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EMA/COMP/740574/2012
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Exon 52 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy

On 6 December 2012, orphan designation (EU/3/12/1077) was granted by the European Commission to Prosensa Therapeutics B.V., the Netherlands, for exon 52 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy.

What is Duchenne muscular dystrophy?

Duchenne muscular dystrophy (DMD) is a genetic disease that gradually causes weakness and atrophy (wasting) of the muscles. It mainly affects boys, and usually starts before the age of six years. The muscle weakness usually starts in the hips and legs, before reaching the chest, arms, and sometimes the heart. Patients with DMD lack normal dystrophin, a protein found in muscles. Because this protein helps to strengthen and protect muscles from injury as they contract and relax, in patients with DMD the muscles become weak and eventually stop working.

DMD causes long-term disability and is life threatening because of its effects on the heart and the respiratory muscles (muscles that are used to breathe). The disease usually leads to death in adolescence or early adulthood.

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

At the time of designation, DMD affected approximately 0.52 in 10,000 people in the European Union (EU)[*]. This is equivalent to a total of around 26,000 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 27), Norway, Iceland and Liechtenstein. This represents a population of 506,300,000 (Eurostat 2011).

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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 to treat DMD. Treatment of patients with DMD primarily involves physiotherapy and other supportive treatments.

How is this medicine expected to work?

DMD is caused by defects in the gene responsible for the production of dystrophin. Often important parts of this gene called 'exons' are missing or damaged, which results in a very short dystrophin protein that cannot work properly.

This medicine is an 'anti-sense oligonucleotide' medicine. It is expected to attach to a normal exon of the dystrophin gene, called exon 52, and to produce adequate levels of an 'intermediate-length' dystrophin protein, which works better than the very short dystrophin found in DMD. It is expected to do so by a mechanism called 'exon skipping', which allows skipping the areas of the gene that block the production of a dystrophin protein which is long enough to function.

What is the stage of development of this medicine?

The effects of exon 52 specific phosphorothioate oligonucleotide have been evaluated in experimental models.

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

At the time of submission, the medicine was not authorised anywhere in the EU for DMD 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 7 November 2012 recommending the granting of this designation.

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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:

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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 languages[1], Norwegian and Icelandic

Language	Active substance	Indication
English	Exon 52 specific phosphorothioate oligonucleotide	Treatment of Duchenne muscular dystrophy
Bulgarian	Екзон 52 специфичен фосфоротиоат олигонуклеотид	Лечение на мускулна дистрофия на Duchenne
Czech	Exonn 52 specifický fosforothioát oligonukleotid	Léčba pacientů s Duchennovou muskulární dystrofií
Danish	Exon 52-specifikt fosforothioat oligonukleotid	Behandling af Duchennes muskeldystrofi
Dutch	Exon 52 specifiek phosphorothioate oligonucleotide	Behandeling van Duchenne spierdystrofie
Estonian	Ekson 52 spetsiifiline fosfortioaat oligonukleotiid	Duchenne'i lihasdüstroofia ravi
Finnish	Eksoni 52-spesifinen fosforotioaatti oligonukleotidi	Duchennen lihasdystrofian hoito
French	Oligonucléotide phosphorothioate spécifique de l'exon 52	Traitement de la dystrophie musculaire de Duchenne
German	Phosphorothioate-Oligonukleotid spezifisch für Exon 52	Behandlung der Duchenne-Muskeldystrophie
Greek	Φωσφοροθειοϊκό ολιγονουκλεοτίδιο ειδικό για το εξόνιο 52	Θεραπεία της μυϊκής δυστροφίας Duchenne
Hungarian	Exon 52 specifikus foszforotionát-oligonukleotid	Duchenne dystrophia kezelése
Italian	Oligonucleotide fosforotioato specifico per l'esone 52	Trattamento di distrofia muscolare di tipo Duchenne
Latvian	Eksona 52 specifisks fosfortioāta oligonukleotīds	Dišēna muskuļu distrofijas ārstēšana
Lithuanian	52-am egzonui specifinis fosforotioato oligonukleotidas	Duchenne (Diušeno) raumenų distrofijos gydymas
Maltese	Oligonukleotide ta' *phosphorothioate* speċifiku għall-*exon* 52	Kura tad-distrofija muskolari tat-tip Duchenne
Polish	Oligonukleotyd fosforosiarkowy specyficzny do eksonu 52	Leczenie zaniku mięśni typu Duchenne'a
Portuguese	Oligonucleotido fosforotioato específico do Exon 52	Tratamento da distrofia muscular de Duchenne
Romanian	Oligonucleotidă fosforotioat, specifică pentru exonul 52	Tratamentul distrofiei musculare Duchenne
Slovak	Exón 52-špecifický fosforotioát oligonukleotid	Liečba Duchennovej muskulárnej dystrofie
Slovenian	fosforotioat oligonukleotid specifičen za ekson 52	Zdravljenje Duchennove mišične distrofije
Spanish	Oligonucleótido fosforotioato específico deexón 52	Tratamiento de la distrofia muscular de Duchenne

[1] At the time of designation

Language	Active substance	Indication
Swedish	Exon 52 specifik fosforotioatoligonukleotid	Behandling av Duchennes muskeldystrofi
Norwegian	Exon 52 spesifikt fosforotioatoligonukleotid	Behandling av Duchennes muskeldystrofi
Icelandic	Táknröð 52 sértækt phosphoróthíóat ólígónúkleótíð	Meðferð á Duchenne vöðvarýrnun