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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Recombinant fusion protein consisting of the extracellular portion of human activin receptor IIB linked to the human IgG1 Fc domain for the treatment of Duchenne muscular dystrophy

First publication	14 December 2010
Rev.1: transfer of sponsorship	17 June 2011
Rev.2: withdrawal from the Community Register	9 February 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.	

Please note that this product was withdrawn from the Community Register of designated Orphan Medicinal Products in January 2015 on request of the Sponsor.

On 26 November 2010, orphan designation (EU/3/10/812) was granted by the European Commission to INC Research, United Kingdom, for recombinant fusion protein consisting of the extracellular portion of human activin receptor IIB linked to the human IgG1 Fc domain for the treatment of Duchenne muscular dystrophy.

The sponsorship was transferred to Shire Pharmaceuticals Ireland Limited, Ireland, in May 2011.

What is Duchenne muscular dystrophy?

Duchenne muscular dystrophy (DMD) is an inherited disease that gradually causes the muscles to become weaker. 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. DMD is caused by abnormalities in the gene responsible for the production of a protein called dystrophin, so that patients with DMD do not have enough of this protein. As dystrophin is an important component of muscle fibres, the muscles of patients with DMD cannot grow, so they become weak and eventually stop working.

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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.

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

At the time of designation, DMD 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 designation, no satisfactory methods were authorised in the EU for the treatment of DMD. Patients received supportive treatment such as physiotherapy to relieve symptoms and improve the patient's general condition. In addition, corticosteroids were used in an attempt to improve symptoms, although they were not authorised for use in this disease and were known to have severe side effects.

How is this medicine expected to work?

This medicine is a 'fusion' protein that is made up of two components:

- a portion of the 'activin receptor type IIB';
- a part of a human antibody (a type of protein) that can bind to specific structures.

The activin receptor type IIB part of the medicine is the same as a receptor in the body that is involved in regulating muscle growth. Certain substances, 'ligands', attach to it, causing muscle growth to slow down.

The receptor is used in the medicine to trap these ligands so they don't have their normal effect on the muscles. As a result, muscle mass and strength are increased. This is expected to improve the symptoms of patients with DMD.

What is the stage of development of this medicine?

The effects of this medicine have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with the medicine in patients with DMD were ongoing.

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 9 September 2010 recommending the granting of this designation.

[*]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 506,300,000 (Eurostat 2010).

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 ingredient	Indication
English	Recombinant fusion protein consisting of the extracellular portion of human activin receptor IIB linked to the human IgG1 Fc domain	Treatment of Duchenne muscular dystrophy
Bulgarian	Рекомбинантен фузионен протеин, състоящ се от екстрацелуларна част на човешки рецептор за активин тип IIB, свързана с Fc домейна на човешкия IgG1	Лечение на мускулна дистрофия на Duchenne
Czech	Humánní rekombinantní fúzní protein složený z extracelulární části receptoru pro humánní aktivin IIB navázaný na Fc doménu humánního IgG1	Léčba pacientů s Duchennovou muskulární dystrofií
Danish	Rekombinant fusionsprotein bestående af den ekstracellulære del af human activin receptor IIB forbundet med det humane IgG1Fc domæne.	Behandling af Duchenne muskeldystrofi
Dutch	Recombinant fusie-eiwit, bestaande uit het extracellulaire gedeelte van activinereceptor IIB, gekoppeld aan het humane IgG1 Fc-domein	Behandeling van Duchenne spierdystrofie
Estonian	Rekombinantne sulandvalk, mis koosneb inimese IgG1 Fc domeeniga seotud aktiviini retseptori IIB rakuvälisest osast	Duchenne'i lihasdüstroofia ravi
Finnish	Ihmisperäinen rekombinanttinen fuusioproteiini, joka koostuu ihmisen IgG1:n Fc-domeeniin kytketystä aktiviinireseptori IIB:n solunulkoisesta osasta	Duchennen lihasdystrofian hoito
French	Protéine de fusion recombinante humaine composée de la partie extracellulaire du récepteur de l'activine de type IIB liée au domaine Fc de l'IgG1 humaine	Traitement de la dystrophie musculaire de Duchenne
German	Humanes rekombinantes Fusionsprotein, das aus dem extrazellulären Anteil des Activin-Rezeptors IIB besteht, der an die Fc-Domäne von humanem IgG1 angekoppelt wurde.	Behandlung der Duchenne-Muskeldystrophie
Greek	Ανθρώπινη ανασυνδυασμένη πρωτεΐνη σύντηξης που αποτελείται από το εξωκυττάριο τμήμα του Υποδοχέα της Ακτιβίνης IIB συνδεδεμένο με την περιοχή Fc της ανθρώπινης IgG1	Θεραπεία της μυϊκής δυστροφίας Duchenne
Hungarian	Humán IgG1 Fc doménhez kötődő, a humán aktivin IIB receptor extracelluláris szakaszából álló rekombináns fúziós fehérje	Duchenne dystrophia kezelése
Italian	Proteina ricombinante di fusione costituita dalla porzione extracellulare del recettore dell'activina umana di tipo IIB legata al dominio FC di IgG1 umana	Trattamento della distrofia muscolare di tipo Duchenne
Latvian	Rekombinants saliktais cilvēka proteīns, ko veido aktivīna IIB receptora ekstracelulārā daļa, kas savienota ar cilvēka IgG1 Fc domēnu	Dišēna muskuļu distrofijas ārstēšana
Lithuanian	Rekombinantinis sulietasis baltymas, sudarytas iš ekstraląstelinio žmogaus aktivino IIB receptoriaus fragmento, susieto su žmogaus IgG1 Fc domenu	Duchenne (Diušeno) raumenų distrofijos gydymas

[1] At the time of designation

Language	Active ingredient	Indication
Maltese	Proteina tal-fużjoni rikombinanti li tikkonsisti fil- porzjon estraċellulari tar- riċettur tal-activin IIB uman magħqud mad-dominju IgG1 Fc uman	Kura tad-distrofija muskolari tat-tip Duchenne
Polish	Rekombinowane białko fuzyjne składające się z zewnątrzkomórkowej części receptora aktywiny IIB powiązanej z fragmentem Fc ludzkiej immunoglobuliny IgG1	Leczenie zaniku mięśni typu Duchenne'a
Portuguese	Proteína de fusão recombinante humana, composta pela parte extracelular do receptor de activina IIB ligado ao domínio Fc da IgG1 humana	Tratamento da distrofia muscular de Duchenne
Romanian	Proteină umană recombinantă de fuziune constând în porţiunea extracelulară a receptorului IIB pentru activină legată de domeniul Fc al IgG1 umane	Tratamentul distrofiei musculare Duchenne
Slovak	Rekombinantný fúzny proteín zložený z extracelulárnej časti ľudského receptora pre aktivín IIB viazaného na Fc doménu ľudského IgG1	Liečba Duchennovej muskulárnej dystrofie
Slovenian	Humana rekombinantna fuzijska beljakovina, sestavljena iz zunajceličnega dela receptorja IIB za aktivin, vezanega na domeno Fc humanega IgG1	Zdravljenje Duchennove mišične distrofije
Spanish	Proteína de fusión recombinada compuesta por la región extracelular del receptor humano de activina tipo IIB unido al dominio Fc de la IgG1 humana	Tratamiento de la distrofia muscular de Duchenne
Swedish	Humant rekombinant fusionsprotein bestående av den extracellulära delen av aktivin IIB-receptorn bunden till den humana IgG1 Fc-domänen	Behandling av Duchennes muskeldystrofi
Norwegian	Rekombinant fusjonsprotein bestående av den ekstracellulære delen av human activin IIB-reseptor bundet til humant lgG1 Fc-domene.	Behandling av Duchennes muskeldystrofi
Icelandic	Raðbrigða manna samrunaprótein sem samanstendur af utanfrumuhluta manna Activin viðtaka IIB tengdum við IgG1 Fc hneppi	Meðferð á Duchenne vöðvarýrnun