Method for treatment of dementia associated with Alzheimer’s disease and other neurodegenerative diseases

Unmet Need

There are over 50 million people worldwide with dementia, with about 10 million new cases diagnosed every year. Though approximately 70% of dementia cases are associated with Alzheimer's disease patients, there is no cure and very few treatments. The FDA has approved three cholinesterase inhibitors, one NMDA receptor antagonist, and one combination cholinesterase inhibitor/NMDA receptor antagonist treatment for Alzheimer's disease, but these only manage some symptoms and do not prevent or slow neurodegeneration. Uses of these treatments skew toward moderate to severe cases and can have unpleasant side effects. There is a need for safe and effective treatments of dementia associated with neurodegenerative diseases.

Technology

Duke inventors have developed a safe and effective method of treatment for dementia associated with neurodegenerative diseases such as Alzheimer's and Down Syndrome. This is intended to be administered to patients with these diseases on an ongoing basis. Symptoms of dementia are improved by oral administration of an ornithine decarboxylase (ODC) inhibitor, which blocks the activity of arginase and restores normal levels of arginine, an amino acid necessary for the healthy functioning of neurons. This technology was demonstrated using the common ODC inhibitor DFMO (eflornithine) which was shown to lower the levels of soluble and insoluble $A\beta_{40}$ and $A\beta_{42}$ and prevent dementia-like pathology in CVN-AD mouse models with no side effects.

Advantages

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Meet the Inventors

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Publication(s)

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External Link(s)

• From the lab of Dr. Carol Anne Colton

- Could also be used in early-stage AD patients to help keep their neurons healthy, not just manage symptoms
- Ornithine decarboxlyase inhibitor tested by inventors, DFMO, has a good safety profile and is already approved by FDA for other uses
- Therapeutically effective dose of DMFO for this application is very low and side effects should be minimal or nonexistent, ideal for chronic administration
- Has been evaluated on one of the most advanced Alzheimer's disease mouse models