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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Autologous T cells transduced with lentiviral vector containing a chimeric antigen receptor directed against CD19 for the treatment of B-lymphoblastic leukaemia/lymphoma

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On 29 April 2014, orphan designation (EU/3/14/1266) was granted by the European Commission to Novartis Europharm Limited, United Kingdom, for autologous T cells transduced with lentiviral vector containing a chimeric antigen receptor directed against CD19 for the treatment of B-lymphoblastic leukaemia/lymphoma.

What is B-lymphoblastic leukaemia/lymphoma?

B-lymphoblastic leukaemia/lymphoma is a cancer of the white blood cells called B lymphocytes or B cells, which multiply too quickly and live for too long so there are too many of them circulating in the blood. These abnormal B cells are not fully developed and do not work properly. Over a period of time, they replace the normal white blood cells, red blood cells and platelets in the bone marrow (the spongy tissue inside the large bones in the body, where blood cells are produced).

B-lymphoblastic leukaemia/lymphoma is a long-term debilitating and life-threatening disease because the abnormal immature cells take the place of the normal white blood cells, reducing the patient's ability to fight infections and causing organ damage.

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

At the time of designation, B-lymphoblastic leukaemia/lymphoma affected less than 1 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 51,000 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?

Treatment for B-lymphoblastic leukaemia/lymphoma is complex and depends on a number of factors including the extent of the disease, whether it has been treated before and the patient's age, symptoms and general state of health. At the time of designation, treatment for B-lymphoblastic leukaemia/lymphoma included chemotherapy (medicines to treat cancer) that may be followed by or combined with radiotherapy (treatment with radiation). Haematopoietic (blood) stem-cell transplantation was also used. This is a complex procedure where the patient receives stem cells from a matched donor to help restore the bone marrow.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with B-lymphoblastic leukaemia/lymphoma because early studies in patients indicate that it might benefit patients whose disease does not respond to standard treatments, or has come back after treatment. 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?

The abnormal B cells in patients with B-lymphoblastic leukaemia/lymphoma produce a protein on their surface called CD19. To make this medicine, T cells (a different type of white blood cell that is part of the body's natural defences) are taken from the patient and modified in the laboratory by a virus that carries a gene into the cells which allows them to target CD19. The modified T cells are grown to increase their numbers before being given back to the patient. Once the modified T cells are returned to the patient, they are expected to attach to CD19 of the cancer cells and kill them.

The type of 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, clinical trials with the medicine in patients with B-lymphoblastic leukaemia/lymphoma were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for B-lymphoblastic leukaemia/lymphoma. Orphan designation of the medicine had been granted in the United States for the treatment of acute lymphoblastic leukaemia.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 12 March 2014 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 28), Norway, Iceland and Liechtenstein.
At the time of designation, this represented a population of 512,900,000 (Eurostat 2014).

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	Autologous T cells transduced with lentiviral vector containing a chimeric antigen receptor directed against CD19	Treatment of B-lymphoblastic leukaemia/lymphoma
Bulgarian	Автоложни Т клетки, трансдуцирани с лентивирусен вектор, съдържащ химерен антигенен рецептор, насочен срещу CD19	Лечение на В-лимфобластна левкемия/лимфом
Croatian	Autologne T-stanice transducirane lentivirusnim vektorom koji sadrži kimerični antigenski receptor usmjeren protiv CD19	Liječenje B-limfoblastične leukemije/limfoma
Czech	Autologní T buňky transdukované lentivirálním vektorem obsahujícím chimerický antigenní receptor namířený proti CD 19	Léčba B-lymfoblastické leukémie/lymfomu
Danish	Autologe T-celler transduceret med lentiviral vektor indholdende en kimerisk antigen-receptor rettet mod CD19	Behandling af B-lymfoblastisk leukæmi/lymfom
Dutch	Autologe T-cellen getransduceerd met een lentivirale vector die een chimere antigenreceptor gericht tegen CD 19 bevat	Behandeling van B-lymfoblastische leukemie/lymfoom
Estonian	Autoloogsed T-rakud, mida on transdutseeritud lentiviraalse vektoriga, mis sisaldab kimäärset antigeeni retseptorit CD19 vastu	B-rakulise lümfoblastilise leukeemia/lümfoomi ravi
Finnish	Autologiset T-solut, joihin on siirretty lentivirusvektorilla CD19:n kimeerinen antigeenireseptori	B-lymfoblastileukemian/-lymfooman hoito
French	Lymphocytes T autologues transduits par un vecteur lentiviral contenant un récepteur chimérique dirigé contre l'antigène CD19	Traitement de la leucémie/du lymphome lymphoblastique de type B
German	Autologe T-Zellen, die mit einem lentiviralen Vektor, der einen gegen CD19 gerichteten chimären Antigen-Rezeptor enthält, transduziert sind	Behandlung der B-lymphoblastischen Leukämie/des B-lymphoblastischen Lymphoms
Greek	Αυτόλογα Τ- κύτταρα διαμολυσμένα με λεντι-ικό φορέα που περιέχει ένα χιμαιρικό υποδοχέα αντιγόνου έναντι του CD19	Θεραπεία Β-λεμφοβλαστικής λευχαιμίας/λεμφώματος
Hungarian	CD19 ellenes, chimerikus antigén receptort tartalmazó, lentivírus vektorral transzdukált autológ T-sejtek	B-sejtes lymphoblastos leukaemia/lymphoma kezelése
Italian	Cellule T autologhe trasdotte con un vettore lentivirale contente un recettore chimerico diretto contro l'antigene CD19	Trattamento della leucemia linfoblastica B/linfoma linfoblastico B

[1] At the time of designation

Language	Active ingredient	Indication
Latvian	Autologas T šūnas, kas transducētas ar lentivīrusa vektoru, kas satur pret CD19 vērstu himērisku antigēna receptoru	B šūnu limfoleikozes/limfomas ārstēšana
Lithuanian	Autologinės T ląstelės, pakeistos lentivirusiniu vektoriumi, turinčiu chimerinį antigeno receptorių prieš CD19	B limfoblastinės leukemijos / limfomos gydymas
Maltese	Ċelluli T awtologużi trasformati permezz ta' vettur lentivirali li fih riċettur għal antiġen kimeriku dirett kontra CD19	Kura ta' lewkimja/limfoma limfoblastika-B
Polish	Autologiczne komórki T transdukowane wektorem lentiwirusowym zawierające chimeryczny receptor antygenowy przeciw CD19	Leczenie białaczki/chłoniaka limfoblastycznego z limfoblastów B
Portuguese	Células T autólogas transduzidas com vetor lentiviral contendo um recetor antigénio quimérico anti CD19	Tratamento da leucémia/linfoma linfoblástico B
Romanian	Celule T autologe transduse cu un vector lentiviral conţinând un receptor chimeric direcţionat împotriva antigenului CD19	Tratamentul leucemiei/limfomului cu celule limfoblastice tip B
Slovak	Autológne T bunky transdukované lentivírusovým vektorom, ktorý obsahuje chimérický antigénový namierený proti CD19	Liečba B-lymfoblastickej leukémie/lymfómu
Slovenian	avtologne T celice, spremenjene s postopkom transdukcije z lentivirusnim vektorjem, ki vsebuje himerni antigenski receptor proti CD19	Zdravljenje B-limfoblastne levkemije/limfoma
Spanish	Células T autólogas transducidas con vector lentivirus que contienen un receptor antigénico quimérico contra CD19	Tratamiento de la leucemia / linfoma linfoblástico de células B
Swedish	Autologa T-celler transducerade med en lentivirusvektor innehållande en chimär antigenreceptor riktad mot CD19	Behandling av B-cellsleukemi/B-cellslymfom
Norwegian	Autologe T-celler transdusert med en lentiviral vektor som inneholder en kimer antigenreseptor rettet mot CD19	Behandling av B-lymfoblastisk leukemi/lymfom
Icelandic	Genaflutningur í samgena T-frumur með lentiveirugenaferju sem inniheldur blendings (chimeric) mótefnavakaviðtaka sem beinist gegn CD19	Meðferð við B-eitilfrumuhvítblæði/eitilfrumukrabbameini