

How berberine works to slow diabetes-related cognitive decline

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Credit: Mary Ann Liebert, Inc., publishers

Researchers studying the mechanism of action of the natural, plant-derived compound berberine have linked its anti-inflammatory activity and ability to regulate levels of stress-response proteins including sirtuin to berberine positive effects on memory loss and impaired learning in an aging diabetic mouse model. In addition to improving diabetic encephalopathy and slowing central nervous system degeneration, berberine was also associated with better lipid metabolism and decreased fasting glucose in the diabetic mice, as reported in *Rejuvenation Research*.

The article entitled "Berberine Improves Diabetic Encephalopathy Through the SIRT1/ER Stress Pathway in db/db Mice" was authored by a team of researchers from Guangzhou University of Chinese Medicine, led by Shi-Jie Zhang and Yun-Bo Chen. The researchers focused on the effects of berberine on a stress protein-mediated signaling pathway in the [endoplasmic reticulum](#) (ER). Diabetes can induce ER stress and has been linked to hyperglycemia-induced dysfunction of neuronal synapses in the brain and cognitive impairment. Based on the results of this study, the authors concluded that berberine might be able to protect against the effects of diabetic encephalopathy by intervening in the SIRT1/ER [stress](#) pathway.

"Diabetes is a key example of the intertwined nature of the age-related decline in different tissues; though it nominally centers on excess fat and glycogen storage, the brain cannot escape its effects," says Editor-in-Chief Aubrey D.N.J. de Grey, SENS Research Foundation, Mountain View, CA. "While we continue the development of bona fide repair (i.e., rejuvenation) therapies for such damage, it is vital to identify the most effective 'stopgaps' that we can provide already. Here it is shown that berberine must be considered a highly promising intervention for diabetic [encephalopathy](#)."

More information: Hong-Ying Li et al, Berberine Improves Diabetic

Encephalopathy through SIRT1/ER Stress Pathway in db/db Mice,
Rejuvenation Research (2017). [DOI: 10.1089/rej.2017.1972](https://doi.org/10.1089/rej.2017.1972)

Provided by Mary Ann Liebert, Inc

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