5 January 2016
EMA/COMP/697370/2015
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Autologous T cells transduced with retroviral vector encoding an anti-CD19 CD28/CD3-zeta chimeric antigen receptor for the treatment of acute lymphoblastic leukaemia

On 11 November 2015, orphan designation (EU/3/15/1571) was granted by the European Commission to Kite Pharma UK, Ltd, United Kingdom, for autologous T cells transduced with retroviral vector encoding an anti-CD19 CD28/CD3-zeta chimeric antigen receptor for the treatment of acute lymphoblastic leukaemia.

What is acute lymphoblastic leukaemia?

Acute lymphoblastic leukaemia (ALL) is a cancer of the white blood cells called lymphocytes. In ALL, the lymphocytes multiply too quickly and live for too long so there are too many of them circulating in the blood. These abnormal lymphocytes 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 bloodstream and the bone marrow (the spongy tissue inside the large bones in the body, where blood cells are produced).

ALL is a debilitating and life-threatening disease because the abnormal immature cells take the place of the normal blood cells, reducing the patient's ability to fight infections and causing organ damage.

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

At the time of designation, ALL affected approximately 1.7 in 10,000 people in the European Union (EU). This was equivalent to a total of around 87,000 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).

*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 512,900,000 (Eurostat 2015).

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

What treatments are available?

Treatment for ALL 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, the main treatment for ALL was chemotherapy (medicines to treat cancer) followed by or combined with radiotherapy (treatment with radiation). Haematopoietic (blood) stem-cell transplantation (HSCT) 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 this medicine might be of significant benefit for patients with ALL because early studies showed that patients whose disease had come back after previous treatment or did not respond to previous treatment responded to treatment with this medicine. 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 lymphocytes in patients with ALL produce a protein on their surface called CD19.

This medicine is made up of immune cells (called T cells) which are taken from the patient and modified in the laboratory with a virus that carries a gene into the T cells so that they can recognise and attach to CD19. The modified T cells are then given back to the patient, where they are expected to attach to CD19 on the cancer cells and kill them. These T cells are also expected to activate other T cells from the patient to act against the cancer cells.

The type of virus used in this medicine ('retrovirus') is modified in order not to cause disease in humans.

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, a clinical trial with the medicine including patients with ALL was ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for ALL 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 October 2015 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	Autologous T cells transduced with retroviral vector encoding an anti-CD19 CD28/CD3-zeta chimeric antigen receptor	Treatment of acute lymphoblastic leukaemia
Bulgarian	Автоложни Т клетки, трансдуцирани с ретровирусен вектор, кодиращ химеричен анти-CD19 CD28/CD3-дзета антигенен рецептор	Лечение на остра лимфобластна левкемия
Croatian	Autologne T-stanice transducirane retrovirusnim vektorom koji kodira za kimerični antigenski receptor CD28/CD3-zeta usmjeren protiv CD19	Liječenje akutne limfoblastične leukemije
Czech	Autologní T buňky transdukované retrovirovým vektorem kódujícím anti-CD19 chimérický antigenní receptor odvozený z řetězce CD28/CD3 zeta	Léčba akutní lymfoblastické leukémie
Danish	Autologe T-celler transduceret med retroviral vektor, der koder en anti-CD19 kimær antigenreceptor udledt af CD28/zetakæde CD3	Behandling af akut lymfoblastær leukæmi
Dutch	Autologe T-cellen getransduceerd met een retrovirale vector die voor een anti-CD19 chimere antigeenreceptor afgeleid van CD28/CD3-zeta codeert	Behandeling van acute lymfoblastaire leukemie
Estonian	Autoloogsed T-rakud, mida on transdutseeritud retroviirusvektoriga, mis kodeerib CD19-vastast CD28/CD3 tseetaahelaga kimäärse antigeeni retseptorit	Ägeda lümfoblastilise leukeemia ravi
Finnish	Autologiset T-solut, joihin on retrovirusvektorin avulla istutettu anti-CD19 CD28/CD3 zeta-kimeerisen antigeenireseptorin koodi	Akuutin lymfoblastileukemian hoito
French	Lymphocytes T autologues transduits par un vecteur rétroviral codant pour un récepteur antigénique chimérique anti-CD19 dérivé de CD3/CD28 zêta	Traitement de la leucémie lymphoblastique aiguë
German	Autologe T-Zellen, die mit einem retroviralen Vektor transduziert werden, der einen von CD28/CD3-zeta abgeleiteten chimären Anti-CD19-Antigenrezeptor kodiert	Behandlung der akuten lymphatischen Leukämie
Greek	Αυτόλογα Τ-κύτταρα διαμολυσμένα με ρετροϊικό φορέα, ο οποίος κωδικοποιεί έναν αντι-CD19 χιμαιρικό CD28/CD3-ζ αντιγονικό υποδοχέα	Θεραπεία της οξείας λεμφοβλαστικής λευχαιμίας
Hungarian	Anti-CD19 CD28/CD3 zéta kiméra antigén receptort kódoló retrovírus vektorral transzdukált autológ T-sejtek	Akut lymphoblastos leukaemia kezelése

[1] At the time of designation

Language	Active ingredient	Indication
Italian	Cellule T autologhe trasdotte con vettore retrovirale che codifica per un recettore chimerico dell'antigene anti-CD19 derivato da CD28/CD3 zeta	Trattamento della leucemia linfoblastica acuta
Latvian	Autologas T šūnas, transducētas ar retrovirālu vektoru, kas kodē himērisku anti-CD19 CD28/CD3 zeta antigēna receptoru	Akūtas limfoblastiskas leikozes ārstēšana
Lithuanian	Autologinės T ląstelės, transdukuotos su retrovirusiniu vektoriumi, koduojančiu anti-CD19 CD28/CD3 zeta chimerinio antigeno receptorių	Ūmios limfoblastinės leukemijos gydymas
Maltese	Ċelluli T awtologużi trasformati permezz ta' vettur retrotivirali li jikkodifika riċettur antiġeniku kimeriku kontra CD19 assoċjat ma' CD28/CD3 żeta	Kura tal-lewkimja limfoblastika akuta
Polish	Autologiczne limfocyty T transdukowane wektorem retrowirusowym kodującym chimeryczne receptory antygenowe przeciwciał anty-CD19 pochodzących z łańcucha CD28/CD3 zeta	Leczenie ostrej białaczki limfoblastycznej
Portuguese	Células T autólogas transduzidas com um vetor retroviral codificando um recetor antigénico quimérico anti-CD19 CD28/CD3 zeta	Tratamento da leucémia linfoblástica aguda
Romanian	Celule T autologe transduse cu un vector retroviral ce codifică un receptor chimeric al antigenelor anti-CD19 si CD28/CD3 zeta	Tratamentul leucemiei limfoblastice acute
Slovak	Autológne T bunky transdukované retrovírusovým vektorom kódujúcim chimérický antigénový receptor anti- CD19 a CD28/CD3 zeta	Liečba akútnej lymfoblastickej leukémie
Slovenian	Avtologne celice T, transducirane z retrovirusnim vektorjem, ki kodira himerni antigenski receptor anti-CD19 CD28/CD3	Zdravljenje akutne limfoblastne levkemije
Spanish	Células T autólogas transducidas con un vector retroviral que codifica un receptor quimérico de antígeno anti-CD19 derivado de CD28/CD3 zeta	Tratamiento de la leucemia linfoblástica aguda
Swedish	Autologa T-celler transducerade med en retroviral vektor som kodar för en CD19-specifik chimär antigenreceptor från CD28/CD3-zetakedjan	Behandling av akut lymfatisk leukemi
Norwegian	Autologe T-celler transdusert med retroviral vektor som koder for en anti-CD19 CD28/CD3 zeta kimær antigenreseptor	Behandling av akutt lymfoblastisk leukemi
Icelandic	Samgena T-frumur, umbreyttar með retróveiruferju, sem kóðar fyrir blendingsmótefnavakaviðtaka gegn CD19 úr CD28/CD3-zetakeðju	Meðferð við bráðu eitilfrumuhvítblæði