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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Human alpha1-proteinase inhibitor (respiratory use) for the treatment of emphysema secondary to congenital alpha-1-antitrypsin deficiency

On 9 July 2001, orphan designation (EU/3/01/044) was granted by the European Commission to Aventis Behring GmbH, Germany, for human alpha-1-proteinase inhibitor (respiratory use) for the treatment of emphysema secondary to congenital alpha-1-antitrypsin deficiency.

The sponsor changed name to ZLB Behring GmbH in February 2005 and subsequently to CSL Behring GmbH in April 2007.

What is emphysema secondary to congenital alpha-1-antitrypsin deficiency?

Congenital alpha 1 antitrypsin deficiency is an inherited disease that is characterised by a lack (deficiency) of a protein in the blood called 'alpha 1 proteinase inhibitor' or 'alpha 1 antitrypsin' (AAT). AAT is produced in the liver and its main function is to control another protein called elastase. Elastase is an enzyme that breaks down a cell constituent, elastin, which is present in the lungs. Because AAT is missing in patients with congenital alpha 1 antitrypsin deficiency, elastase can accumulate in the lungs, and the patients can develop a lung disease called emphysema, resulting in shortness of breath, coughing and wheezing.

Congenital AAT deficiency is a debilitating disease that is long lasting and can be life-threatening.

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

At the time of designation, congenital alpha-1-antitrypsin deficiency affected approximately 2.5 in 10,000 people in the European Union (EU)[*]. This is equivalent to a total of around 94,000 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).

[*]Disclaimer: The number of patients affected by the condition is estimated and assessed for the purpose of the designation, for a European Community population of 377,000,000 (Eurostat 2001) and may differ from the true number of patients affected by the condition.

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What treatments are available?

At the time of orphan drug designation, treatment for lung disease due to AAT deficiency included medicines that help patients to breathe, oxygen, and medicines containing human AAT given as an injection into a vein. In the most severe cases of lung disease, a lung transplant might be considered.

Satisfactory argumentation has been submitted by the sponsor to justify the assumption that human alpha-1-proteinase inhibitor might be of potential significant benefit for the treatment of emphysema secondary to congenital alpha-1-antitrypsin deficiency. The assumption will have to be confirmed at the time of marketing authorisation. This will be necessary to maintain the orphan status.

How is this medicine expected to work?

Human alpha-1-proteinase inhibitor is derived from blood. The resulting human alpha-1-proteinase inhibitor is made into an aerosol, which the patient can inhale. In this way, the inhaled protein could reach the lungs, where it would restore the missing levels of AAT. Thus, the inhaled human alpha-1-proteinase inhibitor could oppose the effects of elastase. This action is expected to slow down the worsening of the lung disease.

What is the stage of development of this medicine?

The effects of human alpha-1-proteinase inhibitor were evaluated in experimental models.

At the time of submission of the application for orphan designation, clinical trials in patients with emphysema secondary to congenital alpha-1-antitrypsin deficiency were ongoing.

The designated medicinal product was not marketed anywhere worldwide for treatment of emphysema secondary to congenital alpha-1-antitrypsin deficiency, at the time of submission. Orphan designation of human alpha1-proteinase inhibitor (respiratory use) was granted in the United States for emphysema in alpha-1-antitrypsin deficient patients.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 23 May 2001 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:

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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 alpha$_1$-Proteinase Inhibitor (respiratory use)	Treatment of emphysema secondary to congenital alpha-1-antitrypsin deficiency
Danish	Human alpha$_1$-Proteinase hæmmer (til anvendelse i luftvejene)	Behandling af emfysem som følge af medfødt alfa-1-antitrypsinmangel
Dutch	Humaan alpha1-proteïnase-inhibitor (Respiratoir gebruik)	Behandeling van emfyseem ten gevolge van aangeboren alfa-1-antitrypsine deficiëntie
Finnish	Humaani alfa1-proteinaasi-estäjä (Hengityselimiin)	Synnynnäisestä alfa-1-antitrypsiinin puutteesta johtuvan emfyseeman hoito
French	Inhibiteur humain de l'alpha1-protéinase (Voie respiratoire)	traitement de l'emphysème lié à un déficit congénital en alpha-1-antitrypsine
German	Humanes Alpha1-Proteinase-Inhibitor (Anwendung im Respirationstrakt)	Behandlung von Lungenemphysem infolge von angeborenem Alpha-1-Antitrypsinmangel
Greek	ΑνθρώπινοςΑναστολέας της Άλφα 1 – Πρωτεϊνάσης (Χρήση στο αναπνευστικό σύστημα)	Θεραπεία του δευτεροπαθούς εμφυσήματος στη συγγενή έλλειψη α-1- αντιθρυψίνης
Italian	Inibitore umano dell'alfa$_1$-proteinasi (Uso respiratorio)	Trattamento di enfisema secondario alla carenza congenita di alfa-1-antitripsina
Potuguese	Inibidor humano da Alfa$_1$-Proteinase (Via respiratória)	Tratamento com enfisema secundário a deficiência congénita de alfa-1-antitripsina
Spanish	Inhibidor humano de la alfa$_1$-proteinasa (Vía respiratoria)	Tratamiento de enfisema pulmonar secundario a déficit congénito de alfa-1-antitripsina
Swedish	Human alfa1-Proteinase- hämmare (Användning i andningsvägarna)	Behandling av emfysem till följd av medfödd brist på alfa-1-antitrypsin

[1] At the time of designation