2 March 2015
EMA/COMP/787358/2014
Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Recombinant human alkaline phosphatase for the treatment of hypophosphatasia

On 15 January 2015, orphan designation (EU/3/14/1427) was granted by the European Commission to AM-Pharma BV, the Netherlands, for recombinant human alkaline phosphatase for the treatment of hypophosphatasia.

What is hypophosphatasia?

Hypophosphatasia is an inherited condition affecting the bones. It is caused by defects in the gene responsible for producing 'tissue non-specific alkaline phosphatase (TNSALP)', an enzyme that is involved in the development of bone, particularly the hardening of the bones. Patients with hypophosphatasia have low levels TNSALP, which leads to brittle bones. Symptoms include early loss of teeth, malformed (unusually shaped) bones and frequent bone fractures (breaks).

There are five forms of the disease. Perinatal and infantile hypophosphatasia affect unborn babies and children, and are life threatening either in the womb or in early infancy because of the incomplete development of the bones and lungs. The other three forms (childhood and adult hypophosphatasia, and odontohypophosphatasia) are generally not lethal but are debilitating and long lasting.

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

At the time of designation, hypophosphatasia affected approximately 0.03 in 10,000 people in the European Union (EU). This was equivalent to a total of around 1,500 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 511,100,000 (Eurostat 2014).

30 Churchill Place ● Canary Wharf ● London E14 5EU ● United Kingdom
Telephone +44 (0)20 3660 6000 **Facsimile** +44 (0)20 3660 5555
Send a question via our website www.ema.europa.eu/contact

What treatments are available?

At the time of submission of the application for orphan designation, there were no satisfactory methods authorised for the treatment of hypophosphatasia. Patients received supportive treatment such as plaster casts for broken bones, controlling pain and maintaining the levels of calcium in the blood by giving calcium supplements. Patients were sometimes treated with surgery, and dental hygiene was carefully monitored.

How is this medicine expected to work?

This medicine is made up of an enzyme that is similar to the one that is missing in patients with hypophosphatasia. The medicine is expected to replace the missing enzyme, improving bone development and making them harder.

The medicine is made by a method known as 'recombinant DNA technology': it is made by cells into which a gene (DNA) has been introduced that makes them able to produce the enzyme.

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, no clinical trials with the medicine in patients with hypophosphatasia were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for hypophosphatasia 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 11 December 2014 recommending the granting of this designation.

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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:

AM-Pharma BV
Rumpsterweg 6
3891 AK Bunnik
The Netherlands
Tel. +31 30 2289 222
Fax +31 30 2289 220
E-mail: info@am-pharma.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	Recombinant human alkaline phosphatase	Treatment of hypophosphatasia
Bulgarian	Човешка рекомбинантна алкална фосфатаза	Лечение на хипофосфатазия
Croatian	Rekombinantna ljudska alkalna fosfataza	Liječenje hipofosfatazije
Czech	Lidská rekombinantní alkalická fosfatáza	Léčba hypofosfatázie
Danish	Humant rekombinant alkalisk fosfatase	Behandling af hypofosfatasi
Dutch	Humaan recombinant alkalische fosfatase	Behandeling van hypofosfatasemie
Estonian	Rekombinantne inimese alkaalne fosfataas	Hüpofosfataasia ravi
Finnish	Rekombinantti humaani alkaliinifosfataasi	Hypofosfatasian hoito
French	Phosphatase alcaline humaine recombinante	Traitement de l'hypophosphatasie
German	rRekombinante humane alkalische Phosphatase	Behandlung der Hypophosphatasie
Greek	Ανασυνδυασμένη ανθρώπινη αλκαλική φωσφατάση	Θεραπεία υποφωσφατασίας
Hungarian	Rekombináns humán alkalikus foszfatáz	Hypophosphatasia kezelése
Italian	Fosfatasi alcalina ricombinante umana	Trattamento dell'ipofosfatasia
Latvian	Cilvēka rekombinanta sārmainā fosfatāze	Hipofosfatāzijas ārstēšana
Lithuanian	Rekombinantinė žmogaus šarminė fosfatazė	Hipofosfatazijos gydymas
Maltese	Alkaline phosphatase uman rikombinanti	Kura ta' l-ipofosfatasija
Polish	Rekombinowana ludzka fosfataza alkaliczna	Leczenie hipofosfatazji
Portuguese	Fosfatase alcalina humana recombinante	Tratamento da hipofosfatasia
Romanian	Fosfatază alcalină umană recombinantă	Tratamentul hipofosfataziei
Slovak	Rekombinantný ľudský proteín fosfatázy	Liečba hypofosfatázie
Slovenian	Humana rekombinantna alkalna fosfataza	Zdravljenje hipofosfatazije
Spanish	Fosfatasa alcalina recombinante humana	Tratamiento de la hipofosfatasia
Swedish	Rekombinant humant alkaliskt fosfatas	Behandling av hypofosfatasia
Norwegian	Rekombinant human alkalisk fosfatase	Behandling av hypofosfatasi
Icelandic	Raðbrigða manna alkalískur fosfatasi	Meðferð við blóðfosfatasaskorti

[1] At the time of designation