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Public summary of opinion on orphan designation

Adeno-associated virus serotype 9 vector containing human n-acetylgalactosamine-6-sulfate sulfatase gene for the treatment of mucopolysaccharidosis type IVA (Morquio A Syndrome)

On 9 January 2020, orphan designation EU/3/19/2238 was granted by the European Commission to Esteve Pharmaceuticals S.A., Spain, for adeno-associated virus serotype 9 vector containing human n-acetylgalactosamine-6-sulfate sulfatase gene for the treatment of mucopolysaccharidosis type IVA (Morquio A Syndrome).

What is mucopolysaccharidosis type IVA (Morquio A Syndrome)?

Mucopolysaccharidosis type IVA (Morquio A Syndrome) is an inherited disease that is caused by the lack of an enzyme called N-acetylgalactosamine-6-sulfatase. This enzyme is needed to break down substances in the body called glycosaminoglycans (GAGs). Patients with mucopolysaccharidosis type IVA cannot break these substances down, and thereby the GAGs gradually build up in most of the bones and organs in the body, causing a wide range of symptoms, including dwarfism, deformities in the spine, shortened bones, a bell-shaped chest, a short neck, difficulty moving, difficulty breathing, clouding of the eyes and hearing loss. The disease differs from other types of mucopolysaccharidosis in that it does not affect the patient's intelligence. It is usually diagnosed in infants between two and three years of age.

Mucopolysaccharidosis type IVA is a debilitating disease that is long lasting and may be life threatening because of the damage to the spine and the heart, and problems with breathing.

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

At the time of designation, mucopolysaccharidosis type IVA (Morquio A Syndrome) affected less than 0.1 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 5,200 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 518,400,000 (Eurostat 2019).

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What treatments are available?

At the time of designation, Vimizim (elosulfase alfa), an enzyme replacement therapy, was authorised in the EU for treating for mucopolysaccharidosis type IVA.

The sponsor has provided sufficient information to show that the medicine might be of significant benefit for patients with this condition. This is because available evidence indicates that a single administration may help restore levels of N-acetylgalactosamine-6-sulfatase over the long term, reducing the need for regular treatment.

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?

This medicine is made of a virus containing the gene for N-acetylgalactosamine-6-sulfatase enzyme, which is lacking in patients with mucopolysaccharidosis type IVA. When given to the patient, the virus is expected to carry the gene into the patient's cells, enabling these cells to start producing the enzyme. The enzyme is then expected to help breakdown GAGs, thereby helping to relieve symptoms of the disease.

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 effect of this medicine in experimental models was ongoing.

At the time of submission of the application for orphan designation, no clinical trials in patients with mucopolysaccharidosis type IVA had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for the treatment of mucopolysaccharidosis type IVA. Orphan designation for the condition had been granted in the United States.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 5 December 2019, 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 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 languages[1], Norwegian and Icelandic

Language	Active ingredient	Indication
English	Adeno-associated virus serotype 9 vector containing human N-acetylgalactosamine-6-sulfate sulfatase gene	Treatment of mucopolysaccharidosis, type IVA (Morquio A syndrome)
Bulgarian	Адено-асоцииран вирусен вектор серотип 9, съдържащ гена на човешка N-ацетилгалактозамин-6-сулфат сулфатаза	Лечение на мукополизахаридоза тип IVA (Синдром на Morquio A)
Croatian	Adeno-povezani virusni vektor serotipa 9 koji sadrži ljudski gen N-acetilgalaktozamin-6-sulfat sulfataze	Liječenje mukopolisaharidoze tipa IVA (Morquio A sindrom)
Czech	Adeno-asociovaný virový vektor sérotypu 9 obsahující lidský gen pro N-acetylgalaktosamin-6-sulfát sulfatázu	Léčba mukopolysacharidózy typu IVA(Morquiho A syndrome)
Danish	Adeno-associeret virus serotype 9 vektor, som indeholder det humane gen for N-acetylgalactosamin-6-sulfat sulfatase	Behandling af mucopolysaccharidose type IV (Morquio A syndrom)
Dutch	Adeno-geassocieerde virale vector serotype 9 welke het humaan N-acetylgalactosamine-6-sulfaat sulfatase gen bevat	Behandeling van mucopolysaccharidose, type IVA (Morquio A syndroom)
Estonian	Inimese N-atsetüülgalaktoosamiin-6-sulfaadi sulfataasi geeni sisaldav adeno-assotsieerunud viiruse serotüüp 9 vektor	IVA tüüpi mukopolüsahharidoosi (Morquio A sündroomi) ravi
Finnish	Adenoassosioitu serotyypin 9 virusvektori joka sisältää ihmisen N-asetyyligalaktosamiini-6-sulfaatti-sulfataasigeenin	Tyypin IVA mukopolysakkaridoosin hoito (Morquio A:n oireyhtymä)
French	Vecteur viral adéno-associé de sérotype 9 contenant le gène de la N-acéthylgalactosamine-6-sulfate sulfatase humaine	Traitement de la mucopolysaccharidose de type IVA (syndrome de Morquio de type A)
German	Adeno-assoziierter viraler Vektor vom Serotyp 9, der das Gen der humanen N-Acetyl-Galaktosamin-6-Sulfat-Sulfatase enthält	Behandlung von Mukopolysaccharidose Typ IVA (Morquio A Syndrom)
Greek	Αδενο-σχετιζόμενος ιός οροτύπου 9 που περιέχει το γονίδιο της ανθρώπινης N-ακετυλογαλακτοζαμίνης -6- θειικής σουλφατάσης	Θεραπεία βλεννοπολυσακχαρίδωσης, τύπου IVA (σύνδρομο Morquio A)
Hungarian	Humán N-acetil-galaktózamin-6-szulfát szulfatáz gént hordozó 9-es szerotípusú adeno-asszociált vírus vektor	IVA-típusú mucopolysaccharidosis (Morquio A szindróma) kezelése

[1] At the time of designation

Language	Active ingredient	Indication
Italian	Vettore virale adeno associato del sierotipo 9 contenente il gene della N-acetilgalattosammina-6-solfato solfatasi umana	Trattamento della mucopolisaccaridosi IVa (Sindrome di Morquio tipo A)
Latvian	Adeno-asociētā vīrusa 9. serotips, kas satur cilvēka N-acetilgalaktozamīna-6-sulfāta sulfatāzes gēnu	IVA tipa mukopolisaharidozes (Morkijo A sindroma) ārstēšanai
Lithuanian	Adeno-asocijuoto 9 serotipo viruso vektorius, turintis žmogaus N-acetilgalaktozamin-6-sulfato sulfatazės geną	Mukopolisacharidozės, IVA tipo (Morquio A sindromo) gydymas
Maltese	Vettur tal-virus assoċjat mal-adeno tas-serotip 9 li fih il-ġene uman tas-sulfatese tal-N-aċetilgalaktosamin-6-sulfat	Kura tal-mukopolisakkaridożi tat-tip IVA (Sindrome ta' Morquio tat-tip A)
Polish	Wektor adenowirusowy serotypu 9 zawierający gen ludzkiej sulfatazy siarczanu 6-N-acetylogalaktozaminy	Leczenie mukopolisacharydozy IVA (Zespół Morquio)
Portuguese	Vetor viral adenoassociado do serótipo 9 que contém o gene da N-acetilgalactosamina-6-sulfato sulfatase humana	Tratamento da mucopolissacaridose tipo IVA (Sindrome de Morquio A)
Romanian	Vector viral adeno-asociat de serotip 9 care conține gena N-acetilgalactozamin 6-sulfat sulfatazei umane	Tratamentul mucopolizaharidozei tip IVA (Sindrom Morquio A)
Slovak	Adeno-asociovaný vektor sérotypu 9 obsahujúci gen ľudskej N-acetylgalaktozamín 6-sulfát sulfatázy	Liečba mukopolysacharidózy typu IVA (syndróm Morquio A)
Slovenian	Adenoasociirani virusni vektor serotipa 9, ki vsebuje humani N-acetilgalaktozamin-6-*sulfat sulfatazni gen*	Zdravljenje mukopolisaharidoze tipa IV A (sindrom Morquio A)
Spanish	Vector viral adenoasociado del serotipo 9 que contiene el gen de la N-acetilgalactosamina-6-sulfato sulfatasa humana	Tratamiento de la mucopolisacaridosis tipo IV A (síndrome de Morquio)
Swedish	Vektor för adenoassocierad virus av serotyp 9, innehållande den mänskliga genen N-acetylgalaktosamin-6 sulfat sulfates	Behandling av mukopolysackaridos typ IVA (Morquio A Syndrom)
Norwegian	Adenoassosiert virusvektor, serotype 9 som inneholder genet for human N-acetylgalaktosamin-6-sulfat sulfatase	Behandling av mukopolysakkaridose type IVA (Morquio A syndrom)
Icelandic	Adenótengd veirugenaferja af sermisgerð 9 sem inniheldur súlfatasagenið N-acetýlgalatósamín-6-súlfat	Meðferð við slímfjölsykrukvilla gerð IVA (Morquio A heilkenni)