



EUROPEAN MEDICINES AGENCY
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Public summary of opinion on orphan designation

Lactobacillus plantarum for the treatment of amyotrophic lateral sclerosis

On 16 December 2019, orphan designation EU/3/19/2232 was granted by the European Commission to MDC RegAffairs GmbH, Germany, for *Lactobacillus plantarum* for the treatment of amyotrophic lateral sclerosis.

What is amyotrophic lateral sclerosis?

Amyotrophic lateral sclerosis (ALS) is a progressive disease of the nervous system, where nerve cells in the brain and spinal cord that control voluntary movement gradually deteriorate, causing loss of muscle function and paralysis. The exact causes are unknown but are believed to include genetic and environmental factors. The symptoms of ALS depend on which muscles weaken first, and include loss of balance, loss of control of hand and arm movement, and difficulty speaking, swallowing and breathing. ALS usually starts in mid-life and men are more likely to develop the disease than women.

ALS is a debilitating and life-threatening disease because of the gradual loss of function and its paralysing effect on muscles used for breathing, which usually leads to death from respiratory failure.

What is the estimated number of patients affected by the condition?

At the time of designation, amyotrophic lateral sclerosis affected approximately 1 in 10,000 people in the European Union (EU). This was equivalent to a total of around 52,000 people*, and is below the ceiling for orphan designation, which is 5 people in 10,000. This is based on the information provided by the sponsor and the knowledge of the Committee for Orphan Medicinal Products (COMP).

What treatments are available?

At the time of designation, riluzole was authorised in the EU to treat ALS. Patients also received supportive treatment to relieve the symptoms of the disease, such as physiotherapy and breathing support.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with ALS, because early studies showed that the progression of the disease was

*Disclaimer: For the purpose of the designation, the number of patients affected by the condition is estimated and assessed on the basis of data from the European Union (EU 28), Norway, Iceland and Liechtenstein. This represents a population of 518,400,000 (Eurostat 2019).



slower in patients treated with the medicine and suggested that the medicine might reduce symptoms that are not treated with the authorised medicine.

This assumption will need to be confirmed at the time of marketing authorisation, in order to maintain the orphan status.

How is this medicine expected to work?

This medicine contains bacteria known as *Lactobacillus plantarum*, which are commonly found in many fermented food products and in human saliva.

The way these bacteria work in the treatment of ALS is not fully understood, but they are thought to modify the composition of the bacteria normally present in the human gut in favour of bacteria that break down glutamate, a substance that at high levels is toxic to nerve cells. By reducing the level of glutamate, the medicine is expected to protect nerve cells from its harmful effects, thus delaying the progression of the disease.

What is the stage of development of this medicine?

The effects of the medicine have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with the medicine in patients with amyotrophic lateral sclerosis were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for the treatment of amyotrophic lateral sclerosis. Orphan designation of *Lactobacillus plantarum* had been granted in the United States for treatment of ALS.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 15 November 2019, recommending the granting of this designation.

Opinions on orphan medicinal product designations are based on the following three criteria:

- the seriousness of the condition;
- the existence of alternative methods of diagnosis, prevention or treatment;
- either the rarity of the condition (affecting not more than 5 in 10,000 people in the EU) or insufficient returns on investment.

Designated orphan medicinal products are products that are still under investigation and are considered for orphan designation on the basis of potential activity. An orphan designation is not a marketing authorisation. As a consequence, demonstration of quality, safety and efficacy is necessary before a product can be granted a marketing authorisation.

For more information

Sponsor's contact details:

Contact details of the current sponsor for this orphan designation can be found on [EMA website](#).

For contact details of patients' organisations whose activities are targeted at rare diseases see:

- [Orphanet](#), a database containing information on rare diseases, which includes a directory of patients' organisations registered in Europe;
- [European Organisation for Rare Diseases \(EURORDIS\)](#), a non-governmental alliance of patient organisations and individuals active in the field of rare diseases.

Translations of the active ingredient and indication in all official EU languages¹, Norwegian and Icelandic

Language	Active ingredient	Indication
English	<i>Lactobacillus plantarum</i>	Treatment of amyotrophic lateral sclerosis
Bulgarian	<i>Lactobacillus plantarum</i>	Лечение на амиотрофична латерална склероза
Croatian	<i>Lactobacillus plantarum</i>	Liječenje amiotrofične lateralne skleroze
Czech	<i>Lactobacillus plantarum</i>	Léčba amyotrofické laterální sklerózy (ALS)
Danish	<i>Lactobacillus plantarum</i>	Behandling af amyotrofisk lateralsklerose
Dutch	<i>Lactobacillus plantarum</i>	Behandeling van amyotrofe lateraalsclerose
Estonian	<i>Lactobacillus plantarum</i>	Amüotroofilise lateraalskleroosi ravi
Finnish	<i>Lactobacillus plantarum</i>	Amyotrofisen lateraalskleroosin hoito
French	<i>Lactobacillus plantarum</i>	Traitement de la sclérose latérale amyotrophique
German	<i>Lactobacillus plantarum</i>	Behandlung der amyotrophen Lateralsklerose
Greek	<i>Lactobacillus plantarum</i>	Θεραπεία πλάγιας μυοατροφικής σκλήρυνσης
Hungarian	<i>Lactobacillus plantarum</i>	Amyotrophiás lateral sclerosis kezelése
Italian	<i>Lactobacillus plantarum</i>	Trattamento della sclerosi laterale amiotrofica
Latvian	<i>Lactobacillus plantarum</i>	Amiotrofiskās laterālās sklerozes ārstēšana
Lithuanian	<i>Lactobacillus plantarum</i>	Šoninės amiotrofinės sklerozės gydymas
Maltese	<i>Lactobacillus plantarum</i>	Kura tas-sklerosi laterali amjotrofika
Polish	<i>Lactobacillus plantarum</i>	Leczenie stwardnienia bocznego zanikowego
Portuguese	<i>Lactobacillus plantarum</i>	Tratamento da esclerose lateral amiotrófica
Romanian	<i>Lactobacillus plantarum</i>	Tratamentul sclerozei laterale amiotrofice
Slovak	<i>Lactobacillus plantarum</i>	Liečba amyotrofickéj laterálnej sklerózy
Slovenian	<i>Lactobacillus plantarum</i>	Zdravljenje amiotrofične lateralne skleroze
Spanish	<i>Lactobacillus plantarum</i>	Tratamiento de la esclerosis lateral amiotrófica
Swedish	<i>Lactobacillus plantarum</i>	Behandling av amyotrofisk lateralskleros
Norwegian	<i>Lactobacillus plantarum</i>	Behandling av amyotrofisk lateralsklerose
Icelandic	<i>Lactobacillus plantarum</i>	Meðferð við blandaðri hreyfitaugahrönnun

¹ At the time of designation