

Carnosine ( $\beta$ -Ala-1-His), an imidazole dipeptide, is known to have many functions. Recently, we demonstrated in a double-blind randomized controlled trial that carnosine is capable of preserving cognitive function in elderly people. In the current study, we assessed the ability of carnosine to activate the brain, and we tried to clarify the molecular mechanisms behind this activation. Our results demonstrate that carnosine permeates the blood brain barrier and activates glial cells within the brain, causing them to secrete neurotrophins, including BDNF and NGF. These results point to a novel mechanism of carnosine-induced neuronal activation. Our results suggest that carnosine should be recognized as a functional food factor that helps achieve anti-brain aging.

Schematic diagram of carnosine function in the brain.