Supporting Information

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SI Materials and Methods

Data Acquisition. ***Humans.*** Subjects had no history of psychiatric or neurological illness as confirmed by psychiatric clinical assessment. Signed informed consent was obtained before participation, and the study was approved by the institutional review boards of the New York University School of Medicine and New York University. A Siemens Allegra 3.0 Tesla scanner equipped for echo planar imaging (EPI) was used for data acquisition. For each participant, 197 contiguous EPI functional volumes were collected (Repetition Time (TR) = 2,000 ms; Echo Time (TE) = 25 ms; flip angle = 90; 39 slices; matrix = 64 × 64; Field of View (FOV) = 192 mm; acquisition voxel size = 3 × 3 × 3 mm). Complete cerebellar coverage was not possible for all subjects. During the scan, the subject was instructed to rest with the eyes open while the word "relax" was projected center-screen in white against a black background. For spatial normalization and localization, a high-resolution T1-weighted anatomical image was then acquired using a magnetization-prepared gradient echo sequence (TR = 2,500 ms; TE = 4.35 ms; TI = 900 ms; flip angle = 8; 176 slices, FOV = 256 mm).

Monkeys. Eight monkeys (6 *M. fascicularis* and 2 *M. mulatta*) were anesthetized with isoflurane, and scanned with a Siemens Allegra 3.0 Tesla scanner over several sessions (300 volumes/session; TR = 3,020 ms; TE = 25 ms; flip angle = 90; 52 slices; voxel size = 1.5 × 1.5 × 1.5 mm). The first 1,800 volumes collected for each monkey (the minimum number of volumes available for any monkey) were used for subsequent connectivity analyses.

Human Preprocessing. Initial image preprocessing, including motion correction, despiking, and slice time correction, was done using AFNI (afni.nimh.nih.gov/afni). Subsequent preprocessing, including spatial filtering (FWHM = 4.5 mm), temporal bandpass filtering, and spatial normalization, was performed using FSL (www.fmrib.ox.ac.uk/fsl). Statistical processing and registration were then carried out using FSL (www.fmrib.ox.ac.uk). Functional data were individually registered to a standard space (MNI152) and resampled at 1 × 1 × 1 mm voxels.

Seed Placement. Seeds were selected in the right hemisphere in each individual brain after transformation to standard MNI152 space with the following criteria. (Descriptions are for human seeds only.)

Seed 1: Located in the subsplenial cortex within the sulcus, corresponding cytoarchitectonically to areas 29/30.

Seed 2: Located in the suprasplenial cortex within the sulcus, corresponding cytoarchitectonically to areas 29/30.

Seed 3: Located in the suprasplenial cortex on the cingulate gyrus, corresponding to area 23.

Seed 4: Located in the middle of the splenium in the *y*-axis, within the cingulate gyrus.

Seed 5: Located in the dorsalmost part of the marginal ramus of the cingulate sulcus, 6 mm posterior to it.

Seed 6: Located at the center of the marginal ramus of the cingulate sulcus, 6 mm posterior to it.

Seed 7: Located in the ventralmost part of the marginal ramus of the cingulate sulcus, 6 mm posterior to it.

Seed 8: Located 6 mm ventral to the cingulate sulcus, within 6 mm of seed 4 in the *y*-axis.

Seed 9: Located ≈10 mm posterior to seed 5. Depending on sulcal location, the row running from seed 9 to seed 12 was located on the gyrus posterior to the precuneal sulcus.

Seed 10: Located ventral to seed 9 along the sulcus.

Seed 11: Located ventral to seed 10 along the sulcus.

Seed 12: Located ventral to the subparietal sulcus, in line with seeds 9–11.

Seed 13: Located ≈10 mm posterior to seed 9. Depending on sulcal location, the row running from seed 13 to seed 16 was located 10 mm posterior to the precuneal sulcus.

Seed 14: Located ventral to seed 13 along the sulcus.

Seed 15: Located ventral to seed 14 along the sulcus.

Seed 16: Located ventral to seed 15 along the sulcus.

Seed 17: Located ≈10 mm posterior to seed 13 and 6 mm anterior to the parietal-occipital sulcus.

Seed 18: Located ventral to seed 17, 6 mm anterior to the parietal-occipital fissure.

Seed 19: Located centrally on the parietal-occipital sulcus.

Seed 20: Located ventral to seed 19 along the parietal-occipital fissure.

Seed 21: Located ventral to seed 20 along the parietal-occipital fissure and slightly dorsal of seed 1 in the *z*-axis.

Surface Mapping. The surface maps shown in Fig. 3, *SI Appendix*, S1, and S4–S7 were created by transforming the thresholded group-level statistical maps to the Colin27 (humans) and F6 (monkeys) standard cortical surfaces. Surface maps were then rendered using SUMA (http:afni.nimh.nih.gov/afni/suma) for humans and Caret (http:www.nitrc.org/projects/caret/) for monkeys.

Spectral Clustering of 21 Seed Regions. Correlation matrices comparing each seed region within subjects were created from seed region time series after orthogonalization to nuisance covariates. Fishers transform, $[1/2]\ln((1 + r)/(1 - r))$, was applied, the transformed correlation matrices were averaged (1), and spectral clustering was conducted. The optimal number of clusters was determined using cross-validation. The group was split in half, and Cramer's V (which has values in the interval [0,1], where high values indicate good consistency) was used to compare clustering solutions across the groups. The consistency check was performed for between 2 and 9 clusters. It yielded local maxima for the 4-cluster solution in humans and for 5 clusters in monkeys (*SI Appendix*, Fig. S6).

Footnotes.

(i). We are aware of the controversy surrounding the "limbic" theory of emotion processing (see, e.g., ref. 2), and we use the term throughout to refer to the cortical areas of the "limbic lobe" (see, e.g., ref. 3), including the cingulate cortex and medial temporal lobe.

(ii). The seed regions along the parieto-occipital fissure are particularly problematic for human–monkey comparisons. Anatomical studies in the macaque monkey show that the cortex along the parieto-occipital fissure does not belong architectonically to PGm but is instead part of prestriate area 19, referred to as area PO (2). In humans, Economo and Koskinas (4) noted a third cytoarchitectonic division along the dorsal parieto-occipital sulcus, which they termed PBγ. Vogt (5) also noted this distinction, delineating areas 83 and 83^{I} within the posterior precuneus (Fig. 2), as did a more recent probabilistic atlas (6); however, this area is still cytoarchitectonically related more closely to other areas within the precuneus (PE*m* and PE*p*) than to the visual cortex (4). Nonetheless, we cautiously address the similarities found in the functional connectivity in both species, and acknowledge the need for further studies examining the functional homologues in humans in monkeys (7).

(*iii*). Many of the seeds located in the cytoarchitectonic transition zone, area 31, demonstrated mixed patterns of connectivity that were not easily categorized. This region exhibited both limbic-type functional connectivity with ventral medial prefrontal areas and more somatomotor connectivity associated with the adjacent dorsal precuneal regions. Seed 8 also showed connectivity with the paracentral lobule and central and precentral premotor areas—all of which are more typical of the seeds located along the anterior precuneus. Seed 4 exhibited a similar pattern of connectivity to seed 8, but without the involvement of motor-related areas. Despite these complicated patterns of connectivity, seed 8 (and, to a lesser extent in the monkeys, aspects of seed 7) exhibited functional connectivity, consistent with previous tracing studies (see figures S9 and 11 in ref. 8). The difficulty in discerning a distinct pattern of connectivity for area 31 in humans is consistent with similar difficulties in the monkey literature, which may be due to its location between posterior cingulate area 23 and the more dorsally located precuneal areas. The injection of tracers that would be clearly restricted to area 31 is difficult, and in functional connectivity studies, the placement of seeds restricted to area 31 would be almost impossible in the living human brain.

(*iv*). One such example is the use of isoflurane anesthetic solely in monkeys. Although the effects of anesthesia on resting-state fMRI activity have been studied previously (9–12), anesthesia's potential impact on the monkey brain is difficult to predict. Anesthetics can directly influence cerebral blood flow via vasodilating properties, but they also differentially modulate neural activity in certain brain areas and thus indirectly affect cerebral blood flow as well. For example, isoflurane in humans was found to affect (probably both directly and indirectly) cerebral blood flow in healthy subjects studied using positron emission tomography (13, 14).

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Table S1. Functional connectivity with 21 seed regions in humans

Seed, x/y/z	Region	BA	x	y	z	Peak *Z*	Cluster voxels	Cluster significance; *P* value
1	**Subsplenial/retrosplenial cortex**	**29/30**	**−1**	**−40**	**3**	–	4,519	**4.86×10^{-28}**
−4/−45/8	Retrosplenial cortex	29/30	−4	−46	8	8.87	–	–
	Subsplenial cortex	29/30	12	−34	8	4.8	–	–
2	**Posterior cingulate cortex**	**23**	**−3**	**−42**	**25**	–	**1,535**	**1.36×10^{-12}**
−3/−45/23	Posterior cingulate cortex	23	−4	−46	24	9.22	–	–
	Posterior cingulate cortex	23	−4	−34	24	4.78	–	–
	Posterior cingulate gyrus	23	−4	−20	26	3.89	–	–
3	**Angular gyrus**	**39**	**−34**	**−59**	**39**	–	**777**	**1.79×10^{-7}**
−2/−39/27	Intraparietal sulcus	39/7	−28	−70	26	4.22	–	–
	Angular gyrus	39	−42	−60	38	4.13	–	–
	Superior parietal lobule	7	−30	−62	48	4.06	–	–
	Supramarginal gyrus	40	−44	−50	46	4.04	–	–
	Intraparietal sulcus	39	−32	−58	34	3.99	–	–
	Intraparietal sulcus	39	−24	−70	36	3.67		
	Posterior cingulate cortex	**23**	**1**	**−37**	**27**	–	**756**	**2.38×10^{-7}**
	Posterior cingulate gyrus	23	−2	−38	28	7.86	–	–
	Posterior cingulate gyrus	23	10	−22	28	3.41	–	–
	Angular gyrus		**38**	**−55**	**41**	–	**467**	**6.77×10^{-5}**
	Angular gyrus	39	40	−48	40	4.55	–	–
	Angular gyrus	39	44	−58	46	3.5	–	–
	Intraparietal sulcus	39/7	22	−64	36	2.9	–	–
	Intraparietal sulcus	39/7	32	−66	42	2.89	–	–
4	**Caudal anterior cingulate**	**24**	**4**	**38**	**22**	–	**6,175**	**4.6×10^{-34}**
−2/−36/35	Middle frontal gyrus	8	34	22	50	5.58	–	–
	Middle frontal gyrus	8	−28	28	48	5.36	–	–
	Middle frontal gyrus	9/46	50	28	26	5.22	–	–
	Superior frontal gyrus	9	18	42	46	4.85	–	–
	Posterior cingulate gyrus	**23**	**0**	**−37**	**36**	–	**1,029**	**2.92×10^{-9}**
	Posterior cingulate gyrus	23/31	0	−36	36	9.5	–	–
	Posterior cingulate gyrus	23/31	−12	−42	28	3.4	–	–
	Cingulate gyrus/precuneus	31/7	4	−52	38	3.04	–	–
	Angular gyrus	**39**	**47**	**−61**	**37**	–	**971**	**7.48×10^{-9}**
	Angular gyrus	39	56	−58	32	5.34	–	–
	Angular gyrus	39	44	−74	36	4.68	–	–
	Angular gyrus	39	52	−46	42	4.26	–	–
	Intraparietal sulcus	39	40	−58	36	4.1	–	–
	Angular gyrus	40	44	−66	48	4.05	–	–
	Angular gyrus	**39**	**−43**	**−64**	**41**	–	**617**	**3.76×10^{-6}**
	Angular gyrus	39	−36	−76	42	3.94	–	–
	Supramarginal gyrus	40	−52	−54	46	3.87	–	–
	Parahippocampal gyrus	**28/36**	**−28**	**−33**	**−15**	–	**274**	**6.0×10^{-3}**
	Parahippocampal gyrus	28/36	−28	−30	−16	3.94	–	–
	Parahippocampal gyrus	36	−24	−40	−10	3.7	–	–
	Hippocampus	27	−34	−18	−22	3.06	–	–
	Mid-cingulate gyrus	**24**	**0**	**−3**	**26**	–	**257**	**9.2×10^{-3}**
	Mid-cingulate gyrus	24	0	2	26	4.98	–	–
	Mid-cingulate gyrus	24	−2	−12	28	4.21	–	–
	Lingual gyrus	**17**	**1**	**−58**	**8**	–	**236**	**.0158**
	Posterior cingulate cortex	23	−4	−58	8	4.08	–	–
	Posterior cingulate cortex	23	8	−54	6	3.71	–	–
	Intracalcarine at posterior sulcus	17	−2	−68	14	3.37	–	–
	Posterior cingulate/parieto-occipital fissure	17	−18	−60	8	3	–	–
	Lingual gyrus	17	−16	−54	0	2.79	–	–
	Inferior frontal gyrus	**46**	**−45**	**28**	**19**	–	**212**	**.0298**
	Middle frontal gyrus	46	−46	34	24	3.29	–	–
	Inferior frontal sucus	9/46	−36	24	18	3.22	–	–
	Inferior frontal gyrus	9/46	−46	26	16	3.2	–	–
	Inferior frontal sulcus	45	−52	26	26	3.01	–	–
	Inferior frontal gyrus	45	−56	26	14	2.8	–	–
	Inferior temporal sulcus	**21/20**	**−57**	**−40**	**−14**	–	**212**	**.0298**
	Inferior temporal gyrus	20	−54	−40	−18	4.14	–	–
	Inferior temporal gyrus	37	−46	−48	−8	3.89	–	–
	Middle temporal gyrus	21	−62	−32	−14	3.64	–	–

Seed, x/y/z	Region	BA	x	y	z	Peak Z	Cluster voxels	Cluster significance; *P* value
5	**Dorsal anterior precuneus**		**−1**	**−48**	**64**	**–**	**2,048**	**1.67×10^{-16}**
−3/−51/65	Dorsal anterior precuneus	7	0	−52	66	7.5	–	–
	Paracentral lobule	4	−2	−42	70	6.08	–	–
	Mid-cingulate gyrus	**24**	**2**	**−5**	**42**	**–**	**234**	**.0105**
	Mid-cingulate gyrus	24	4	−16	42	3.91	–	–
	Caudal anterior cingulate	24	4	6	42	3.51	–	–
	Cingulate gyrus/paracentral lobule	31/4	14	−24	48	3.33	–	–
6	**Paracentral lobule**	**4**	**−2**	**−36**	**59**	**–**	**7,134**	**2.41×10^{-39}**
−2/−47/58	Mid-dorsal anterior precuneus	7	−2	−48	58	7.31	–	–
	Anterior precuneus/spl	7	12	−50	58	5.84	–	–
	Postcentral gyrus	5	18	−36	62	5.8	–	–
	Superior parietal lobule	7	30	−42	58	5.39	–	–
	Anterior marginal ramus of cingulate sulcus	4	−12	−42	58	5.37	–	–
	Superior temporal gyrus	**41**	**−50**	**−21**	**6**	**–**	**751**	**1.19×10^{-7}**
	Superior temporal gyrus	41	−50	−26	8	4.26	–	–
	Superior temporal gyrus	42	−60	−34	10	3.81	–	–
	Transverse temporal gyrus	41	−36	−30	10	3.67	–	–
	Insula	43	−38	−4	−2	3.66	–	–
	Central operculum	43	−38	−20	20	3.63	–	–
	Transverse temporal gyrus	**41**	**56**	**−24**	**11**	**–**	**412**	**1.44×10^{-4}**
	Planum temporale	41	36	−32	16	3.75	–	–
	Superior temporal gyrus	22	56	−28	16	3.52	–	–
	Superior temporal gyrus	22	52	−14	−6	3.33	–	–
	Postcentral gyrus	5	66	−10	22	3.26	–	–
	Parietal operculum	40	64	−8	10	3.25	–	–
	Lingual gyrus	**17**	**19**	**−47**	**−3**	**–**	**251**	**7.49×10^{-3}**
	Lingual gyrus	17	20	−48	−2	4.68	–	–
	Lingual gyrus	17	16	−38	−6	4.03	–	–
7	**Intracalcarine cortex**	**17**	**1**	**−71**	**12**	**–**	**3,031**	**2.33×10^{-21}**
−2/−44/51	Cuneal cortex	19	6	−80	34	4.91	–	–
	Lingual gyrus	18	0	−78	0	4.53	–	–
	Cuneal cortex	18	12	−72	24	4.45	–	–
	Parieto-occipital fissure	19/7	−16	−76	34	4.44	–	–
	Cuneal cortex	17	16	−68	14	4.39	–	–
	Ventral anterior precuneus	**7**	**2**	**−42**	**49**	**–**	**1,815**	**9.91×10^{-15}**
	Ventral anterior precuneus	7	0	−44	50	7.36	–	–
	Marginal ramus of cingulate sulcus	5/7	8	−42	56	5.05	–	–
	Paracentral lobule	5	−10	−36	50	4.99	–	–
	Ventral anterior precuneus	7	14	−44	48	4.65	–	–
	Paracentral lobule	4	16	−32	50	4.3	–	–
	Postcentral gyrus	**5**	**−43**	**−18**	**47**	**–**	**266**	**5.47×10^{-3}**
	Precentral gyrus	4	−46	−8	52	3.6	–	–
	Postcentral gyrus	5	−50	−16	46	3.41	–	–
	Postcentral gyrus	5	−38	−28	48	3.33	–	–
	Posterior insula	**43**	**38**	**−16**	**5**	**–**	**191**	**.0422**
	Posterior insula	43	40	−8	4	3.96	–	–
	Posterior insula	43	40	−22	−2	2.98	–	–
8	**Middle cingulate gyrus**	**24/31**	**−2**	**−6**	**41**	**–**	**12,877**	**~0**
−2/−31/45	Posterior cingulate gyrus	31	−6	−32	44	7.83	–	–
	Paracentral lobule	4	−2	−28	54	6.56	–	–
	Mid-cingulate gyrus	24	0	−18	40	5.66	–	–
	Postcentral gyrus	5	−34	−34	52	5.51	–	–
	Angular gyrus	**39**	**60**	**−42**	**27**	**–**	**623**	**2.68×10^{-6}**
	Angular gyrus	39	58	−50	32	4.55	–	–
	Superior temporal gyrus	39/40	66	−34	24	3.87	–	–
	Angular gyrus	39	54	−46	22	3.75	–	–
	Middle frontal gyrus	**46**	**−28**	**33**	**39**	**–**	**532**	**1.63×10^{-5}**
	Middle frontal gyrus	46	−36	28	42	4.65	–	–
	Middle frontal gyrus	46	−26	24	48	3.91	–	–
	Superior frontal gyrus	9/46	−8	40	42	3.68	–	–
	Superior frontal sulcus	9/46	−24	28	36	3.58	–	–
	Superior frontal sulcus	9/46	−24	44	32	3.58	–	–
	Central opercular cortex	**44**	**52**	**5**	**7**	**–**	**485**	**4.29×10^{-5}**
	Central operculur cortex	44	46	12	4	4.58	–	–

Seed, x/y/z	Region	BA	x	y	z	Peak Z	Cluster voxels	Cluster significance; P value
	Central opercular cortex	44	48	−10	14	3.82	–	–
	Precentral gyrus	4	62	8	6	3.61	–	–
	Inferior frontal gyrus, pars opercularis	44	56	18	6	3.27	–	–
	Postcentral gyrus	5	60	−8	18	3.21	–	–
	Middle temporal gyrus	**21**	**59**	**−24**	**−10**	**–**	**232**	**.0158**
	Middle temporal gyrus	21	56	−30	−10	4.08	–	–
	Middle temporal gyrus	21	64	−18	−12	3.97	–	–
9	**Central precuneus**	**7**	**5**	**−66**	**48**	**–**	**3,321**	**3.25 −23**
−2/−60/59	Dorsal central precuneus	7	−2	−62	60	6.85	–	–
	Superior parietal lobule	7	−14	−58	60	5.13	–	–
10	**Central precuneus**	**7**	**−2**	**−60**	**48**	**–**	**2,461**	**2.11×10^{-18}**
−2/−56/51	Central precuneus	7	0	−58	52	7.67	–	–
	Anterior precuneus	7	12	−46	48	4.86	–	–
	Central precuneus	7	12	−56	58	4.79	–	–
	Parieto-occipital fissure	18	−20	−68	24	4.6	–	–
	Central precuneus	7	12	−66	52	4.09	–	–
11	**Ventral central precuneus**	**7**	**0**	**−51**	**42**	**–**	**1,252**	**2.09×10^{-11}**
−2/−51/41	Ventral central precuneus	7	−2	−50	42	8.14	–	–
	Ventral central precuneus	7	10	−56	40	5.2	–	–
	Central precuneus	7	−12	−52	46	5	–	–
	Posterior cingulate	23/31	−16	−42	34	3.77	–	–
	Posterior cingulate gyrus	23/31	10	−34	40	3.33	–	–
	Angular gyrus	**39**	**58**	**−51**	**25**	**–**	**277**	**3.42×10^{-3}**
	Angular gyrus	39	60	−50	14	3.94	–	–
	Supramarginal gyrus	40	54	−48	32	3.91	–	–
12	**Middle cingulate gyrus**	**23**	**1**	**−45**	**34**	**–**	**1,216**	**5.12×10^{-11}**
−2/−47/35	Posterior cingulate gyrus	23/31	0	−46	34	8.85	–	–
	Ventral central precuneus/ posterior cingulate	7/31	14	−50	36	5.29	–	–
	Posterior cingulate gyrus	23	0	−26	36	4.03	–	–
	Middle temporal gyrus	**21**	**−55**	**−23**	**−16**	**–**	**999**	**1.79×10^{-9}**
	Middle temporal gyrus	21	−58	−4	−26	4.54	–	–
	Middle temporal gyrus	21	−60	−42	−12	4.39	–	–
	Superior temporal gyrus	38	−44	14	−30	3.98	–	–
	Angular gyrus	**39**	**−47**	**−63**	**31**	**–**	**810**	**5.96×10^{-8}**
	Posterior superior temporal gyrus	39/40	−46	−62	22	4.48	–	–
	Angular gyrus	39	−46	−66	32	4.48	–	–
	Angular gyrus	39	−46	−66	46	4.19	–	–
	Anterior paracingulate gyrus	**32**	**−2**	**52**	**0**	**–**	**706**	**3.58×10^{-7}**
	Gyrus rectus	11	−2	32	−26	4.13	–	–
	Anterior paracingulate gyrus	32	−8	48	16	4.09	–	–
	Gyrus rectus	11/12	6	56	−18	3.9	–	–
	Anterior paracingulate gyrus	32	2	54	−2	3.77	–	–
	Medial superior frontal gyrus	10	−4	64	4	3.55	–	–
	Superior middle occipital gyrus	**19**	**49**	**−60**	**30**	**–**	**414**	**1.39×10^{-4}**
	Angular gyrus	39	52	−62	34	4.85	–	–
	Angular gyrus	39	44	−52	24	4.64	–	–
	Superior middle occipital gyrus	19	44	−68	36	3.22	–	–
	Lateral orbital gyrus	**11/47**	**−43**	**33**	**−13**	**–**	**226**	**.0149**
	Lateral orbital gyrus	11/47	−42	38	−14	4.5	–	–
	Lateral orbital gyrus	47	−44	28	−16	4.05	–	–
	Posterior orbital gyrus	47/12	−34	30	−12	3.02	–	–
	Inferior frontal gyrus, pars triangularis	45	−50	24	−4	3	–	–
	Superior temporal gyrus	38	−44	16	−14	2.49	–	–
	Middle temporal gyrus	**21**	**54**	**−9**	**−24**	**–**	**203**	**.0283**
	Middle temporal gyrus	21	52	−8	−22	4.66	–	–
	Inferior temporal sulcus	21/20	64	−14	−28	3.85	–	–
	Middle temporal gyrus	21	62	−2	−24	2.81	–	–
	Inferior temporal gyrus	20	42	−8	−30	2.76	–	–
13	**Dorsal middle precuneus**	**7**	**−2**	**−70**	**51**	**–**	**1,448**	**1.41×10^{-12}**
−2/−70/53	Dorsal middle precuneus	7	−2	−70	56	7.63	–	–
	Superior parietal gyrus	7	−10	−66	62	4.94	–	–
	Superior parietal gyrus	7	18	−68	48	4.34	–	–
	Middle frontal gyrus	**6**	**−27**	**5**	**56**	**–**	**462**	**4.73×10^{-5}**
	Posterior superior frontal sulcus	6	−28	−2	60	4.09	–	–

Seed, x/y/z	Region	BA	x	y	z	Peak Z	Cluster voxels	Cluster significance; *P* value
	Middle frontal gyrus	6	−26	8	58	3.93	–	–
	Middle frontal gyrus	6	−34	16	50	3.38	–	–
	Posterior superior frontal sulcus	6	−26	−6	46	3.24	–	–
	Intraparietal sulcus	**39**	**41**	**−52**	**36**	**–**	**415**	**1.35×10^{-4}**
	Angular gyrus	39	40	−46	34	4.53	–	–
	Angular gyrus	39	40	−58	32	3.88	–	–
	Parallel sulcus, ascending/angular gyrus	39	48	−48	40	3.48	–	–
	Supramarginal gyrus	40	48	−38	34	3.46	–	–
	Middle frontal gyrus	**6**	**30**	**3**	**54**	**–**	**248**	**8.14×10^{-3}**
	Middle frontal gyrus	6	34	2	52	4.16	–	–
	Superior frontal gyrus	6	24	−4	54	3.59	–	–
	Superior frontal sulcus	6	24	8	56	3.19	–	–
	Middle frontal gyrus	6	34	10	60	2.7	–	–
14	**Central precuneus**	**7**	**−5**	**−66**	**44**	**–**	**1,234**	**4.25×10^{-11}**
−2/−64/45	Central precuneus	7	−2	−66	46	8.23	–	–
	Superior parietal lobule	7	−22	−74	48	4.02	–	–
	Superior parietal lobule	7	−30	−78	46	3.97	–	–
	Superior parietal lobule	7	−28	−68	48	3.8	–	–
	Posterior ventral precuneus	7/31	0	−70	28	3.5	–	–
	Posterior precuneus/parieto-occipital fissure	7	2	−74	34	3.31	–	–
	Middle frontal gyrus/superior frontal sulcus	**6/8**	**30**	**21**	**50**	**–**	**577**	**4.47×10^{-6}**
	Middle frontal gyrus	8	34	30	46	5.52	–	–
	Middle frontal gyrus	6/8	34	14	48	5.01	–	–
	Superior frontal gyrus	8	22	26	50	3.64	–	–
	Inferior frontal sulcus	**9/46**	**−41**	**40**	**10**	**–**	**455**	**5.84×10^{-5}**
	Inferior frontal gyrus	45/46	−48	46	6	4.11	–	–
	Middle frontal gyrus/inferior frontal sulcus	46	−38	32	22	3.65	–	–
	Inferior frontal gyrus	46	−40	34	10	3.56	–	–
	Frontal marginal gyrus	10	−44	52	−4	3.44	–	–
	Intraparietal sulcus/inferior parietal lobule	**39/7**	**−41**	**−51**	**48**	**–**	**438**	**8.5×10^{-5}**
	Superior parietal lobule	7	−34	−48	46	3.7	–	–
	Superior parietal lobule	7	−26	−52	52	3.6	–	–
	Angular gyrus	39	−50	−52	52	3.5	–	–
	Intraparietal sulcus	39/7	−36	−58	56	3.34	–	–
	Superior frontal sulcus	**8**	**−24**	**21**	**52**	**–**	**232**	**.013**
	Middle frontal gyrus	8	−32	22	46	3.74	–	–
	Superior frontal gyrus	6	−20	12	58	3.37	–	–
	Superior frontal gyrus	8	−22	24	56	2.9	–	–
	Superior frontal gyrus	6/8	−24	32	48	2.77	–	–
15	**Ventral central precuneus**	**7**	**−2**	**−59**	**36**	**–**	**1,094**	**2.44×10^{-10}**
−2/−58/37	Ventral central precuneus	7	0	−60	38	8.18	–	–
	Posterior cingulate/retrosplenial cortex	30/23	−10	−50	22	3.64	–	–
	Posterior cingulate/parieto-occipital fissure	31/23	6	−66	20	3.15	–	–
	Posterior cingulate gyrus	23	6	−46	30	2.86	–	–
	Angular gyrus	**39**	**−51**	**−62**	**28**	**–**	**392**	**1.9×10^{-4}**
	Supramarginal gyrus	40	−58	−60	32	4.39	–	–
	Middle temporal gyrus	39	−54	−70	24	4.38	–	–
	Superior temporal gyrus	39	−48	−58	26	4.18	–	–
	Superior temporal gyrus	22	−60	−58	16	3.84	–	–
	Angular gyrus	**39**	**53**	**−57**	**31**	**–**	**264**	**4.64×10^{-3}**
	Angular gyrus	39	50	−50	36	3.98	–	–
	Superior temporal gyrus	39	52	−68	22	3.76	–	–
	Angular gyrus	39	50	−70	32	3.45	–	–
	Supramarginal/superior temporal gyrus	40	60	−52	24	3.44	–	–
16	**Rostral paracingulate gyrus**	**32**	**−1**	**49**	**14**	**–**	**4,399**	**1.19×10^{-27}**
−2/−54/30	Medial frontopolar gyrus	10	−2	58	−18	5.88	–	–
	Medial superior frontal gyrus	9	−2	58	22	5.8	–	–
	Medial frontopolar gyrus	9/10	−6	58	12	5.71	–	–
	Medial frontopolar gyrus	9/10	2	66	14	5.55	–	–
	Posterior cingulate gyrus	**23/31**	**0**	**−54**	**26**	**–**	**1,723**	**4.31×10^{-14}**
	Dorsal posterior cingulate gyrus	23/31	0	−56	30	8.81	–	–
	Central precuneus	7	0	−66	42	3.95	–	–
	Posterior cingulate/retrosplenial	30/23	−10	−54	10	3.9	–	–
	Retrosplenial cortex	29/30	−6	−48	2	3.78	–	–

Seed, x/y/z	Region	BA	x	y	z	Peak Z	Cluster voxels	Cluster significance; *P* value
	Posterior cingulate/central precuneus	23/7	−12	−50	40	3.74	–	–
	Middle temporal gyrus	**21**	**−53**	**−4**	**−21**	**–**	**1,059**	**9.19×10^{-7}**
	Temporal pole	38	−42	14	−36	4.95	–	–
	Middle temporal gyrus	21	−62	−10	−18	4.83	–	–
	Lateral orbital gyrus	47/12	−36	18	−18	4.38	–	–
	Inferior temporal sulcus	20/21	−50	−26	−18	4.35	–	–
	Middle temporal gyrus	**21**	**51**	**−1**	**−25**	**–**	**783**	**1.19×10^{-7}**
	Middle temporal gyrus	21	58	0	−32	5.29	–	–
	Inferior temporal sulcus	20/21	52	−14	−22	4.41	–	–
	Temporal pole	38	44	16	−36	4.32	–	–
	Angular gyrus	**39**	**−46**	**−64**	**29**	**–**	**316**	**1.63×10^{-3}**
	Angular gyrus	39	−50	−72	30	3.87	–	–
	Angular gyrus/intraparietal sulcus	39	−48	−62	26	3.56	–	–
	Intraparietal sulcus	39	−38	−58	32	3.4	–	–
17	**Cuneal cortex**	**18**	**3**	**−79**	**24**	**–**	**4,514**	**3.92×10^{-28}**
−1/−78/43	Dorsal posterior precuneus	7	−2	−78	44	8.23	–	–
	Cuneal cortex	19	6	−84	38	5.46	–	–
	Posterior precuneus	7	10	−70	40	4.86	–	–
	Angular gyrus	**39**	**−34**	**−67**	**42**	**–**	**393**	**2.69×10^{-4}**
	Angular gyrus	39	−32	−76	42	4.39	–	–
	Angular gyrus	39	−34	−60	36	4.39	–	–
18	**Posterior precuneus**	**7**	**1**	**−74**	**34**	**–**	**1,340**	**1.01×10^{-11}**
−1/−75/36	Posterior precuneus	7	0	−74	36	8.62	–	–
	Cuneal cortex	19	12	−80	30	3.74	–	–
	Ventral precuneus	31	−12	−58	32	3.71	–	–
	Cuneal cortex	17	12	−72	22	3.58	–	–
	Cuneal cortex	17	16	−80	16	3.45	–	–
	Cuneal cortex	17	6	−76	14	3.15	–	–
	Angular gyrus	**39**	**45**	**−58**	**39**	**–**	**611**	**2.56×10^{-6}**
	Intraparietal sulcus	39	38	−58	40	4.26	–	–
	Angular gyrus	39	48	−56	38	3.88	–	–
	Superior temporal gyrus	39	54	−62	20	3.52	–	–
	Supramarginal gyrus	40	56	−44	38	3.52	–	–
	Angular gyrus	39	44	−54	50	3.41	–	–
19	**Mid–parieto-occipital sulcus**	**7/19**	**−1**	**−70**	**21**	**–**	**2,999**	**1.66×10^{-21}**
−1/−71/29	Posterior precuneus	7	−2	−70	30	8.93	–	–
	Posterior cingulate/posterior cuneus	31/7	8	−62	28	4.53	–	–
	Cuneal cortex	17	−6	−72	14	4.07	–	–
	Subparietal sulcus	31	−12	−48	32	3.93	–	–
	Posterior cingulate gyrus	**23**	**6**	**−24**	**29**	**–**	**182**	**.05**
	Mid-cingulate gyrus	23	4	−16	36	3.65	–	–
	Cingulate gyrus	23/31	6	−24	42	3.23	–	–
20	**Posterior cingulate cortex**	**23**	**−8**	**−59**	**12**	**–**	**4,392**	**4.11×10^{-28}**
−1/−67/22	Posterior cingulate cortex	23/31	−2	−66	22	9.29	–	–
	Parieto-occipital fissure	23/31	−12	−60	18	6.51	–	–
	Posterior cingulate cortex	23	6	−54	18	6.48	–	–
	Lingual gyrus	17/18	−16	−54	2	5.51	–	–
	Cuneal cortex	17	−8	−62	8	5.41		
	Rostral anterior cingulate	**24**	**3**	**33**	**−8**	**–**	**3,800**	**2.2×10^{-25}**
	Parahippocampal gyrus	35	28	−28	−26	5.19	–	–
	Medial frontal gyrus	14	−6	48	−16	5.14	–	–
	Medial frontal gyrus	14	−4	58	−8	5.13	–	–
	Rostal anterior cingulate	24/32	2	34	−10	5.05	–	–
	Anterior cingulate cortex	25	−2	20	−8	5.05	–	–
	Rostral paracingulate	32	−14	50	−2	4.91	–	–
21	**Midbrain**	**-**	**−1**	**−38**	**−9**	**–**	**9,115**	**9.81×10^{-45}**
−2/−59/11	Caudal posterior cingulate cortex	23	−4	−58	12	9.79	–	–
	Midbrain	-	−10	−24	−12	6.72	–	–
	Caudal posterior cingulate cortex	23	8	−50	6	6.12	–	–
	Fusiform gyrus	37	22	−36	−22	5.71	–	–
	Angular gyrus	**39**	**−36**	**−73**	**34**	**–**	**879**	**5.96×10^{-8}**
	Angular gyrus	39	−30	−76	36	5.53	–	–
	Angular gyrus	39	−46	−74	30	4.93	–	–
	Angular gyrus	39	−38	−64	28	4.41	–	–

Seed, x/y/z	Region	BA	x	y	z	Peak Z	Cluster voxels	Cluster significance; P value
	Angular gyrus	39	−38	−82	34	4.25	–	–
	Angular gyrus	39	−40	−68	38	4.2	–	–
	Superior frontal sulcus	**8/9**	**−24**	**26**	**44**	**–**	**378**	**5.01×10^{-4}**
	Superior frontal sulcus	8/9	−22	26	40	4.38	–	–
	Superior frontal sulcus	8	−26	18	58	3.73	–	–
	Superior frontal sulcus	9	−20	36	44	3.64	–	–
	Superior frontal sulcus	8/9	−24	16	42	3.36	–	–
	Angular gyrus	**39**	**44**	**−68**	**35**	**–**	**276**	**5.58×10^{-3}**
	Angular gyrus	39	50	−68	36	4.11	–	–
	Intraparietal sulcus	39/7	34	−80	40	3.44	–	–
	Angular gyrus	39	42	−66	44	3.32	–	–
	Superior temporal gyrus	39	44	−60	24	3.28	–	–
	Angular gyrus	39	48	−56	38	2.94	–	–

Table of local peaks and clusters associated with each seed region in humans (coordinates in standard MNI152 space). Cluster centers of gravity are given in bold, while local peaks within clusters are not bolded. Each seed region coordinate (located below the seed number) is given as an average across all individuals.

Other Supporting Information Files

SI Appendix (PDF)