

Supplemental Table 1. Gray matter studies included in this meta-analysis

References	# Subjects	Age (years)	Education (years)	Coordinate
Inagaki, et al (2006)	BC 51	48.4 ± 9.0	8.2 ± 3.5	MNI
	HC 46	45.3 ± 8.4	10.5 ± 6.4	
McDonald, et al (2010)	BC 17	52.5 ± 8.5	15.2 ± 2.6	MNI
	HC 18	50.6 ± 6.5	15.8 ± 1.8	
McDonald, et al (2013)	BC 27	49.9 ± 7.6	15.5 ± 2.8	MNI
	HC 24	47.0 ± 9.2	15.4 ± 2.4	
Conroy, et al (2013)	BC 24	57.8 ± 9.6	15.7 ± 2.1	MNI
	HC 23	61.2 ± 9.9	16.0 ± 2.3	
Lepage, et al (2014)	BC 19	50.2 ± 8.6	—	MNI
	HC 19	49.3 ± 9.0		
Sato, et al (2015)	BC 32	60.0 ± 7.0	13.0 ± 2.0	MNI
	HC 30	59.0 ± 5.0	14.0 ± 2.0	
Perrier, et al (2018)	BC 20	53.9 ± 4.7	12.8 ± 3.2	MNI
	HC 27	56.4 ± 7.3	11.4 ± 3.3	
Chen, et al (2018)	BC 16	67.0 ± 5.4	—	MNI
	HC 15	68.5 ± 5.7		
Li, et al (2018)	BC 28	49.2 ± 8.2	10.2 ± 2.2	MNI
	HC 19	49.3 ± 8.6	10.8 ± 3.0	

Abbreviations: BC: breast cancer, HC: healthy control, MNI: Montreal Neurological Institute

Supplemental Table 2. Brain functional MRI (fMRI) studies included in this meta-analysis.

References	# Subjects	Age (years old)	Education (years)	Coordinate	Task
Kesler, et al (2009)	BC 14	55.1 $\pm$ 8.0	5.0 $\pm$ 2.0	MNI	Encoding task
	HC 14	54.2 $\pm$ 8.0	5.0 $\pm$ 2.0		
Ruiter, et al (2011)	BC 19	56.3 $\pm$ 5.5	—	MNI	Paired associates task
	HC 15	58.2 $\pm$ 5.8			
Scherling, 2011	BC 23	51.5 $\pm$ 8.47	—	MNI	n-back working
	HC 23	50.4 $\pm$ 8.82			
Kesler, et al (2011)	BC 25	56.2 $\pm$ 7.8	—	MNI	card-sorting task
	HC 18	58.1 $\pm$ 7.5			
Scherling, et al (2012a)	BC 21	50.62 $\pm$ 8.37	—	MNI	n-back working memory
	HC 21	59.67 $\pm$ 8.75			
Scherling, et al(2012b)	BC 23	51.5 $\pm$ 8.47	—	MNI	go/no-go task
	HC 23	50.4 $\pm$ 8.82			
McDonald, et al (2012)	BC 16	52.9 $\pm$ 8.6	15.2 $\pm$ 2.6	MNI	WM Task
	HC 15	50.5 $\pm$ 6.0	15.9 $\pm$ 2.0		
Conroy, et al (2013)	BC 24	57.8 $\pm$ 9.6	15.7 $\pm$ 2.1	MNI	n-back working
	HC 23	61.2 $\pm$ 9.9	16.0 $\pm$ 2.3		
Deprez, et al (2014)	BC 18	43.7 $\pm$ 4.3	—	MNI	Multitask paradigm
	HC 17	40.7 $\pm$ 6.0			
Berman, et al (2014)	BC 25	48.7 $\pm$ 9.8	—	MNI	WM Task
	HC 25	52.9 $\pm$ 9.2			
Menning, et al (2015)	BC 32	50.2 $\pm$ 9.2	—	MNI	Paired Associates paradigm
	HC 31	50.1 $\pm$ 8.7			
Wang, et al (2016)	BC 15	55.6 $\pm$ 6.8	—	MNI	n-back working
	HC 14	51.2 $\pm$ 4.5			
Menning, et al (2017)	BC 28	49.4 $\pm$ 8.8	—	MNI	TOL Task
	HC 31	51.2 $\pm$ 8.2			
Pergolizzi, et al (2019)	BC 13	47.8 $\pm$ 6.4	—	MNI	Encoding task
	HC 13	48.5 $\pm$ 8.0			

Abbreviations: BC: breast cancer, HC: healthy control, MNI: Montreal Neurological Institute, WM: working memory, TOL: Tower of London.

Supplemental Table 3. Regions of brain activation comparing the chemotherapy group to the healthy control group.

Cluster Index	Cluster volume (mm ³)	ALE value (×10 ⁻³)	<i>p</i> -value (×10 ⁻⁴)	MNI coordinates			Z	L/R	Label
				<i>x</i>	<i>y</i>	<i>z</i>			
Chemotherapy group < Healthy control group									
1	1,168	8.61	5.16	-16	-54	30	3.28	L	Cingulate Gyrus
		8.56	5.52	-10	-48	26	3.26	L	Precuneus
		8.50	6.21	-14	-52	36	3.23	L	Precuneus
		8.49	6.29	-20	-58	28	3.23	L	Precuneus
		8.32	8.47	-14	-60	28	3.14	L	Precuneus
2	1,144	1.52	2.93	24	-82	-10	4.53	R	Fusiform Gyrus
3	1,048	9.06	3.57	-46	-62	20	3.38	L	MTG
		8.73	4.47	-40	-68	22	3.32	L	MTG
		8.73	4.47	-38	-68	26	3.32	L	MTG
		8.61	5.17	-44	-76	20	3.28	L	MTG
		8.61	5.17	-46	-72	22	3.28	L	MTG
4	696	8.36	7.82	-12	-74	16	3.16	L	Cuneus
		8.34	8.31	-6	-66	22	3.14	L	Precuneus
		8.21	10.32	-10	-68	22	3.08	L	Precuneus
5	616	9.99	2.00	-26	-60	52	3.54	L	Superior Parietal Lobule
6	576	8.47	6.55	36	-46	24	3.21	R	Insula
7	520	8.63	5.04	-18	28	26	3.29	L	MFG
		8.63	5.04	-18	28	32	3.29	L	MFG
		8.54	5.73	-16	32	28	3.25	L	MFG
8	376	8.69	4.66	-20	-22	38	3.31	L	Cingulate Gyrus
		8.51	6.16	-16	-18	34	3.23	L	Cingulate Gyrus
9	368	8.55	5.64	-16	-4	34	3.26	L	Cingulate Gyrus
		8.51	6.17	-16	-4	40	3.23	L	Cingulate Gyrus
10	360	8.30	8.85	38	-8	18	3.13	R	Insula
		8.10	12.40	42	-6	16	3.03	R	Insula
Chemotherapy group > Healthy control group									
1	1,440	8.59	6.99	-22	-22	0	3.19	L	Thalamus
		8.57	7.24	-20	-18	2	3.18	L	Thalamus
		8.57	7.24	-32	-10	-4	3.18	L	Clastrum
		8.49	8.06	-24	-18	2	3.15	L	Lentiform Nucleus
		8.44	8.86	-30	-6	-2	3.12	L	Lentiform Nucleus
		8.30	11.07	-22	-12	0	3.06	L	Lentiform Nucleus
		8.28	11.36	-28	-2	-2	3.05	L	Lentiform Nucleus

2	1,128	8.19	13.06	-26	-10	0	3.01	L	Lentiform Nucleus
		8.46	8.55	-54	6	20	3.14	L	IFG
		8.38	9.62	-54	2	22	3.10	L	IFG
		8.37	9.62	-52	2	18	3.10	L	IFG
		8.27	11.78	-54	12	10	3.04	L	IFG
		8.23	12.38	-54	4	12	3.02	L	Precentral Gyrus
		8.17	13.45	-52	16	4	3.00	L	IFG
		8.13	14.40	-50	14	8	2.98	L	Precentral Gyrus
3	800	9.28	3.59	36	6	-10	3.38	R	IFG
		9.11	3.99	36	2	-6	3.35	R	Clastrum
4	704	8.44	8.86	-28	-8	-12	3.13	L	PHG
		8.35	10.32	-26	-6	-16	3.08	L	PHG
		8.32	10.73	-30	-8	-18	3.07	L	PHG
		8.28	11.58	-26	-4	-10	3.05	L	PHG
		8.28	11.58	-28	-12	-16	3.05	L	PHG
		8.68	6.06	-34	2	-16	3.24	L	STG
5	688	8.53	7.73	-30	8	-12	3.17	L	IFG
		8.48	8.29	-26	6	-12	3.14	L	Subcallosal Gyrus
		8.40	9.41	-32	6	-4	3.11	L	Clastrum
		8.53	7.73	-36	-2	-8	3.17	L	Clastrum
6	552	8.33	10.44	-44	4	-8	3.08	L	STG
		8.20	12.87	-40	4	-6	3.01	L	Insula
		8.18	13.27	26	-44	34	3.00	R	Cingulate Gyrus
8	360	8.03	17.17	-26	-28	-6	2.93	L	PHG
		8.13	17.17	-24	-22	-10	2.93	L	PHG
9	328	8.13	14.41	0	-14	4	2.98	L	Thalamus

Notes: ALE, Activation Likelihood Estimation; MNI, Montreal Neurological Institute; PHG, Parahippocampal Gyrus; STG, Superior Temporal Gyrus; IFG, Inferior Frontal Gyrus; MFG, Medial Frontal Gyrus; MTG, Middle Temporal Gyrus; L, Left; R, Right.