



## Chugai Presents Results from Phase III Study of Satralizumab in NMOSD at ECTRIMS 2018

- Satralizumab added to baseline therapy significantly reduced risk of relapse -

TOKYO, October 15, 2018 – [Chugai Pharmaceutical Co., Ltd.](#) (TOKYO: 4519) announced that results from the phase III study of satralizumab (development code: SA237), SAKuraSky Study (NCT02028884), were presented at the Congress of European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS) 2018 held in Berlin, Germany from October 10 to 12. Satralizumab is a humanized investigational recycling anti-IL-6 receptor monoclonal antibody for the treatment of neuromyelitis optica spectrum disorder (NMOSD), which currently has no approved treatments.

“These positive pivotal results for satralizumab, showing a significant reduction in relapses in patients, are a significant positive step in the potential treatment of NMOSD,” said Dr. Takashi Yamamura, Director, Department of Immunology, National Institute of Neuroscience, National Center of Neurology and Psychiatry, Tokyo. “Many people with NMOSD are suffering from frequent relapses and often persistent motor dysfunction and loss of sensation, and end up relying on wheelchairs or going blind. The medical community hopes that this potential new medicine may alleviate the condition and improve the everyday lives of people who currently have no approved treatment options.”

The phase III study results for SAKuraSky study showed:

- Satralizumab on top of immunosuppressive therapy significantly reduced the risk of relapse by 62% (hazard ratio = 0.38 [95% confidence interval: 0.16-0.88],  $p=0.0184$  [stratified log-rank test]) in patients with NMOSD including anti-aquaporin-4 (AQP4) antibody positive (AQP4 Ab positive) and negative (AQP4 Ab negative) patients, achieving the primary endpoint of time to first protocol-defined relapse (PDR) in the double-blind period. The proportion of relapse free at weeks 48 and 96 was 88.9% and 77.6% with satralizumab and 66.0% and 58.7% with placebo, respectively.
- In a prespecified subgroup analysis, satralizumab showed a 79% risk reduction (N=55, hazard ratio=0.21 [95% confidence interval: 0.06-0.75]) of PDR compared to placebo in the NMOSD AQP4 Ab positive subgroup. The proportion of relapse free at weeks 48 and 96 was 91.5% and 91.5% with satralizumab and 59.9% and 53.3% with placebo, respectively. For the NMOSD AQP4 Ab negative subgroup, satralizumab showed a 34% risk reduction (N= 28, hazard ratio= 0.66 [95% confidence interval: 0.20-2.23]) of PDR compared to placebo, and the proportion of relapse free at weeks 48 and 96 was 84.4% and 56.3% with satralizumab, and 75.5% and 67.1% with placebo, respectively.
- Throughout the mean treatment duration of approximately 2 years, satralizumab showed a favorable safety profile. The proportion of patients experiencing serious adverse events,

including serious infections, was similar in patients treated with satralizumab or placebo. No death or anaphylactic reactions were observed.

“The positive phase III results for satralizumab suggests that IL-6 inhibition should be an effective therapeutic approach for NMOSD,” said Dr. Yasushi Ito, Chugai’s Executive Vice President, Co-Head of Project & Lifecycle Management Unit. “NMOSD is a disease with significant unmet medical needs. Although progression of the disease may lead to blindness and motor dysfunction, there are no approved drugs available. We continue our efforts so that we can hopefully bring this treatment option to people living with this devastating disease.”

### **SAkuraSky Study**

#### **Summary:**

A phase III multicenter, randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of satralizumab added to baseline therapy in patients with NMOSD

#### **Primary Endpoint**

Time to first protocol-defined relapse adjudicated by an independent review committee in the double-blind period

#### **Main Secondary Endpoints**

Change in Visual Analogue Scale (VAS) score for pain

Change in Functional Assessment of Chronic Illness Therapy (FACIT) Fatigue score

#### **Study Design:**

- 83 male and female patients aged from 13 to 73 years were randomized.
- Patients were randomized to either of the following two treatment groups in a 1:1 ratio. Satralizumab (120 mg) or placebo added to baseline therapy (azathioprine, mycophenolate mofetil and/or corticosteroids). Both treatments were subcutaneously administered at Week 0, 2, and 4. The subsequent treatment was continued at 4-week intervals.
- The double-blind period ended when the total number of protocol-defined relapse reached 26. After completion of the double-blind period, patients in both groups were able to continue treatment with satralizumab in an open-label extension period.
- Patients with neuromyelitis optica (as defined by diagnostic criteria in 2006) and those with NMOSD (as defined by diagnostic criteria in 2007) with anti- AQP4 antibodies, were enrolled.

### **About Neuromyelitis Optica Spectrum Disorder (NMOSD)**

Neuromyelitis optica spectrum disorder (NMOSD) is a rare, lifelong, and debilitating autoimmune disease of the central nervous system (CNS) characterized by inflammatory lesions in the optic nerves and spinal cord. Patients with NMOSD frequently experience a relapsing disease course with repeated attacks leading to accumulating neurological damage and disability. Symptoms may include visual impairment, motor disability, and loss of quality of life. In some cases, attacks of NMOSD result in death.

NMOSD pathogenesis is thought to involve AQP4-IgG autoantibody entry into the CNS, however approximately one-third of patients with NMOSD are AQP4-IgG seronegative. The inflammatory cytokine IL-6 is now emerging as an important factor in NMOSD pathogenesis.

Diagnostic criteria introduced in 2006 for neuromyelitis optica were characterized by inflammation of the optic nerve (optic neuritis) and the spinal cord (myelitis). These were revised in 2007 with the definition of NMOSD, proposed for diseases with either optic neuritis or myelitis. In 2015, the definition of NMOSD further revised to include a broader spectrum of disease. The diagnostic term NMOSD is now widely used.

#### References

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#### About Chugai

Chugai Pharmaceutical is one of Japan's leading research-based pharmaceutical companies with strengths in biotechnology products. Chugai, based in Tokyo, specializes in prescription pharmaceuticals and is listed on the 1st section of the Tokyo Stock Exchange. As an important member of the Roche Group, Chugai is actively involved in R&D activities in Japan and abroad. Specifically, Chugai is working to develop innovative products which may satisfy the unmet medical needs, mainly focusing on the oncology area.

In Japan, Chugai's research facilities in Gotemba and Kamakura are collaborating to develop new pharmaceuticals and laboratories in Ukima are conducting research for technology development for industrial production. Overseas, [Chugai Pharmabody Research](#) based in Singapore is engaged in research focusing on the generation of novel antibody drugs by utilizing Chugai's proprietary innovative antibody engineering technologies. [Chugai Pharma USA](#) and [Chugai Pharma Europe](#) are engaged in clinical development activities in the United States and Europe.

The consolidated revenue in 2017 of Chugai totalled 534.2 billion yen and the operating income was 103.2 billion yen (IFRS Core basis).

Additional information is available on the internet at <https://www.chugai-pharm.co.jp/english>.

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