2 March 2015
EMA/COMP/793141/2014
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Chimeric fusion protein of recombinant human alpha-N-acetylglucosaminidase and human insulin-like growth factor 2 for the treatment of mucopolysaccharidosis type IIIB

On 15 January 2015, orphan designation (EU/3/14/1422) was granted by the European Commission to BioMarin Europe Limited, United Kingdom, for chimeric fusion protein of recombinant human alpha-N-acetylglucosaminidase and human insulin-like growth factor 2 for the treatment of mucopolysaccharidosis type IIIB.

What is mucopolysaccharidosis type IIIB?

Mucopolysaccharidosis type IIIB (also known as Sanfilippo B syndrome) is one of a group of inherited diseases caused by the lack of certain enzymes in lysosomes (structures in the body's cells that break down nutrients and other substances) that are needed to break down substances called glycosaminoglycans (GAGs). In mucopolysaccharidosis type IIIB the condition is caused by the lack of an enzyme called alpha-N-acetylglucosaminidase. This enzyme is needed to break down a GAG called heparan sulphate. Because patients with mucopolysaccharidosis type IIIB cannot break this substance down, it gradually builds up in cells in the body, particularly in the brain, and damages them. This causes a wide range of symptoms, including behavioural problems, learning disabilities, difficulty moving and sleep disturbances.

Mucopolysaccharidosis type IIIB typically starts in children between three and six years of age. It is a seriously debilitating because it leads to poor development of language skills and movement, hyperactivity and slow development. The disease usually leads to death during youth.

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

At the time of designation, mucopolysaccharidosis type IIIB affected approximately 0.01 in 10,000 people in the European Union (EU). This was equivalent to a total of around 500 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 511,100,000 (Eurostat 2014).

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What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU for treating MPS IIIB.

How is this medicine expected to work?

This medicine contains as its main component the enzyme alpha-N-acetylglucosaminidase, which is missing in patients with mucopolysaccharidosis type IIIB. When given to the patient, the medicine is expected to replace the missing enzyme, breaking up heparan sulphate and thereby slowing its build-up in the body. This action is expected to reduce the symptoms of the disease.

In this medicine alpha-N-acetylglucosaminidase is bound to recombinant human insulin growth factor which attaches to a receptor found in cells and which helps to direct alpha-N-acetylglucosaminidase to the lysosomes where it can act.

The medicine is produced by a method known as 'recombinant DNA technology': it is made by cells into which a gene (DNA) has been introduced, which makes them able to produce the enzyme.

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 mucopolysaccharidosis type IIIB had started.

At the time of submission, the medicine was not authorised anywhere in the EU for mucopolysaccharidosis type IIIB 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 11 December 2014 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 ingredient	Indication
English	Chimeric fusion protein of recombinant human alpha-N-acetylglucosaminidase and human insulin-like growth factor 2	Treatment of mucopolysaccharidosis type IIIB (Sanfilippo B syndrome)
Bulgarian	Химерен фузионен протеин на рекомбинантна човешка алфа-N-ацетилглюкозаминидаза и човешки инсулиноподобен растежен фактор 2	Лечение на мукополизахаридоза тип IIIB (синдром на Санфилипо B)
Croatian	Kimerični fuzijski protein rekombinantne ljudske alfa-N-acetilglukozaminidaze i rekombinantnog ljudskog čimbenika rasta 2 sličnog inzulinu	Liječenje mukopolisaharidoze tipa IIIB (Sanfillipov B sindrom)
Czech	Protein chimérické fúze rekombinantních humánní alfa-N-acetylglukosaminidázy a humánního růstového faktoru 2 podobného inzulínu	Léčba mukopolysacharidozy typu IIIB (syndrom Sanfilippo B)
Danish	Kimærisk fusionsprotein af rekombinant human alfa-N-acetylglykosaminidase og human insulin-lignende vækstfaktor 2	Behandling af mucopolysaccharidose type IIIB (Sanfilippo B syndrom)
Dutch	Chimeer fusieproteïne van recombinant humaan alfa-N-acetylglucosaminidase en humaan insuline-achtige groeifactor-2	Behandeling van mucopolysacharidose type IIIB (Sanfilippo-B-syndroom)
Estonian	Rekombinantsete inimese alfa-N-atsetüülglükoosaminidaasi ja inimese insuliinitaolise kasvufaktori 2 kimäärne sulandvalk	IIIB-tüüpi mukopolüsahharidoosi (B-tüüpi Sanfilippo sündroomi) ravi
Finnish	Rekombinantti ihmisen alfa-N-asetyyliglukosaminidaasin ja ihmisen insuliinin kaltaisen kasvutekijä-2:n kimeerinen fuusioproteiini	Tyypin IIIB (Sanfilippo B) mukopolysakkaridoosin hoito
French	Protéine de fusion chimère entre l'alpha-N-acétylglucosaminidase recombinante humaine et le facteur 2 de croissance humain, apparenté à l'insuline	Traitement de la mucopolysaccharidose de type IIIB (maladie de Sanfilippo B)
German	Chimäres Fusionsprotein aus rekombinanter humaner Alpha-N-acetylglukosaminidase und rekombinantem humanen Insulin-like Growth Factor 2	Behandlung der Mukopolysaccharidose Typ IIIB (Sanfilippo-Syndrom Typ B)
Greek	Χιμαιρική πρωτεΐνη σύντηξης ανασυνδυασμένης ανθρώπινης α-N-ακετυλογλυκοζαμινιδάσης και ανασυνδυασμένου ανθρώπινου ινσουλινόμορφου αυξητικού παράγοντα-2	Θεραπεία βλεννοπολυσακχαρίδωσης, τύπου IIIB (σύνδρομο Sanfilippo B)

[1] At the time of designation

Language	Active ingredient	Indication
Hungarian	Rekombináns humán alfa-N-acetil-glükózaminidázból és rekombináns humán inzulinszerű növekedési faktor 2-ből álló kimerikus fúziós fehérje	IIIB típusú mucopolisacharidosis (Sanfilippo B szindróma) kezelése
Italian	Proteina chimerica derivante dalla fusione dell'alfa-N-acetilglucosaminidasi ricombinante umana e dal fattore di crescita insulino-simile 2 ricombinante umano	Trattamento della mucopolisaccaridosi di tipo IIIB (sindrome di Sanfilippo B)
Latvian	Rekombinantu cilvēka alfa-N-acetilglikozaminidāzes un insulīnam līdzīgā cilvēka augšanas faktora 2 himēriska savienojuma olbaltumviela	IIIB tipa mukopolisaharidozes (Sanfilipo B sindroms) ārstēšana
Lithuanian	Sulietas chimerinis baltymas iš rekombinantinės žmogaus alfa-N-acetilgliukozaminidazės ir į insuliną panašaus žmogaus augimo faktoriaus 2	Mukopolisacharidozės, IIIB tipo gydymas (Sanfilippo B sindromas)
Maltese	Proteina ta' fużjoni kimerika bejn alpha-N-acetylglucosaminidase uman rikombinanti u fattur 2 tat-tkabbir uman li jixbaħ lill-insulina	Kura tal-mukopolisakkaridożi tat-tip IIIB (sindrome ta' Sanfilippo tat-tip B)
Polish	Chimeryczne białko fuzyjne złożone z rekombinowanej ludzkiej alfa-N-acetyloglukozaminidazy i rekombinowanego ludzkiego insulinopodobnego czynnika wzrostu 2	Leczenie mukopolisacharydozy, typ III B (zespół Sanfilippo B)
Portuguese	Proteína de fusão quimérica entre a alfa-N-acetilglucosaminidase humana recombinante e o fator de crescimento insulin-like 2 humano	Tratamento da mucopolissacaridose, tipo IIIB (síndrome de Sanfilippo de tipo B)
Romanian	Proteina chimerică de fuziune dintre alfa-N-acetilglucozaminidaza umană recombinantă şi factorul de creştere uman recombinant asemănător insulinei-tip 2	Tratamentul mucopolizaharidozei de tip IIIB (sindromul Sanfilippo tip B)
Slovak	Chimérny fúzny proteín rekombinantnej ľudskej alfa-N-acetylglukózamínidázy a rekombinantného ľudského rastového faktora 2 podobného inzulínu	Liečba mukopolysacharidózy typu IIIB (Sanfilippov syndróm B)
Slovenian	Himerični fuzijski protein rekombinantne humane alfa-N-acetilglukozaminidaze in rekombinantnega, humanega insulinu podobnega rastnega faktorja 2	Zdravljenje mukopolisaharidoze vrste IIIB (sindroma Sanfilippo B)
Spanish	Proteína de fusión quimérica de alfa-N-acetilglucosaminidasa humana y factor de crecimiento insulínico tipo 2 humano recombinantes	Tratamiento de la mucopolisacaridosis tipo IIIB (síndrome de Sanfilippo B)

Language	Active ingredient	Indication
Swedish	Kimärt fusionsprotein av rekombinanta humana alfa-N-acetylglykosaminidas och insulinliknande tillväxtfaktor 2	Behandling av mukopolysackaridos typ IIIB (Sanfilippos syndrom typ B)
Norwegian	Kimært fusjonsprotein av rekombinant human alfa-N-acetylglukosaminidase og rekombinant human insulinlignende vekstfaktor 2	Behandling av mukopolysakkaridose, type IIIB (Sanfilippos syndrom type B)
Icelandic	Blendingspróteín úr raðbrigða manna alfa-N-asetýlglúkósamínidasa og insúlín-líkum manna vaxtarþætti 2	Meðferð við slímsykrukvilla gerð IIIB (Sanfilippo B heilkenni)