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Sephience (*sepiapterin*)

An overview of Sephience and why it is authorised in the EU

What is Sephience and what is it used for?

Sephience is a medicine used to treat hyperphenylalaninaemia (HPA, excessive blood levels of phenylalanine) in adults and children with phenylketonuria (PKU). PKU is an inherited condition where the amino acid phenylalanine (a building block for proteins) builds up in the blood to abnormally high levels, causing problems in the nervous system.

Hyperphenylalaninaemia is rare, and Sephience was designated an 'orphan medicine' (a medicine used in rare diseases) on 20 May 2021. Further information on the orphan designation can be found on the EMA website.

Sephience contains the active substance sepiapterin.

How is Sephience used?

Sephience can only be obtained with a prescription, and treatment must be started and supervised by a doctor experienced in the treatment of PKU.

Sephience is available as a powder to be dispersed in water or apple juice, or mixed with soft food; it is taken once a day with food.

For more information about using Sephience, see the package leaflet or contact your doctor or pharmacist.

How does Sephience work?

In patients with PKU, an enzyme (a type of protein) called phenylalanine hydroxylase (PAH), which converts phenylalanine into another amino acid, cannot fold properly and therefore has a reduced activity. This leads to a build-up of phenylalanine in the blood, causing symptoms of the disease.

The active substance in Sephience, sepiapterin, is a version of a natural substance needed for the body to produce tetrahydrobipterin (BH4). BH4 helps PAH to convert phenylalanine. Sepiapterin reduces the level of phenylalanine in the blood in two ways: by increasing the levels of BH4 in the body, and by attaching to and stabilising PHA, increasing its activity.

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What benefits of Sephience have been shown in studies?

Sephience has been shown to reduce the levels of phenylalanine in the blood in one main study.

The first part of the study involved 157 patients with PKU who received Sephience for 14 days. Those aged at least 2 years who had a reduction of 15% or more in their phenylalanine blood levels (110 patients) were considered responsive to treatment and were involved in the second part of the study, where they received either Sephience or placebo (a dummy treatment) for 6 weeks. The main measure of effectiveness was a further change in phenylalanine blood levels in those patients who already had a 30% or more decrease in their phenylalanine blood levels in the first part of the study.

In patients who received Sephience, the reduction in phenylalanine blood levels was around 410 micromole per litre (63% reduction from the initial level) compared with around 16 micromole per litre (1.4% reduction) in those who received placebo. In addition, the study showed that patients who were known to be non-responsive to sapropterin (another medicine for hyperphenylalaninaemia) achieved a reduction in their phenylalanine blood levels of 30% or more with Sephience.

Data from an ongoing study also indicated that the benefits of treatment are maintained over time and allow patients to increase the intake of phenylalanine from their diet.

Additional data indicated that reductions in phenylalanine blood levels in patients below 2 years of age were similar to those seen in older children.

What are the risks associated with Sephience?

For the full list of side effects and restrictions with Sephience, see the package leaflet.

The most common side effects with Sephience (which may affect more than 1 in 10 people) include upper respiratory tract infection (nose and throat infection), headache, diarrhoea and abdominal (belly) pain. Discoloured stools and hypophenylalaninaemia (low levels of phenylalanine) may also affect up to 1 in 10 people.

Why is Sephience authorised in the EU?

Sephience has been shown to significantly decrease blood levels of phenylalanine in patients with PKU after 6 weeks of treatment compared with placebo; such reductions are expected to help control the disease and provide meaningful health benefits. The effect on phenylalanine levels have been shown to be maintained over time, and to improve patients' quality of life. Sephience also represents an alternative treatment for patients who cannot use or do not respond to existing treatments.

The safety profile of Sephience is reassuring, with no serious side effects reported.

The European Medicines Agency therefore decided that Sephience's benefits are greater than its risks and that it can be authorised for use in the EU.

What measures are being taken to ensure the safe and effective use of Sephience?

Recommendations and precautions to be followed by healthcare professionals and patients for the safe and effective use of Sephience have been included in the summary of product characteristics and the package leaflet.

As for all medicines, data on the use of Sephience are continuously monitored. Suspected side effects reported with Sephience are carefully evaluated and any necessary action taken to protect patients.

Other information about Sephience

Sephience received a marketing authorisation valid throughout the EU on 19/06/2025

Further information on Sephience can be found on the Agency's website: ema.europa.eu/medicines/human/EPAR/sephience.

This overview was last updated in 05-2025.