

Markers of AD & MCI

-- Progressive neuronal degeneration in association cortices lead to increasing cognitive and emotional functional deficits.

	Disposition	Emotion	Feeling	Thinking	Self Regulation
Alzheimer's Disease	<p><i>APOE (E4)</i>¹</p> <p>↓↓ Hippocampal Gray Matter¹</p> <p>↓ Medial Temporal Frontal Grey Matter¹</p>			<p>↓↓ Memory (Verbal, Visual)^{1, 2}</p> <p>↓↓ Verbal Processing^{2, 3}</p> <p>↓ Working Memory^{1, 2}</p> <p>↓ Attention^{1, 2}</p> <p>↓ Executive Function^{1, 2}</p> <p>↓ Information Processing Efficiency^{1, 2}</p> <p>↑ Slow-wave EEG (Theta)^{1, 2, 3}</p> <p>↓ Fast-wave EEG (Alpha & Beta)^{1, 2}</p> <p>↓ ERP P450 Amplitude²</p> <p>Delayed ERP P450 Latency²</p>	<p>↑ Negativity Bias¹</p>
Mild Cognitive Impairment	<p><i>APOE (E4)</i>¹</p> <p>↓ Hippocampal Gray Matter¹</p>			<p>↓ Information Processing Efficiency^{1, 2}</p> <p>↓ Executive Function²</p> <p>↓ Verbal Memory^{1, 2}</p> <p>↓ Working Memory^{1, 2}</p> <p>↓ Verbal Processing²</p> <p>↑ Slow-wave EEG (Theta)²</p> <p>↓ ERP N300 Amplitude²</p>	

Alzheimer's and MCI References

1. Gordon, E, Liddell, B J, Brown, K J, Bryant, R, Clark, C R, DAS, P, Dobson-Stone, C, Falconer, E, Felmingham, K, Flynn, G, Gatt, J M, Harris, A, Hermens, D F, Hopkinson, P J, Kemp, A H, Kuan, S A, Lazzaro, I, Moyle, J, Paul, R H, Rennie, C J, Schofield, P, Whitford, T, Williams, L M (2007). Integrating objective gene-brain-behavior markers of psychiatric disorders. *Journal of integrative neuroscience* 6 (1): 1-34.
2. Liddell BJ, Paul RH, Arns M, Gordon N, Kukkla M, Rowe DL, Cooper N, Moyle J, Williams LM, 2007. Rates of decline distinguish Alzheimer's disease and mild cognitive impairment relative to normal aging: Integrating cognition and brain function, *J Integr Neurosci* 6(1):141–174.
3. Brickman AM, Paul RH, Cohen RA, Williams LM, MacGregor KL, Jefferson AL, Tate DF, Gunstad J, & Gordon E. (2005). Category and letter verbal fluency across the adult lifespan: Relationship to EEG theta power. *Neuropsychology* 20, 561 – 573.