Supplementary Material

Altered Anterior Insular Metabolic Connectivity in Asymptomatic *MAPT* P301L Carriers

Supplementary Table 1. The label and name of 100 nodes in connectome analysis

Node ID	Node label	Node name
1	lPrc	Left Precentral
2	rPrc	Right Precentral
3	lSupFro	Left Superior Frontal
4	rSupFro	Right Superior Frontal
5	lSupFroOrb	Left Superior Frontal Orbital
6	rSupFroOrb	Right Superior Frontal Orbital
7	lMidFro	Left Middle Frontal
8	rMidFro	Right Middle Frontal
9	lMidFroOrb	Left Middle Frontal Orbital
10	rMidFroOrb	Right Middle Frontal Orbital
11	lInfFroOpe	Left Inferior Frontal Operculum
12	rInfFroOpe	Right Inferior Frontal Operculum
13	lInfFro	Left Inferior Frontal
14	rInfFro	Right Inferior Frontal
15	lInfFroOrb	Left Inferior Frontal Orbital
16	rInfFroOrb	Right Inferior Frontal Orbital
17	lRolOpe	Left Rolandic Operculum
18	rRolOpe	Right Rolandic Operculum
19	lSupMot	Left Superior Motor
20	rSupMot	Right Superior Motor
21	lOlf	Left Olfactory
22	rOlf	Right Olfactory
23	lSupMedFro	Left Superior Medial Frontal
24	rSupMedFro	Right Superior Medial Frontal
25	lMedFroOrb	Left Medial Frontal Orbital
26	rMedFroOrb	Right Medial Frontal Orbital
27	lRec	Left Rectus
28	rRec	Right Rectus
29	lG	left hypergranular insula
30	rG	right hypergranular insula
31	lvIa	left ventral agranular insula
32	rvIa	right ventral agranular insula
33	ldIa	left dorsal agranular insula

34	rdIa	right dorsal agranular insula
35	lvId/vIg	left ventral dysgranular and granular insula
36	rvId/vIg	right ventral dysgranular and granular insula
37	ldIg	left dorsal granular insula
38	rdIg	right dorsal granular insula
39	ldId	left dorsal dysgranular insula
40	rdId	right dorsal dysgranular insula
41	lAntCin	Left Anterior Cingulum
42	rAntCin	Right Anterior Cingulum
43	lMidCin	Left Middle Cingulum
44	rMidCin	Right Middle Cingulum
45	lCin	Left Cingulum
46	rCin	Right Cingulum
47	lHip	Left Hippocampus
48	rHip	Right Hippocampus
49	lParHip	Left Parahippocampus
50	rParHip	Right Parahippocampus
51	lAmy	Left Amygdala
52	rAmy	Right Amygdala
53	lCal	Left Calcarine
54	rCal	Right Calcarine
55	lCun	Left Cuneus
56	rCun	Right Cuneus
57	lLin	Left Lingual
58	rLin	Right Lingual
59	lSupOcc	Left Superior Occipital
60	rSupOcc	Right Superior Occipital
61	lMidOcc	Left Middle Occipital
62	rMidOcc	Right Middle Occipital
63	lInfOcc	Left Inferior Occipital
64	rInfOcc	Right Inferior Occipital
65	lFus	Left Fusiform
66	rFus	Right Fusiform
67	lPoC	Left Postcentral
68	rPoC	Right Postcentral
69	lSupPar	Left Superior Parietal
70	rSupPar	Right Superior Parietal
71	lInfPar	Left Inferior Parietal
72	rInfPar	Right Inferior Parietal
73	lSupMar	Left Supramarginal
74	rSupMar	Right Supramarginal

75	lAng	Left Angular
76	rAng	Right Angular
77	lPCu	Left Precuneus
78	rPCu	Right Precuneus
79	lCenPacLo	Left Central Paracentral Lobule
80	rCenPacLo	Right Central Paracentral Lobule
81	lCau	Left Caudate
82	rCau	Right Caudate
83	lPut	Left Putamen
84	rPut	Right Putamen
85	lPal	Left Pallidum
86	rPal	Right Pallidum
87	lTha	Left Thalamus
88	rTha	Right Thalamus
89	lHes	Left Heschl
90	rHes	Right Heschl
91	lSupTem	Left Superior Temporal
92	rSupTem	Right Superior Temporal
93	lSupTemPo	Left Superior Temporal Pole
94	rSupTemPo	Right Superior Temporal Pole
95	lMidTem	Left Middle Temporal
96	rMidTem	Right Middle Temporal
97	lMidTemPo	Left Middle Temporal Pole
98	rMidTemPo	Right Middle Temporal Pole
99	lInfTem	Left Inferior Temporal
100	rInfTem	Right Inferior Temporal

Supplementary Table 2. p value of correlation analysis between gray matter volume of subregions of insula and neuropsychological test

	MMSE	MoCA	CDR_SOB	BNT	NPI	FBI	FBI apathy	FBI disinhibition
G_L	0.6828	0.6021	0.5731	0.9087	0.8655	0.4417	0.4616	0.9086
G_R	0.5641	0.6774	0.9527	0.9648	0.2895	0.9466	0.8458	0.4888
dIa_L	0.9629	0.5082	0.2903	0.5222	0.8284	0.8916	0.8693	0.9103
dIa_R	0.9194	0.9587	0.3030	0.7417	0.2765	0.4601	0.4548	0.8273
dId_L	0.8669	0.3897	0.2319	0.4551	0.9442	0.8282	0.9261	0.7804
dId_R	0.6632	0.8059	0.3323	0.609	0.2542	0.5904	0.7289	0.7085
dIg_L	0.9402	0.3748	0.3004	0.7333	0.8141	0.5328	0.578	0.9873
dIg_R	0.7887	0.7586	0.4494	0.5185	0.2265	0.7906	0.9868	0.5453
vIa_L	0.9451	0.4856	0.2311	0.1361	0.8813	0.9421	0.9584	0.7499
vIa_R	0.7706	0.7506	0.1689	0.2092	0.6275	0.5728	0.4971	0.6468
vId_vIg_L	0.9915	0.5028	0.3598	0.2144	0.756	0.5236	0.7093	0.5861
vId_vIg_R	0.5913	0.8339	0.3565	0.2071	0.4343	0.7121	0.7478	0.9759

G, hypergranular insula; vIa, ventral agranular insula; dIa, dorsal agranular insula; vId/vIg, ventral dysgranular and granular insula; dIg, dorsal granular insula; dId, dorsal dysgranular insula; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; Clinical Dementia Rating sum of box, CDR_SOB; BNT, Boston Naming Test; NPI, Neuropsychiatric Inventory; FBI, Frontal Behavioral Inventory

Supplementary Table 3. r value of correlation analysis between gray matter volume of subregions of insula and neuropsychological test

	MMSE	MoCA	CDR_SOB	BNT	NPI	FBI	FBI apathy	FBI disinhibition
G_L	-0.0778	0.0992	-0.1071	-0.0219	-0.0323	-0.1459	-0.1397	0.0219
G_R	-0.1096	-0.0792	-0.0113	0.0084	0.1999	0.0128	-0.0371	0.1314
dIa_L	0.0089	0.1257	-0.1996	0.1216	0.0413	0.0260	0.0314	-0.0215
dIa_R	0.0193	0.0099	-0.1945	0.0628	0.2053	0.1402	0.1418	-0.0416
dId_L	0.0320	0.1629	-0.2250	0.1417	-0.0134	-0.0414	-0.0177	-0.0531
dId_R	0.0829	0.0468	-0.1833	0.0973	0.2148	0.1024	0.0660	0.0712
dIg_L	-0.0143	0.1680	-0.1956	0.0649	-0.0448	-0.1185	-0.1058	-0.0030
dIg_R	0.0511	0.0585	-0.1435	0.1226	0.2276	0.0506	0.0031	0.1150
vIa_L	-0.0131	0.1324	-0.2254	0.2786	-0.0285	-0.0139	0.0100	-0.0607
vIa_R	0.0556	0.0606	-0.2579	0.2361	0.0923	0.1072	0.1289	-0.0872
vId_vIg_L	-0.0020	0.1272	-0.1733	0.2334	-0.0592	-0.1212	-0.0710	-0.1036
vId_vIg_R	0.1021	0.0400	-0.1745	0.2371	0.1483	0.0703	0.0613	0.0058

G, hypergranular insula; vIa, ventral agranular insula; dIa, dorsal agranular insula; vId/vIg, ventral dysgranular and granular insula; dIg, dorsal granular insula; dId, dorsal dysgranular insula; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; Clinical Dementia Rating sum of box, CDR_SOB; BNT, Boston Naming Test; NPI, Neuropsychiatric Inventory; FBI, Frontal Behavioral Inventory

Supplementary Table 4. p value of correlation analysis between gray matter metabolism of subregions of insula and neuropsychological test

	MMSE	MoCA	CDR_SOB	BNT	NPI	FBI	FBI apathy	FBI disinhibition
G_L	0.4758	0.4863	0.9021	0.8989	0.3272	0.8272	0.6080	0.3911
G_R	0.4311	0.7207	0.7394	0.5901	0.9333	0.4129	0.1452	0.0518
dIa_L	0.7935	0.9624	0.2767	0.1174	0.4167	0.4792	0.3458	0.0484*
dIa_R	0.2424	0.1502	0.0992	0.4791	0.7690	0.0791	0.4145	0.0292*
dId_L	0.1937	0.7559	0.5102	0.7898	0.2971	0.1937	0.1624	0.5540
dId_R	0.8421	0.4111	0.0747	0.7824	0.9527	0.0750	0.1515	0.0671
dIg_L	0.1451	0.227	0.4379	0.6104	0.1537	0.6854	0.6129	0.7046
dIg_R	0.3170	0.5707	0.9291	0.6569	0.7013	0.1918	0.0604	0.0658
vIa_L	0.2697	0.0516	0.0819	0.4499	0.4379	0.3180	0.2431	0.0298*
vIa_R	0.1307	0.0950	0.0515	0.7741	0.7722	0.3548	0.4789	0.0104*
vId_vIg_L	0.7305	0.5954	0.3668	0.5063	0.1129	0.3116	0.1912	0.2957
vId_vIg_R	0.8176	0.6142	0.2418	0.2149	0.4595	0.4242	0.1155	0.2971

G, hypergranular insula; vIa, ventral agranular insula; dIa, dorsal agranular insula; vId/vIg, ventral dysgranular and granular insula; dIg, dorsal granular insula; dId, dorsal dysgranular insula; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; Clinical Dementia Rating sum of box, CDR_SOB; BNT, Boston Naming Test; NPI, Neuropsychiatric Inventory; FBI, Frontal Behavioral Inventory

Supplementary Table 5. r value of correlation analysis between gray matter volume of subregions of insula and neuropsychological test

	MMSE	MoCA	CDR_SOB	BNT	NPI	FBI	FBI apathy	FBI disinhibition
G_L	0.1353	0.1322	0.0234	-0.0242	-0.1852	0.0416	0.0976	-0.1624
G_R	0.1493	0.0681	0.0634	0.1025	-0.0160	0.1552	0.2724	-0.3584
dIa_L	-0.0499	0.0090	-0.2052	-0.2920	0.1539	0.1343	0.1783	0.3633*
dIa_R	0.2201	0.2692	-0.3067	-0.1343	0.0560	0.3256	-0.1547	-0.3984*
dId_L	0.2441	0.0592	-0.1251	-0.0508	-0.1969	0.2441	0.2617	-0.1125
dId_R	0.0378	0.1558	-0.3302	0.0526	-0.0113	0.3300	0.4595	-0.3387
dIg_L	0.2725	0.2273	-0.1471	-0.0969	-0.2670	0.0771	0.0963	-0.0722
dIg_R	0.1891	0.1078	0.0170	0.0846	-0.0730	0.2451	0.3468	-0.3403
vIa_L	0.2081	0.3587	-0.3122	-0.1433	-0.1471	0.1887	0.2199	-0.3971*
vIa_R	0.2823	0.3105	-0.3473	0.0547	-0.0551	0.1751	-0.1344	-0.4607*
vId_vIg_L	0.0656	0.1010	-0.1708	-0.1262	-0.2955	0.1912	0.2454	-0.1974
vId_vIg_R	0.0439	0.0959	-0.2204	-0.2332	-0.1403	0.1515	0.2935	-0.1969

G, hypergranular insula; vIa, ventral agranular insula; dIa, dorsal agranular insula; vId/vIg, ventral dysgranular and granular insula; dIg, dorsal granular insula; dId, dorsal dysgranular insula; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; Clinical Dementia Rating sum of box, CDR_SOB; BNT, Boston Naming Test; NPI, Neuropsychiatric Inventory; FBI, Frontal Behavioral Inventory