

# Natural substance NT-020 aids aging brains in rats, study finds

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A combination of nutrients called NT-020 promoted adult neural stem cell proliferation in aged rats and boosted their memory performance, reported University of South Florida researchers studying natural therapeutic approaches to promoting the health of neurons in the aging brain.

Researchers from the USF Department of Neurosurgery and Brain Repair tested two groups of aged laboratory rats; one group received NT-020 and another, the control group, did not. In the NT-020 group, the process by which neurons are generated -- called neurogenesis -- increased.

The NT-020 formula was patented by USF and licensed to Natura Therapeutics, Inc. The study was published in the current issue of *Rejuvenation Research* (Vol. 13 No. 5, June, 2010).

"Aging has been linked to oxidative stress, and we have previously shown that natural compounds made from blueberries, green tea, and [amino acids](#), such as carnosine, are high in antioxidants and have anti-inflammatory and anti-oxidative activity," said Sandra Acosta, MS, the study's lead author and a PhD student in the USF Center of Excellence in Aging and Brain Repair . "The combination of these nutrients, called NT-020, creates a synergistic effect that promotes the proliferation of stem cells in the aged animals."

Acosta and colleagues compared the NT-020 group to the control group

by evaluating their performance on a variety of behavioral and memory tests, including a spatial navigation test. The NT-020 group demonstrated increased adult neural stem cell proliferation in the two main stem cell niches in the brains and improvement in learning and memory.

In past studies, NT-020 has been shown to have beneficial effects on animals with simulated stroke. NT-020 has also been shown to encourage the proliferation of [adult stem cells](#), which have the potential to develop into tissue and [bone cells](#) and also migrate to areas of damage to help with repair.

That increased stem [cell proliferation](#) coincided with better [cognitive performance](#) is significant.

"The notion that aging is a stem cell disease has been gaining popularity," said study senior author Paula Bickford, PhD, professor of neurosurgery and brain repair at USF. "Our hypothesis is that aging alters the local environment in the brain and other organs and can promote an environment that retards the growth of stem cells. For example, high glucose, which would be seen with diabetes, excessive alcohol and oxidative stress, can lead to reduced neurogenesis."

The researchers concluded that increased inflammation in the brains of the aged animals led to reduced production of stem cells, but that stem cell renewal created a rejuvenating effect. They found that NT-020 treated animals had fewer activated inflammatory cells in the brain, reflecting a decrease in factors that reduced the production of stem cells.

"NT-020 may have not only a positive effect on the stem cell niche," concluded Bickford. "NT-020 may have far-reaching effects on organ function beyond the replacement of injured cells, as demonstrated by cognitive improvement in the NT-020 group."

Provided by University of South Florida

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