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# EISAI RECEIVES MANUFACTURING AND MARKETING AUTHORIZATION FOR ANTIEPILEPTIC AGENT INOVELON<sup>®</sup> IN JAPAN

Eisai Co., Ltd. (Headquarters: Tokyo, President & CEO: Haruo Naito, "Eisai") announced today that it has received manufacturing and marketing authorization in Japan from the Japanese Ministry of Health, Labour and Welfare (MHLW) for antiepileptic agent Inovelon<sup>®</sup> (rufinamide), approving the drug as an adjunctive therapy to other antiepileptic drugs (AEDs) in the treatment of Lennox-Gastaut syndrome (LGS), a rare disorder.

Rufinamide was designated by the MHLW's "Study Group on Unapproved Drugs," the predecessor to the "Study Group on Unapproved and Off-Label Drugs of High Medical Need," in October 2009 as an unapproved drug for which development support would be provided. Following clinical development studies of rufinamide in Japan, Eisai later submitted a manufacturing and marketing authorization application for the drug to the MHLW in August 2012. Rufinamide has been designated as an orphan drug in Japan since June 2011.

LGS is one of the most severe and intractable forms of childhood-onset epilepsy. Characterized by multiple seizure types, the disorder is extremely difficult to control, with patients normally having to take several different AEDs. LGS also often leads to delayed intellectual development, behavioral disturbances, and frequent falls due to sudden loss of consciousness, and therefore has a significant impact on the quality of life of both patients and their families.

Eisai defines epilepsy as a therapeutic area of focus and has been marketing rufinamide in Europe and the United States since acquiring marketing approval for the drug in January 2007 and November 2008, respectively. By obtaining marketing authorization for the drug in Japan, Eisai seeks to make further contributions to address the diverse needs of, and increase the benefits provided to, patients with LGS and their families as well as medical professionals.

[Please refer to the following notes for a product outline and further information on LGS, rufinamide, a clinical study in Japan, a Phase III study overseas, and Eisai's commitment to epilepsy.]

Media Inquiries: Public Relations Department, Eisai Co., Ltd. +81-(0)3-3817-5120



Eisai Co., Ltd.

### [Notes to editors]

## 1. Product Outline

# 1) Product Name

Inovelon<sup>®</sup> Tablets 100 mg, Inovelon<sup>®</sup> Tablets 200 mg

# 2) Generic Name

Rufinamide

## 3) Indications and Usage

Inovelon is indicated as an adjunctive therapy to other antiepileptic drugs (AEDs) in the treatment of tonic and atonic seizures associated with Lennox-Gastaut syndrome (LGS) when therapy with other AEDs is considered inadequate.

# 4) Dosage and Administration

## Children age four and older:

In children with a body weight of 15.0-30.0 kg, treatment with rufinamide should be initiated over two days at a daily dose of 200 mg/day divided into two doses and administered orally after meals. After the initiation period, the daily dose should be steadily increased by increments of 200 mg or less every other day until a target maintenance dose of 1,000 mg/day has been achieved. The maintenance dose should similarly be divided into two doses and administered or symptoms, the daily dose may be increased or decreased provided that total dosage does not exceed 1,000 mg/day, and that increases are achieved by increments of 200 mg/day or less and no more frequently than every other day. In children with a body weight of 30.1 kg or greater, recommended dosage and administration is the same as that of adults, as provided below. Adults:

In adults, treatment with rufinamide should be initiated over two days at a daily dose of 400 mg/day divided into two doses and administered orally after meals. After the initiation period, the daily dose should be steadily increased by increments of 400 mg or less every other day until a target maintenance dose of 1,800 mg/day for patients with a body weight of 30.1-50.0 kg, 2,400 mg/day for patients with a body weight of 50.1-70.0 kg, or 3,200 mg/day for patients with a body mass of 70.1 kg or greater has been achieved. Respective maintenance doses should similarly be divided into two doses and administered orally after meals. Depending on symptoms, the daily dose may be increased or decreased provided that total dosage does not exceed the recommended maintenance dose, and that increases are achieved by increments of 400 mg/day or less and no more frequently than every other day.

### 2. About Lennox-Gastaut Syndrome (LGS)

One of the most rare and severe forms of epilepsy, LGS usually develops in preschool-aged children, many of whom have some kind of preexisting organic brain disorder, such as encephalopathy. LGS is not only characterized by frequent seizures and multiple seizure types, it is also accompanied by delayed intellectual development and personality disorders. The majority of patients with LGS experience tonic (muscle stiffening), atonic (sudden loss of muscle tone or drop attacks) and absence (brief loss of consciousness or staring) seizures. Tonic-clonic (grand mal), myoclonic (sudden muscle jerks) and other types of seizures may also occur. Tonic and atonic seizures lead to the sudden falls seen in LGS patients that are known as "drop attacks," a primary cause of injury. Patients with LGS often wear protective helmets with face guards to protect against head injury from these attacks. Although LGS is most commonly treated with antiepileptic drugs, patients whose seizures are difficult to manage with pharmacotherapy may have to undergo surgical treatment.

# 3. About Rufinamide

Rufinamide is a triazole derivative that is structurally unrelated to currently marketed antiepileptic drugs (AEDs). The agent is believed to exert its antiepileptic effects by regulating activity of sodium channels in the brain that carry

excessive electrical charges thought to cause seizures, so as to prolong their inactive state. Eisai entered into a license agreement with Novartis Pharma AG in February 2004, under which Novartis granted Eisai the exclusive worldwide rights to develop, use, manufacture and market rufinamide for any human therapeutic use excluding bipolar mood disorder, anxiety disorders and ophthalmologic disorders. The agent received approval in the European Union in January 2007 and in the United States in November 2008 as an adjunctive therapy to other AEDs in the treatment of seizures associated with Lennox-Gastaut syndrome (LGS). Rufinamide is currently marketed in these regions under the brand names Inovelon<sup>®</sup> and Banzel<sup>®</sup>, respectively, in addition to the Asia region.

### 4. Clinical Study in Japan

A 12-week double-blind comparative study of rufinamide versus placebo as adjunctive therapy to other antiepileptic drugs was conducted in 59 patients with Lennox-Gastaut syndrome (LGS) aged between 4 and 30 years old. The trial took into account other, overseas trials of the drug; during the maintenance period, patients received either placebo or rufinamide at a dose of 1,000 mg, 1,800 mg, 2,400 mg or 3,200 mg daily depending on their weight. Results showed that the patients who were administered rufinamide experienced a significant reduction in tonic and atonic seizure frequency (change in seizure frequency; rufinamide arm: -24.2%; placebo arm: -3.3%; p=0.003) and overall seizure frequency (change in seizure frequency; rufinamide arm: -32.9%; placebo arm: -3.1%; p=<0.001). The most frequently observed adverse reactions were decreased appetite, somnolence and vomiting.

#### 5. Phase III Clinical Study Overseas

A 12-week double-blind comparative study of rufinamide versus placebo as adjunctive therapy to other antiepileptic drugs was conducted in 138 patients with LGS aged between 4 and 30 years old. During the maintenance period, patients received either placebo or rufinamide at a dose of 1,000 mg, 1,800 mg, 2,400 mg or 3,200 mg daily depending on their weight (target dose of approximately 45 mg/kg per day). Results showed that the patients who were administered rufinamide experienced a significant reduction in tonic and atonic seizure frequency (change in seizure frequency; rufinamide arm: -42.5%; placebo arm: 1.4%; p=<0.0001) and overall seizure frequency (change in seizure frequency; rufinamide arm: -32.7%; placebo arm: -11.7%; p=0.0015). The most frequently observed adverse reactions were somnolence, decreased appetite and vomiting.

#### 6. Eisai's Commitment to Epilepsy

Eisai defines epilepsy as a therapeutic area of focus. In addition to Lennox-Gastaut syndrome treatment Inovelon<sup>®</sup>/Banzel<sup>®</sup>, Eisai currently markets Zonegran<sup>®</sup> (sodium/calcium channel blocking antiepileptic agent marketed in Europe, the United States and Asia under license from the originator, Dainippon Sumitomo Pharma Co., Ltd.) and Zebinix<sup>®</sup> (voltage-dependent sodium channel-blocking antiepileptic agent marketed in Europe under license from the originator, BIAL-Portela & Ca S.A.) for the treatment of partial-onset seizures, and the anticonvulsant agent Fostoin<sup>®</sup> (water-soluble pro-drug of phenytoin marketed in Japan with co-promotion partner Nobelpharma Co., Ltd.) for use in the treatment of conditions such as status epilepticus.

Eisai also received approval to market Fycompa<sup>®</sup> (perampanel), an AMPA antagonist discovered and developed in-house, as a first-in-class treatment for partial-onset seizures, in the European Union in July 2012 and in United States in October 2012, with the drug having already been launched in six countries across Europe as of March 2013. Perampanel is currently in Phase III clinical development in Japan for partial-onset seizures and Eisai is also conducting Phase III clinical studies as part of a global development program for the drug in the treatment of generalized epilepsy. By offering multiple treatment options as part of an extensive epilepsy product portfolio, Eisai seeks to make further contributions to address the diversified needs of, and increase the benefits provided to, patients with epilepsy and their families.