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Public summary of opinion on orphan designation

Lentiviral vector encoding human coagulation factor IX for treatment of haemophilia B

On 26 February 2019, orphan designation (EU/3/19/2141) was granted by the European Commission to Fondazione Telethon, Italy, for lentiviral vector encoding human coagulation factor IX for treatment of haemophilia B.

What is haemophilia B?

Haemophilia B is an inherited bleeding disorder that is caused by the lack of factor IX, which is one of the proteins involved in the blood coagulation (clotting) process. Patients with haemophilia B are more prone to bleeding than normal and have poor wound healing after injury or surgery. Bleeding can also happen within muscles or the spaces in the joints, such as the elbows, knees and ankles. This can lead to permanent injury if it happens repeatedly.

Haemophilia B is a debilitating disease that is life long and may be life threatening because bleeding can also happen in the brain and spinal cord, the throat or the gut.

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

At the time of designation, haemophilia B affected approximately 0.16 in 10,000 people in the European Union (EU). This was equivalent to a total of around 8,000 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 designation, medicines containing factor IX were authorised in the EU for the treatment of haemophilia B, to replace the missing protein. However, factor IX medicines did not work in some patients with haemophilia B because the immune system (the body's natural defences) can produce 'inhibitors' (antibodies) against factor IX which stop the factor IX medicine from working. In these

[*]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 518,400,000 (Eurostat 2019).

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cases, other treatments needed to be used, such as factor VIIa (the activated form of factor VII, another protein involved in blood clotting), either alone or as part of a combination treatment.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with haemophilia B. Preliminary laboratory data show that it can increase the amount of factor IX circulating in the blood. This assumption will need to be confirmed at the time of marketing authorisation, in order to maintain the orphan status

How is this medicine expected to work?

This medicine is made of a virus that contains a copy of the gene responsible for producing factor IX. When the medicine is injected into the patient, the virus is expected to carry the gene into the liver cells enabling them to start producing the missing factor IX and thereby help to relieve symptoms of the disease.

The virus used in this medicine (lentivirus) is modified in order not to cause disease in humans.

What is the stage of development of this medicine?

The effects of the medicine 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 haemophilia B had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for haemophilia B 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 24 January 2019 recommending the granting of this designation.

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:

Contact details of the current sponsor for this orphan designation can be found on the EMA website.

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	Lentiviral vector encoding human coagulation factor IX	Treatment of haemophilia B
Bulgarian	Лентивирусен вектор, кодиращ човешки коагулационен фактор IX	Лечение на хемофилия B
Croatian	Lentivirusni vektor koji kodira humani koagulacijski faktor IX	Liječenje hemofilije B
Czech	Lentivirový vektor kódující lidský koagulační faktor IX	Léčba hemofilie B
Danish	Lentiviral vektor kodende for human koagulationsfaktor IX	Behandling af hæmofili B
Dutch	Lentivirale vector die codeert voor menselijke stollingsfactor IX	Behandeling van hemofilie B
Estonian	Inimese IX hüübimisfaktorit kodeeriv lentiviirusvektor	Hemofiilia B ravi
Finnish	Lentivirusvektori, joka koodaa ihmisen hyytymistekijä IX:ää	Hemofilia B:n hoito
French	Vecteur lentiviral codant pour le facteur IX de coagulation humain	Traitement de l'hémophilie B
German	Lentiviraler Vektor, der den menschlichen Blutgerinnungsfaktor IX codiert	Behandlung der Hämophilie B
Greek	Λεντιϊκός φορέας που κωδικοποιεί τον ανθρώπινο παράγοντα πήξης IX	Θεραπεία της αιμορροφιλίας Β
Hungarian	IX-es Humán véralvadási faktort kódoló lentivirális vektor	B típusú hemofília kezelése
Italian	Vettore lentivirale codificante per fattore IX della coagulazione umano	Trattamento dell'emofilia B
Latvian	Lentivirāls vektors, kas kodē cilvēka IX koagulācijas faktoru	B tipa hemofilijas ārstēšana
Lithuanian	Lentivirusinis vektorius, koduojantis žmogaus IX krešėjimo faktorių	Hemofilijos B gydymas
Maltese	Vettur lentivirali li jikkodifika l-fattur tal-koagulazzjoni uman IX	Kura ta' l-emofilja B
Polish	Wektor lentiwirusowy kodujący ludzki czynnik krzepnięcia IX	Leczenie hemofilii B
Portuguese	Vetor lentiviral que codifica o fator IX da coagulação humano	Tratamento da hemofilia B
Romanian	Vector lentiviral ce codifică factorul de coagulare IX uman	Tratamentul hemofiliei B
Slovak	Lentivírusový vektor kódujúci ľudský koagulačný faktor IX	Liečba hemofílie B
Slovenian	Lentivirusni vektor kodiran za človeški koagulacijski faktor IX	Zdravljenje hemofilije B

[1] At the time of designation

Spanish	Vector lentiviral que codifica el factor de coagulación humano IX	Tratamiento de la hemofilia B
Swedish	Lentiviral vektor som kodar för human koagulationsfaktor IX	Behandling av hemofili B
Norwegian	Lentiviral vektor som koder for human koagulasjonsfaktor IX	Behandling av hemofili B
Icelandic	Lentiveiruferja sem kóðar fyrir mannastorkuþætti IX	Meðferð við dreyrasýki B