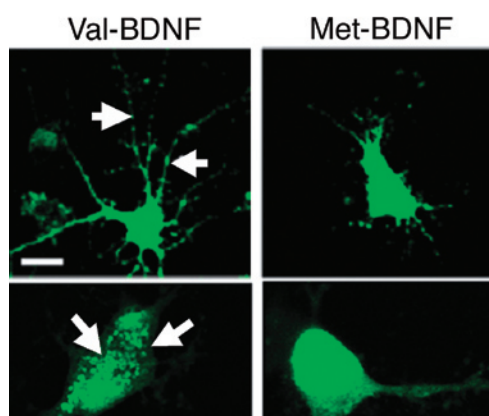


## A Functional SNP in BDNF Gene Impairs Human Memory

To clarify whether the genetic interference of BDNF secretion leads to deficits in hippocampal functions, the study was focused on single nucleotide polymorphism (SNP) in the human BDNF gene. We found that one frequent SNP located at nucleotide 194 (G/A) producing an amino acid substitution (valine to methionine) at codon 66 (val66met) caused deficits in the intracellular distribution and extracellular secretion of BDNF as well as corresponding alternations of human hippocampal functions in vivo. These results provide new insights in the relationship between BDNF secretion and human memory.



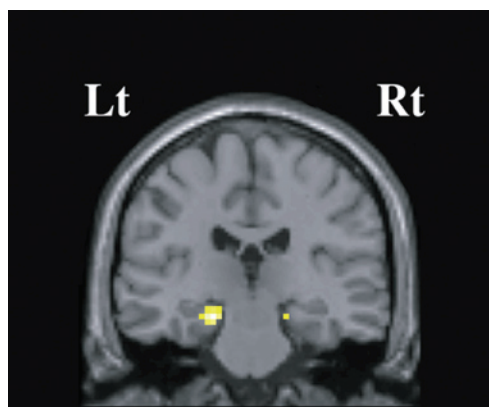
Visualization of Distributions and Movement of SNP in Living Neurons with Green Fluorescence Protein (GFP)

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## Context-Dependent Relation Process in Episodic Memory: An fMRI Measurement

We used functional magnetic resonance imaging (fMRI) to investigate neural activities during the retrieval of relations within an organized episode. Healthy, normal participants memorized 50 four-scene comic strips before fMRI scanning. In the retrieval phase with fMRI scanning, participants were engaged in two tasks: story recall (SR) from previously learned comic strips, and picture recognition (PRe) of previously learned scenes from comic strips. The SR task, compared to PRe task, differentially activated the bilateral parahippocampal gyrus (Figure). The results suggest that the activity of the medial temporal lobe structures may be strongly associated with episodic memory retrieval requiring context-dependent relational processing.



Bilateral parahippocampal activations in SR vs. PRe

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