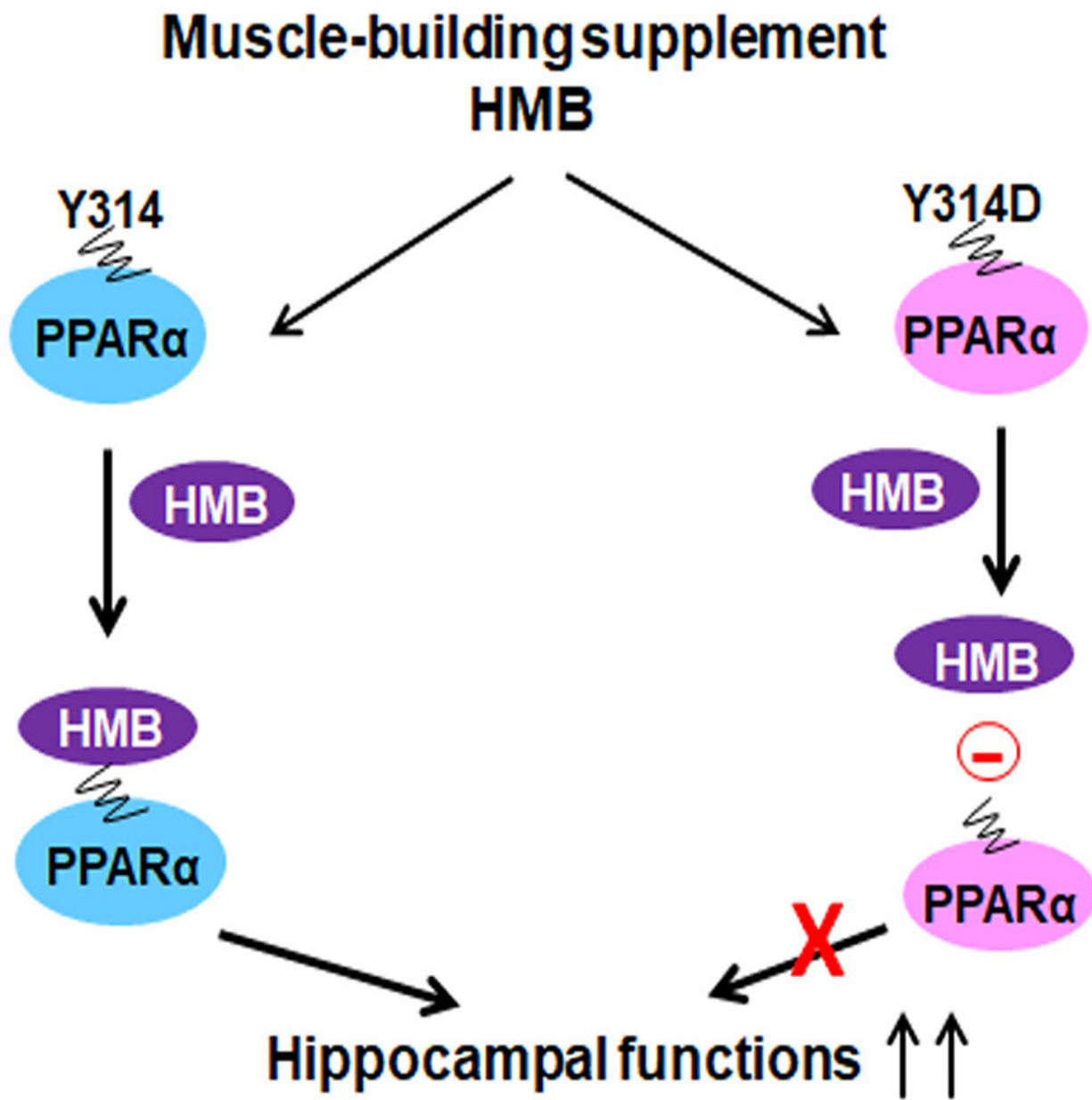


Bodybuilding supplement may help stave off progression of Alzheimer's

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Graphical abstract. Credit: *Cell Reports* (2023). DOI: 10.1016/j.celrep.2023.112717

RUSH researchers recently discovered that a muscle-building supplement called beta-hydroxy beta-methylbutyrate, also called HMB, may help protect memory, reduce plaques and ultimately help prevent the progression of Alzheimer's disease. Results from the study were published in *Cell Reports*.

HMB is not a prescription drug or a steroid, but an over-the-counter supplement that is available in sports and fitness stores. Bodybuilders regularly use HMB to increase exercise-induced gains in muscle size and strength while improving exercise performance. HMB is considered safe even after long-term use, with no known side effects.

"This may be one of the safest and the easiest approaches to halt [disease progression](#) and protect [memory](#) in Alzheimer's disease patients," said Kalipada Pahan, Ph.D., the Floyd A. Davis, MD, Professor of Neurology and professor of neurological sciences, biochemistry and pharmacology at RUSH Medical College.

Reduces plaques

Studies in mice with Alzheimer's disease have shown that HMB successfully reduces plaques and increases factors for neuronal growth to protect learning and memory, according to neurological researchers at RUSH.

"Understanding how the disease works is important to developing effective drugs to protect the brain and stop the progression of Alzheimer's disease," Pahan said.

Previous studies indicate that a family of proteins known as [neurotrophic factors](#) are drastically decreased in the brains of people with Alzheimer's disease and have been found to help in survival and function of neurons, which are cells that receive and send messages from the body to the brain and vice versa.

"Our study found that after oral consumption, HMB enters into the brain to increase these beneficial proteins, restore [neuronal connections](#) and improve memory and learning in mice with Alzheimer's-like pathology, such as plaques and tangles," Pahan said.

'Promising avenue of treatment'

The study findings indicate that HMB stimulates a nuclear hormone receptor called PPAR α within the brain that regulates the transport of fatty acids, which is key to the success of HMB as a neuroprotective supplement.

"If mouse results with HMB are replicated in Alzheimer's disease patients, it would open up a promising avenue of treatment of this devastating neurodegenerative disease," Pahan said.

More information: Ramesh K. Paidi et al, Muscle-building supplement β -hydroxy β -methylbutyrate binds to PPAR α to improve hippocampal functions in mice, *Cell Reports* (2023). [DOI: 10.1016/j.celrep.2023.112717](#)

Provided by Rush University Medical Center

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