

## SUPPLEMENTARY TABLES

**Supplementary Table 1. Effects of genetic markers on the age at the midpoint of cognitive function decline (*M*) and the rate of cognitive function decline (*R*) parameters based on the MMSE after adjusting for sex and education years (*n* = 283).**

Covariates	Minor allele	Regression coefficients on <i>M</i>		Regression coefficients on <i>R</i>	
		Posterior mean	95% CI	Posterior mean	95% CI
Sex (female vs. male)	—	-1.02	(-2.93, 0.92)	0.64	(0.23, 1.11)*
Education years	—	0.39	(0.18, 0.61)*	-0.04	(-0.09, -0.003)*
<i>APOE</i>	ε4	-2.10	(-3.79, -0.34)*	0.90	(0.37, 1.42)*
<i>ABCA7</i> rs3764650	G	-1.74	(-3.16, -0.29)*	-0.20	(-0.51, 0.13)
<i>SORL1</i> rs3737529	T	2.65	(0.41, 4.90)*	0.56	(0.01, 1.07)*
<i>SORL1</i> rs1784933	G	1.16	(-0.91, 3.22)	0.12	(-0.33, 0.52)
<i>SORL1</i> rs2298813	A	0.88	(-1.78, 3.61)	-0.005	(-0.60, 0.71)
<i>BINI</i> rs744373	G	-0.47	(-1.79, 0.86)	-0.16	(-0.43, 0.11)
<i>GAB2</i> rs2373115	A	-0.35	(-1.69, 0.99)	0.09	(-0.23, 0.40)
<i>CD33</i> rs3865444	A	1.32	(-0.34, 2.95)	-0.05	(-0.41, 0.36)

Note: The subset of 255 AD and 28 MCI progression to AD patients were analyzed.

Abbreviations: MMSE, Mini-Mental State Examination; CI, credible interval.

\*Statistically significant with 95% credible interval.

**Supplementary Table 2. Model selection among the eight genetic markers after adjusting for sex and education years (*n* = 283).**

Models	Variables in the model	Posterior model probabilities
Model 1	<i>APOE</i> , <i>SORL1</i> rs3737529	0.8988
Model 2	<i>APOE</i> , <i>ABCA7</i> rs3764650, <i>SORL1</i> rs3737529, <i>SORL1</i> rs1784933	0.0565
Model 3	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>CD33</i> rs3865444	0.0216
Model 4	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>SORL1</i> rs1784933	0.0131
Model 5	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>SORL1</i> rs2298813	0.0066
Model 6	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>GAB2</i> rs2373115	0.0024
Model 7	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>BINI</i> rs744373, <i>GAB2</i> rs2373115	0.0009
Model 8	<i>APOE</i> , <i>SORL1</i> rs3737529, <i>BINI</i> rs744373	0.0002

Note: The subset of 255 AD and 28 MCI progression to AD patients were analyzed.

**Supplementary Table 3. Effects of *APOE* and *SORL1* rs3737529 on the age at the midpoint of cognitive function decline (*M*) and the rate of cognitive function decline (*R*) parameters based on the MMSE after Bayesian variable selection (*n* = 283).**

Covariates	Minor allele	Regression coefficients on <i>M</i>		Regression coefficients on <i>R</i>	
		Posterior mean	95% CI	Posterior mean	95% CI
Sex (female vs. male)	—	-0.89	(-2.88, 1.12)	0.59	(0.12, 1.12)*
Education years	—	0.40	(0.19, 0.62)*	-0.04	(-0.09, 0.003)
<i>APOE</i>	ε4	-2.50	(-4.25, -0.73)*	0.82	(0.37, 1.30)*
<i>SORL1</i> rs3737529	T	1.58	(0.01, 3.23)*	0.43	(0.06, 0.80)*

Note: The subset of 255 AD and 28 MCI progression to AD patients were analyzed.

Abbreviations: MMSE, Mini-Mental State Examination; CI, credible interval.

\*Statistically significant with 95% credible interval.

**Supplementary Table 4. Effects of genetic markers on the age at the midpoint of cognitive function decline (*M*) and the rate of cognitive function decline (*R*) parameters based on the MMSE after adjusting for sex and education years using the ADNI data (*n* = 385).**

Covariates	Minor allele	Regression coefficients on <i>M</i>		Regression coefficients on <i>R</i>	
		Posterior mean	95% CI	Posterior mean	95% CI
Sex (female vs. male)	—	-1.47	(-3.34, 0.39)	-0.05	(-0.29, 0.18)
Education years	—	-0.04	(-0.36, 0.28)	-0.07	(-0.10, -0.03)*
<i>APOE</i>	ε4	-3.82	(-5.14, -2.44)*	-0.05	(-0.23, 0.13)
<i>ABCA7</i> rs3764650	G	1.35	(-0.55, 3.22)	0.09	(-0.18, 0.37)
<i>SORL1</i> rs3737529	T	-1.67	(-5.06, 1.92)	0.16	(-0.44, 1.02)
<i>SORL1</i> rs1784933	G	1.68	(-1.24, 4.57)	0.11	(-0.30, 0.56)
<i>SORL1</i> rs2298813	A	2.19	(-0.62, 4.97)	-0.14	(-0.44, 0.18)
<i>BINI</i> rs744373	G	-0.13	(-1.50, 1.26)	-0.14	(-0.32, 0.04)
<i>GAB2</i> rs2373115	A	-0.39	(-1.94, 1.16)	-0.07	(-0.26, 0.14)
<i>CD33</i> rs3865444	A	0.57	(-0.79, 1.95)	0.12	(-0.06, 0.31)

Note: The sample of 150 AD and 235 MCI progression to AD patients with at least four MMSE measurements were analyzed.

Abbreviations: MMSE, Mini-Mental State Examination; CI, credible interval.

\*Statistically significant with 95% credible interval.

**Supplementary Table 5. The TaqMan genotyping assay ID for the selected single nucleotide polymorphism (SNP).**

<b>Gene</b>	<b>SNP</b>	<b>TaqMan genotyping assay ID</b>
<i>APOE_e2/3/4</i>	rs429358	C_3084793_20
<i>APOE_e2/3/4</i>	rs7412	C_904973_10
<i>ABCA7</i>	rs3764650	C_27478162_20
<i>SORL1</i>	rs3737529	C_25803133_10
<i>SORL1</i>	rs1784933	C_8799397_10
<i>SORL1</i>	rs2298813	C_16190780_10
<i>BIN1</i>	rs744373	C_1042213_10
<i>GAB2</i>	rs2373115	C_12033202_20
<i>CD33</i>	rs3865444	C_1487395_40