16 August 2013
EMA/COMP/399770/2013
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Human hemin for the prevention of ischaemia reperfusion injury associated with solid organ transplantation

On 17 July 2013, orphan designation (EU/3/13/1149) was granted by the European Commission to Borders Technology Management Ltd, United Kingdom, for human hemin for the prevention of ischaemia reperfusion injury associated with solid organ transplantation.

What is ischaemia reperfusion injury associated with solid organ transplantation?

Ischaemia reperfusion injury is tissue damage that can occur in transplant organs as a result of the period between donation and transplant when they are kept outside the body with no blood supply. The lack of blood supply, if prolonged, can cause damage to the organ known as ischaemia. When the organ is transplanted into a recipient, the return of blood supply (reperfusion) then causes inflammation and further damage to the organ. These processes increase the risk of the organ not working or being rejected by the recipient.

Because ischaemia reperfusion injury associated with solid organ transplantation impairs the functioning of the organ, it is a life-threatening condition for the recipient.

What is the estimated number of patients at risk of developing the condition?

At the time of designation, the number of patients at risk of ischaemia reperfusion injury associated with solid organ transplantation was estimated to be approximately 0.6 people in 10,000 per year in the European Union (EU). This was equivalent to a total of around 31,000 people per year*, 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 27), Norway, Iceland and Liechtenstein. This represents a population of 509,000,000 (Eurostat 2013).

7 Westferry Circus ● Canary Wharf ● London E14 4HB ● United Kingdom
Telephone +44 (0)20 7418 8400 **Facsimile** +44 (0)20 7418 8416
E-mail info@ema.europa.eu **Website** www.ema.europa.eu
An agency of the European Union

What methods of prevention are available?

At the time of designation methods to prevent ischaemia reperfusion injury associated with solid organ transplantation included the storage of the organ in cold conditions in special preservation solutions. Two such solutions were authorised for organ preservation in some countries of the EU at the time of designation.

The sponsor has provided sufficient information to show that human hemin might be of significant benefit for patients at risk of developing ischaemia reperfusion injury because it works in a different way to existing methods and can be combined with them; early studies show that it might improve the outcome of 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?

Human hemin is a substance naturally found in red blood cells. It increases the production of an enzyme called heme oxygenase-1 that can help protect cells against inflammation and cell death. When given to patients who are receiving an organ transplant, these effects are expected to reduce the damage caused by ischaemia reperfusion injury and so improve the functioning of the transplanted organ.

What is the stage of development of this medicine?

The effects of human hemin have been evaluated in experimental models.

At the time of submission of the application for orphan designation, a clinical trial with human hemin in patients at risk of ischaemia reperfusion injury associated with solid organ transplantation was ongoing.

At the time of submission, human hemin was authorised in several EU Member States for treatment of acute attacks of hepatic porphyria. It was not authorised anywhere in the EU for prevention of ischaemia reperfusion injury associated with solid organ transplantation 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 June 2013 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:

Borders Technology Management Ltd
2 Broomlee Mains Court
West Linton
Peeblesshire
EH46 7BP
Scotland
United Kingdom
Telephone: +44 774 0177 034
E-mail: gclay@borderstechnology.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	Human hemin	Prevention of ischaemia/reperfusion injury associated with solid organ transplantation
Bulgarian	човешки хемин	Превенция на исхемия/реперфузия увреда, свързана с трансплантация на плътни органи.
Czech	Lidského hemin	Prevence ischemie/ reperfuzního poškození u transplantace solidních orgánů
Croatian	Ljudski hemin	Prevencija ozljede zbog ishemije i reperfuzije povezane s transplantacijom solidnih organa
Danish	Humane hæmin	Prævention af den iskæmi/reperfusionsskade associeret med transplantation af solide organer
Dutch	Humane hemine	Preventie van ischemie- / reperfusieletsel geassocieerd aan soliede orgaantransplantatie
Estonian	Inimese hemiini	Soliidorganite siirdamisega seotud isheemia/reperfusioonvigastuse ennetamine
Finnish	Ihmisen hemiini	Iskemia-/reperfuusiovaurion esto elinsiirtoleikkauksessa
French	Hémine humaine	Prévention des lésions d'ischémie-reperfusion associées aux transplantations d'organes solides
German	Humanes Hämin	Prävention von Ischämie-/Reperfusions-Syndromen bei Transplantation solider Organe
Greek	Ανθρώπινη αιμίνη	Πρόληψη της ισχαιμίας/ τραυματισμού λόγω επαναιμάτωσης που συσχετίζεται με τη μεταμόσχευση συμπαγών οργάνων
Hungarian	Humán hemin	Szervátültetéssel összefüggő ischemiás/reperfúziós károsodás megelőzése
Italian	Emina umana	Prevenzione del danno da ischemia/riperfusione associato al trapianto di organi solidi
Latvian	Cilvēka hemīns	Išēmisko/reperfūzijas bojājumu profilakse saistībā ar orgānu transplantāciju
Lithuanian	Žmogaus heminas	Išemijos / reperfuzijos pažeidimo prevencija, susijusi su parenchiminių organų transplantacija
Maltese	Hemin uman	Prevenzjoni tad-dannu minn iskemija/riperfusjoni assoċjat mat-trapjant ta' organi solidi
Polish	Ludzka hemina	Zapobieganie uszkodzeniu narządu spowodowanego niedokrwieniem/reperfuzją związanym z przeszczepem narządów litych
Portuguese	Hemina humana	Prevenção da lesão de isquémia/reperfusão associada ao transplante de órgãos sólidos
Romanian	Hemina umană	Prevenirea leziunilor de ischemie /reperfuzie asociate cu transplantul de organe solide

[1] At the time of designation

Language	Active ingredient	Indication
Slovak	Ľudský hemín	Prevencia ischemicko-reperfúzneho poškodenia súvisiaceho s postupom pri transplantácii solídneho orgánu
Slovenian	Huma hemin	Preprečevanje ishemične/reperfuzijske poškodbe, povezane s presaditvijo parenhimskih organov
Spanish	Hemina humana	Prevención del daño por isquemia/reperfusión asociado al transplante de órganos sólidos
Swedish	Humant hemin	Förebyggande av ischemia/reperfusionsskada i samband med organtransplantation
Norwegian	Humant hemin	Forebygging av iskemi/reperfusjonsskade forbundet med solid organ-transplantasjon
Icelandic	Manna hemin	Forvörn gegn blóðþurrðar/endurblóðvæðingar skaða í tengslum við líffæraígræðslu.