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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Heparin-activated recombinant human fibroblast growth factor 1 (on a biodegradable device made from alpha-calcium sulphate hemihydrate) for the treatment of traumatic spinal cord injury

On 27 July 2010, orphan designation (EU/3/10/754) was granted by the European Commission to Bioarctic Neuroscience AB, Sweden, for heparin-activated recombinant human fibroblast growth factor 1 (on a biodegradable device made from alpha-calcium sulphate hemihydrate) for the treatment of traumatic spinal cord injury.

What is traumatic spinal cord injury?

Traumatic spinal cord injury is damage to the spinal cord caused by an accident, such as a blow to the back. Injury to the spinal cord can damage the nerves that run through the cord and branch out from it. This can stop the flow of nerve impulses between the brain and the rest of the body, resulting in the loss of sensation, paralysis and even death, depending on the severity and location of the injury.

The development of traumatic spinal cord injury can be divided into two phases: the acute phase and the recovery phase. During the acute phase (lasting for a few weeks after the injury) a process of inflammation starts, in which the damage spreads to the nerve cells surrounding the original site of injury, leading to many of the nerve cells around the site of the injury dying. In the recovery phase, the surviving nerves recover some of their function. The improvement usually continues for up to one year, after which the patient's condition tends not to improve any further.

Traumatic spinal cord injury is a life-threatening disease that is debilitating in the long-term, because it can cause paralysis of the arms and legs, and reduces life expectancy.

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

At the time of designation, traumatic spinal cord injury affected approximately 4.2 in 10,000 people in the European Union (EU)*. This is equivalent to a total of around 213,000 people, and is below the

*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 506,500,000 (Eurostat 2010).

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threshold 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, methylprednisolone (a steroid) was authorised for the treatment of spinal cord injury in some countries in the EU. Methylprednisolone reduces the inflammation and pressure on the spinal cord that can happen after it is damaged. Patients with spinal cord injury can also have surgery to reduce the pressure on the spine.

The sponsor has provided sufficient information to show that heparin-activated recombinant human fibroblast growth factor 1 (on a biodegradable device made from alpha-calcium sulphate hemihydrate) might be of significant benefit for patients with traumatic spinal cord injury because it works in a different way to existing treatments, and because early studies in experimental models indicate that it might stimulate the repair and regrowth of the nerves during the recovery phase. These assumptions 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 of a device that contains several channels coated with fibroblast growth factor 1, a natural substance that stimulates the development of cells, including nerve cells. The medicine also contains heparin, which is used to stimulate the activity of the growth factor. The medicine is expected to be implanted during surgery. Before implantation, nerves from another part of the body (generally the calf) will be inserted into the device. The surgeon will then place the device at the site of injury so that the calf nerves form a bridge across the site of injury in the spinal cord. The device is expected to stimulate the nerves at either side of the injury to start to grow and form new connections across the site of injury. This is expected to start to repair the injury, eventually leading to some recovery of sensation and movement. The device is expected to dissolve away slowly after being implanted in 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 this medicine in experimental models was ongoing.

At the time of submission, no clinical trials with the medicine in patients with traumatic spinal cord injury had been started.

At the time of submission, this medicine was not authorised anywhere in the EU for traumatic spinal cord injury 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 8 April 2010 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

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Translations of the active ingredient and indication in all official EU languages[1], Norwegian and Icelandic

Language	Active ingredient	Indication
English	Heparin-activated recombinant human fibroblast growth factor 1 (on a biodegradable device made from alpha-calcium sulphate hemihydrate)	Treatment of traumatic spinal cord injury
Bulgarian	Активиран от хипарин, рекомбинантен, човешки фибробластен растежен фактор 1 (върху биоразградим имплант от алфа-калциев сулфат хемихидрат)	Лечение на травматична увреда на гръбначния мозък
Czech	Rekombinantní a lidský fibroblastový růstový faktor 1, heparinem aktivovaný (na biologicky odbouratelném nosiči z α-hemihydrátu síranu vápenatého)	Léčba míšního traumatu
Danish	Heparin-aktiveret rekombinant human fibroblast vækstfaktor 1 (fremstillet på en biologisk nedbrydelig enhed af α-calciumsulfat-hemihydrat)	Behandling af traumatisk rygmarvslæsion
Dutch	Heparine geactiveerde recombinant humane fibroblast groeifactor 1 (op een biologisch afbreekbaar hulpmiddel vervaardigd uit α-calcium sulfaat hemihydraat)	Behandeling van traumatisch ruggenmergletsel
Estonian	Hepariiniga aktiveeritav rekombinantne inimese fibroblastide kasvufaktor 1 (biolagunevas seadmes, mis on valmistatud α-kaltsiumsulfaadi hemihüdraadist)	Traumaatilise seljaaju kahjustuse ravi
Finnish	Hepariiniaktivoitu rekombinantti ihmisen fibroblastikasvutekijä 1 (biohajoavalla α-kalsiumsulfattihemihydraatista valmistetusta laitteella)	Traumaattisen selkäydinvamman hoito
French	Facteur 1 de croissance des fibroblastes humain recombinant activé par l'héparine (sur un dispositif biodégradable de semi-hydrate alfa de sulfate de calcium)	Traitement du traumatisme de la moëlle épinière
German	Heparinaktivierter rekombinanter menschlicher Fibroblasten-Wachstumsfaktor 1 (auf einem biologisch abbaubarem Implantat aus α-Calciumsulphat-Hemihydrat)	Behandlung traumatischer Rueckenmarksverletzungen
Greek	Ενεργοποιούμενος από την ηπαρίνη ανασυνδυασμένος ανθρώπινος ινοβλαστικός αυξητικός παράγοντας 1 (σε βιοδιασπώμενη συσκευή από ημιυδρίτη α-θειικού ασβεστίου)	Θεραπεία τραύματος της σπονδυλικής στήλης
Hungarian	Heparin-aktivált rekombináns humán fibroblaszt növekedési faktor 1 (α-kálcium szulfát-hemihidrátból készült, biodegradábilis készüléken)	Traumás gerincvelő sérülés kezelése
Italian	Fattore di crescita fibroblastico ricombinante umano 1 attivato dall'eparina (su un dispositivo biodegradabile composto da alfa-emiidrato di solfato di calcio)	Trattamento del trauma acuto della colonna vertebrale

[1] At the time of designation

Language	Active ingredient	Indication
Latvian	Heparīna aktivizēts rekombinantais cilvēka fibroblastu augšanas faktors 1 (uz bioloģiski noārdāmas ierīces, izgatavotas no α-kalcija sulfāta pushidrāta)	Muguras smadzeņu traumatiska bojājuma ārstēšana
Lithuanian	Heparinu aktyvuotas rekombinantinis žmogaus fibroblastų augimo faktorius 1 (ant mikroorganizmų skaidomo prietaiso pagaminto iš α-kalcio sulfato hemihidrato)	Nugaros smegenų trauminio pažeidimo gydymas
Maltese	Fattur 1 għall-iżvilupp ta' fibroblasts rikombinanti uman attivat bl-eparina (fuq tagħmir bijodegradabbli magħmul minn α-calcium sulphate hemihydrate)	Kura ta' korriment trawmatiku tan-nerv qawwi li jgħaddi minn ġos-sinsla
Polish	Aktywowany heparyną rekombinowany ludzki czynnik wzrostu fibroblastów 1 (na ulegającym degradacji w ustroju nośniku z półwodnego α- siarczanu wapnia)	Leczenie pourazowego uszkodzenia rdzenia kręgowego
Portuguese	Factor-1 de crescimento de fibroblastos humanos, recombinante, activado com heparina (num dispositivo biodegradável com α-sulfato de cálcio hemi-hidratado)	Tratamento da lesão traumática da medula espinal
Romanian	Factor 1 recombinant de creştere al fibroblaştilor umani, activat de heparină (pe un dispozitiv biodegradabil fabricat din sulfat de calciu α hemihidrat)	Tratamentul leziunilor traumatice ale măduvei spinării
Slovak	Heparínom aktivovaný rekombinantný ľudský fibroblastový rastový faktor 1 (v biodegradovateľnom prípravku vyrobenom z alfa-hemihydrátu síranu vápenatého)	Liečba traumatického poškodenia miechy
Slovenian	Heparinsko aktiviran rekombinantni humani fibroblastni rastni faktor 1 (na biorazgradljivi pripravi iz alfa-kalcijevega sulfata hemihidrata)	Zdravljenje travmatske poškodbe hrbtenjače
Spanish	Factor de crecimiento de fibroblastos 1 humano recombinante (en un dispositivo biodegradable compuesto de sulfato hemihidratado de calcio α)	Tratamiento de las lesiones espinales medulares traumáticas
Swedish	Heparinaktiverad rekombinant human fibroblasttillväxtfaktor 1 (FGF1) (på en biologiskt nedbrytbar anordning gjord från α-kalciumsulfat, hemihydrat)	Behandling av traumatisk ryggmärgsskada
Norwegian	Heparinaktivert rekombinant human fibroblast-vekstfaktor 1 (på en biologisk nedbrytbar anordning laget av α-kalsiumsulfat hemihydrat)	Behandling av traumatisk ryggmargsskade
Icelandic	Heparín-virkjað raðbrigða manna trefjakímfrumu-vaxtarþáttur-1 ((á lífniðurbrjótanlegum búnaði gerðum úr α-kalsíumsúlfat hemihýdrati)	Meðferð mænuskaða vegna slyss