

Supplementary Materials for “Volumetric GWAS of Medial Temporal Lobe Structures Identifies an *ERC1* Locus using ADNI High-resolution T2-weighted MRI Data” by Shan Cong, Xiaohui Yao, Zhi Huang, Shannon L. Risacher, Kwangsik Nho, Andrew J. Saykin, Li Shen; UK Brain Expression Consortium, for the Alzheimer’s Disease Neuroimaging Initiative

ADNI Acknowledgements

Data collection and sharing for this project was funded by the Alzheimer's Disease Neuroimaging Initiative (ADNI) (National Institutes of Health Grant U01 AG024904) and DOD ADNI (Department of Defense award number W81XWH-12-2-0012). ADNI is funded by the National Institute on Aging, the National Institute of Biomedical Imaging and Bioengineering, and through generous contributions from the following: AbbVie, Alzheimer’s Association; Alzheimer’s Drug Discovery Foundation; Araclon Biotech; BioClinica, Inc.; Biogen; Bristol-Myers Squibb Company; CereSpir, Inc.; Cogstate; Eisai Inc.; Elan Pharmaceuticals, Inc.; Eli Lilly and Company; EuroImmun; F. Hoffmann-La Roche Ltd and its affiliated company Genentech, Inc.; Fujirebio; GE Healthcare; IXICO Ltd.; Janssen Alzheimer Immunotherapy Research & Development, LLC.; Johnson & Johnson Pharmaceutical Research & Development LLC.; Lumosity; Lundbeck; Merck & Co., Inc.; Meso Scale Diagnostics, LLC.; NeuroRx Research; Neurotrack Technologies; Novartis Pharmaceuticals Corporation; Pfizer Inc.; Piramal Imaging; Servier; Takeda Pharmaceutical Company; and Transition Therapeutics. The Canadian Institutes of Health Research is providing funds to support ADNI clinical sites in Canada. Private sector contributions are facilitated by the Foundation for the National Institutes of Health (www.fnih.org). The grantee organization is the Northern California Institute for Research and Education, and the study is coordinated by the Alzheimer’s Therapeutic Research Institute at the University of Southern California. ADNI data are disseminated by the Laboratory for Neuro Imaging at the University of Southern California.

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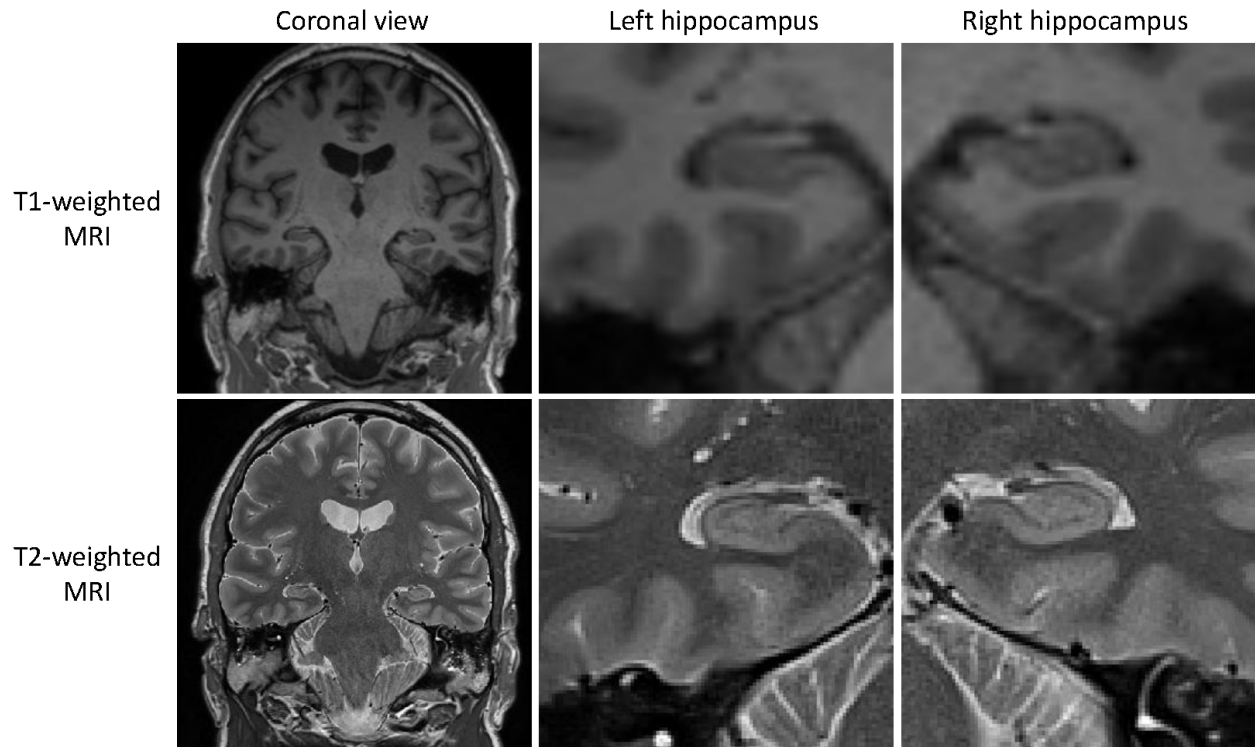
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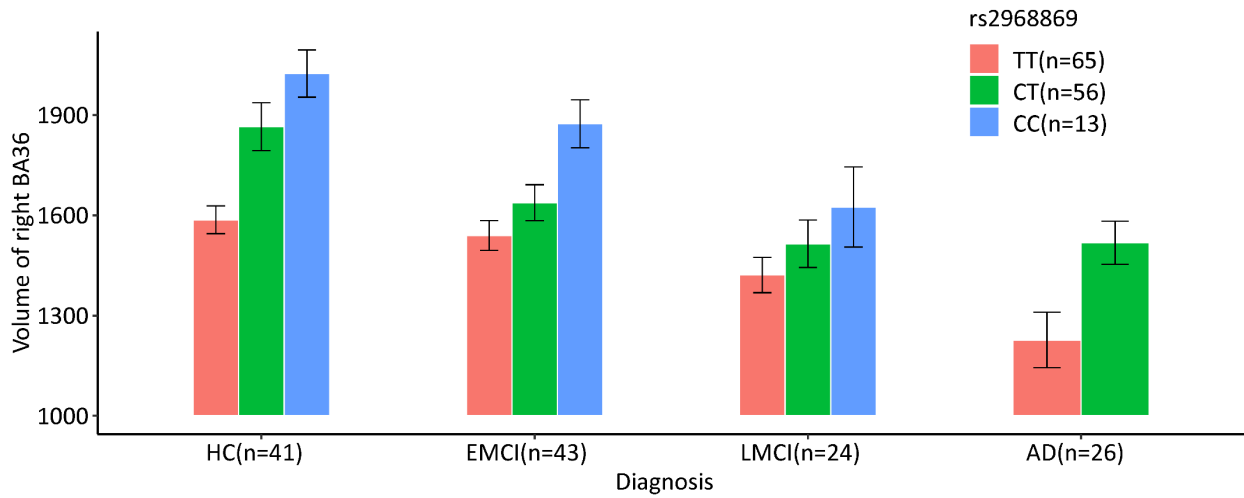
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IGAP Acknowledgements

We thank the International Genomics of Alzheimer's Project (IGAP) for making summary results data available to the public, which were used in our analysis. The investigators within IGAP contributed to the design and implementation of IGAP and/or provided data but did not participate in analysis or writing of this report. IGAP was made possible by the generous participation of the control subjects, the patients, and their families. The i-Select chips was funded by the French National Foundation on Alzheimer's disease and related disorders. EADI was supported by the LABEX (laboratory of excellence program investment for the future) DISTALZ grant, Inserm, Institut Pasteur de Lille, Université de Lille 2 and the Lille University Hospital. GERAD was supported by the Medical Research Council (Grant n° 503480), Alzheimer's Research UK (Grant n° 503176), the Wellcome Trust (Grant n° 082604/2/07/Z) and German Federal Ministry of Education and Research (BMBF): Competence Network Dementia (CND) grant n° 01GI0102, 01GI0711, 01GI0420. CHARGE was partly supported by the NIH/NIA grant R01 AG033193 and the NIA AG081220 and AGES contract N01-AG-12100, the NHLBI grant R01 HL105756, the Icelandic Heart Association, and the Erasmus Medical Center and Erasmus University. ADGC was supported by the NIH/NIA grants: U01 AG032984, U24 AG021886, U01 AG016976, and the Alzheimer's Association grant ADGC-10-196728.



Supplementary Figure 1. An example comparison on a same subject between conventional 3T T1-weighted MRI (top panel) and 3T T2-weighted high-resolution MRI (bottom panel). The first column shows one coronal slice from each MRI scan, the second and third columns show a zoom-in view of left and right hippocampi respectively.



Supplementary Figure 2. Effect of *ERC1* rs2968869 on the right BA36 volume stratified by diagnostic group. The minor allele (C) of rs2968869 is associated with increased R-BA36 volume for all diagnostic groups. Of note, the R-BA36 volume measures are adjusted by removing the effects of age, gender, education, Intracranial Volume (ICV), and the top four principal components from population stratification analysis.

Supplementary Table 1. Participant characteristics in genetic association study of VBM right hippocampal gray matter density.

Diagnosis	HC	SMC	EMCI	LMCI	AD	P-value
Number	298	89	237	407	353	-
Gender (M/F)	159/139	36/53	133/104	253/154	200/153	3.23E-03
Age (mean±std)	76.68±6.05	72.35±5.68	71.69±7.30	75.21±7.98	75.81±7.67	2.53E-16
Education (mean±std)	16.23±2.67	16.76±2.62	15.90±2.57	15.91±2.88	15.32±3.03	1.92E-05
APOE ε4 positive	27.52%	33.71%	42.37%	53.56%	66.01%	3.89E-23
Left hippocampus (mean±std)	0.48±0.05	0.50±0.04	0.48±0.05	0.45±0.06	0.41±0.07	6.70E-80
Right hippocampus (mean±std)	0.45±0.05	0.48±0.04	0.46±0.05	0.42±0.06	0.38±0.06	2.15E-90

Note: p-values were assessed for significant differences among diagnosis groups and were computed using one-way ANOVA (except for gender using chi-square test). The p-values < 0.05 are shown **in bold**. HC=Healthy Control; SMC, significant memory concern; EMCI=Early Mild Cognitive Complaint; LMCI=Late Mild Cognitive Complaint; AD=Alzheimer's disease.

Supplementary Table 2. Participant characteristics in genetic association analysis of FDG right hippocampal glucose metabolism.

Diagnosis	HC	SMC	EMCI	LMCI	AD	P-value
Number	195	91	241	169	169	-
Gender (M/F)	101/94	38/53	134/107	105/64	100/69	1.78E-02
Age (mean±std)	76.54±6.64	72.54±5.56	71.70±7.31	74.73±8.32	75.39±7.75	1.48E-11
Education (mean±std)	16.29±2.72	16.86±2.58	15.87±2.58	16.16±2.81	15.88±2.77	2.60E-02
APOE ε4 present	27.18%	32.97%	42.92%	50.30%	64.50%	5.88E-12
Left hippocampus (mean±std)	1.06±0.09	1.09±0.09	1.06±0.09	1.01±0.11	0.92±0.12	1.15E-50
Right hippocampus (mean±std)	1.05±0.10	1.07±0.08	1.05±0.08	1.00±0.11	0.93±0.12	6.82E-40

Note: p-values were assessed for significant differences among diagnosis groups and were computed using one-way ANOVA (except for gender using chi-square test). The p-values < 0.05 are shown **in bold**. HC=Healthy Control; SMC, significant memory concern; EMCI=Early Mild Cognitive Complaint; LMCI=Late Mild Cognitive Complaint; AD=Alzheimer's disease.