Table 1: Demographics, clinical and neuropsychological data

Subjects	
Gender(males/females)	13/17
Age (years)	73±5
MCI+/MCI-	18/12
Neuropsychological scores	
MMSE	27.1±2.3
Verbal long-term memory	0.8±1.1
Visuoconstructional function	2.5±1.4
Visuo-spatial long-term memory	1.7±1.2
Verbal short term memory	3.1±1.0
Semantic fluency	2.5±1.3
Phonological fluency	2.5±1.1
Visual attention and task switching	1.0±1.4
Verbal working memory	3.0±1.1

Table 2: Cognitive domains backward regression results

NPS variable	NETWORK	EEG predictors	explained variance	significance	TVB predictors	explained variance	significance	EEG+TVB predictors	explained variance	significance
MMSE	DMN	theta, alpha	24.4%	0.035						
	LN	theta, alpha	30.5%	0.013				theta, G	32.1%	0.01
	AN	theta	21.3%	0.015	G, Ji	27.8%	0.02	theta, G, Ji	45.7%	0.003
	VN	theta	20.4%	0.018						
	SMN	theta, alpha	27.4%	0.022				theta, alpha, beta, Ji	41.6%	0.015
verbal episodic memory	LN				w+, Ji, J_NMDA	34.6%	0.019	theta, w+, Ji, J_NMDA	37.3%	0.03
	VN				G, Ji	29.8%	0.014	beta, G, Ji	31.9%	0.029
visuoconstructional abilities	LN				w+, J_NMDA	23.8%	0.038			
	AN				w+	30.7%	0.003	delta, w+	31.2%	0.011
	VN				J_NMDA	22.2%	0.013	gamma, J_NMDA	28.5%	0.018
spatial episodic memory	LN	beta, alpha, delta	30.00%	0.039				beta, alpha, delta, J_NMDA	35.3%	0.04
	AN				J_NMDA	19.7%	0.02	alpha, delta, G, w+, Ji	42.2%	0.031
verbal short term memory	SMN				w+	37.3%	0.001	alpha, delta, w+	46.1%	0.002
semantic fluency	AN				Ji	22.2%	0.013	alpha, Ji, J_NMDA	28.3%	0.05
phonological fluency	LN				w+, Ji	29.2%	0.016	beta, Ji	37.1%	0.004
visual attention and task switching	FPN				G	18.2%	0.048			
verbal working memory	DMN				G, w+	22.1%	0.05			
	VN				G, w+, Ji	40.1%	0.007	gamma, G, Ji	52.4%	0.001

The variance explained by the parameters used in backward regressions is calculated with the R^2 index and the relative significance of F test (significant threshold is set at $p < 0.05$). In MCI a different combination of network (default- DMN; limbic-LN; attention-AN; frontoparietal-FPN; visual-VN; somatomotor-SMN) features significantly explains a percentage of cognitive domains variance.

Table 3: Verbal episodic memory backward regression results

biomarkers	NPS variable	NETWORK	TVB predictors	explained variance	significance	EEG+TVB predictors	explained variance	significance
MCI-	verbal episodic memory	LN	w+	40.0%	0.037	delta, theta, alpha, gamma, G, w+, J_NMDA	97.1%	0.025
		AN				delta, theta, alpha, Ji	80.8%	0.024
		FPN				beta, w+, J_NMDA	75.3%	0.016
		VN				delta, theta, alpha, beta, gamma, w+, J_NMDA, Ji, G	99.3%	0.028
MCI+	verbal episodic memory	LN	Ji	57.6%	0.001	delta, beta, alpha, Ji	76.5%	0.002
		VN	Ji	28.2%	0.034	delta, Ji	37.4%	0.048

The variance explained by the parameters used in backward regressions is calculated with the R^2 index and the relative significance of F test (significant threshold is set at $p < 0.05$). In MCI negative and positive to biomarkers (MCI- and MCI+ respectively) a different combination of network (limbic-LN; attention-AN; frontoparietal-FPN; visual-VN) features significantly explains a percentage of verbal episodic memory variance. EEG parameters alone are not significant predictors of verbal episodic memory performance while some TVB parameters alone are able to significantly explain memory performance variance of patients, in particular the levels of inhibition (Ji) of the LN for MCI+. EEG and TVB parameters combined as predictors explain a significant amount of variance (above 90%).