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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Exon 44 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy

First publication	24 June 2009
Rev.1: sponsor's change of address	30 April 2012
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Disclaimer

Please note that revisions to the Public Summary of Opinion are purely administrative updates. Therefore, the scientific content of the document reflects the outcome of the Committee for Orphan Medicinal Products (COMP) at the time of designation and is not updated after first publication.

On 27 February 2009, orphan designation (EU/3/08/598) was granted by the European Commission to Prosensa Therapeutics B.V., The Netherlands, for exon 44 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy.

What is Duchenne muscular dystrophy?

Duchenne muscular dystrophy is an inherited genetic disease, which usually starts before the age of 6. It is characterised by progressive weakness of the muscles, first involving the hips and legs, and later also the muscles of the chest and arms. Genes located on structures present in each cell of the body (the chromosomes) carry the information that characterises each individual. In humans, the so-called X and Y-chromosomes determine the sex (males have one X and one Y, females have 2 Xs), but carry also other genetic information. Duchenne muscular dystrophy is caused by an abnormality of a gene located on the X chromosome. This gene is responsible for the production of a protein, dystrophin, in the muscle cells. This means that patients suffering from this condition do not produce the dystrophin protein, or produce a non-functional dystrophin. As boys, contrary to girls, only have one X chromosome, and thus one single copy of dystrophin gene, they have a much higher probability of suffering from Duchenne muscular dystrophy. Duchenne muscular dystrophy is chronically debilitating and life-threatening.

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What is the estimated number of patients affected by Duchenne muscular dystrophy?

At the time of designation, Duchenne muscular dystrophy affected approximately 0.3 in 10,000 people in the European Union (EU). This was equivalent to a total of around 15,000 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 treatment of the condition. Treatment of patients with Duchenne muscular dystrophy primarily involves physiotherapy and other supportive treatments.

How is this medicine expected to work?

Duchenne muscular dystrophy is caused by abnormalities on patients' genetic material. This medicinal product is expected to induce dystrophin protein expression by exon skipping technology. This technology is designed to skip the areas of the genetic material that carry the errors and correct them back to the normal genetic information.

What is the stage of development of this medicine?

The effects of exon 44 specific phosphorothioate oligonucleotide have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials in patients with Duchenne muscular dystrophy were ongoing.

At the time of submission, exon 44 specific phosphorothioate oligonucleotide was not authorised anywhere in the world for the treatment of Duchenne muscular dystrophy or designated as 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 5 November 2008 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.

[*]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.
At the time of designation, this represented a population of 504,800,000 (Eurostat 2009).

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 ingredient	Indication
English	Exon 44 specific phosphorothioate oligonucleotide	Treatment of Duchenne muscular dystrophy
Bulgarian	Екзон 44 специфичен фосфоротиоат олигонуклеотид	Лечение на мускулна дистрофия на Duchenne
Czech	Exonn 44 specifický fosforothioát oligonukleotid	Léčba pacientů s Duchennovou muskulární dystrofií
Danish	Exon 44-specifikt fosforothioat oligonukleotid	Behandling af Duchenne muskeldystrofi
Dutch	Exon 44 specifiek phosphorothioate oligonucleotide	Behandeling van Duchenne spierdystrofie
Estonian	Ekson 44 spetsiifiline fosfortiotaat oligonukleotiid	Duchenne'i lihasdüstroofia ravi
Finnish	Eksoni 44-spesifinen fosforotioaatti oligonukleotidi	Duchennen lihasdystrofian hoito
French	Oligonucléotide phosphorothioate spécifique de l'exon 44	Traitement de la dystrophie musculaire de Duchenne
German	Phosphorothioate-Oligonukleotid spezifisch für Exon 44	Behandlung der Duchenne-Muskeldystrophie
Greek	Φωσφοροθειοϊκό ολιγονουκλεοτίδιο ειδικό για το εξόνιο 44	Θεραπεία της μυϊκής δυστροφίας Duchenne
Hungarian	Exon 44 specifikus foszforotionát-oligonukleotid	Duchenne dystrophia kezelése
Italian	Oligonucleotide fosforotioato specifico per l'esone 44	Trattamento di distrofia muscolare di tipo Duchenne
Latvian	Eksona 44 specifisks fosfortioata oligonukleotīds	Dišēna muskuļu distrofijas ārstēšana
Lithuanian	44 egzonui specifinis fosforotioato oligonukleotidas	Duchenne (Diušeno) raumenų distrofijos gydymas
Maltese	Oligonukleotide ta' phosphorothioate speċifiku għall-exon 44	Kura tad-distrofija muskolari tat-tip Duchenne
Polish	Oligonukleotyd phosphorothiate specyficzny do eksonu 44	Leczenie zaniku mięśni typu Duchenne'a
Portuguese	Oligonucleotido fosforotioato específico do Exon 44	Tratamento da distrofia muscular de Duchenne
Romanian	Oligonucleotidă fosforotioat, specifică pentru exonul 44	Tratamentul distrofiei musculare Duchenne
Slovak	Exon 44-špecifický fosforotioát oligonukleotid	Liečba Duchennovej muskulárnej dystrofie
Slovenian	Ekson 44 specifični fosforotioat oligonukleotid	Zdravljenje Duchennove mišične distrofije
Spanish	Oligonucleótido fosforotioato específico frente al exón 44	Tratamiento de la distrofia muscular de Duchenne

[1] At the time of designation

Language	Active ingredient	Indication
Swedish	Exon 44 specifikt fosforotioat oligonukleotid	Behandling av Duchennes muskeldystrofi
Norwegian	Exon 44-spesifikt fosforotioat-oligonukleotid	Behandling av Duchennes muskeldystrofi
Icelandic	Ekson 44 specifični fosforotioat oligonukleotid	Zdravljenje Duchennove mišične distrofije