17 April 2015
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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Nitisinone for the treatment of tyrosinaemia type 1

First publication	3 March 2009
Rev.1: administrative update	22 March 2011
Rev.2: sponsor's name change	13 September 2013
Rev.3: withdrawal from the Community Register	17 April 2015
Disclaimer Please note that revisions to the Public Summary of Opinion are purely administrative updates. Therefore, the scientific content of the document reflects the outcome of the Committee for Orphan Medicinal Products (COMP) at the time of designation and is not updated after first publication.	

Please note that this product was withdrawn from the Community Register of designated orphan medicinal products in February 2015 at the end of the period of market exclusivity.

On 29 December 2000, orphan designation (EU/3/00/012) was granted by the European Commission to Swedish Orphan AB, Sweden, for nitisinone for the treatment of tyrosinaemia type 1.

Swedish Orphan AB changed name to Swedish Orphan International AB in January 2003 and then to Swedish Orphan Biovitrum International AB, in August 2013.

What is tyrosinaemia type 1?

Tyrosinaemia is an inborn error of metabolism, in which the body cannot effectively break down the amino acid (building blocks of proteins in our body) tyrosine. There are three types of tyrosinaemia, each with distinctive symptoms and caused by the deficiency of a different enzyme (a protein that can trigger a chemical reaction in the body). Patients with tyrosinaemia type 1 are born with a defective gene coding for an enzyme called 4-hydroxyphenylpyruvate oxidase. Normally this enzyme breaks down tyrosine. Since tyrosine is not properly broken down by the body, harmful substances build up in the body. This results in damage to the liver and kidneys. Untreated, tyrosinaemia type 1 is chronically debilitating and life threatening.

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

At the time of designation, tyrosinaemia type 1 affected not more than 0.1 in 10,000 people in the European Union (EU). This was equivalent to a total of not more than 3,800 people*, and is below the 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?

No medicinal products were authorised for the treatment of tyrosinemia type 1 in the Community at the time of submission of the application for orphan drug designation. The therapy included a special diet and symptomatic treatment.

How is this medicine expected to work?

Nitisinone blocks the breakdown of tyrosine before it can be transformed into harmful substances. According to the sponsor, nitisinone is expected to limit the liver and kidney damages seen in patients with the condition.

What is the stage of development of this medicine?

The effects of nitisinone were evaluated in experimental models. At the time of submission of the application for orphan designation, a clinical trial in patients with tyrosinaemia type 1 was ongoing.

Nitisinone was not marketed anywhere worldwide for the treatment of tyrosinaemia type 1, at the time of submission. Orphan designation of nitisinone was granted in the United States in May 1995 for the condition.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 27 October 2000 recommending the granting of this designation.

Update: Nitisone (Orfadin) was designated as an orphan drug in Australia in October 2008 for the condition.

Nitisinone (Orfadin) has been authorised in the EU since 21 February 2005 for treatment of patients with confirmed diagnosis of hereditary tyrosinaemia type 1 (HT-1) in combination with dietary restriction of tyrosine and phenylalanine.

More information on Orfadin can be found in the European public assessment report (EPAR) on the Agency's website: ema.europa.eu/Find medicine/Human medicines/European Public Assessment Reports

*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.
At the time of designation, this represented a population of 375,500,000 (Eurostat 2000).

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	Nitisinone	Treatment of tyrosinaemia type 1
Danish	Nitisinon	Behandling af tyrosinose type 1
Dutch	Nitisinone	Behandeling van type 1-tyrosinemie
Finnish	Nitisinoni	Tyrosinemia tyyppi 1:n hoitoon
French	Nitisinone	Traitement de la tyrosinémie de type 1.
German	Nitisinon	Behandlung von Tyrosinämie Typ 1
Greek	Nitisinone	Θεραπεία τυροσιναιμίας τύπου 1
Italian	Nitisinone	Trattamento della tirosinemia, tipo 1
Portuguese	Nitisinona	Tratamento da tirosinemia de tipo 1
Spanish	Nitisinone	Tratamiento de la tirosinemia tipo 1
Swedish	Nitisinon	Behandling av tyrosinemi typ 1

[1] At the time of designation