8 March 2018
EMA/826135/2017

Public summary of opinion on orphan designation

Recombinant adeno-associated viral vector serotype 2/1 encoding human beta-hexosaminidase alpha and beta subunits for the treatment of GM2 gangliosidosis

On 17 January 2018, orphan designation (EU/3/17/1969) was granted by the European Commission to the University of Cambridge, United Kingdom, for recombinant adeno-associated viral vector serotype 2/1 encoding human beta-hexosaminidase alpha and beta subunits (also known as CAM-GM201) for the treatment of GM2 gangliosidosis.

What is GM2 gangliosidosis?

GM2 gangliosidosis is an inherited disorder that causes progressive damage to the nerve cells in the brain and spinal cord.

Patients with this condition lack an enzyme called beta-hexosaminidase A, which normally breaks down substances called GM2 gangliosides. Without this enzyme, GM2 gangliosides build up in the body, particularly in the brain and spinal cord. Signs and symptoms include muscle weakness and problems with walking, intellectual disability, difficulty speaking, seizures (fits), loss of sight and hearing.

GM2 gangliosidosis is a debilitating and life-threatening disease. The most severe form of the disease starts in early infancy and can lead to death in childhood.

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

At the time of designation, GM2 gangliosidosis affected approximately 0.5 in 10,000 people in the European Union (EU). This was equivalent to a total of around 26,000 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: 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 515,700,000 (Eurostat 2017).

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What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU to treat GM2 gangliosidosis. Treatment of patients was mainly supportive and included physical therapy and medicines to manage seizures.

How is this medicine expected to work?

The medicine is made of a virus that contains the gene for beta-hexosaminidase A, the enzyme that is missing in patients with GM2 gangliosidosis. After the medicine is injected into the patient's brain, the virus is expected to carry the gene into the nerve cells, enabling them to produce the missing enzyme, which can then break down GM2 ganglioside.

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?

At the time of submission of the application for orphan designation, the evaluation of the effects of the medicine in experimental models was ongoing.

At the time of submission, no clinical trials with the medicine in patients with GM2 gangliosidosis had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for GM2 gangliosidosis 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 7 December 2017 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:

Contact details of the current sponsor for this orphan designation can be found on EMA website, on the medicine's rare disease designations page.

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 adeno-associated viral vector serotype 2/1 encoding human beta-hexosaminidase alpha and beta subunits	Treatment of GM2 gangliosidosis
Bulgarian	Рекомбинантен адено-свързан вирусен вектор, серотип 2/1, кодиращ човешка бета-хексозаминидаза алфа и бета субединици	Лечение на GM2 ганглиозидоза
Croatian	Rekombinantni adeno-povezani virusni vektor serotipa 2/1 koji kodira za alfa i beta podjedinicu ljudske beta heksozaminidaze	Liječenje GM2 gangliozidoze
Czech	Rekombinantní adeno související virový vektor sérotypu 2/1 kódující lidsk beta hexosaminidázu alfa a beta podjednotky	Léčba GM2 gangliosidozy
Danish	Rekombinant adeno-associeret virus vektor serotype 2/1, der koder for human beta-hexosaminidase alpha og beta underenheder	Behandling af GM2 gangliosidosis
Dutch	Recombinante adeno-associated virus serotype 2/1 vector coderend voor menselijke bèta-hexosaminidase alfa en bèta subeenheden	Behandeling vanGM2 gangliosidose
Estonian	Rekombinantne adenoviirusega assotsieerunud viirusvektori serotüüp 2/1, mis kodeerib inimese beeta-heksosaminidaasi alfa-ja beeta-alaühikuid	GM2 gangliosidoosi ravi
Finnish	Rekombinantti adenoassosioitu serotyypin 2/1 virusvektori, joka koodittaa ihmisen beeta-heksosaminidaasi-alfa- ja beeta-alayksiköitä	GM2-gangliosidoosin hoito
French	Vecteur de sérotype 2/1 virus Adeno-associé encodage humaine bêta-hexosaminidase des sous-unités alpha et bêta	Traitement de la gangliosidose à GM2
German	Rekombinantes Adeno-assoziierten viraler Vektor vom Serotyp 2/1 der für die Alpha- und Beta-Untereinheit der menschlichen Beta-Hexosaminidase kodiert	Behandlung der GM2 Gangliosidose
Greek	Ανασυνδυασμένος αδενοσχετιζόμενος ιικός φορέαςοροτύπου 2/1 που κωδικοποιεί τις άλφα και βήτα υπομονάδες της ανθρώπινης βήτα-εξοζαμινιδάσης	Θεραπεία της γαγγλιοσίδοσης GM2
Hungarian	A humán béta-hexózaminidáz-alfa és béta alegységeket kódoló 2/1-es, rekombináns adeno-társult vírus-szerotípus	GM2 gangliozidózis kezelése
Italian	Vettore virale ricombinante adeno-associatoo di sierotipo 2/1 codificante le subunità alfa e beta della beta-esosaminidasi umana	Trattamento della gangliosidosi GM2
Latvian	Rekombinants adeno saistītā vīrusa serotipa 2/1 vektors, kas kodē cilvēka beta-heksosaminidāzes alfa un beta apakšvienības	GM2 gangliozidozes ārstēšana

[1] At the time of designation

Language	Active ingredient	Indication
Lithuanian	Rekombinantinis adenoasocijuoto viruso vektoriaus 2/1serotipas, koduojantis žmogaus beta-heksozaminidazės alfa ir beta subvienetus	GM2 gangliozidozės gydymas
Maltese	Vettur rikombinanti tal-virus assoċjat ma' adeno serotip 2/1 li jikkodifika l-beta-hexosaminidase alfa umana u l-beta subunits	Kura ta' ganglijosidoži GM2
Polish	Rekombinowany wektor wirusowy związany z adenowirusami serotypu 2/1 kodujący podjednostki alfa i beta ludzkiej beta-heksosaminidazy	Leczenie gangliozydozy GM2
Portuguese	Vetor viral adeno-associado recombinante recombinante de serotipo 2/1 que codifica as subunidades alfa e beta da beta-hexosaminidase humana	Tratamento da gangliosidose GM2
Romanian	Vector viral recombinant adeno-asociat de serotip 2/1 care codifică subunitățile alfa și beta ale beta-hexosaminidazei umane	Tratamentul gangliozidozei GM2
Slovak	Rekombinantný adeno-asociovaný vírusový vektor sérotypu 2/1 kódujúci ľudskú beta-hexosaminidázu alfa a beta podjednotky	Liečba GM2 gangliozidózy
Slovenian	Rekombinantni adeno povezani virusni vektor serotipa 2/1, ki kodira alfa in beta podenote humane betaheksosaminidaze	Zdravljenje GM2 gangliozidoze
Spanish	Vectores adeno-asociados recombinantes del serotipo 2/1 que codifican las subunidades alfa y beta de la beta-hexosaminidasa humana	Tratamiento de Gangliosidosis GM2
Swedish	Rekombinant adenoassocierad virus vektor av serotyp 2/1 kodande för humant beta-hexosaminidas alfa och beta-subenheter	Behandling av GM2-gangliosidos
Norwegian	Rekombinant adenoassosiert virusvektor serotype 2/1 som koder for humane beta-heksosaminidase alfa- og beta-subenheter	Behandling av GM2 gangliosidose
Icelandic	Raðbrigða adenó-tengd veiruaf sermsigerð 2/1 ferja sem kóðar fyrir manna beta-hexóamíníðasa alfa og beta undireiningar	Meðferð á GM2 ganglíósídósis