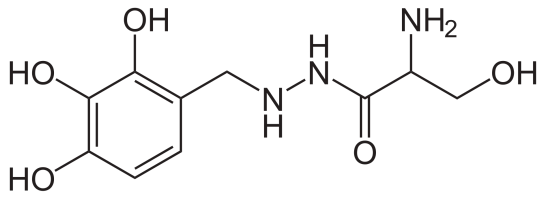
Brand Name: Madopar
Generic: levodopa benserazide
Type: small molecule
Year Accepted/Phase: N/A

Mechanism:

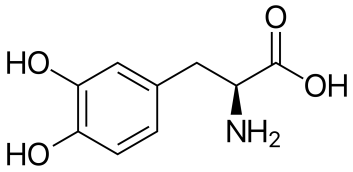
Levodopa is converted to dopamine in the brain, supplementing the deficient dopamine levels characteristic of Parkinson's disease. Benserazide inhibits peripheral decarboxylase enzymes, preventing the premature conversion of levodopa to dopamine outside the brain and allowing more levodopa to reach the brain.

Chemical Structure:

Benserazide



Levodopa



Indication:

Madopar is indicated for the treatment of Parkinson's disease and parkinsonism, providing symptomatic relief from motor symptoms such as bradykinesia, rigidity, and tremor.

Clinical trials:

Early Clinical Studies

Purpose: Initial studies aimed to evaluate the efficacy of the levodopa and benserazide combination in improving the symptoms of Parkinson's disease.
Dates: Initial clinical trials conducted in the late 1960s and early 1970s.
Results: Early studies demonstrated that the combination of levodopa and benserazide significantly improved motor function and reduced Parkinson's disease symptoms compared to levodopa alone. The addition of benserazide allowed for lower doses of levodopa to be used, reducing peripheral side effects such as nausea and cardiovascular issues.
Impact: These findings led to the widespread use of the levodopa/benserazide combination in the treatment of Parkinson's disease.

Madopar HBS (Hydrodynamically Balanced System)

Pubmed: https://pubmed.ncbi.nlm.nih.gov/3428305/
Purpose: Evaluate the efficacy and safety of a modified-release formulation of Madopar, known as Madopar HBS, designed to provide a more stable plasma concentration of levodopa and improve symptom control.
Dates: Studies conducted in the 1980s and 1990s.
Results: Clinical trials showed that Madopar HBS provided more stable plasma levels of levodopa, resulting in more consistent symptom control throughout the day and reducing "off" periods in patients with Parkinson's disease. The modified-release formulation was well tolerated, with a safety profile similar to that of standard Madopar.
Impact: Madopar HBS offered an additional treatment option for patients requiring more stable symptom control and was approved for use in various countries.

Comparison Studies with Other Parkinson's Treatments

Purpose: Compare the efficacy and safety of Madopar with other Parkinson's disease treatments, such as carbidopa/levodopa (Sinemet).
Dates: Various studies conducted from the 1980s to 2000s.
Results: Studies generally found that Madopar and Sinemet were similarly effective in controlling Parkinson's disease symptoms. However, individual patient responses varied, and some patients experienced better symptom control or fewer side effects with one formulation over the other. The choice between Madopar and Sinemet often depended on individual patient factors and clinician preference.
Impact: These studies reinforced the role of levodopa/benserazide as a key treatment option for Parkinson's disease and highlighted the importance of personalized treatment approaches.