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Committee for Orphan Medicinal Products

Public summary of opinion on orphan designation

Adeno-associated viral vector serotype 9 containing the human *SMN* gene for the treatment of spinal muscular atrophy

On 19 June 2015, orphan designation (EU/3/15/1509) was granted by the European Commission to AveXis EU, Ltd, Ireland, for adeno-associated viral vector serotype 9 containing the human *SMN* gene for the treatment of spinal muscular atrophy.

What is spinal muscular atrophy?

Spinal muscular atrophy is an inherited disease usually diagnosed in the first year of life that affects the motor neurons (nerves from the brain and spinal cord that control muscle movements). Patients with the disease lack a protein called 'survival motor neuron' (SMN), which is essential for the normal functioning and survival of motor neurons. Without this protein, the motor neurons deteriorate and eventually die. This causes the muscles to fall into disuse, leading to muscle wasting (atrophy) and weakness.

Spinal muscular atrophy is a long-term debilitating and life-threatening disease because it causes breathing problems and paralysis that worsens over time.

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

At the time of designation, spinal muscular atrophy affected less than 0.4 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 21,000 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 the treatment of spinal muscular atrophy. Patients received supportive treatment to help them and their families cope

[*]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 512,900,000 (Eurostat 2015).

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with the symptoms of the disease. This included chest physiotherapy and physical aids to support muscular function, and ventilators to help with breathing.

How is this medicine expected to work?

This medicine is made of a virus that has been modified to contain the gene for the SMN protein, which is lacking in patients with spinal muscular atrophy. When injected into the patient, the virus is expected to carry the gene into the nerve cells, enabling them to start producing SMN. This is expected to improve the survival and function of the motor neurons, and so preserve muscle function.

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, clinical trials with the medicine in patients with spinal muscular atrophy were ongoing.

At the time of submission, the medicine was not authorised anywhere in the EU for spinal muscular atrophy. Orphan designation of the medicine had been granted in the United States for spinal muscular atrophy.

In accordance with Regulation (EC) No 141/2000 of 16 December 1999, the COMP adopted a positive opinion on 13 May 2015 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:

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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	Adeno-associated viral vector serotype 9 containing the human *SMN* gene	Treatment of spinal muscular atrophy
Bulgarian	Аденосвързан вирусен вектор серотип 9, съдържащ човешки *SMN* ген	Лечение на спинална мускулна атрофия
Croatian	Adeno-povezani virusni vektor serotipa 9 koji sadrži ljudski gen *SMN*	Liječenje spinalne mišićne atrofije
Czech	Sérotyp 9 adeno asociovaný virový vektor, obsahující lidský gen *SMN*	Léčba spinální muskulární atrofie
Danish	Adenoassocieret viral vektor serotype 9 indeholdende det humane *SMN* gen	Behandling af spinal muskelatrofi
Dutch	Adenogeassocieerde virale vector, serotype 9, welke het humane gen *SMN* bevat	Behandeling van spinale spieratrofie
Estonian	Adenoga assotsieeruv viirusvektori serotüüp 9, mis sisaldab inimese *SMN* geeni	Spinaalse lihasatroofia ravi
Finnish	Adenoassosioitu virusvektori, serotyyppi 9, joka sisältää ihmisen *SMN* geenin	Spinaalisen lihasatrofian hoito
French	Vecteur viral adéno-associé de sérotype 9 contenant le gène humain *SMN*	Traitement de l'amyotrophie spinale
German	Das humane *SMN* Gen beinhaltender, adeno-assoziierter viraler Vektor Serotyp 9	Behandlung der spinalen Muskelatrophie
Greek	Αδενο-σχετιζόμενος ιικός φορέας ορότυπου 9 που περιέχει το ανθρώπινο γονίδιο *SMN*	Θεραπεία της νωτιαίας μυϊκής ατροφίας
Hungarian	Humán *SMN* gént tartalmazó 9-es szerotípusú adeno-asszociált vírus vector	Spinális izomatrophia kezelése
Italian	Vettore virale adeno-associato del serotipo 9 contenente il gene umano *SMN*	Trattamento dell'atrofia muscolare spinale
Latvian	Adeno-asociētā vīrālā vektora 9. serotips, kas satur cilvēka *SMN* gēnu	Spinālās muskuļu atrofijas ārstēšana
Lithuanian	Adeno-asocijuoto viruso vektoriaus 9 serotipas, turintis žmogaus *SMN* geną	Spinalinės raumenų atrofijos gydymas
Maltese	Vettur imnissel mill-adenovirus tas-serotip 9 li fih il-ġene *SMN* uman	Kura tal-atrofija muskolari tas-sinsla
Polish	Wektor adenowirusowy serotypu 9 zawierający ludzki gen *SMN*	Leczenie rdzeniowego zaniku mięśni
Portuguese	Vector viral adeno-associado de serotipo 9 contendo o gene humano *SMN*	Tratamento da atrofia muscular espinal
Romanian	Vector viral adeno-asociat de serotip 9 conţinând gena umană *SMN*	Tratamentul amiotrofiei spinale
Slovak	Adeno-asociovaný vírusový vektor sérotypu 9 obsahujúci l'udský gén *SMN*	Liečba spinálnej svalovej atrofie

[1] At the time of designation

Language	Active ingredient	Indication
Slovenian	Adeno-pridruženi virusni vektor serotipa 9, ki vsebuje človeški gen *SMN*	Zdravljenje spinalne mišične atrofije
Spanish	Vector viral adenoasociado del serotipo 9 que conteniene el gene humano *SMN*	Tratamiento de la atrofia muscular espinal
Swedish	Adenoassocierad virusvektor serotyp 9, innehållande den mänskliga genen *SMN*	Behandling av spinal muskelatrofi
Norwegian	Adenoassosiert virusvektor serotype 9 som inneholder det humane genet *SMN*	Behandling av spinal muskelatrofi
Icelandic	Adenótengd veiruferja af sermisgerð 9 sem inniheldur manna *SMN* gen	Meðferð við mænuvöðvarýrnunar