

KEBILIDI

Category:

Best Product for Orphan/Rare Diseases

Company Name:

PTC Therapeutics

Product/Solution Name:

KEBILIDI

Compound/Tech Name:

eladocogene exuparvovec-tneq

Trade Name:

KEBILIDI™

Corporate Name:

KEBILIDI

Date of Approval:

2024-11-13

Indications:

KEBILIDI is an adeno-associated virus vector-based gene therapy indicated for the treatment of adult and pediatric patients with aromatic L-amino acid decarboxylase (AADC) deficiency.

Therapeutic Areas:

aromatic L-amino acid decarboxylase (AADC) deficiency

General Information File Document upload:

[FDA Approves First Gene Therapy for Treatment of Aromatic L-amino Acid Decarboxylase Deficiency.pdf](#)

Background information and need for drug / device:

Aromatic L-amino acid decarboxylase (AADC) deficiency is a devastating, fatal, rare monogenetic disorder associated with significant disease burden and a profound impact on patients, caregivers and healthcare systems.

AADC deficiency is an ultra-rare condition caused by a defect in the dopa decarboxylase (DDC) gene, which affects the production of key neurotransmitters such as dopamine, necessary for development of motor skills, regulating body control and movement, cognition and central nervous system function. From the first months of their lives, children with AADC deficiency suffer from severe physical, mental and behavioral impairment. Their suffering may be exacerbated by oculogyric crises, which are distressing, painful episodes that resemble seizures and are characterized by a stuck upward gaze, dystonia and inconsolability. They are incapable of voluntary movement; most are never able to hold their head up, sit by themselves, stand or speak. Many die before reaching adulthood.

Children with AADC deficiency require 24-hour care and are reliant on their caregivers for all aspects of daily living. Their shortened lives are typically marked by severe disability; often reliant upon feeding tubes and/or breathing support, they experience frequent hospitalizations and periods of intensive care, which contributes to substantial costs. Ongoing physical, occupational and speech therapy and interventions, including surgery, are often required to manage potentially life-threatening complications, such as infections and severe feeding and breathing problems.

Caring for a child with AADC deficiency impacts the whole family, physically, emotionally and financially. Caregivers of children with AADC deficiency spend hundreds of hours per-week on practical and emotional care for their child, including tasks such as planning and attending medical appointments, and they may have to remain at home to care for the child.

Prior to approval of KEBILIDI (eladocogene exuparvovec-tneq, referred to as UPSTAZA outside the U.S.), there were no approved therapies for AADC deficiency. Patients were limited to palliative and symptom management options, which do not target the underlying genetic cause of the disease. Patients and families experienced serious health consequences, significant disease burden and limited care from healthcare systems.

PTC Therapeutics developed KEBILIDI, the first gene therapy for AADC deficiency to address the underlying cause of the disease. It is the first-ever gene therapy approved in the U.S. that is directly administered to the brain. KEBILIDI delivers a functioning DDC gene directly into the putamen, a part of the brain involved in motor control and other functions, increasing production of the AADC enzyme and restoring dopamine production. Administration of KEBILIDI occurs through a single stereotactic surgical

procedure, a minimally invasive neurosurgical procedure used for the treatment of a number of pediatric and adult neurological disorders.

The therapy has demonstrated a momentous impact on patients and their families. Following treatment with KEBILIDI, bedridden children who couldn't move or talk and were reliant on 24-hour care can now feed themselves, talk, sit up, and in many cases walk.

KEBILIDI relieves disease burden on patients, families and healthcare systems, improving quality of life and reducing the need for symptomatic therapies, follow-up visits, hospitalization and medical/technical procedures.

Background File Document upload:

Child Thriving After Becoming Worlds Youngest to Receive Gene Therapy for AADC Deficiency PTC KEBILIDI.pdf

AADCd Burden of Illness Information Leaflet for Patient Associations PTC KEBILIDI.pdf

Video Gene therapy into brain helps kid with rare disease PTC KEBILIDI.pdf

Video AADC Patient Story PTC KEBILIDI.mp4

The Joy of Witnessing Science Transform a Life Research Horizons PTC KEBILIDI.pdf

Video Poulin Family Story PTC KEBILIDI.mp4

Video Heger Family Story PTC KEBILIDI.mp4

My daughter has an ultrarare disease I became an RN to care for her PTC KEBILIDI.pdf

Girl 3 becomes youngest patient to receive groundbreaking treatment PTC KEBILIDI.pdf

HuffPost story by Richard Poulin PTC KEBILIDI.pdf

History of the development of the solution/product:

2010: Paul Wuh-Liang Hwu, M.D., Ph.D., a pediatric healthcare professional at National Taiwan University Hospital, initiated a compassionate use treatment study of eladocogene exuparvovec in eight children with AADC deficiency, receiving approval from the Taiwan FDA for a follow-up clinical trial with 10 additional children in 2014.

2018: PTC Therapeutics acquired the compound and continued the work to bring this treatment to patients.

2021: PTC presented an analysis of five-year results that showed eladocogene exuparvovec leads to profound improvements in children with AADC deficiency (refer to 5-year data in documents for details).

2022: Long-term efficacy and safety results of eladocogene exuparvovec in patients with AADC deficiency were published in Molecular Therapy showing that the treatment provided durable and meaningful benefits with a favorable safety profile (refer to publication in documents). Later that year, eladocogene exuparvovec was approved as UPSTAZA in the UK and EU, as the first-ever gene therapy approved for direct infusion into the brain.

2024: The FDA granted accelerated approval to the treatment as KEBILIDI, making it the first-ever gene therapy approved in the U.S. that is directly administered to the brain (refer to publication in documents).

Today, KEBILIDI has been used around the world to treat patients with AADC deficiency, leading to significant improvements in patients' motor and cognitive function. In addition to the U.S., the therapy has been approved in Europe, Great Britain, Brazil, Taiwan, Israel and Hong Kong.

Development File Document upload:

[International Parkinson and Movement Disorder Society 2023 PTC KEBILIDI.pdf](#)

[ISPMD 2024 Poster_Gilbert_Study PTC KEBILIDI.pdf](#)

[Molecular Therapy 2022 PTC KEBILIDI.pdf](#)

[New Scientist Poulin Family Story PTC KEBILIDI.pdf](#)

[PTC Therapeutics Announces FDA Approval of AADC Deficiency Gene Therapy PTC KEBILIDI.pdf](#)

[Results Show LongLasting and Holistic Improvements in Children with AADC Deficiency Treated with PTCAADC Gene Therapy PTC KEBILIDI.pdf](#)

[Orphanet Journal of Rare Diseases 2025 PTC KEBILIDI.pdf](#)

[SSIEM 2024 Poster_Hwu_Motor development PTC KEBILIDI.pdf](#)

[SSIEM 2024 Poster_Hwu_Study 002 48weeks PTC KEBILIDI.pdf](#)

[Video Upstaza History PTC KEBILIDI.mp4](#)

Why this drug or device is innovative, the broad implications for future research, and/or how it will improve the human condition:

As the first and only gene therapy approved for AADC deficiency and the first-ever FDA- and EU-approved gene therapy directly administered to the brain, KEBILIDI has demonstrated significant improvements in motor and cognitive function for patients with this severe disorder. As a one-time therapy that is indicated for the treatment of both children and adults, KEBILIDI also enables treatment for patients at younger ages which correlates with faster treatment response and clinical improvements.

KEBILIDI is a recombinant adeno-associated virus serotype 2 (AAV2)-based gene

therapy, containing the human DDC gene. It is a one-time gene replacement therapy designed to correct the underlying genetic defect by delivering a functioning DDC gene directly into the putamen, increasing the AADC enzyme and restoring dopamine production. KEBILIDI is the most extensively studied gene therapy for AADC deficiency. Clinical data up to 10 years demonstrates durable and meaningful benefits with a favorable safety profile. KEBILIDI showed safe and effective administration in patients as young as 16 months old.

Direct delivery and bypassing of the blood-brain barrier reduces immune system response, eliminating the need for corticosteroids which can cause long-term negative side effects. It also reduces immune system response of target tissue transduction and toxicity, eliminating the need for corticosteroids which can cause long-term negative side effects.

For caregivers and families living with a child suffering from AADC deficiency, KEBILIDI offers patients and caregivers a treatment option and standard of care that was previously non-existent. Indicated for the full spectrum of disease severity, clinical data demonstrates that patients with AADC deficiency achieve better health outcomes and quality of life when treated with KEBILIDI.

Most patients with AADC deficiency do not reach adulthood. They require lifelong care and rely on their caregivers in all aspects of their daily lives. As a result, most caregivers report they have had no choice but to give up work or receive additional paid/unpaid support. With KEBILIDI, early intervention and better health outcomes may lower the need for hospitalizations and additional medical procedures, helping to ease the burden on caregivers and reduce the financial, physical, societal and emotional impact and toll of AADC deficiency. Improved health outcomes also reduce the need for symptomatic therapies, follow-up visits, hospitalization, and medical and technical procedures. KEBILIDI's life-transforming benefits contribute to reduced disease burden on patients, families and healthcare systems.

KEBILIDI has transformed the lives of patients and caregivers facing an AADC deficiency diagnosis. Its innovation has redefined gene therapy administration by demonstrating the potential of targeted intraputaminial delivery to achieve lasting clinical benefits in neurological disorders. KEBILIDI showed safe and effective administration directly to the brain opening the door to future therapies with this administration. We're hopeful this positive change in patients' lives will encourage further research in other rare diseases.

Innovation File Document upload:

[Video Upstaza MoA PTC KEBILIDI_MedB.mp4](#)

[Testimonial video Prof Donald Gilbert PTC KEBILIDI 1.mp4](#)

Please provide appropriate references (PubMed, Abstract,

Website):

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