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Public summary of opinion on orphan designation

(S)-5-(1-(6-chloro-2-oxo-1,2-dihydroquinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridine-2-carbonitrile for the treatment of acute myeloid leukaemia

On 29 May 2019, orphan designation (EU/3/19/2159) was granted by the European Commission to Pharma Gateway AB, Sweden, for (S)-5-(1-(6-chloro-2-oxo-1,2-dihydroquinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridine-2-carbonitrile (also known as FT-2102) 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 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 debilitating and life-threatening disease because these abnormal immature cells take the place of the normal blood cells, causing bleeding episodes, blood clots and a reduced ability to fight infections.

What is the estimated number of patients affected by acute myeloid leukaemia?

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 52,000 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 518,400,000 (Eurostat 2019).

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What treatments are available?

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 treat cancer) and haematopoietic (blood) stem-cell transplantation (a procedure where the patient's bone marrow is cleared of cells and replaced by stem cells to form new bone marrow that produces healthy blood cells).

The sponsor has provided sufficient information to show that this medicine might be of significant benefit for patients with AML. Early studies showed that the cancer responded to treatment with the medicine in patients with AML that had come back or did not respond to previous treatment, and who could not have intensive cancer treatment. There is no authorised treatment for these patients. 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?

Some patients with AML have a mutation (change) in a gene called *IDH1*, which causes production of an abnormal IDH1 protein. This abnormal protein makes a substance, 2-hydroxyglutarate, which causes cells to become cancerous. This medicine is expected to block the activity of the abnormal IDH1 protein, thereby reducing the production of 2-hydroxyglutarate and preventing formation of more cancer cells.

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 treatment of AML. Orphan designation of the medicine had been granted in the United States for this condition.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 17 April 2019, 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	(S)-5-(1-(6-chloro-2-oxo-1,2-dihydroquinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridine-2-carbonitrile	Treatment of acute myeloid leukaemia
Bulgarian	(S)-5-(1-(6-хлоро-2-оксо-1,2-дихидроквинолин-3-ил)етиламино)-1-метил-6-оксо-1,6-дихидропиридин-2-карбонитрил	Лечение на остра миелоидна левкемия
Croatian	(S)-5-(1-(6-kloro-2-okso-1,2-dihidrokinolin-3-il)etilamino)-1-metil-6-okso-1,6-dihidropiridin-2-karbonitril	Liječenje akutne mijeloične leukemije
Czech	(S)-5-(1-(6-chlor-2-oxo-1,2-dihydrochinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridin-2-karbonitril	Léčba akutní myeloidní leukémie
Danish	(S)-5-(1-(6-chloro-2-oxo-1,2-dihydroquinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridin-2-carbonitril	Behandling af akut myeloid leukæmi
Dutch	(S)-5-(1-(6-chloor-2-oxo-1,2-dihydrochinoline-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridine-2-carbonitril	Behandeling van acute myeloïde leukemie
Estonian	(S)-5-(1-(6-kloro-2-okso-1,2-dihüdrokinoliin-3-üül)etüülamino)-1-metüül-6-okso-1,6-dihüdropüridiin-2-karbonitriil	Akuutse müeloidse leukeemia ravi
Finnish	(S)-5-(1-(6-kloori-2-okso-1,2-dihydrokinolin-3-yyli)etyyliamino)-1-metyyli-6-okso-1,6-dihydropyridiini-2-karbonitriili	Akuutin myelooisen leukemian hoito
French	(S)-5-(1-(6-chloro-2-oxo-1,2-dihydroquinoléine-3-yl)éthylamino)-1-méthyl-6-oxo-1,6-dihydropyridine-2-carbonitrile	Traitement de la leucémie aiguë myéloïde
German	(S)-5-(1-(6-Chloro-2-oxo-1,2-dihydrochinolin-3-yl)ethylamino)-1-methyl-6-oxo-1,6-dihydropyridin-2-carbonitril	Behandlung der akuten myeloischen Leukämie
Greek	(S)-5-(1-(6-χλωρο-2-οξο-1,2-διϋδροκινολινο-3-υλ)αιθυλαμινο)-1-μεθυλο-6-οξο-1,6-διϋδροπυριδινο-2-καρβονιτρίλιο	Θεραπεία της οξείας μυελοειδούς λευχαιμίας
Hungarian	(S)-5-(1-(6-kloro-2-oxo-1,2-dihidrokinolin-3-il)etilamino)-1-metil-6-oxo-1,6-dihidropiridin-2-karbonitril	Akut myeloid leukaemia kezelése

[1] At the time of designation

Language	Active ingredient	Indication
Italian	(S)-5-(1-(6-cloro-2-oxo-1,2-diidrochinolin-3-il)etilammino)-1-metil-6-oxo-1,6-diidropiridina-2-carbonitrile	Trattamento della leucemia mieloide acuta
Latvian	(S)-5-(1-(6-hloro-2-okso-1,2-dihidrohinolīn-3-il)etilamino)-1-metil-6-okso-1,6-dihidropiridīna-2-karbonitrils	Akūtas mieloleikozes ārstēšana
Lithuanian	(S)-5-(1-(6-chloro-2-okso-1,2-dihidrokvinolin-3-il)etilamino)-1-metil-6-okso-1,6-dihidropiridin-2-karbonitrilas	Ūmios mieloleukozės gydymas
Maltese	(S)-5-(1-(6-kloro-2-osso-1,2-diidrokwinolin-3-il)etilamino)-1-metil-6-osso-1,6-diiddropiridin-2-karbonitril	Kura tal-lewkimja mjelojda akuta
Polish	(S)-5-(1-(6-chloro-2-okso-1,2-dihydrochinolin-3-ylo)etylamino)-1-metylo-6-okso-1,6-dihydropirydyno-2-karbonitryl	Leczenie ostrej białaczki szpikowej
Portuguese	(S)-5-(1-(6-cloro-2-oxo-1,2-di-hidroquinolin-3-il)etilamino)-1-metil-6-oxo-1,6-di-hidropiridina-2-carbonitrilo	Tratamento da leucémia mielóide aguda
Romanian	(S)-5-(1-(6-cloro-2-oxo-1,2- dihidrochinolin-3-il)etilamină)-1-metil-6-oxo-1,6-dihidropiridină-2-carbonitril	Tratamentul leucemiei mieloide acute
Slovak	(S)-5-(1-(6-chloro-2-oxo-1,2-dihydrochinolín-3-yl)etylamino)-1-metyl-6-oxo-1,6-dihydropyridín-2-karbonitril	Liečba akútnej myeloickej leukémie
Slovenian	(S)-5-(1-(6-kloro-2-okso-1,2-dihidrokinolin-3-il)etilamino)-1-metil-6-okso-1,6-dihidropiridin-2-karbonitril	Zdravljenje akutne mieloične levkemije
Spanish	(S)-5-(1-(6-cloro-2-oxo-1,2-dihdroquinolin-3-il)etilamino)-1-metil-6-oxo-1,6-dihidropiridina-2-carbonitrilo	Tratamiento de la leucemia mieloide aguda
Swedish	(S)-5-(1-(6-kloro-2-oxo-1,2-dihydrokinolin-3-yl)etylamino)-1-metyl-6-oxo-1,6-dihydropyridin-2-karbonitril	Behandling av akut myeloisk leukemi
Norwegian	(S)-5-(1-(6-klor-2-okso-1,2-dihydrokinolin-3-yl)etylamino)-1-metyl-6-okso-1,6-dihydropyridin-2-karbonitril	Behandling av akutt myelogen leukemi
Icelandic	(S)-5-(1-(6-klóró-2-oxó-1,2- díhýdrókínólín-3-ýl)etýlamínó)-1-metýl-6-oxó-1,6-díhýdrópýridín-2-karbónítríl	Meðferð við bráðu kyrningahvítblæði