

Supplementary Table. Regions showing significant GMV changes between the ESKD-MCI, ESKD-NCI and HCs groups adjusted for age, education level, and TIV (cluster level $P < 0.05$, FWE-corrected).

Comparisons	Findings	Cerebral regions (AAL3)	Cluster Size Voxels	F/t value	Peak coordinate		
					x	y	z
ANOVA	Any difference between the 3 groups	Cluster 1	7854	20.51	-18	-86	-15
		L/R Calcarine	3497				
		L/R Lingual gyrus	1956				
		L/R Cuneus	583				
		L Precuneus	447				
		L/R Cerebelum_6	293				
		L/R Fusiform	200				
		L Cerebelum_Crus1	128				
		Vermis_6	126				
		L/R Inferior occipital gyrus	165				
		L Superior occipital gyrus	104				
		Vermis_4_5	44				
		L Middle occipital gyrus	19				
		Cluster 2	2706	19.72	48	-16	39
		R Postcentral gyrus	1475				
		R Precentral gyrus	846				
		R Supramarginal gyrus	268				
		R Inferior parietal gyrus	80				
		Cluster 3	1670	18.62	-38	-28	54
		L Postcentral gyrus	1142				
		L Precentral gyrus	509				
		Cluster 4	9930	17.56	18	36	56
		L/R Middle cingulate and paracingulate gyri	3372				
		L/R Superior frontal gyrus	2258				
		L/R Superior frontal gyrus-medial	1755				
		L Middle frontal gyrus	937				
		L/R Supplementary motor area	822				
		L/R Anterior cingulate and paracingulate gyri	200				
		R Paracentral lobule	17				
		Cluster 5	3704	16.98	18	58	0
		R Middle frontal gyrus	1337				
		R Superior frontal gyrus	808				
		L/R Superior frontal gyrus-medial	732				
		R Inferior frontal gyrus-triangular part	319				
		R Superior frontal gyrus-orbital part	227				
		R Middle frontal gyrus- orbital part	127				
		R Superior frontal gyrus-medial orbital	99				
		Cluster 6	4188	16.32	-42	-28	15

		L Superior temporal gyrus	1128					
		L Supramarginal gyrus	1068					
		L Rolandic operculum	739					
		L Heschl gyrus	320					
		L Insula	215					
		L Inferior parietal gyrus	113					
		L Postcentral gyrus	58					
		L Middle temporal gyrus	27					
		Cluster 7	1810	15.18	50	-15	10	
		R Rolandic operculum	580					
		R Superior temporal gyrus	563					
		R Heschl gyrus	372					
		R Supramarginal gyrus	176					
		R Insula	68					
		Cluster 8	6948	15.04	-30	3	9	
		L/R Rectus	1857					
		L/R Putamen	1591					
		L/R Superior frontal gyrus-orbital part	751					
		L/R Amygdala	265					
		L/R Pallidum	294					
		L/R Olfactory cortex	290					
		L Middle frontal gyrus-orbital part	189					
		L Rolandic operculum	169					
		L/R Insula	159					
		L Superior frontal gyrus-medial orbital	126					
		R Parahippocampal gyrus	102					
		L/R Temporal pole: superior temporal gyrus	84					
		L/R Inferior frontal gyrus-orbital part	110					
		L Superior temporal gyrus	45					
		L Superior frontal gyrus	25					
		L Caudate	23					
		L Superior frontal gyrus-medial	16					
		Cluster 9	815	13.15	-66	-4	-21	
		L Middle temporal gyrus	401					
		L Inferior temporal gyrus	75					
ESKD-MCI vs. HCs	Decreased GMV	Cluster 1	2481	6.51	48	-15	38	
		R Postcentral gyrus	1426					
		R Precentral gyrus	670					
		R Supramarginal gyrus	268					
		R Inferior parietal gyrus	80					
		Cluster 2	9892	6.14	-10	-14	46	
		L/R Middle cingulate and paracingulate gyri	3367					
		L/R Superior frontal gyrus	2253					

L/R Superior frontal gyrus-medial	1738				
L/R Middle frontal gyrus	946				
L/R Supplementary motor area	813				
L/R Anterior cingulate and paracingulate gyri	198				
R Paracentral lobule	17				
Cluster 3	6544	5.96	-16	-84	-9
L/R Calcarine	3167				
L/R Lingual gyrus	1248				
L Precuneus	447				
L/R Cuneus	558				
L/R Cerebelum_6	254				
L/R Fusiform	200				
L Inferior occipital gyrus	105				
L Cerebelum_Crus1	105				
Vermis_6	102				
L Superior occipital gyrus	100				
L Middle occipital gyrus	18				
Vermis_4_5	18				
Cluster 4	3907	5.91	-39	-26	15
L Superior temporal gyrus	1113				
L Supramarginal gyrus	1048				
L Rolandic operculum	739				
L Heschl gyrus	320				
L Insula	215				
L Inferior parietal gyrus	62				
L Postcentral gyrus	56				
L Middle temporal gyrus	27				
Cluster 5	1293	5.90	-48	-18	44
L Postcentral gyrus	1028				
L Precentral gyrus	246				
Cluster 6	6271	5.67	15	26	-18
L/R Rectus	1856				
L/R Putamen	1156				
L/R Superior frontal gyrus-orbital part	713				
L/R Amygdala	254				
L/R Olfactory cortex	290				
L Middle frontal gyrus-orbital part	184				
L Rolandic operculum	169				
L/R Insula	159				
L/R Pallidum	215				
L Superior frontal gyrus-medial orbital	124				
R Parahippocampal gyrus	102				
L/R Temporal pole: superior temporal gyrus	79				
L/R Inferior frontal gyrus-orbital part	110				

			L Superior temporal gyrus	45				
			L Superior frontal gyrus	23				
			L Caudate	23				
			L Superior frontal gyrus-medial	12				
			Cluster 7	3669	5.30	10	57	21
			R Middle frontal gyrus	1334				
			R Superior frontal gyrus	782				
			L/R Superior frontal gyrus-medial	732				
			R Inferior frontal gyrus-triangular part	319				
			R Superior frontal gyrus-orbital part	227				
			R Middle frontal gyrus-orbital part	127				
			R Superior frontal gyrus-medial orbital	99				
			Cluster 8	1798	4.99	62	-20	18
			R Rolandic operculum	568				
			R Superior temporal gyrus	563				
			R Heschl gyrus	372				
			R Supramarginal gyrus	176				
			R Insula	68				
			Cluster 9	800	4.85	-66	-8	-18
			L Middle temporal gyrus	397				
			L Inferior temporal gyrus	74				
ESKD-NCI vs. HCs	Decreased GMV	Cluster 1		1039	5.82	-33	-26	63
			L Postcentral gyrus	533				
			L Precentral gyrus	506				
		Cluster 2		1575	5.51	30	3	6
			R Putamen	911				
			R Pallidum	197				
			R Amygdala	188				
			R Temporal pole: superior temporal gyrus	35				
			R Olfactory cortex	18				
		Cluster 3		4159	5.33	2	-72	-9
			L/R Calcarine	2569				
			L/R Lingual gyrus	984				
			L Cuneus	157				
			L Precuneus	118				
			Vermis_6	96				
			Vermis_4_5	41				
			L Superior occipital gyrus	17				
			R Inferior occipital gyrus	10				
		Cluster 4		1278	5.18	-66	-40	26
			L Supramarginal gyrus	447				
			L Superior temporal gyrus	390				
			L Inferior parietal gyrus	108				

		L Rolandic operculum	57				
		L Postcentral gyrus	13				
		Cluster 5	797	5.01	-18	-87	-15
		L Lingual gyrus	428				
		L Cerebelum_Crus1	104				
		L Fusiform	92				
		L Cerebelum_6	74				
		L Inferior occipital gyrus	72				
		L Middle occipital gyrus	14				
		Cluster 6	1389	4.99	39	-21	56
		R Postcentral gyrus	908				
		R Precentral gyrus	430				
		R Supramarginal gyrus	32				
		R Inferior parietal gyrus	11				
		Cluster 7	1085	4.93	18	58	2
		R Middle frontal gyrus	492				
		R Superior frontal gyrus	471				
		R Superior frontal gyrus-orbital part	66				
		R Middle frontal gyrus-orbital part	29				
		Cluster 8	811	4.90	50	-15	10
		R Rolandic operculum	342				
		R Heschl gyrus	325				
		R Superior temporal gyrus	113				
		R Insula	29				
		Cluster 9	1057	4.79	-28	4	8
		L Putamen	649				
		L Insula	74				
		L Pallidum	49				
		L Amygdala	39				
		L Olfactory cortex	11				
		Cluster 10	1277	4.35	-24	40	46
		L Superior frontal gyrus	734				
		L Middle frontal gyrus	421				
		L Superior frontal gyrus-medial	97				
		Cluster 11	671	4.26	2	39	-24
		L/R Rectus	597				
		L Superior frontal gyrus-orbital part	29				
		Cluster 12	868	4.11	-2	28	40
		L Superior frontal gyrus-medial	349				
		L/R Middle cingulate and paracingulate gyri	326				
		L Supplementary motor area	113				
ESKD-MCI vs.	Decreased GMV	Cluster 1	671	4.78	-64	-9	-26
		L Middle temporal gyrus	310				

Peak coordinates refer to the Montreal neurological institute atlas.

GMV: gray matter volume; ESKD-MCI: end-stage kidney disease with mild cognitive impairment; ESKD-NCI: ESKD with non-cognitive impairment; HCs: health controls; TIV: total intracranial volume; FWE: family-wise error; AAL: anatomical automatic labeling; L: left; R: right.