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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Mixture of two adeno-associated viral vectors serotype 8 containing the 5'-half sequence of human *MYO7A* gene and the 3'-half sequence of human *MYO7A* gene for the treatment of Usher syndrome

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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.

On 4 July 2014, orphan designation (EU/3/14/1282) was granted by the European Commission to Fondazione Telethon, Italy, for mixture of two adeno-associated viral vectors serotype 8 containing the 5'-half sequence of human MYO7A gene and the 3'-half sequence of human MYO7A gene for the treatment of Usher syndrome.

What is Usher syndrome?

Usher syndrome is a hereditary (genetic) disease that affects hearing, vision and balance. There are three types of the disease, and the extent of the problems with hearing, vision and balance varies depending on the type. Hearing loss usually occurs from birth, while loss of sight usually develops gradually over time and is caused by the degeneration of the cells in the retina (a condition known as retinitis pigmentosa).

Usher syndrome is a long-term debilitating condition because it can lead to deafness, blindness and balance problems.

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

At the time of designation, Usher syndrome affected less than 1 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 51,000 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 designation, no satisfactory methods were authorised in the EU for treating Usher syndrome. Patients with the condition were given hearing aids and general support.

How is this medicine expected to work?

Usher syndrome subtype IB is mainly caused by defects in a gene called myosin 7A (*MYO7A)*, which is important for the normal functioning of the cells of the inner ear and the retina.

This medicine is made of two viruses, each containing half of the normal human *MYO7A* gene as the gene is too large to be contained within one virus. When injected into the eye of patients with Usher syndrome subtype IB, it is expected that the viruses will carry the two halves of the *MYO7A* gene into the cells of the retina, where these two halves are expected to re-assemble into the normal *MYO7A* gene. The retina cells are then expected to function properly, thereby preventing loss of sight.

The type of virus used in this medicine (adeno-associated virus) does not cause disease in humans.

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 Usher syndrome had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for Usher syndrome 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 14 May 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.

*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.
At the time of designation, this represented a population of 512,900,000 (Eurostat 2014).

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	Mixture of two adeno-associated viral vectors serotype 8 containing the 5'-half sequence of human *MYO7A* gene and the 3'-half sequence of human *MYO7A* gene	Treatment of Usher syndrome
Bulgarian	Смес от два адено-свързани вирусни вектора от серотип8, съдържащи половината 5'-последователност на човешки *MYO7A* ген и половината 3'-последователност на човешки *MYO7A* ген	Лечение на синдром на Usher
Croatian	Smjesa dvaju adeno-povezanih virusnih vektora serotipa 8 koji sadrže 5'-kraj sekvencu ljudskog gena *MYO7A* i 3'-kraj sekvencu ljudskog gena *MYO7A*	Liječenje Usher sindromom
Czech	Směs dvou adeno-asociovaných virových vektorů serotyp 8 obsahující 5'-polovinu sekvenci *MYO7A* lidského genu a 3'-polovinu sekvenci *MYO7A* lidského genu	Léčba Usher syndrom
Danish	Blanding af to adenoassocierede virale vektorer af serotye 8 indeholdende 5'-halvdelen sekvens af human *MYO7A* genet og 3'-halvdelen sekvens af human *MYO7A* genet	Behandling af Usher syndrome
Dutch	Mengsel van twee adeno-geassocieerde virale vectoren serotye 8 die de 5'-helft sequentie van humaan *MYO7A* gen en de 3'-helft sequentie van humaan *MYO7A* gen bevat	Behandeling van het syndroom van Usher
Estonian	Segu kahest adeno-assotsieerunud viiruse vektori serotüüp 8, mis sisaldavad inimese *MYO7A* geeni nii 5'-poolset järjestust kui ka 3'-poolset järjestust	Usher'i sündroomi ravi
Finnish	Kahden adenoassosioidun virusvektorin, serotyyppi 8, seos joka sisältää 5'-pään ihmisen*MYO7A*-geenin sekvenssin ja 3'-pään ihmisen *MYO7A*-geenin sekvenssin.	Usherin oireyhtymän hoito
French	Mélange de deux vecteurs viraux adéno-associés de sérotype 8 contenant la moitié de séquence 5' du gène humain *MYO7A* et la moitié de séquence 3' du gène humain *MYO7A*	Traitement du syndrome d'Usher
German	Mischung von zwei Adeno-assoziierten viralen Vektoren Serotyp 8, die die Sequenzen der 5'-Hälfte des menschlichen *MYO7A*-Gens und der 3'-Hälfte des menschlichen Gens *MYO7A enthalten*	Behandlung von Usher-Syndrom

[1] At the time of designation

Language	Active ingredient	Indication
Greek	Μίγμα δύο αδενο-σχετιζόμενων ιικών φορέων οροτύπου 8 που περιέχουν την 5' μιση αλληλουχία του ανθρώπινου γονιδίου *MYO7A* και την 3' μισή αλληλουχία του ανθρώπινου γονιδίου *MYO7A*	Θεραπεία του συνδρόμου Usher
Hungarian	Két 8-as szerotípusú adeno-asszociált virus vektor keveréke, melyek a human *MYO7A* gén szekvenciájának 5'-felét és a human *MYO7A* gén szekvenciájának 3'-felét hordozzák	Usher szindróma kezelése
Italian	Miscela di due vettori virali adeno-associati di sierotipo 8 contenenti la metà al 5' del gene *MYO7A* e la metà al 3' del gene *MYO7A*	Trattamento della sindrome di Usher
Latvian	Divu ar adenovīrusu saistītu 8. serotipa vīrusu vektoru, kas satur cilvēka *MYO7A* gēna 5'-puses secību un cilvēka *MYO7A* gēna 3'-puses secību, maisījums	Ušera sindroma ārstēšana
Lithuanian	Mišinys iš dviejų su adenovirusu susijusių 8 serotipo virusinių vektorių, turinčių žmogaus *MYO7A* geno 5'-galo ir žmogaus *MYO7A* geno 3'-galo sekas	*Usher* sindromo gydymas
Maltese	Taħlita ta' żewg vetturi imnisslin mill-adenovirus ta' serotip 8 li fihom in-nofs sekwenza 5' tal-ġene *MYO7A* uman u in-nofs sekwenza 3' tal-ġene *MYO7A* uman	Kura tas-sindrome ta' Usher
Polish	Mieszanina dwóch wektorów adenowirusowych serotypu 8 zawierających sekwencję 5'-połowy ludzkiego genu *MYO7A* 3'-połowy ludzkiego genu *MYO7A*	Leczenie zespołu Ushera
Portuguese	Mistura de dois vectores virais adeno-associados de serotipo 8 contendo metade da sequência 5' do gene *MYO7A* humano e metade da sequência 3' do gene *MYO7A* humano	Tratamento da síndrome de Usher
Romanian	Amestec de doi vectori virali adeno-asociaţi de serotip 8 ce conţin secvenţele jumătăţii 5' a genei *MYO7A* umane și jumătăţii 3' a genei *MYO7A* umane	Tratamentul sindromului Usher
Slovak	Zmes dvoch adeno-asociovaných vírusových vektorov sérotypu 8 obsahujúca 5'-polovicu sekvencie ľudského *MYO7A* génu a 3'-polovicu sekvencie ľudského *MYO7A* génu	Liečba Usherovho syndrómu
Slovenian	Zmes dveh adeno-asociiranih virusnih vektorjev serotipae 8, ki vsebujeta 5'-polovico sekvence humanega gena *MYO7A* in 3'-polovico sekvence humanega gena *MYO7A*	Zdravljenje Usherjevega sindroma
Spanish	Mezcla de dos vectores virales adeno-asociados de serotipoe 8 que contienen la secuencia 5'-medio de gen *MYO7A* humana y la secuencia 3'-medio de gen *MYO7A* humana	El tratamiento del síndrome de Usher

Language	Active ingredient	Indication
Swedish	Blandning av två adenoassocierade virala vektorer för serotyp 8 innehållande sekvensen av 5'-halvan för humana *MYO7A*-genen och sekvensen av 3'-halvan för humana *MYO7A* genen	Behandling av Ushers syndrom
Norwegian	Blanding av to adenoassosierte virale vektorer serotype 8 inneholdende 5'-halvdelen sekvens av humant *MYO7A*-genet og 3'-halvdelen sekvens av humant *MYO7A* genet	Behandling av Ushers syndrom
Icelandic	Blanda tveggja adenótengdra veiruferja sermisgerð 8 sem innihalda 5'-hálfa röðina af manna *MYO7A* geninu og 3'-hálfa röðina af manna *MYO7A* geninu	Meðferð við Usher heilkenni