April 13, 2018

Not intended for U.S. or U.K. based media

Merck Highlights Commitment to Advance Multiple Sclerosis Treatment with MAVENCLAD® and Rebif® Data at AAN 2018

Darmstadt, Germany, April 13, 2018 – Merck, a leading science and technology company, today announced data for MAVENCLAD® (Cladribine Tablets) a treatment for highly active relapsing multiple sclerosis (RMS) as defined by clinical or imaging features, and Rebif® (interferon beta-1a) will be presented at the American Academy of Neurology (AAN) 70th Annual Meeting, April 21-27, 2018, in Los Angeles.

MAVENCLAD® data to be presented includes poster presentations highlighting post-hoc analyses of the CLARITY, CLARITY Extension and ORACLE-MS trials evaluating safety and use in patients with multiple sclerosis (MS), as well as the impact on B- and T-cells. MAVENCLAD® is a short-course oral therapy that is thought to preferentially target lymphocytes which may be integral to the pathological process of relapsing forms of MS (RMS). MAVENCLAD® is currently under clinical investigation and is not approved in the US.

MAVENCLAD® has received marketing authorization in 35 countries including European Union member countries, Canada, Australia, Argentina, Israel, and the United Arab Emirates. MAVENCLAD® is now available in Germany, UK, Canada, Netherlands, Norway, Denmark, Sweden, Israel, and other markets. The Company plans additional filings for regulatory approval in other countries, including the United States.
Rebif data includes presentations analyzing no evidence of disease activity (NEDA), long-term disease activity assessed by the Magnetic Resonance Imaging in MS (MAGNIMS) score, new data on pregnancy outcomes for women being treated with interferon beta, as well as real-world evidence evaluating treatment adherence rates for patients treated with Rebif compared with dimethyl fumarate.

“We look forward to presenting data demonstrating advancement in our knowledge of MS, including further scientific information about Mavenclad and Rebif at the 2018 AAN Annual Meeting,” said Luciano Rossetti, Head of Global R&D for the biopharma business of Merck. “We are committed to better understanding MS and developing innovative solutions to improve the lives of patients and those affected by this disease.”

Meeting attendees can learn more about the Company and participate in the following MS-specific interactive activities by visiting booth #1847:

- “I’m Balancing MS”: Individuals can understand the balance between healthcare and lifestyle for those facing MS through a mobile art activity. For each participant, we will donate $100 to MS Fitness Challenge, a charity organization dedicated to educating and training people with MS on the benefits of exercise and nutrition.
- “Shine a Light”: Individuals can create their own Light Trail art symbolizing what drives their commitment to fighting MS. Participation in the activity will drive a donation to MS Fitness Challenge.

Additionally, Exhibit Hall booth #1957 will host hands-on activities which will allow attendees to gain a better understanding of what it’s like to have MS through virtual reality pods and simulation stations.

The company will also be hosting an Industry Therapeutic Update event entitled Evolving Perspectives and Innovations in Multiple Sclerosis on Wednesday, April 25 from 7:00 p.m.-10:00 p.m. PDT at the Platinum Ballroom in the JW Marriott Hotel in Los Angeles. Speakers include, Professor Amit Bar-Or, University of Pennsylvania, Philadelphia, PA, Professor Dusan Stefoski, Rush University Medical Center, Chicago, IL and Professor Anthony Traboulsee, University of British Columbia, Vancouver, CA.
AAN Brain Health Fair
The MS InsideOut experience will be exhibited at the AAN Brain Health Fair, a one-day-only event where attendees can learn about the brain and the field of neurology. The event takes place on Friday, April 20 from 10:00 a.m.-4:00 p.m. PDT at the Los Angeles Convention Center.

Presentations at AAN 2018 include the following accepted abstracts:

<table>
<thead>
<tr>
<th>Cladribine Tablets Presentations</th>
<th>Lead Author</th>
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| Effects of Cladribine Tablets on CD4+ T-cell Subsets in the ORACLE-MS Study: Results from an Analysis of Lymphocyte Surface Markers | Leist T. | 402 | Session P1: Biomarkers and Experimental Studies for Multiple Sclerosis on April 22, 2018  
On Display: 11:30 a.m. to 5:30 p.m. PDT  
Present: 4:00 p.m. to 5:30 p.m. PDT |
| Integrated Safety Analysis of Infections during Periods of Grade 3 or 4 Lymphopenia in Patients Taking Cladribine Tablets 3.5mg/kg | Cook S. | 407 | Session P3: MS Therapeutics in Development on April 24, 2018  
On Display: 11:30 a.m. to 7:00 p.m. PDT  
Present: 5:30 p.m. to 7:00 p.m. PDT |
| Effectiveness of Lymphocyte-based Retreatment Criteria in Minimizing the Incidence of Severe Sustained Lymphopenia During | Cook S. | 370 | Session P5: MS Therapies: MOA, Safety and Complications on April 26, 2018  
On Display: 11:30 a.m. to 7:00 p.m. PDT  
Present: 5:30 p.m. to |
## Treatment with Cladribine Tablets 3.5mg/kg

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<tr>
<td>Long-term Lymphocyte Counts in Patients with RRMS Treated with Cladribine Tablets 3.5 mg/kg: Total Lymphocytes, B-, and T-cell Subsets</td>
<td>Soelberg-Sorensen P.</td>
<td>364</td>
<td>Session P5: MS Therapies: MOA, Safety and Complications on April 26, 2018</td>
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<td>Selective and Discontinuous Reduction of B and T Lymphocytes and NK cells in Patients with Early and Relapsing MS (ORACLE-MS, CLARITY and CLARITY Extension) After Administration of Cladribine Tablets</td>
<td>Stuve O.</td>
<td>351</td>
<td>Session P5: MS Therapies: MOA, Safety and Complications on April 26, 2018</td>
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## Rebif® (interferon beta-1a) Presentations

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<tr>
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<tr>
<td>Relapse in Patients with Multiple Sclerosis Newly Initiating scIFNβ1a Compared with Oral Disease-Modifying Drugs: A Real-World Assessment</td>
<td>Bowen J.</td>
<td>353</td>
<td>Session P1: Comparative Efficacy of Disease Modifying Therapies on April 22, 2018</td>
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<tr>
<td>A Panel Survey Analysis of Adherence in Patients with Multiple Sclerosis</td>
<td>Perrin Ross A.</td>
<td>354</td>
<td>Session P1: Comparative Efficacy of Disease Modifying</td>
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Treated with scIFNβ1a or Dimethyl Fumarate

| Disease Activity as Assessed by the Magnetic Resonance Imaging in Multiple Sclerosis (MAGNIMS) Score Predicts Long-Term Clinical Disease Activity (CDA)-Free Status and Disability Progression in Patients Treated with Subcutaneous Interferon beta-1a (scIFNβ-1a) | Sormani M.P. | 005 | Session S24: MS Outcome Measures and Biomarkers on April 24, 2018, 4:18 p.m.-4:30 p.m. PDT

Evolution of New Lesions and its Temporal Patterns in Patients with Clinically Isolated Syndrome (CIS) Treated with Subcutaneous Interferon beta-1a (scIFNβ-1a)

| Evolution of New Lesions and its Temporal Patterns in Patients with Clinically Isolated Syndrome (CIS) Treated with Subcutaneous Interferon beta-1a (scIFNβ-1a) | Vrenken H. | 370 | Session P3: MS and CNS Inflammatory Disease: Neuroimaging on April 24, 2018

Risk of Stroke in Patients with Multiple Sclerosis Treated with Subcutaneous Interferon beta-1a

| Risk of Stroke in Patients with Multiple Sclerosis Treated with Subcutaneous Interferon beta-1a | Sabidó-Espin M. | 008 | Session S36: MS Therapeutics and Clinical Research on April 25, 2018 4:54 p.m. to 5:06 p.m. PDT

Cumulative Data from the

| Cumulative Data from the | Hellwig K. | 357 | Session P4: Pregnancy and

Therapies on April 22, 2018

On display: 11:30 a.m. to 5:30 p.m. PDT

Present: 4:00 p.m. to 5:30 p.m. PDT
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<td>European Interferon Beta Pregnancy Registry</td>
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<td>Multiple Sclerosis on April 25, 2018</td>
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<td>Impact of the Presence of Gadolinium-Enhancing (Gd+) Lesions at Baseline on No Evidence of Disease Activity (NEDA) Status in Patients Treated with Subcutaneous Interferon beta-1a (scIFNβ-1a): A Post-hoc Analysis of REFLEXION</td>
<td>Freedman M.</td>
<td>Session P6: MS Therapeutics: Extension Studies on April 27, 2018</td>
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<td>Analysis of 6-month Confirmed Disability Progression in RRMS Patients Treated with Subcutaneous Interferon beta-1a</td>
<td>Wong S.L.</td>
<td>Session P6: MS Therapeutics III on April 27, 2018</td>
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**About MAVENCLAD®**

MAVENCLAD® has received marketing authorization in 35 countries including European Union member countries, Canada, Australia, Argentina, Israel, and the United Arab Emirates. MAVENCLAD® is now available in Germany, UK, Canada, Netherlands, Norway, Denmark, Sweden, Israel, and other markets. MAVENCLAD® is not yet approved for any use in the United States.

MAVENCLAD® (cladribine tablets) is a short-course oral therapy that selectively and periodically targets lymphocytes thought to be integral to the pathological process of multiple sclerosis (MS). The clinical development program of Cladribine in MS comprises more than 10,000 patient years of data with over 2,700 patients included in the clinical trial program, and more than 10 years of observation in some patients.

**EU Indication**

MAVENCLAD® (cladribine tablets) is indicated for the treatment of adult patients with highly active relapsing multiple sclerosis (RMS) as defined by clinical or imaging features.

**Important EU Safety Information**

**Contraindications:**
MAVENCLAD® is contraindicated in patients with hypersensitivity to the active substance, human immunodeficiency virus (HIV), active chronic infection (tuberculosis or hepatitis), active malignancy, moderate to severe renal impairment (creatinine clearance <60 mL/min), and those who are pregnant and breast-feeding. MAVENCLAD® is also contraindicated in immunocompromised patients, including patients currently receiving immunosuppressive or myelosuppressive therapy.

Special warnings and precautions for use:
The most clinically relevant adverse reactions were lymphopenia and herpes zoster.

Haematology
Decreases in neutrophil count, red blood cell count, haematocrit, haemoglobin or platelet count compared to baseline values have been observed in clinical studies, although these parameters usually remain within normal limits.

Additive haematological adverse reactions may be expected if cladribine is administered prior to or concomitantly with other substances that affect the haematological profile

Lymphocyte counts must be determined
- before initiating MAVENCLAD® in year 1,
- before initiating MAVENCLAD® in year 2,
- 2 and 6 months after start of treatment in each treatment year. If the lymphocyte count is below 500 cells/mm³, it should be actively monitored until values increase again.

Infections
Cladribine can reduce the body’s immune defence and may increase the likelihood of infections. HIV infection, active tuberculosis and active hepatitis must be excluded before initiation of cladribine.

The incidence of herpes zoster was increased in patients on cladribine. If lymphocyte counts drop below 200 cells/mm³, anti-herpes prophylaxis according to local standard practice should be considered during the time of grade 4 lymphopenia. Interruption or delay of MAVENCLAD® may be considered until proper resolution of the infection.

Cases of progressive multifocal leukoencephalopathy (PML) have been reported for parenteral cladribine in patients treated for hairy cell leukaemia with a different treatment regimen.

In the clinical study data base of cladribine in MS (1,976 patients, 8,650 patient years) no case of PML has been reported. However, a baseline magnetic resonance imaging (MRI) should be performed before initiating MAVENCLAD® (usually within 3 months).

About Rebif®
Rebif® (interferon beta-1a) is a disease-modifying drug used to treat relapsing forms of multiple sclerosis (MS) and is similar to the interferon beta protein produced by the human body. The efficacy of Rebif® in chronic progressive MS has not been established. Interferon beta is thought to help reduce inflammation. The exact mechanism is unknown.

Rebif®, which was approved in Europe in 1998 and in the US in 2002, is registered in more than 90 countries worldwide. Rebif® has been proven to delay the progression of disability, reduce the frequency of relapses and reduce MRI lesion activity and area*. Rebif® can be administered with the RebiSmart® electronic auto-injection device (not approved in the US), or with the RebiDose® single-use disposable pen, or the manual multidose injection pen RebiSlide™. Rebif® can also be administered with the autoinjector Rebiject II® or by manual injection using ready-to-use pre-filled syringes. These injection devices are not approved in all countries.

In January 2012, the European commission approved the extension of the indication of Rebif® in early multiple sclerosis. The extension of the indication of Rebif® has not been submitted in the United States. Rebif® should be used with caution in patients with a history of depression, liver disease, thyroid abnormalities and seizures. Most commonly reported side effects are flu-like symptoms, injection site disorders, elevation of liver enzymes and blood cell abnormalities. Patients, especially those with depression, seizure disorders, or liver problems, should discuss treatment with Rebif® with their doctors.

*The exact correlation between MRI findings and the current or future clinical status of patients, including disability progression, is unknown.
Rebif® (interferon beta-1a) is approved in the United States for relapsing forms of MS. RebiSmart®, an electronic device for self-injection of Rebif®, is also not approved in the United States. Cladribine Tablets is an investigational product and not approved for use in any indication in the United States.

About Multiple Sclerosis
Multiple sclerosis (MS) is a chronic, inflammatory condition of the central nervous system and is the most common, non-traumatic, disabling neurological disease in young adults. It is estimated that approximately 2.3 million people have MS worldwide. While symptoms can vary, the most common symptoms of MS include blurred vision, numbness or tingling in the limbs and problems with strength and coordination. The relapsing forms of MS are the most common.

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About Merck
Merck is a leading science and technology company in healthcare, life science and performance materials. Around 52,000 employees work to further develop technologies that improve and enhance life – from biopharmaceutical therapies to treat cancer or multiple sclerosis, cutting-edge systems for scientific research and production, to liquid crystals for smartphones and LCD televisions. In 2017, Merck generated sales of € 15.3 billion in 66 countries.

Founded in 1668, Merck is the world’s oldest pharmaceutical and chemical company. The founding family remains the majority owner of the publicly listed corporate group. Merck holds the global rights to the Merck name and brand. The only exceptions are the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.