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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Exon 51 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy

First publication	24 June 2009
Rev.1: transfer of sponsorship	14 June 2010
Rev.2: transfer of sponsorship	29 April 2014
Rev.3: transfer of sponsorship	19 May 2015
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/3/08/599) was granted by the European Commission to Prosensa Therapeutics B.V., The Netherlands, for exon 51 specific phosphorothioate oligonucleotide for the treatment of Duchenne muscular dystrophy .

The sponsorship was transferred to Glaxo Group Ltd., United Kingdom, in June 2010 then to Prosensa Therapeutics B.V., in April 2014 and finally to BioMarin International Limited, Ireland, in April 2015.

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 the condition?

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 threshold 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 51 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 51 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 European Union) 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 51 specific phosphorothioate oligonucleotide	Treatment of Duchenne muscular dystrophy
Bulgarian	Екзон 51 специфичен фосфоротиоат олигонуклеотид	Лечение на мускулна дистрофия на Duchenne
Croatian	Fosforotioatni oligonukleotid specifičan za egzon 51	Liječenje Duchenneove mišićne distrofije
Czech	Exonn 51 specifický fosforothioát oligonukleotid	Léčba pacientů s Duchennovou muskulární dystrofií
Danish	Exon 51-specifikt fosforothioat oligonucleotid	Behandling af Duchenne muskeldystrofi
Dutch	Exon 51 specifiek phosphorothioate oligonucleotide	Behandeling van Duchenne spierdystrofie
Estonian	Ekson 51 spetsiifiline fosfortiotaat oligonukleotiid	Duchenne'i lihasdüstroofia ravi
Finnish	Eksoni 51-spesifinen fosforotioaatti oligonukleotidi	Duchennen lihasdystrofian hoito
French	Oligonucléotide phosphorothioate spécifique de l'exon 51	Traitement de la dystrophie musculaire de Duchenne
German	Phosphorothioate-Oligonukleotid spezifisch für Exon 51	Behandlung der Duchenne-Muskeldystrophie
Greek	Φωσφοροθειοϊκό ολιγονουκλεοτίδιο ειδικό για το εξόνιο 51	Θεραπεία της μυϊκής δυστροφίας Duchenne
Hungarian	Exon 51 specifikus foszforotionát-oligonukleotid	Duchenne dystrophia kezelése
Italian	Oligonucleotide fosforotioato specifico per l'esone 51	Trattamento di distrofia muscolare di tipo Duchenne
Latvian	Eksona 51 specifisks fosfortioata oligonukleotīds	Dišēna muskuļu distrofijas ārstēšana
Lithuanian	51 egzonui specifinis fosforotioato oligonukleotidas	Duchenne (Diušeno) raumenų distrofijos gydymas
Maltese	Oligonukleotide ta' *phosphorothioate* speċifiku għall-*exon* 51	Kura tad-distrofija muskolari tat-tip Duchenne
Polish	Oligonucleotyd phosphorothioate specyficzny do eksonu 51	Leczenie zaniku mięśni typu Duchenne'a
Portuguese	Oligonucleotido fosforotioato específico do Exon 51	Tratamento da distrofia muscular de Duchenne
Romanian	Oligonucleotidă fosforotioat, specifică pentru exonul 51	Tratamentul distrofiei musculare Duchenne
Slovak	Exon 51-špecifický fosforotioát oligonukleotid	Liečba Duchennovej muskulárnej dystrofie
Slovenian	Ekson 51 specifični fosforotioat oligonukleotid	Zdravljenje Duchennove mišične distrofije

[1] At the time of transfer of sponsorship

Language	Active Ingredient	Indication
Spanish	Oligonucleótido fosforotioato específico frente al exón 51	Tratamiento de la distrofia muscular de Duchenne
Swedish	Exon 51 specifikt fosforotioat oligonukleotid	Behandling av Duchennes muskeldystrofi
Norwegian	Exon 51-spesifikt fosforotioat-oligonukleotid	Behandling av Duchennes muskeldystrofi
Icelandic	Táknröð 51 sértækt phosphorótíóat ólígónúkleótíð	Meðferð á Duchenne vöðvarýrnun