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Public summary of opinion on orphan designation

Luspatercept for the treatment of myelofibrosis

On 28 February 2020, orphan designation EU/3/20/2255 was granted by the European Commission to Celgene Europe B.V., the Netherlands, for luspatercept (also known as ACE-536) for the treatment of myelofibrosis.

What is myelofibrosis?

Myelofibrosis is a disease in which fibrous tissue forms in the bone marrow (the spongy tissue inside the large bones where blood cells are produced), interfering with normal blood cell production. This causes some immature blood cells to move from the bone marrow to other organs, such as the spleen and liver, which become enlarged. Symptoms of the disease include bone pain, tiredness, weakness, weight loss, fever and bleeding.

Myelofibrosis is a debilitating disease that is long-lasting and life-threatening because it can lead to severe anaemia (low red blood cell counts) and infections, and can result in leukaemia (cancer of the white blood cells).

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

At the time of designation, myelofibrosis affected less than 1 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 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).

What treatments are available?

At the time of designation, busulfan, hydroxycarbamide and ruxolitinib were authorised in the EU for myelofibrosis. In addition, medicines were authorised to treat the symptoms, including erythropoietin (a hormone that stimulates the production of red blood cells) to treat anaemia, and surgery was used to remove the enlarged spleen. In some patients, haematopoietic (blood) stem cell transplantation was

*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 519,200,000 (Eurostat 2020).

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used to treat the disease. This is a procedure where the patient's bone marrow is cleared of cells and replaced with stem cells from a donor to form new bone marrow that produces healthy blood cells.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with myelofibrosis, as preliminary results in patients suggest that adding the medicine to treatment with ruxolitinib improves anaemia compared with ruxolitinib alone. 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?

Luspatercept is an engineered protein designed to attach to certain proteins in the body (which are part of the TGFβ family) that slow down (or inhibit) the development of red blood cells. By attaching to these 'inhibitory' proteins, it is expected to trap them, so they don't have their normal effect on the red blood cells. As a result, production of red blood cells is increased. This is expected to improve the anaemia of patients with myelofibrosis.

What is the stage of development of this medicine?

The effects of luspatercept have been evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials with luspatercept in patients with myelofibrosis were ongoing.

At the time of submission, luspatercept was not authorised anywhere in the EU for the treatment of myelofibrosis or designated as an orphan medicinal product elsewhere for this condition.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 22 January 2020, 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.

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	Luspatercept	Treatment of myelofibrosis
Bulgarian	Луспатерцепт	Лечение на миелофиброза
Croatian	Luspatercept	Liječenje mijelofibroze
Czech	Luspatercept	Léčba myelofibrózy
Danish	Luspatercept	Behandling af myelofibrose
Dutch	Luspatercept	Behandeling van myelofibrose
Estonian	Luspatertsept	Müelofibroosi ravi
Finnish	Luspatersepti	Myelofibroosin hoito
French	Luspatercept	Traitement de la myélofibrose
German	Luspatercept	Behandlung der Myelofibrose
Greek	Λουσπατερσέπτη	Θεραπεία της μυελοϊνωσης
Hungarian	Luszpatercept	Myelofibrosis kezelése
Italian	Luspatercept	Trattamento della mielofibrosi
Latvian	Luspatercepts	Mielofibrozes ārstēšana
Lithuanian	Luspaterceptas	Mielofibrozės gydymas
Maltese	Luspatersept	Kura tal-mjelofibrożi
Polish	Luspatercept	Leczenie mielofibrozy
Portuguese	Luspatercept	Tratamento da mielofibrose
Romanian	Luspatercept	Tratamentul mielofibrozei
Slovak	Luspatercept	Liečba myelofibrózy
Slovenian	Luspatercept	Zdravljenje mielofibroze
Spanish	Luspatercept	Tratamiento de la mielofibrosis
Swedish	Luspatercept	Behandling av myelofibros
Norwegian	Luspatercept	Behandling av myelofibrose
Icelandic	Luspatercept	Meðferð á mýelófíbrósu

[1] At the time of designation