7 November 2016
EMA/623403/2016
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Haematopoietic stem cells modified with a lentiviral vector containing the *CD18* gene for the treatment of leukocyte adhesion deficiency type I

On 14 October 2016, orphan designation (EU/3/16/1753) was granted by the European Commission to Centro de Investigación Biomédica en Red, Spain, for haematopoietic stem cells modified with a lentiviral vector containing the *CD18* gene for the treatment of leukocyte adhesion deficiency type I.

What is leukocyte adhesion deficiency type I?

Leukocyte adhesion deficiency type I is a disease caused by changes in the gene for a protein called CD18. This reduces the activity of the immune system (the body's natural defences) by preventing neutrophils (a type of white blood cell that fights infection) from reaching the site of an infection or injury. This results in repeated bacterial infections beginning with umbilical cord infections shortly after birth. Patients go on to suffer infections of the skin, digestive tract, lungs and airways and moist body surfaces such as the lining of the mouth.

Leukocyte adhesion deficiency type I is a debilitating and life-threating disease because the bacterial infections may be severe and patients may need continuous antibiotic treatment. The severe form of the disease usually leads to death in early childhood.

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

At the time of designation, leukocyte adhesion deficiency type I affected less than 0.01 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 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).

What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU for the treatment of leukocyte adhesion deficiency type I. Patients were given antibiotics to treat infections. Patients also

[*]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 513,700,000 (Eurostat 2016).

30 Churchill Place ● Canary Wharf ● London E14 5EU ● United Kingdom
Telephone +44 (0)20 3660 6000 **Facsimile** +44 (0)20 3660 5555
Send a question via our website www.ema.europa.eu/contact

An agency of the European Union

© European Medicines Agency, 2016. Reproduction is authorised provided the source is acknowledged.

received haematopoietic stem cell transplantation, a procedure where the patient's bone marrow is replaced by stem cells from a donor to form new bone marrow that produces healthy blood cells.

How is this medicine expected to work?

This medicine is made up of haematopoietic stem cells taken from the patient. Haematopoietic stem cells are cells that can develop into different types of blood cell. To make the medicine, the cells are modified in the laboratory by a virus that carries healthy copies of the *CD18* gene into the cells. When these modified cells are given back to the patient, they are expected to develop into healthy white blood cells that can reach the sites of infection and fight it off.

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?

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, no clinical trials with the medicine in patients with leukocyte adhesion deficiency type I had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for leukocyte adhesion deficiency type I 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 8 September 2016 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 EMA website, on the medicine's rare disease designations page.

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	Haematopoietic stem cells modified with a lentiviral vector containing the *CD18* gene	Treatment of leukocyte adhesion deficiency type I
Bulgarian	Хемопоетични стволови клетки, модифицирани с лентивирусен вектор, съдържащ *CD18* ген	Лечение на дефицит на левкоцитна адхезия Тип I
Croatian	Hematopoetske matične stanice modificirane s lentivirusnim vektorom, koji sadrži gen *CD18*	Liječenje deficijencije leukocitne adhezije tip 1
Czech	Hematopoetické kmenové buňky modifikované lentivirovým vektorem obsahující gen *CD18*	Léčba nedostatečné adheze leukocytů typu I (DAL-I)
Danish	Bloddannende stamceller, modificeret med en lentiviral vektor som indeholder *CD18*-genet	Behandling af type I leukocytadhæsion mangel
Dutch	Hemopoëtische stamcellen, gemodificeerd met een lentivirale vector die *CD18* bevat	Behandeling van leukocyten adhesie deficiëntie Type I
Estonian	Geeni *CD18* sisaldava lentiviiruse vektoriga muudetud hematopoieetilised tüvirakud	I tüüpi leukotsüüdi adhesiooni puudulikkus
Finnish	Hematopoieettiset kantasolut, muunneltuna *CD18*-geeniä sisältävällä lentivirusvektorilla	Tyypin I leukosyyttien tarttumisvajauksen hoito
French	Cellules souches hématopoïétiques modifiées avec un vecteur lentiviral contenant le gène *CD18*	Traitement du déficit d'adhésion leucocytaire de type I
German	Mit einem Lentiviralvektor modifizierte hämatopoetische Stammzellen, die das *CD18* Gene enthalten	Behandlung von Leukozytenadhäsionsmangel Typ I
Greek	Αιμοποιητικά βλαστοκύτταρα τροποποιημένα με λεντι-ιικό φορέα που περιέχει το γονίδιο *CD18*	Θεραπεία της ανεπάρκειας λευκοκυτταρικής προσκόλλησης τύπου I
Hungarian	*CD18* gént tartalmazó lentivirális vektorral módosított hemopoetikus őssejtek	I-es típusú leukocitaadhéziós deficiencia kezelése
Italian	Cellule staminali ematopoietiche modificate con un vettore Lentivirale contenente *CD18*	Trattamento del deficit di adesione leucocitaria tipo I
Latvian	Hematopoētiskās cilmes šūnas, kas modificētas ar *CD18* gēnu saturošu lentivīrusa vektoru	I tipa leikocītu adjēzijas deficīta ārstēšana
Lithuanian	Hematopoetinės kamieninės ląstelės, modifikuotos lentiviruso vektoriumi, turinčiu *CD18* geną	I tipo leukocitų sukibimo stokos gydymas
Maltese	Ċelloli staminali ematopojetiċi mmodifikati b'vettur lentivirali li fih il-ġene *CD18*	Kura ta' nuqqas ta' adeżjoni tal-lewkoċiti, tat-tip I

[1] At the time of designation

Language	Active ingredient	Indication
Polish	Komórki macierzyste krwiotwórcze zmodyfikowane wektorem lentiwirusowym zawierającym gen *CD18*	Leczenie niedoboru adhezji leukocytów typu I
Portuguese	Células estaminais hematopoéticas modificadas com um vetor lentiviral contendo o gene *CD18*	Tratamento da deficiência de adesão leucocitária de Tipo I
Romanian	Celule stem hematopoietice modificate cu un vector lentiviral ce conține gena *CD18*	Tratamentul deficienței de adeziune leucocitară tip I
Slovak	Hematopoetické kmeňové bunky modifikované lentivírusovým vektorom, ktorý obsahuje gén *CD18*	Liečba deficiencie adhézie leukocytov typu I
Slovenian	Hematopoetske matične celice, modificirane z lentivirusnim vektorjem, ki vsebuje gen *CD18*	Zdravljenje pomanjkljive adhezije levkocitov tipa 1
Spanish	Células madre hematopoyéticas modificadas con un vector lentiviral que contiene el gen *CD18*	Tratamiento de la deficiencia de adhesión leucocitaria tipo I
Swedish	Hematopoietiska stamceller modifierade med en lentiviral vektor innehållandegenen *CD18*	Behandling av leukocytadhesionssjukdom typ I
Norwegian	Hematopoietiske stamceller, modifiserte med en lentiviral vektor som inneholder genet *CD18*	Behandling av leukocytt adhesjonsdefekt type 1
Icelandic	Blóðmyndandi stofnfrumur, umbreyttar með lentiveiru genaferju sem inniheldur *CD18* genið	Meðferð á skorti á hvítfrumuviðloðun af tegund I