for patients, families and carers. Many patients may increasingly lose their independence due to diminished mobility, and some may lose their ability to walk or have problems with their sight. MS is also associated with a substantial economic burden, with studies in several European countries reporting annual costs equivalent to approximately €30,000-40,000 per patient.

**About multiple sclerosis**

While its exact cause is unknown, multiple sclerosis (MS) is an autoimmune disease of the central nervous system (CNS) that causes the body to turn against itself by mistaking normal cells for foreign cells. In MS the myelin sheath, the covering that protects nerve fibers, is damaged by the inflammation that occurs when the body’s immune cells attack the nervous system. This neuro-inflammatory damage can occur in any area of the brain, optic nerve and spinal cord and cause a range of physical and mental problems including loss of muscle control and strength, vision, balance, sensation and mental function. Up to 2.5 million people worldwide are affected by MS, most often younger people between the ages of 20 and 40.

**About Gilenya**

Gilenya is the first oral therapy approved to treat relapsing forms of MS and the first in a new class of compounds called sphingosine 1-phosphate receptor modulators. It is thought that Gilenya works in two ways against the destructive processes that drive MS disease progression by affecting not only the immune system to reduce inflammatory damage but also the CNS to promote neuroprotection and repair. Gilenya is thought to act by preventing lymphocytes (the cells that cause inflammation and damage in the CNS) from leaving the lymphoid tissues, thus reducing their entry into the central nervous system and potential for damage. Gilenya is also able to cross the blood-brain barrier and act on the neurodegeneration process in the brain and spinal cord.

Gilenya is the only oral MS treatment that provides early and long-term reduction in the rate of brain volume loss and high efficacy across all 4 disease activity measures (disability progression, relapses, MRI activity, brain volume loss). In clinical trials, Gilenya exhibited a well-characterized safety profile and very good tolerability profile. The most common side effects were headache, hepatic enzymes increased, influenza, sinusitis, diarrhea, back pain, and cough. To date, more than 71,000 patients have been treated with Gilenya demonstrating a positive benefit-risk profile in clinical study and real-world settings.

Gilenya is licensed from Mitsubishi Tanabe Pharma Corporation.

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reliance on these statements. Such forward-looking statements reflect the current views of management regarding future events, and involve known and unknown risks, uncertainties and other factors that may cause actual results with Gilenya to be materially different from any future results, performance or achievements expressed or implied by such statements. There can be no guarantee that Gilenya will be approved for any additional indications or labeling in any market, or at any particular time. Nor can there be any guarantee that Gilenya will achieve any particular levels of revenue in the future. In particular, management’s expectations regarding Gilenya could be affected by, among other things, unexpected clinical trial results, including unexpected new clinical data and unexpected additional analysis of existing clinical data; unexpected regulatory actions or delays or government regulation generally; competition in general; government, industry and general public pricing pressures; unexpected manufacturing issues; the company’s ability to obtain or maintain patent or other proprietary intellectual property protection; the impact that the foregoing factors could have on the values attributed to the Novartis Group’s assets and liabilities as recorded in the Group’s consolidated balance sheet, and other risks and factors referred to in Novartis AG’s current Form 20-F on file with the US Securities and Exchange Commission. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those anticipated, believed, estimated or expected. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

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Novartis provides innovative healthcare solutions that address the evolving needs of patients and societies. Headquartered in Basel, Switzerland, Novartis offers a diversified portfolio to best meet these needs: innovative medicines, eye care, cost-saving generic pharmaceuticals, preventive vaccines and diagnostic tools, over-the-counter and animal health products. Novartis is the only global company with leading positions in these areas. In 2012, the Group achieved net sales of USD 56.7 billion, while R&D throughout the Group amounted to approximately USD 9.3 billion (USD 9.1 billion excluding impairment and amortization charges). Novartis Group companies employ approximately 131,000 full-time-equivalent associates and operate in more than 140 countries around the world. For more information, please visit http://www.novartis.com.

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