Novartis confirms leadership in multiple sclerosis (MS) with scientific advancements and new data presented at ECTRIMS

- **Full data from the pivotal Phase III PARADIGMS study of Gilenya® (fingolimod) in pediatric MS will be presented for the first time**

- **With 54 accepted abstracts, Novartis presence spans from new siponimod (BAF312) data in secondary progressive MS (SPMS) to innovative research on neurofilaments – a promising MS biomarker**

**Basel, October 25, 2017** – Novartis today announced it will present 54 scientific abstracts from across its multiple sclerosis (MS) research portfolio at the 7th Joint European and Americas Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS-ACTRIMS) meeting (October 25-28, 2017 Paris, France). Key presentations will highlight research on Gilenya® in pediatric MS and investigational siponimod (BAF312) in SPMS, as well as innovative biomarker based outcome measures for clinical trials.

“Novartis data at ECTRIMS demonstrate our ongoing commitment to advancing care for people with MS and the understanding of this complex disease. We are excited to be presenting positive new data in areas of high unmet need, such as pediatric and secondary progressive MS,” said Vas Narasimhan, Global Head of Drug Development and Chief Medical Officer, Novartis. “We are also leading innovative research into potential MS biomarkers, with our new data on blood neurofilaments – which could revolutionize the way we assess MS treatments in clinical trials.”

Novartis key highlights at ECTRIMS include:

- Full results from the Phase III PARADIGMS study, a first-of-its-kind randomized, controlled trial of Gilenya in pediatric MS. In PARADIGMS, oral once-daily Gilenya resulted in a clinically meaningful, statistically significant reduction in the number of relapses (annualized relapse rate) in pediatric MS patients (ages 10 to 17) over a period of up to two years, vs. intramuscular interferon beta-1a injections. The safety profile of Gilenya was consistent with that seen in other MS clinical trials. Gilenya is not currently approved for the treatment of pediatric MS.

- New data from the Phase III EXPAND study of siponimod demonstrating its effect on magnetic resonance imaging (MRI) lesions and brain shrinkage in SPMS. There is a high unmet need for new treatments for SPMS patients, as there are very few available proven to be effective with an acceptable safety profile. In EXPAND, siponimod reduced disability progression at three and six months vs. placebo in SPMS patients, with a safety profile similar to other S1P receptor modulators. EXPAND results have been submitted for peer-reviewed publication.

- A new analysis from the Phase III FREEDOMS study of Gilenya in relapsing remitting MS, showing that neurofilaments – a biomarker for neuronal damage measured from a blood sample – could, in the future, potentially serve as an endpoint in Phase II clinical trials. The analysis showed a strong correlation between neurofilament levels
and key measures of MS disease activity – MRI lesions, relapses, brain shrinkage and disability progression. Blood neurofilament levels were also shown to be significantly lower in patients taking Gilenya compared to placebo at six months, demonstrating the early effect of the drug on disease progression⁴.

**About Multiple Sclerosis**

Multiple sclerosis (MS) is a chronic disorder of the central nervous system (CNS) that disrupts the normal functioning of the brain, optic nerves and spinal cord through inflammation and tissue loss⁵. In adults, there are three types of MS: relapsing-remitting MS (RRMS), secondary progressive MS (SPMS) and primary progressive MS (PPMS)⁶. In children, RRMS accounts for nearly all cases (approximately 98 percent)⁷.

The evolution of MS results in an increasing loss of both physical and cognitive (e.g. memory) function. This has a substantial negative impact on the lives of the approximately 2.3 million people worldwide affected by MS, of which between three and five percent are estimated to be children⁸,⁹.

**About Gilenya (fingolimod) in adults**

Gilenya (fingolimod) is an oral disease-modifying therapy (DMT) that is highly efficacious at controlling disease activity in relapsing multiple sclerosis (RMS)¹⁰. Gilenya has a reversible lymphocyte redistribution effect targeting both focal and diffuse central nervous system (CNS) damage caused by MS¹¹,¹². Long-term clinical trial and real-world evidence and experience has shown Gilenya treatment to be convenient for individuals to incorporate into everyday life, leading to high treatment satisfaction, long-term persistence, and ultimately, improved long-term outcomes for people with RMS¹³,¹⁴.

Gilenya impacts four key measures of RMS disease activity: relapses, MRI lesions, brain shrinkage (brain volume loss) and disability progression¹⁵,¹⁶. Its effectiveness on all of these measures has been consistently shown in multiple controlled clinical studies and in the real-world setting. Studies have shown its safety and high efficacy to be sustained over the long term, demonstrating that switching to Gilenya treatment as early in the disease course as possible can be beneficial in helping to preserve individuals’ function¹⁷,¹⁸.

Gilenya is approved in the US for the first-line treatment of relapsing forms of MS in adults, and in the EU for adult patients with highly-active relapsing-remitting MS (RRMS) defined as either high disease activity despite treatment with at least one DMT, or rapidly-evolving severe RRMS¹⁰,¹⁹.

Gilenya has been used to treat more than 217,000 patients in both clinical trials and the post-marketing setting, with approximately 480,000 years of patient experience²⁰.

**About siponimod (BAF312)**

Siponimod (BAF312) is an investigational, scientifically designed selective modulator of specific subtypes of the sphingosine-1-phosphate (S1P) receptor²¹. Siponimod binds to the S1P1 sub-receptor on lymphocytes and promotes their retention in lymphoid tissues, which prevents them from entering the central nervous system (CNS) of patients with multiple sclerosis (MS)²²,²³. This leads to the anti-inflammatory effects of siponimod²²,²³.

The S1P receptor subtypes targeted by siponimod are also found on the surface of cells in the CNS, which play a role in the origin of secondary progressive MS (SPMS). Siponimod enters the CNS and by binding to these specific receptors, has the potential to modulate damaging cell activity and help to reduce the loss of neurological function associated with SPMS²¹,²⁴-²⁶. The receptor specificity and pharmacokinetic properties (e.g. the faster elimination compared with first-generation S1P modulators) of siponimod facilitate its ability to impact diseases such as SPMS, while improving its safety and convenience profile²⁷.
About Novartis in Multiple Sclerosis

Alongside Gilenya (fingolimod, an S1P modulator), Novartis’ multiple sclerosis (MS) portfolio includes Extavia® (interferon beta-1b for subcutaneous injection) which is approved in the US for the treatment of relapsing forms of MS. In Europe, Extavia is approved to treat people with relapsing-remitting MS, secondary progressive MS (SPMS) with active disease and people who have had a single clinical event suggestive of MS.

Investigational compounds include BAF312 (siponimod), under investigation in MS, and OMB157 (ofatumumab), a fully human monoclonal antibody under investigation in relapsing MS. OMB157 targets CD20, and is currently being investigated in two Phase III pivotal studies.

In the US, the Sandoz Division of Novartis markets Glatopa® (glatiramer acetate injection) 20mg/mL, the first generic version of Teva’s Copaxone® 20mg.

*Copaxone® is a registered trademark of Teva Pharmaceutical Industries Ltd.

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About Novartis

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, cost-saving generic and biosimilar pharmaceuticals and eye care. Novartis has leading positions globally in each of these areas. In 2016, the Group achieved net sales of USD 48.5 billion, while R&D throughout the Group amounted to approximately USD 9.0 billion. Novartis Group companies employ approximately
121,000 full-time-equivalent associates. Novartis products are sold in approximately 155 countries around the world. For more information, please visit http://www.novartis.com.

References

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