



EUROPEAN MEDICINES AGENCY  
SCIENCE MEDICINES HEALTH

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Committee for Orphan Medicinal Products

## Public summary of opinion on orphan designation

Recombinant adeno-associated viral vector expressing the human *CNGA3* gene for the treatment of achromatopsia caused by mutations in the *CNGA3* gene

On 9 October 2015, orphan designation (EU/3/15/1556) was granted by the European Commission to TMC Pharma Services Ltd, United Kingdom, for recombinant adeno-associated viral vector expressing the human *CNGA3* gene for the treatment of achromatopsia caused by mutations in the *CNGA3* gene.

### What is achromatopsia caused by mutations in the *CNGA3* gene?

Achromatopsia is an inherited disease of the eye that leads to reduced visual acuity (how well a person can see), colour blindness, severe photophobia (increased sensitivity to light) and nystagmus (fast involuntary eye movements). Achromatopsia is a disorder of the retina (the light-sensitive surface at the back of the eye). In patients with achromatopsia, a type of retina cells called 'cone photoreceptors', which provide vision in bright light including colour vision, do not function normally.

In around a quarter of achromatopsia patients, the disease is caused by mutations (changes) in the *CNGA3* gene. Achromatopsia is a long-term debilitating disease because it affects how well a person can see in bright light, which may limit everyday activities.

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

At the time of designation, achromatopsia caused by mutations in the *CNGA3* gene affected less than 0.3 in 10,000 people in the European Union (EU). This was equivalent to a total of fewer than 15,000 people<sup>\*</sup>, 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).

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<sup>\*</sup>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).



## What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU for treating achromatopsia caused by mutations in the *CNGA3* gene. Patients with the condition were given glasses with red-coloured lenses to reduce light sensitivity, as well as low vision aids such as magnifiers for reading.

## How is this medicine expected to work?

In this disease, a protein involved in the normal functioning of cone photoreceptors, called 'CNGA3 protein', does not work properly due to defects in the gene responsible for producing it.

This medicine is made up of a virus that contains a normal copy of the *CNGA3* gene. When injected into the patient's eyes, it is expected that the virus will carry the *CNGA3* gene into photoreceptor cells, so that a functional CNGA3 protein can be produced. This is expected to enable cone photoreceptors to work properly, thereby preventing the 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 effects of the medicine in experimental models was ongoing.

At the time of submission, no clinical trials with the medicine in patients with achromatopsia caused by mutations in the *CNGA3* gene had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for achromatopsia caused by mutations in the *CNGA3* gene 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 3 September 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

For details of the current sponsor of the orphan designation please refer to the information on the main web page of this Public Summary of Opinion.

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<sup>1</sup>, Norwegian and Icelandic

Language	Active ingredient	Indication
English	Recombinant adeno-associated viral vector containing human <i>CNGA3</i> gene	Treatment of achromatopsia caused by mutations in the <i>CNGA3</i> gene
Bulgarian	Рекомбинантен адено-асоцииран вирусен вектор, съдържащ човешкия ген <i>CNGA3</i>	Лечение на ахроматопсия, предизвикана от мутации в <i>CNGA3</i> гена
Croatian	Rekombinantni adeno-povezani virusni vektor koji sadrži ljudski gen <i>CNGA3</i>	Liječenje akromatopsije uzrokovane mutacijama gena <i>CNGA3</i>
Czech	Rekombinantní adeno-asociovaný virový vektor obsahující lidský gen <i>CNGA3</i>	Léčba achromatopsie způsobené mutacemi v genu <i>CNGA3</i>
Danish	Rekombinant adeno-associeret viral vektor som indeholder det humane <i>CNGA3</i> -gen	Behandling af akromatopsi, forårsaget af mutationer i <i>CNGA3</i> -genet
Dutch	Recombinant adeno-geassocieerde virale vector welke het humane <i>CNGA3</i> gen	Behandeling van door mutaties in het <i>CNGA3</i> -gen veroorzaakte achromatopsie
Estonian	Rekombinantne adenoviirusega seotud viirusvektor, mis sisaldab inimese <i>CNGA3</i> geeni	Mutatsioonidest geenis <i>CNGA3</i> põhjustatud akromatopsia ravi
Finnish	Rekombinantti adeno-pohjainen virusvektori, joka sisältää ihmisen <i>CNGA3</i> -geenin	<i>CNGA3</i> -geenin mutaation aiheuttaman akromatopsian hoito
French	Vecteur viral recombinant adeno-associé contenant le gène humain <i>CNGA3</i>	Traitement de l'achromatopsie causée par des mutations du gène <i>CNGA3</i>
German	Rekombinanter Adeno-assoziiertes viraler Vektor, der das menschliche Gen <i>CNGA3</i> enthält	Behandlung von Achromatopsie infolge von Mutationen des <i>CNGA3</i> -Gens
Greek	Ανασυνδυασμένοϊκός φορέας σχετιζόμενος με αδενοϊό που περιέχει το ανθρώπινο γονίδιο <i>CNGA3</i>	Θεραπεία της αχρωματοψίας που προκαλείται από μεταλλάξεις στο γονίδιο <i>CNGA3</i>
Hungarian	Humán <i>CNGA3</i> gén tartalmazó rekombináns adeno vitussal asszociált virális vektor	<i>CNGA3</i> gén mutációk által okozott achromatopsia kezelése
Italian	Vettore virale ricombinante adeno-associato contenente il gene della <i>CNGA3</i> umana	Trattamento della acromatopsia causata da mutazioni del gene <i>CNGA3</i>
Latvian	Rekombinants adenoasociētā vīrusa vektors, kas satur cilvēka <i>CNGA3</i> gēnu	<i>CNGA3</i> gēna mutācijas izraisītas ahromatopsijas ārstēšana
Lithuanian	Rekombinantinis adeno-asocijuoto viruso vektorius, pernešantis žmogaus <i>CNGA3</i> geną	Achromatopsijos, sąlygotos <i>CNGA3</i> geno mutacijų, gydymas
Maltese	Vettur virali rikombinanti adeno-assoċjat li fih il-ġene <i>CNGA3</i> uman	Kura tal-akromatopsija kkawżata minn mutazzjonijiet fil-ġene tas- <i>CNGA3</i>
Polish	Rekombinowany wektor adenowirusowy zawierający ludzki gen <i>CNGA3</i>	Leczenie ślepoty barw wywołanej mutacjami genu <i>CNGA3</i>
Portuguese	Vetor recombinante viral adeno-associado, contendo o um gene humano <i>CNGA3</i>	Tratamento de acromatopsia causada pelas mutações no gene <i>CNGA3</i>

<sup>1</sup> At the time of designation

Language	Active ingredient	Indication
Romanian	Vector viral adeno-asociat recombinant, care conține gena umană care codifică <i>CNGA3</i>	Tratamentul acromatopsiei produse de mutații ale genei <i>CNGA3</i>
Slovak	Rekombinantný adeno-asociovaný vírusový vektor obsahujúci ľudský gén <i>CNGA3</i>	Liečba achromatopsie spôsobenej mutáciami v géne <i>CNGA3</i>
Slovenian	Rekombinantni adenovirusni vektor z genom za humanim genom <i>CNGA3</i>	Zdravljenje akromatopsije, ki jo povzročijo mutacije gena <i>CNGA3</i>
Spanish	Vector viral adenoasociado recombinante que contiene el gen <i>CNGA3</i> humano	Tratamiento de la acromatopsia causada por mutaciones en <i>CNGA3</i>
Swedish	Rekombinant adeno-associerad viral vektor som innehåller den humana <i>CNGA3</i> -genen	Behandling av akromatopsi orsakad av mutationer i <i>CNGA3</i> -genen
Norwegian	Rekombinant adenoassosiert virusvektor som inneholder det humane <i>CNGA3</i> -genet	Behandling av akromatopsi forårsaket av mutasjoner i <i>CNGA3</i> -genet
Icelandic	Raðbrigða adenótengd veiru ferja sem inniheldur manna <i>CNGA3</i> gen	Meðferð á allitblindu af völdum stökkbreytinga í <i>CNCB3</i> geninu