



## The BDNF gene's role in Alzheimer's Disease

Published online last month by the journal *Neurology*, was this eye-catching study out of the Wisconsin Alzheimer's Disease Research Center. In a longitudinal study of a cohort of 1,023 cognitively healthy, middle-aged adults, enriched for AD risk, participants were repeatedly tested in four cognitive domains. 32% of participants carried a valine to methionine substitution at codon 66 in the BDNF gene (rs6265) that has previously been shown to be associated with lower BDNF production and increased cognitive decline. These Met carriers showed significant decline in verbal learning and memory, as well as cognitive speed and flexibility, relative to the Val cohort, but not in terms of working memory or immediate memory. This effect was even greater among those Met carriers who already had higher levels of  $\beta$ -amyloid accumulation. With nearly 25% of the population carrying this genetic mutation (estimates are as high as 37% among Caucasians) the study helps to improve our understanding of potential risk factors for AD.

**[Boots, EA et al., \(2017\) BDNF Val66Met predicts cognitive decline in the Wisconsin Registry for Alzheimer's Prevention. \*Neurology\* \[Epub ahead of print\]](#)**

A related study from Hebei Medical University, China, recently published in the *Journal of Alzheimer's Disease* also piqued our interest. In a five-year longitudinal study of 458 patients with amnesic mild cognitive impairment (aMCI: 128 of whom went on to develop Alzheimer's Disease) together with 728 cognitively normal control participants, BDNF promoter methylation status was determined. The researchers found an association between the higher methylation status at the CpG5 site and aMCI, as well as with progression of aMCI to AD. Furthermore, they found that the interaction between this DNA methylation of CpG5 and the AA genotype of rs6265 was a risk factor for the development of aMCI. This research further illustrates the important role that BDNF plays in AD

**[Xie, B et al., \(2017\) DNA Methylation and Tag SNPs of the BDNF Gene in Conversion of Amnesic Mild Cognitive Impairment into Alzheimer's Disease: A Cross-Sectional Cohort Study. \*Journal of Alzheimer's Disease\*, 58 \(1\), 263-274.](#)**

**If you're interested in building on this research, check out Biosensis' [mBDNF](#) and [proBDNF Rapid ELISA](#) kits for research use, as well as the first [BDNF ELISA kit](#) approved for use in clinical trials (made with the help of the CE-Mark experts at CalBioTech)**

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