20 December 2011
EMA/COMP/845929/2011
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Human haptoglobin for the treatment of sickle cell disease

On 9 December 2011, orphan designation (EU/3/11/936) was granted by the European Commission to Bio Products Laboratory Ltd, United Kingdom, for human haptoglobin for the treatment of sickle cell disease.

What is sickle cell disease?

Sickle cell disease is a genetic disease in which the red blood cells become rigid and sticky, and change from being disc-shaped to being crescent-shaped (like a sickle). The change in shape is caused by the presence of an abnormal form of haemoglobin, the protein in red blood cells that carries oxygen around the body. In patients with sickle cell disease, the abnormal red blood cells attach to the walls of blood vessels and block them, restricting the flow of nutrients to the internal organs such as the heart, lungs and spleen. Because the abnormal red blood cells have a shorter life span, they release haemoglobin into the blood circulation rather than carrying it to the internal organs where it is needed. This causes severe pain and damage to these organs as well as repeated infections and anaemia (low red blood cell counts).

Sickle cell disease is a severe disease that is long lasting and may be life threatening because of damage to the heart and the lungs, anaemia and infections.

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

At the time of designation, sickle cell disease affected approximately 1.5 in 10,000 people in the European Union (EU)*. This is equivalent to a total of around 76,000 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, the only medicine authorised in the EU to treat sickle cell disease was hydroxyurea (also known as hydroxycarbamide). The main treatment for sickle cell disease was blood

*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).

7 Westferry Circus ● Canary Wharf ● London E14 4HB ● United Kingdom
Telephone +44 (0)20 7418 8400 **Facsimile** +44 (0)20 7523 7040
E-mail info@ema.europa.eu **Website** www.ema.europa.eu
An agency of the European Union

transfusion. This was usually combined with 'iron chelators', medicines used to reduce the high iron levels in the body caused by repeated blood transfusions, which are necessary in patients with long-term anaemias such as sickle cell disease. In some cases, haematopoietic (blood) stem cell transplantation was used (a complex procedure where the patient receives stem cells from a matched donor to help restore the bone marrow) to allow the patient to produce red blood cells containing normal haemoglobin.

The sponsor has provided sufficient information to show that human haptoglobin might be of significant benefit for patients with sickle cell disease because early studies in experimental models show that it works in a different way to existing medicines and might improve the treatment of patients with this condition. 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?

Human haptoglobin is a protein obtained from human blood. It works by attaching to free haemoglobin. In sickle cell disease, the medicine is expected to reduce the amount of free haemoglobin that is released into the circulation from the abnormal red blood cells. This is expected to reduce the symptoms of the disease. The haptoglobin-haemoglobin complex is then broken down by specialised cells called macrophages and cleared from the body.

What is the stage of development of this medicine?

At the time of submission of the application for orphan designation, the evaluation of the effects of human haptoglobin in experimental models was ongoing.

At the time of submission of the application for orphan designation, no clinical trials with human haptoglobin in patients with sickle cell disease had been started.

At the time of submission, human haptoglobin was not authorised anywhere in the EU for treatment for sickle cell disease 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 October 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:

Bio Products Laboratory Ltd
Dagger Lane
Elstree
Hertfordshire WD6 3BX
United Kingdom
Telephone: +44 20 82 58 22 00
Telefax: +44 20 82 58 26 08
E-mail: info@bpl.co.uk

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	Human haptoglobin	Treatment of sickle cell disease
Bulgarian	Човешки хаптоглобин	Лечение на сърповидно-клетъчна анемия
Czech	Lidský haptoglobin	Léčba srpkovité anémie
Danish	Human haptoglobin	Behandling af seglcellesygdom
Dutch	Menselijke haptoglobine	Behandeling van sikkelcelaandoening
Estonian	Inimese haptoglobiin	Sirprakulise aneemia ravi
Finnish	Ihmisen haptoglobiini	Sirppisolusyndrooman hoito
French	Haptoglobine humaine	Traitement de la drépanocytose
German	Humanes haptoglobin	Behandlung der Sichelzellenanämie
Greek	Ανθρώπινη απτοσφαιρίνη	Θεραπεία της δρεπανοκυτταρικής αναιμίας
Hungarian	Emberi haptoglobin	Sarlósejtes anaemia kezelése
Italian	Aptoglobina umana	Trattamento dell'anemia falciforme
Latvian	Cilvēka haptoglobīns	Sirpjveida šūnu anēmijas ārstēšana
Lithuanian	Žmogaus haptoglobinas	Siklemijos gydymas
Maltese	Aptoglobina umana	Kura tal-marda taċ-ċelluli sura ta' minġel
Polish	Haptoglobina ludzka	Leczenie niedokrwistości sierpowatokrwinkowej
Portuguese	Haptoglobina humana	Tratmento do sindrome das células falciformes
Romanian	Haptoglobină umană	Tratamentul anemiei cu celule falciforme
Slovak	Ľudský haptoglobín	Liečba kosáčikovej anémie
Slovenian	Humani haptoglobin	Zdravljenje bolezni srpastih celic
Spanish	Haptoglobina humana	Tratamiento de la anemia drepanocítica
Swedish	Humant haptoglobin	Behandling av sickle cell syndrom
Norwegian	Humant haptoglobin	Behandling av sigdcellesykdom
Icelandic	Manna haptóglóbín	Meðferð sigðkornablóðleysis

[1] At the time of designation