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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Allogeneic T cells encoding an exogenous TK gene for the treatment of acute lymphoblastic leukaemia

On 21 June 2011, orphan designation (EU/3/11/878) was granted by the European Commission to LTKFarma, France, for allogeneic T cells encoding an exogenous TK gene 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 this disease, 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 bone marrow (the spongy tissue inside the large bones where blood cells are produced).

ALL is the most common type of leukaemia in young children, but the disease also affects adults, especially those aged 65 years and older. Many people with ALL can be cured. However, despite the available treatments, ALL remains a serious and life-threatening disease in some patients.

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

At the time of designation, ALL affected approximately 0.5 in 10,000 people in the European Union (EU)*. This is equivalent to a total of around 25,000 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 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)

*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 27), Norway, Iceland and Liechtenstein. This represents a population of 506,300,000 (Eurostat 2011).

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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. However, a risk of this procedure is graft-versus-host disease, a potentially fatal complication in which the transplanted cells recognise the patient's cells as 'foreign' and attack them.

The sponsor has provided sufficient information to show that allogeneic T cells encoding an exogenous TK gene might be of significant benefit for patients with ALL because the medicine works in a different way to existing treatments and may improve the treatment of patients undergoing haematopoietic stem-cell transplantation. 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?

During haematopoietic stem cell transplantation used for the treatment of ALL, the T cells contained in the graft may be responsible for the graft-versus-host disease.

This medicine is made of T cells that are extracted from a donor. Before being injected into the patient, a specific T cell sub-population that has enhanced activity against cancer cells (graft-versus leukaemia effect) is selected. The T cells in the medicine are also manipulated by inclusion of a gene called 'TK suicide gene'. The manipulated T cells are injected into a patient with ALL. If graft-versus-host disease occurs following stem cell transplantation, the TK suicide gene can be activated and will enable the selective elimination of the T cells that are involved in graft-versus-host disease. This is expected to enhance the ability of the stem cell transplant to replace the cancer cells, while being able to control or reduce the graft-versus-host disease.

What is the stage of development of this medicine?

The effects of allogeneic T cells encoding an exogenous TK gene 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 ALL had been started.

At the time of submission, this 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 7 April 2011 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:

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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	Allogeneic T cells encoding an exogenous TK gene	Treatment of acute lymphoblastic leukaemia
Bulgarian	Алогенни Т-клетки, кодиращи екзогенен ТК ген	Лечение на остра лимфобластна левкемия
Czech	Allogenní T lymfocyty kódující exogenní TK gen	Léčba akutní lymfoblastické leukémie
Danish	Allogene T celler indeholdende et eksogent TK gen	Behandling af akut lymfoblastær leukæmi
Dutch	Allogene T- cellen welke een exogeen TK gen encoderen	Behandeling van acute lymfoblastaire leukemie
Estonian	Allogeensed T-rakud, mis kodeerivad eksogeenset TK geeni	Ägeda lümfoblastilise leukeemia ravi
Finnish	Allogeenisia T-soluja, jotka koodaavat eksogeenista TK-geeniä	Akuutin lymfoblastileukemian hoito
French	Cellules T allogéniques codant pour un gène TK exogène	Traitement de la leucémie lymphoblastique aiguë
German	Allogene T-Zellen, die ein exogenes TK Gen encodieren	Behandlung der akuten lymphatischen Leukämie
Greek	Αλλογονικά κύτταρα Τ που φέρουν εξωγενές γονίδιο ΤΚ	Θεραπεία της οξείας λεμφοβλαστικής λευχαιμίας
Hungarian	Exogén TK-gént kódoló allogén T-sejtek	Akut lymphoblastos leukaemia kezelése
Italian	Cellule T allogeniche codificanti un gene timidina-chinasi esogeno	Trattamento della leucemia linfoblastica acuta
Latvian	Alogēnas, eksogēnu timidīna kināzes (TK) gēnu saturošas T šūnas	Akūtas limfoblastiskas leikozes ārstēšana
Lithuanian	Alogeninės T ląstelės, koduojančios egzogeninį TK geną	Ūmios limfoblastinės leukemijos gydymas
Maltese	Ċelluli T alloġeniċi li jikkodifikaw ġene TK esoġenu	Kura tal-lewkimja limfoblastika akuta
Polish	Alogeniczne komórki T zawierające egzogenny gen kodujący kinazę tymidynową	Leczenie ostrej białaczki limfoblastycznej
Portuguese	Linfócitos T alogénicos com um gene TK exógeno	Tratamento da leucémia linfoblástica aguda
Romanian	Celule T alogenice ce codifică o genă TK exogenă	Tratamentul leucemiei limfoblastice acute
Slovak	Alogénne bunky T kódujúce exogénny gén pre TK	Liečba akútnej lymfoblastickej leukémie
Slovenian	Alogenske T celice s kodo za eksogeni TK gen	Zdravljenje akutne limfoblastne levkemije
Spanish	Linfocitos T alogénicos que contienen un gen exógneo que codifica TK	Tratamiento de la leucemia linfoblástica aguda

[1] At the time of designation

Language	Active ingredient	Indication
Swedish	Allogena T-celler som kodar för den eksogena TK genen	Behandling av akut lymfatisk leukemi
Norwegian	Allogene T-celler som koder for eksogent TK gen	Behandling av akutt lymfoblastisk leukemi
Icelandic	Ósamgena T frumur sem tjá utanaðkomandi TK gen	Meðferð við bráðu eitilfrumuhvítblæði