

SUPPLEMENTAL MATERIALS:

Influences of Intrinsic Patterns of Functional Brain Connectivity on the Antidepressant Treatment Response in Late-Life Depression

Supplemental Table 1 – Cortical Regions of Interest (ROIs) and Composite Seeds Chosen for Functional Connectivity Analysis

<i>ROI</i>	<i>Network</i>	<i>Area (Schaefer)*</i>	<i>Parcel (Schaefer)[†]</i>
Posterior Cingulate Cortex (PCC)/ Precuneus	DMN	LH/pCunPCC_3	192
	DMN	RH/pCunPCC_4	395
Consolidated Bilateral PCC	DMN		Combined 192 and 395
Rostral/Pregenua Anterior Cingulate Cortex (rACC)	DMN	LH/PFC_9	174
	DMN	RH/PFCdPFCm_3	381
Medial Prefrontal Cortex (mPFC)	DMN	LH/PFC_3	168
	DMN	LH/PFC_8	173
Consolidated Left mPFC	DMN		Combined 168 and 173
	DMN	RH/PFCdPFCm_1	379
	DMN	RH/PFCdPFCm_2	380
	DMN	RH/PFCdPFCm_4	382
Consolidated Right mPFC	DMN		Combined 379, 380, and 382
Subgenual Anterior Cingulate Cortex (sgACC) [‡]	Limbic Network	LH/OFC_7	177 [‡]
	DMN	RH/PFCdPFCm_1	568 [‡]
Consolidated Bilateral sgACC	DMN		Combined 177[‡] and 568[‡]
Orbitofrontal Cortex (OFC)	Limbic Network	LH/OFC_1	114
	Limbic Network	LH/OFC_3	116
	Limbic Network	LH/OFC_4	117
Consolidated Left OFC	Limbic Network		Combined 114, 116, and 117
	Limbic Network	RH/OFC_1	319
	Limbic Network	RH/OFC_3	321
	Limbic Network	RH/OFC_5	323

Consolidated Right OFC	Limbic Network		Combined 319, 321, 323
Dorsolateral Prefrontal Cortex (DLPFC)	CCN	LH/PFCI_5	139
	CCN	LH/PFCI_6	140
	CCN	LH/PFCI_8	142
Combined Left DLPFC	CCN		Combined 139, 140, and 142
	CCN	RH/PFCI_9	349
	CCN	RH/PFCI_11	351
Combined Right DLPFC	CCN		Combined 349 and 351
Dorsal Anterior Cingulate Cortex (dACC)	CCN	LH/Cing_1	146
	CCN	RH/Cing_2	359

Regions of interest were chosen based on current fMRI literature in late-life depression (LLD). Using the functional connectivity based Schaefer parcellation of the Yeo atlas, specific parcels were chosen to represent ROIs. Final analytic seeds used for functional connectivity analysis are bolded. * = Area is described using the notation directly from the Schaefer parcellation. † = parcel number is derived from the 400-parcel, 7-network Schaefer atlas unless otherwise noted. ‡ = for the sgACC, parcels were chosen from the 600-parcel, 7-network Schaefer atlas. ROI = region of interest; DMN = default mode network; LH = left hemisphere; RH = right hemisphere; CCN = cognitive control network.

Supplemental Table 2 – Seed-to-Seed Pair Results for Secondary Analyses

Three-Way Interaction					
Treatment * Time * Functional Connectivity					
DMN Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
PCC	mPFC_L	1.79	1.49	1.20	0.2306
	mPFC_R	0.30	1.71	0.17	0.8633
	rACC_L	0.24	1.63	0.15	0.882
	rACC_R	-1.69	1.58	-1.07	0.285
	sgACC	0.06	0.92	0.07	0.9449
	hpc_L	-0.08	1.04	-0.08	0.9356
	hpc_R	-1.15	1.28	-0.90	0.3671
mPFC_L	rACC_L	-0.05	1.60	-0.03	0.9738
	rACC_R	1.03	1.42	0.73	0.467
	sgACC_B	-2.60	1.54	-1.68	0.0932
mPFC_R	rACC_L	-3.35	1.41	-2.38	0.0179
	rACC_R	-2.04	1.59	-1.28	0.2006
	sgACC	-1.09	1.38	-0.79	0.4291
Limbic Network Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
OFC_L	hpc_L	-1.27	1.40	-0.91	0.3629
	hpc_R	-0.65	1.58	-0.41	0.682
	amyg_L	0.83	1.58	0.53	0.5988
	amyg_R	-0.09	1.46	-0.06	0.9515
OFC_R	hpc_L	-1.95	1.33	-1.47	0.1433
	hpc_R	-0.18	1.56	-0.11	0.9088
	amyg_L	-0.61	1.82	-0.34	0.737
	amyg_R	-0.18	1.02	-0.17	0.8613
sgACC_B	hpc_L	0.77	0.98	0.78	0.4341
	hpc_R	1.32	1.18	1.12	0.265
	amyg_L	0.66	1.22	0.54	0.5862
	amyg_R	-0.59	1.26	-0.47	0.6372
CCN Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
DLPFC_L	dACC_L	0.19	1.09	0.18	0.8583
	dACC_R	-0.49	1.08	-0.45	0.6544
DLPFC_R	dACC_L	-1.40	1.28	-1.09	0.2771
	dACC_R	0.44	1.42	0.31	0.757
Two-Way Interaction					
Time * Functional Connectivity					
DMN Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
PCC	mPFC_L	-0.17	0.71	-0.24	0.8085
	mPFC_R	0.25	0.80	0.32	0.7507

	rACC_L	0.72	0.81	0.89	0.3741
	rACC_R	0.70	0.79	0.89	0.3736
	sgACC	-0.76	0.44	-1.73	0.0852
	hpc_L	-0.98	0.47	-2.09	0.0372
	hpc_R	-0.47	0.60	-0.79	0.4325
mPFC_L	rACC_L	0.01	0.73	0.02	0.9857
	rACC_R	0.32	0.69	0.46	0.6470
	sgACC	-0.47	0.73	-0.64	0.5201
mPFC_R	rACC_L	-1.14	0.66	-1.72	0.0868
	rACC_R	-0.39	0.71	-0.55	0.5810
	sgACC	0.03	0.65	0.05	0.9589
Limbic Network Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
OFC_L	hpc_L	-0.29	0.65	-0.44	0.6567
	hpc_R	0.60	0.78	0.76	0.4473
	amyg_L	1.08	0.75	1.44	0.1509
	amyg_R	0.06	0.72	0.09	0.9318
OFC_R	hpc_L	-1.09	0.66	-1.65	0.0992
	hpc_R	0.32	0.76	0.42	0.6718
	amyg_L	1.54	0.82	1.89	0.0603
	amyg_R	-0.06	0.48	-0.13	0.8968
sgACC	hpc_L	-0.13	0.47	-0.27	0.7866
	hpc_R	-0.61	0.56	-1.09	0.2767
	amyg_L	-0.89	0.52	-1.72	0.0857
	amyg_R	-0.45	0.62	-0.73	0.4641
CCN Primary Seeds					
<i>Seed 1</i>	<i>Seed 2</i>	<i>Estimate</i>	<i>SE</i>	<i>T-value</i>	<i>P-value</i>
DLPFC_L	dACC_L	-0.24	0.53	-0.46	0.6474
	dACC_R	-0.79	0.50	-1.57	0.1178
DLPFC_R	dACC_L	-0.41	0.62	-0.67	0.5054
	dACC_R	-0.04	0.68	-0.07	0.9477

Initial models examined FC for each seed pair in 3-way interactions (treatment assignment by time by functional connectivity), including covariates of age and sex. When those were not statistically significant, the 3-way interaction term was removed and the remaining two-way interactions were examined (treatment assignment by functional connectivity; time by functional connectivity). The table above shows statistical analyses of each seed-to-seed pair, arranged by the network represented by seed 1 in the pair. Statistically significant interactions between pairs ($p < 0.05$) are denoted with bolding and an asterisk.

Note that for significant statistical interactions, as a final step gray matter volumes of the seed regions were added to the final model. This statistical approach and final statistical result data are included in the main manuscript.

Tx = treatment assignment; Ti = time; FC = functional connectivity; DMN = default mode network; _L = left hemispheric seed; _R = right hemispheric seed; PCC = posterior cingulate cortex; mPFC = medial prefrontal cortex; rACC = rostral anterior cingulate cortex; sgACC =

subgenual anterior cingulate cortex; hpc = hippocampus; OFC = orbitofrontal cortex; amygdala = amygdala; CCN = cognitive control network; DLPFC = dorsolateral prefrontal cortex; dACC = dorsal anterior cingulate cortex.