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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate for the treatment of mucopolysaccharidosis type I

On 22 September 2016, orphan designation (EU/3/16/1714) was granted by the European Commission to Coté Orphan Consulting UK Limited, United Kingdom, for 6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate (also known as ELX-02) for the treatment of mucopolysaccharidosis type I.

What is mucopolysaccharidosis type I?

Mucopolysaccharidosis type I (MPS I) is one of a group of inherited diseases caused by the lack of certain enzymes needed to break down substances in the body called glycosaminoglycans (GAGs). In MPS I the enzyme that is lacking is α -L-iduronidase. Since patients with MPS I cannot break GAGs down properly, GAGs gradually build up in various organs in the body and damage them. This can cause a range of symptoms including impaired vision, developmental delay, mental disability, progressive joint stiffness and skeletal problems, breathing difficulties, enlarged liver and heart disease. The condition varies in severity, with the mildest form known as Scheie syndrome and the most severe as Hurler syndrome.

MPS I is a long-term debilitating and life-threatening disease that leads to multiple disabilities and can result in premature death.

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

At the time of designation, MPS I affected approximately 0.02 in 10,000 people in the European Union (EU). This was equivalent to a total of around 1,000 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).

*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).

What treatments are available?

At the time of designation, the medicine Aldurazyme (laronidase) was authorised in the EU to treat some of the symptoms of MPS I by supplying patients with a version of the missing enzyme (enzyme replacement therapy). Some patients were treated with haematopoietic stem cell transplantation, a complex procedure where the patient receives blood stem cells from a matched donor; the stem cells are able to develop into normal blood cells that can produce the missing enzyme.

The sponsor has provided sufficient information to show that this medicine might be of significant benefit for patients with MPS I because laboratory studies show that it can restore activity of the missing enzyme without the need for enzyme replacement therapy. 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?

In most patients with MPS I, the disease is caused by a genetic mutation (change) called a nonsense mutation in the gene for α -L-iduronidase. This mutation prematurely stops production of normal α -L-iduronidase, leading to a shortened enzyme that does not work properly. This medicine is expected to work by enabling the protein-making apparatus in cells to move past the mutation, allowing the cells to produce a functional enzyme, thus easing the symptoms of the disease.

What is the stage of development of this medicine?

At the time of submission of the application for orphan designation, the evaluation of the effects of the medicine in experimental models was ongoing.

At the time of submission of the application for orphan designation, no clinical trials with the medicine in patients with MPS I had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for MPS I 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	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Treatment of mucopolysaccharidosis type I
Bulgarian	6'-(R)-метил-5-О-(5-амино-5,6-дидеокси- α -L-талофуранозил)-паромамин сулфат	Лечение на мукополизахаридоза тип I
Croatian	6'-(R)-metil-5-O-(5-amino-5,6-dideoksi- α -L-talofuranosil)-paromamin sulfat	Liječenje mukopolisaharidoze tipa I
Czech	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfat	Léčba mukopolysacharidozy typu I
Danish	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfat	Behandling af mucopolysaccharidose type I
Dutch	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Behandeling van mucopolysaccharidose type I
Estonian	6'-(R)-metüül-5-O-(5-amino-5,6-dideoksü- α -L-talofuranosüül)-paromamiinsulfaat	I-tüüpi mukopolüsahharidoosi ravi
Finnish	6'-(R)-metyyli-5-O-(5-amino-5,6-dideoksi- α -L-talofuranosyyli)-paromamiini sulfaatti	Tyypin I mukopolysakkaridoosin hoito
French	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Traitement de la mucopolysaccharidose de type I
German	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromaminsulfat	Behandlung der Mukopolysaccharidose Typ I
Greek	θειικό άλας της 6'-(R)-μεθυλ-5-Ο-(5-αμινο-5,6-διδεδοξυ- α -L-ταλοφουρανοσυλ-παρομαμίνη	Θεραπεία βλεννοπολυσακχαρίδωσης, τύπου I
Hungarian	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamin szulfát	+ 1-es típusú mucopolisaccharidosis kezelésé
Italian	6'-(R)-metil-5-O-(5-amino-5,6-dideossi- α -L-talofuranosil)-paromamine solfato	Trattamento della mucopolisaccaridosi di tipo I
Latvian	6'-(R)-metil-5-O-(5-amino-5,6-dideoksi- α -L-talofuranozil)-paromamīna sulfāts	I tipa mukopolisaharidozes ārstēšana
Lithuanian	6'-(R)-metil-5-O-(5-amino-5,6-dideoksi- α -L-talofuranosil)-paromamino sulfatas	Mukopolisacharidozės(I tipo) gydymas
Maltese	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Kura tal-mukopolisakkaridożi tat-tip I
Polish	6'-(R)-metylo-5-O-(5-amino-5,6-dideoksy- α -L-talofuranozylo)-paromaminy siarczan	Leczenie mukopolisacharydozy typu I
Portuguese	Sulfato de 6'-(R)-metil-5-O-(5-amino-5,6-didesoxi- α -L-talofuranosil)-paromamina	Tratamento da mucopolissacaridose, tipo I
Romanian	Sulfat de 6'-(R)-metil-5-O-(5-amino-5,6-dideoxi- α -L-talofuranozil)-paromamină	Tratamentul mucopolizaharidozei de tip I
Slovak	6'-(R)-metyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranozyl)-paromamín sulfát	Liečba mukopolysacharidózy typu I

¹ At the time of designation

Language	Active ingredient	Indication
Slovenian	6'-(R)-metil-5-O-(5-amino-5,6-dideoksiy- α -L-talofuranozil)-paromamin sulfat	Zdravljenje mukopolisaharidoze vrste I
Spanish	Sufato de 6'-(R)-metil-5-O-(5-amino-5,6-dideoxi- α -L-talofuranosil)-paromamine	Tratamiento de la mucopolisacaridosis tipo I
Swedish	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Behandling av mukopolysackaridos typ I
Norwegian	6'-(R)-methyl-5-O-(5-amino-5,6-dideoxy- α -L-talofuranosyl)-paromamine sulfate	Behandling av mukopolysakkaridose type I
Icelandic	6'-(R)-methýl-5-O-(5-amínó-5,6-dídeoxý- α -L-talófúranósýl)-parómamíne súlfat	Meðferð við slímsykrukvilla gerð I