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Public summary of opinion on orphan designation

Adeno-associated virus serotype hu68 containing the human GLB1 gene for the treatment of GM1 gangliosidosis

On 19 October 2020, orphan designation EU/3/20/2346 was granted by the European Commission to Pharma Gateway AB, Sweden, for adeno-associated virus serotype hu68 containing the human GLB1 gene (also known as PBGM01) for the treatment of GM1 gangliosidosis.

What is GM1 gangliosidosis?

GM1 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-galactosidase which breaks down a substance called GM1 ganglioside. Without this enzyme, GM1 ganglioside builds up in the body, particularly in the brain and spinal cord, causing nerve damage. Signs and symptoms include seizures (fits), learning disabilities, muscle weakness, skeletal abnormalities and problems walking and, as the disease progresses, enlargement of the heart, liver and spleen.

GM1 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 a few years.

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

At the time of designation, GM1 gangliosidosis affected approximately 0.10 in 10,000 people in the European Union (EU). This was equivalent to a total of 5,000 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).

*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, Iceland, Liechtenstein, Norway and the United Kingdom. This represents a population of 519,200,000 (Eurostat 2020).

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What treatments are available?

At the time of designation, no satisfactory methods were authorised in the EU to treat GM1 gangliosidosis. Treatment of patients was mainly supportive and included surgery and medicines to manage seizures, heart problems and infections.

How is this medicine expected to work?

The medicine consists of a virus that contains a working copy of the gene for beta-galactosidase. When given to the patient, it is expected that the virus will carry the gene into the cells, especially in the brain and spinal cord, enabling them to produce the missing beta galactosidase enzyme. This is then expected to reduce the build-up of GM1 ganglioside, thereby improving symptoms of the condition.

The 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 GM1 gangliosidosis had been started.

At the time of submission, the medicine was not authorised anywhere in the EU for the treatment of GM1 gangliosidosis. Orphan designation of the medicine had been granted in the United States for this condition.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a positive opinion on 10 September 2020, 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

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.