

## Altered amygdala and hippocampus effective connectivity in mild cognitive impairment patients with depression: a resting-state functional MR imaging study with granger causality analysis

### SUPPLEMENTARY TABLES

**Supplementary Table 1: Correlation results between the altered effective connectivity of amygdala (R) - supplementary motor area (bilateral) and neuropsychological performances in aMCI-MDD and aMCI patients**

Variables	MDD-aMCI		aMCI	
	r	P	r	P
MMSE/30	-0.120	0.710 <sup>e</sup>	0.036	0.908 <sup>e</sup>
MOCA/30	-0.098	0.714 <sup>d</sup>	-0.058	0.847 <sup>d</sup>
AVLT-immediate learning (n)	-0.087	0.789 <sup>e</sup>	0.070	0.820 <sup>e</sup>
AVLT-delayed recall (n)	0.029	0.931 <sup>d</sup>	-0.001	0.886 <sup>d</sup>
AVLT-recognition (n)	0.093	0.771 <sup>d</sup>	0.118	0.698 <sup>d</sup>
CDT (score)	-0.150	0.396 <sup>d</sup>	0.308	0.305 <sup>d</sup>

<sup>d</sup> Spearman rank correlation; <sup>e</sup> Pearson correlation;

MDD-aMCI = Major Depression Disorder and Amnesic Mild Cognitive Impairment; aMCI = Amnesic Mild Cognitive Impairment.

n = number; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; AVLT = Auditory Verbal Learning Test (AVLT); CDT = Clock Drawing Test.

**Supplementary Table 2: Correlation results between the altered effective connectivity of amygdala (R) – lingual and calcarine gyrus (R) and neuropsychological performances in aMCI-MDD and aMCI patients**

Variables	MDD-aMCI		aMCI	
	r	P	r	P
MMSE/30	0.147	0.647 <sup>e</sup>	-0.190	0.534 <sup>e</sup>
MOCA/30	0.046	0.890 <sup>d</sup>	-0.220	0.461 <sup>d</sup>
AVLT-immediate learning (n)	-0.572	0.052 <sup>e</sup>	0.189	0.537 <sup>e</sup>
AVLT-delayed recall (n)	0.126	0.694 <sup>d</sup>	0.020	0.951 <sup>d</sup>
AVLT-recognition (n)	0.345	0.271 <sup>d</sup>	0.033	0.916 <sup>d</sup>
CDT (score)	-0.094	0.509 <sup>d</sup>	0.253	0.246 <sup>d</sup>

<sup>d</sup> Spearman rank correlation; <sup>e</sup> Pearson correlation;

MDD-aMCI = Major Depression Disorder and Amnesic Mild Cognitive Impairment; aMCI = Amnesic Mild Cognitive Impairment.

n = number; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; AVLT = Auditory Verbal Learning Test (AVLT); CDT = Clock Drawing Test.

**Supplementary Table 3: Correlation results between the altered effective connectivity of hippocampus (L) – superior parietal gyrus and superior and middle occipital gyrus (L) and neuropsychological performances in aMCI-MDD and aMCI patients**

Variables	aMCI-MDD		MCI	
	r	P	r	P
MMSE/30	<b>0.594</b>	<b>0.042<sup>e*</sup></b>	-0.354	0.235 <sup>e</sup>
MOCA/30	0.077	0.813 <sup>d</sup>	-0.006	0.982 <sup>d</sup>
AVLT-immediate learning (n)	<b>-0.626</b>	<b>0.029<sup>e*</sup></b>	-0.334	0.264 <sup>e</sup>
AVLT-delayed recall (n)	0.436	0.157 <sup>d</sup>	-0.210	0.423 <sup>d</sup>
AVLT-recognition (n)	0.041	0.899 <sup>d</sup>	-0.268	0.373 <sup>d</sup>
CDT (score)	0.265	0.406 <sup>d</sup>	-0.148	0.427 <sup>d</sup>

<sup>d</sup> Spearman rank correlation; <sup>e</sup> Pearson correlation;

\* P < 0.05;

n = number; MMSE = Mini-Mental State Examination; MoCA = Montreal Cognitive Assessment; AVLT = Auditory Verbal Learning Test (AVLT); CDT = Clock Drawing Test.