



EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Valproic acid for the treatment of McArdle's disease

On 29 August 2016, orphan designation (EU/3/16/1734) was granted by the European Commission to Vall d'Hebron Institute of Research, Spain, for valproic acid for the treatment of McArdle's disease.

What is McArdle's disease?

McArdle's disease (also known as glycogen storage disease type V) is an inherited disorder caused by the lack of an enzyme called myophosphorylase. This enzyme breaks down glycogen (a complex sugar) stored in the muscles into glucose (a simple sugar), which is used to generate energy. When this enzyme is lacking, less energy is made in the muscles, leading to decreased ability to exercise, muscle fatigue (loss of strength in muscles), contractures (permanent shortening and hardening of muscles), and sometimes myoglobinuria (presence of a protein from broken-down muscle in the urine, which can damage the kidneys).

McArdle's disease is a long-term debilitating disease because it reduces the ability to exercise, causes tiredness and stiffness, and shortens and hardens muscles. It is also life-threatening because it can cause sudden breakdown of muscle, which can cause kidney damage and lead to death.

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

At the time of designation, McArdle's disease affected approximately 0.1 in 10,000 people in the European Union (EU). This was equivalent to a total of around 5,000 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 submission of the application for orphan designation, no satisfactory method had been authorised in the European Union for the treatment of McArdle's disease.

^{*}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 513,700,000 (Eurostat 2016).



How is this medicine expected to work?

Valproic acid (or valproate) is a well-known medicine used in the EU to treat epilepsy and bipolar disorder. In patients with McArdle's disease it is thought to activate certain genes in muscle cells thereby triggering the production of another form of the enzyme myophosphorylase called glycogen phosphorylase. Glycogen phosphorylase is usually produced in the liver and heart (but not in muscles), where it works similarly to myophosphorylase by breaking down glycogen into glucose. In muscle cells glycogen phosphorylase is expected to replace the action of myophosphorylase, thereby improving the symptoms of the disease.

What is the stage of development of this medicine?

The effects of valproic acid have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with valproic acid in patients with McArdle's disease were ongoing.

At the time of submission, valproic acid was not authorised anywhere in the EU for McArdle's disease or designated as an orphan medicinal product elsewhere for this condition.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 13 July 2016 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, on the medicine's [rare disease designations page](#).

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	Valproic Acid	Treatment of McArdle's disease
Bulgarian	Натриев валпроат	Лечение на болест на McArdle
Croatian	Valproična kiselina	Liječenje McArdleove bolesti
Czech	Kyselina valproová	Léčba Mcardlovi choroby
Danish	Valproesyre	Behandling af McArdles sygdom
Dutch	Valproïnezuur	Behandeling van de ziekte McArdle
Estonian	Valproaathape	McArdle haiguse ravi
Finnish	Valproaattihappo	McArdlen taudin hoito
French	Acide valproïque	Traitement de la maladie de McArdle
German	Valproinsäure	Behandlung der McArdle-Krankheit
Greek	βαλπροϊκό οξύ	Θεραπεία της νόσου McArdle
Hungarian	Valproát sav	McArdle betegség kezelése
Italian	Acido valproico	Trattamento della malattia di McArdle
Latvian	Valproiskābe	McArdle slimības ārstēšana
Lithuanian	Valproinė rūgštis	McArdle ligos gydymas
Maltese	Valproic acid	Kura tal-marda ta' McArdle
Polish	Kwas walproinowy	Leczenie choroby McArdle'a
Portuguese	Ácido valproico	Tratamento da doença de McArdle
Romanian	Acid valproic	Tratamentul bolii McArdle
Slovak	Valproát sodný	Liečba ochorení McArdle
Slovenian	Natrijev valproat	Zdravljenje McArdle bolezni
Spanish	Ácido valproico	Tratamiento de la enfermedad de McArdle
Swedish	Natriumvalproat	Behandling av McArdle sjukdom
Norwegian	Natriumvalproat	Behandling av McArdle sykdom
Icelandic	Valpróín sýra	Meðferð við McArdle sjúkdómi

¹ At the time of designation