



EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

25 February 2019
EMA/830798/2018

Public summary of opinion on orphan designation

6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole for the treatment of sudden sensorineural hearing loss

On 14 December 2018, orphan designation (EU/3/18/2106) was granted by the European Commission to AudioCure Pharma GmbH, Germany, for 6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole for the treatment of sudden sensorineural hearing loss.

What is sudden sensorineural hearing loss?

Sudden sensorineural hearing loss (SSNHL) is a sudden loss of hearing in one or sometimes both ears, caused by damage to the cells in the inner ear that detect sound and to the nerves that connect them to the brain. The damage can have various causes including exposure to loud noise, stress and infection, or may occur as a side effect of certain medicines. Symptoms may develop over a period of up to 3 days, and can include tinnitus (buzzing or ringing in the ears), a sensation of blockage and vertigo (dizziness).

SSNHL is a long-term debilitating condition because of the often irreversible hearing loss it produces.

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

At the time of designation, SSNHL affected approximately 4 in 10,000 people in the European Union (EU). This was equivalent to a total of around 207,000 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).

What treatments are available?

At the time of application, various medicines were authorised in the EU to treat symptoms associated with SSNHL such as tinnitus and vertigo. No medicines were authorised to treat the hearing loss itself.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with SSNHL. Early laboratory studies show that the medicine could improve recovery from hearing loss and protect cells in the ear that detect sound.

^{*}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 517,400,000 (Eurostat 2018).



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?

The medicine, which is to be injected into the middle ear, is thought to work by protecting cells in the ear that detect sound (hair cells) as well as nerve cells that send signals from the ear to the brain. Although the exact way the medicine works is not fully understood, the medicine is expected to reduce cell death and activate the production of neurotrophins, which are small proteins that can repair damaged nerve cells, and thereby help to restore normal ear function.

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 SSNHL had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for SSNHL 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 November 2018 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:

Contact details of the current sponsor for this orphan designation can be found on [the EMA website](#).

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 languages¹, Norwegian and Icelandic

Language	Active ingredient	Indication
English	6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole	Treatment of sudden sensorineural hearing loss
Bulgarian	6-флуоро-9-метил-9Н-пиридо[3,4-б]-индол	Лечение на внезапна сензориневрална загуба на слух
Croatian	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Liječenje iznenadnog sensorineuralnog gubitka sluha
Czech	6-fluoro-9-methyl-9H-pyrido[3,4-b]-indol	Léčba náhlé percepční nedoslýchavosti
Danish	6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole	Behandling af akut sensorineuralt høretab
Dutch	6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole	Behandeling van plotse sensorineurale doofheid
Estonian	6-fluoro-9-metüül-9H-pürido[3,4-b]-indool	Äkilise sensorineuraalse kuulmiskaotuse ravi
Finnish	6-fluori-9-metyyli-9H-pyrido[3,4-b]-indoli	Äkillisen sensorineuraalisen huonokuuloisuuden hoito
French	6-fluoro-9-méthyl-9H-pyrido[3,4-b]-indole	Traitement contre la perte auditive neurosensorielle soudaine
German	6-fluoro-9-methyl-9H-pyrido[3,4-b]-indole	Behandlung von plötzlichem sensorineuralem Hörverlust
Greek	6-φθορο-9-μεθυλο-9Η-πυριδο[3,4-β]-ινδόλη	Θεραπεία αιφνίδιας νευροαισθητήριας απώλειας ακοής
Hungarian	6-fluoro-9-metil-9H-pyrido[3,4-b]-indol	Hirtelen bekövetkező szenzorineurális halláscsökkenés kezelése
Italian	6-fluoro-9-metil-9H-pirido[3,4-b]-indolo	Trattamento dell'ipoacusia neurosensoriale improvvisa
Latvian	6-fluor-9-metil-9H-pirido[3,4-b]-indols	Pēkšņa sensorineirāla dzirdes zuduma ārstēšana
Lithuanian	6-fluoro-9-metil-9H-pirido[3,4-b]-indolas	Ūminio neurosensorinio klausos sutrikimo gydymas
Maltese	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Kura għal telf fis-smiġħ sensornewrali f'daqqa
Polish	6-fluoro-9-metylo-9H-pyrido[3,4-b]-indol	Leczenie nagłego niedosłuchu czuciowo-nerwowego
Portuguese	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Tratamento para a perda auditiva neurosensorial súbita
Romanian	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Tratamentul pierderii subite sensorineurale a auzului
Slovak	6-fluoro-9-metyl-9H-pyrido[3,4-b]-indol	Liečba náhlejš perpečnej poruchy sluchu
Slovenian	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Zdravljenje nenadne senzorinevralne izgube sluha

¹ At the time of designation

Language	Active ingredient	Indication
Spanish	6-fluoro-9-metil-9H-pirido[3,4-b]-indol	Tratamiento de la pérdida de audición neurosensorial súbita
Swedish	6-fluoro-9-metyl-9H-pyrido[3,4-b]-indol	Behandling av plötslig sensorineural hörselnedsättning
Norwegian	6-fluoro-9-metyl-9H-pyrido[3,4-b]-indol	Behandling av plutselig sensorinevralt hørselstap
Icelandic	6-flúor-9-metyl-9H-pýrido[3,4-b]-indól	Meðferð við skyndilegu skyntaugaheyrnartapi