EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Allogeneic ex vivo-generated natural killer cells from CD34+ umbilical cord blood progenitor cells for the treatment of acute myeloid leukaemia

On 16 December 2014, orphan designation (EU/3/14/1395) was granted by the European Commission to IPD-Therapeutics BV, the Netherlands, for allogeneic ex vivo-generated natural killer cells from CD34+ umbilical cord blood progenitor cells for the treatment of acute myeloid leukaemia.

What is acute myeloid leukaemia?

Acute myeloid leukaemia (AML) is a cancer of the white blood cells (cells that fight against infections). In patients with AML, the bone marrow (the spongy tissue inside the large bones, where blood cells are produced) produces large numbers of abnormal, immature white blood cells. These abnormal cells quickly build up in large numbers in the bone marrow and are found in the blood.

AML is a long-term debilitating and life-threatening disease because these abnormal immature cells take the place of the normal blood cells, causing bleeding episodes, blood clots and reducing the patient's ability to fight infections.

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

At the time of designation, AML affected approximately 1 in 10,000 people in the European Union (EU). This was equivalent to a total of around 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?

The treatment for AML 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 treatments for AML were chemotherapy (medicines to

*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 511,100,000 (Eurostat 2014).

30 Churchill Place ● Canary Wharf ● London E14 5EU ● United Kingdom
Telephone +44 (0)20 3660 6000 **Facsimile** +44 (0)20 3660 5555
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treat cancer) and haematopoietic (blood) stem-cell transplantation (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 AML because early studies in experimental models suggest that it can improve responses in patients with this condition when used together with other treatments. 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 up of certain cells called natural–killer (NK) cells that belong to the immune system (the body's natural defences) and that act against infections or tumours. To produce these NK cells, immature blood cells (called CD34+ cells) are taken from donor blood obtained from the umbilical cord that connects a baby to the placenta. These cells are able to develop into different cell types. They are grown outside the body and encouraged to develop into NK cells. When injected into the patient, the NK cells are expected to target and destroy AML cells, thereby slowing down the growth of the cancer.

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 AML were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for AML 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 13 November 2014 recommending the granting of this designation.

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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:

IPD-Therapeutics BV
Pivot Park RE1134
Molenstraat 110
5342 CC Oss
The Netherlands
Tel. +31 412 21 10 01
E-mail: info@glycostem.com

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 ex vivo-generated natural killer cells from CD34+ umbilical cord blood progenitor cells	Treatment of acute myeloid leukaemia
Bulgarian	Алогенни екс виво генерирани естествени клетки-убийци от CD34+ стволови клетки от кръв от пъпната връв	Лечение на остра миелоидна левкемия
Croatian	Alogene ex vivo generirane prirodne ubilačke stanice iz CD34+ progenitorskih krvnih stanica iz pupčane vrpce	Liječenje akutne mijeloične leukemije
Czech	Alogenní ex vivo generované natural killer buňky z CD34+ pupečníkové krve progenitorových buněk	Léčba akutní myeloidní leukémie
Danish	Allogene ex vivo-genereret naturlige dræberceller fra CD34+ n avlestrengsblod progenitorceller	Behandling af akut myeloid leukæmi
Dutch	Allogene ex-vivo gegenereerde natural killer cellen uit CD34+ navelstrengbloed progenitor cellen	Behandeling van acute myeloïde leukemie
Estonian	CD34+ nabaväädivere tüvirakkudest saadud allogeensed ex vivo loodud tappurrakud,	Akuutse müeloidse leukeemia ravi
Finnish	Allogeenisen ex vivo syntyvän luonnollisten t appaja solujen CD34+ napanuoran veren kantasolujen	Akuutin myelooisen leukemian hoito
French	Allogénique ex vivo généré cellules NK du CD34+ cellules progénitrices sang de cordon ombilical	Traitement de la leucémie aiguë myéloïde
German	Allogene, ex vivo generierte natürliche Killerzellen aus CD34+ Vorläuferzellen gewonnen aus Nabelschnurblut	Behandlung der akuten myeloischen Leukämie
Greek	Αλλογενή φυσικά φονικά κύτταρα που έχουν παραχθεί ex -vivo από CD34+ προγονικά κύτταρα ομφαλίου λώρου	Θεραπεία της οξείας μυελοειδούς λευχαιμίας
Hungarian	CD34+ köldökzsinórvér elődsejtekből ex vivo előállított allogén természetes ölősejtek	Akut myeloid leukaemia kezelése
Italian	Allogenico ex vivo generata cellule natural killer di +CD34 cellule progenitrici del sangue cordone ombelicale	Trattamento della leucemia mieloide acuta
Latvian	Alogēnas *ex vivo* radītas NK šūnas no CD34+ nabas saites asins cilmes šūnām	Akūtas mieloleikozes ārstēšana
Lithuanian	Alogeninės ex vivo sukurtos natūralios kilerių ląstelės iš CD34+ virkštelės kraujo kamieninių ląstelių	Ūmios mieloleukozės gydymas

[1] At the time of designation

Language	Active ingredient	Indication
Maltese	Ċelluli qattiela naturali alloġeniċi imnissla ex vivo minn ċelluli proġenituri CD34+ mid-demm tal-kurdun taż-żokra	Kura tal-lewkimja mjelojda akuta
Polish	Allogeniczne komórki NK CD34+uzyskane ex vivo z komórek progenitorowych krwi pępowinowej	Leczenie ostrej białaczki szpikowej
Portuguese	Células *natural killer* alogénicas produzidas *ex vivo* a partir de células progenitoras CD34+ do sangue do cordão umbilical	Tratamento da leucémia mielóide aguda
Romanian	Celule alogenice natural-killer generate ex vivo din celule sanguine progenitoare CD34+ provenite din cordonul ombilical	Tratamentul leucemiei mieloide acute
Slovak	Alogénne NK bunky generované ex vivo z CD34+ progenitorových buniek pupočníkovej krvi	Liečba akútnej myeloickej leukémie
Slovenian	Alogensko ex-vivo ustvarili naravne celice ubijalke iz CD34+ matičnih celic iz popkovnične krvi	Zdravljenje akutne mieloične levkemije
Spanish	Alogénico ex vivo generado por las células NK de CD34+ y del cordón umbilical células progenitoras de sangre	Tratamiento de la leucemia mieloide aguda
Swedish	Allogen ex vivo-genererade naturliga mördarceller från CD34+ navelsträngsblod stamceller	Behandling av akut myeloisk leukemi
Norwegian	Allogene ex vivo-genererte naturlige drepeceller fra CD34+ navlestrengblod progenitorceller	Behandling av akutt myelogen leukemi
Icelandic	Ósamgena ex vivo-ræktaðar náttúrulegar dráps frumur CD34+ úr naflastrengsblóðs stofnfrumum	Meðferð við bráðu kyrningahvítblæði