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Public summary of opinion on orphan designation

Balipodect for the treatment of fragile X syndrome

On 14 April 2019, orphan designation (EU/3/19/2154) was granted by the European Commission to Takeda Pharma A/S, Denmark, for balipodect for the treatment of fragile X syndrome.

What is fragile X syndrome?

Fragile X syndrome is an inherited disease characterised by learning disability. Other symptoms include difficulty communicating and socialising, anxiety, hyperactivity (restlessness), and repetitive and stereotyped behaviours.

The disease is caused by a defect in a gene on the X chromosome. The gene is responsible for the production of a protein called fragile X mental retardation protein (FMRP), which is necessary for the development of the brain. In patients with fragile X syndrome, the defective gene cannot produce normal levels of the FMRP protein and this leads to learning disability and other symptoms relating to the brain or nerves. Women are normally less severely affected than men, because they have a second X chromosome that usually has a normal copy of the gene.

Fragile X syndrome is a long-term debilitating disease because of the severe behavioural problems and learning disabilities it causes.

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

At the time of designation, fragile X syndrome affected approximately 2 in 10,000 people in the European Union (EU). This was equivalent to a total of around 104,000 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 fragile X syndrome. Patients were given general support, such as behavioural therapy and special education, and in some cases, antidepressants, medicines for attention-deficit hyperactivity disorder

*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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and antipsychotics were used to treat the symptoms of the disease. Genetic counselling (discussion of the risks of passing on the condition to children) was recommended for families with a history of fragile X syndrome.

How is this medicine expected to work?

The medicine blocks an enzyme called human phosphodiesterase 10A (PDE10A), which plays a role in the degradation of cAMP, a messenger molecule involved in many important cellular processes. It is thought that cellular cAMP levels are lower in patients with fragile X syndrome, compared with healthy individuals. By blocking PDE10A and therefore increasing the levels of cAMP, this medicine is expected to improve symptoms of the condition such as fits and hyperactivity.

What is the stage of development of this medicine?

The effects of balipodect have been evaluated in experimental models.

At the time of submission of the application for orphan designation, no clinical trials with balipodect in patients with fragile X syndrome had been started.

At the time of submission, balipodect was not authorised anywhere in the EU for the treatment of fragile X syndrome or designated as an orphan medicinal product elsewhere for this condition.

In accordance with Regulation (EC) No 141/2000, the COMP adopted a Positive opinion on 21 March 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	Balipodect	Treatment of fragile X syndrome
Bulgarian	Балиподект	Лечение на синдрома на чупливата Х хромозома
Croatian	Balipodekt	Liječenje sindroma fragilnog X kromosoma
Czech	Balipodect	Léčba syndromu fragilního X
Danish	Balipodect	Behandling af fragilt X-syndrom
Dutch	Balipodect	Behandeling van het fragiele-X-syndroom
Estonian	Balipodekt	Fragiilse X sündroomi ravi
Finnish	Balipodekti	Särö-X-oireyhtymän hoito
French	Balipodect	Traitement du syndrome de l'X fragile
German	Balipodect	Zur Behandlung des Fragilen-X-Syndroms
Greek	Μπαλιποντέκτη	Θεραπεία του συνδρόμου εύθραυστο Χ
Hungarian	Balipodect	A fragilis X-szindróma kezelésére
Italian	Balipodect	Trattamento della sindrome dell'X fragile
Latvian	Balipodekts	Trauslā X sindroma ārstēšanai
Lithuanian	Balipodektas	Lūžiosios X chromosomos sindromo gydymas
Maltese	Balipodekt	Kura tas-sindrome ta' X fraġli
Polish	Balipodekt	Leczenie zespołu łamliwego chromosomu X
Portuguese	Balipodecto	Tratamento da síndrome do X frágil
Romanian	Balipodect	Tratamentul sindromului cromozomului X fragil
Slovak	Balipodekt	Liečba syndrómu fragilného chromozómu X
Slovenian	Balipodekt	Zdravljenje sindroma fragilnega kromosoma X
Spanish	Balipodect	Tratamiento del síndrome de X frágil
Swedish	Balipodekt	Behandling av Fragil X-syndrom
Norwegian	Balipodekt	Behandling av Fragilt X-syndrom
Icelandic	Balipodect	Meðferð við heilkenni brotgjarns X (fragile X syndrome)

[1] At the time of designation