

## SUPPLEMENTARY TABLE S1

Serotonin-1A receptor (5-HT<sub>1A</sub>) binding potential (BP<sub>ND</sub>) for regions of interest (ROI) taken from an AAL-based atlas (Tzourio-Mazoyer et al. 2002, Stein et al. 2008). 5-HT<sub>1A</sub> BP<sub>ND</sub> values are given as mean±SD at baselines before ECT (PET1, PET2) and after electroconvulsive therapy (PET3). Following voxel-wise *post-hoc* t-test of the repeated measures ANOVA, peak t-values (\*t>2.31, p<0.05 FDR-corrected, single voxel) and relative changes [%] are obtained when comparing 5-HT<sub>1A</sub> binding before (PET2) vs. after ECT (PET3). MNI coordinates are given for the peak voxels.

### References

- Tzourio-Mazoyer N, Landeau B, Papathanassiou D, Crivello F, Etard O, Delcroix N *et al.* Automated anatomical labeling of activations in SPM using a macroscopic anatomical parcellation of the MNI MRI single-subject brain. *Neuroimage* 2002; **15**(1): 273-289.
- Stein P, Savli M, Wadsak W, Mitterhauser M, Fink M, Spindelegger C *et al.* The serotonin-1A receptor distribution in healthy men and women measured by PET and [carbonyl-<sup>11</sup>C]WAY-100635. *Eur J Nucl Med Mol Imaging* 2008; **35**(12): 2159-2168.

Region	MNI coordinates [mm]			5-HT <sub>1A</sub> binding potential			5-HT <sub>1A</sub> bef. vs. after ECT	
	x	y	z	PET1	PET2	PET3	Peak t-value	% -change
				Before ECT	Before ECT	After ECT		
<b>Frontal lobe</b>								
Inferior frontal orbital L	-38	24	-10	3.9 ± 0.9	3.9 ± 1.1	3.1 ± 1.1	4.24*	-22.2 ± 19
Inferior frontal orbital R	48	18	-4	3.6 ± 1.1	3.8 ± 1.1	3 ± 0.9	4.38*	-22.6 ± 19.5
Middle frontal L	-40	32	34	4.4 ± 1	4.4 ± 1.2	3.3 ± 0.9	4.92*	-23.1 ± 19
Middle frontal R	38	42	34	4.6 ± 0.9	4.6 ± 1.2	3.3 ± 0.9	5.14*	-28.6 ± 15.7
Middle frontal orbital L	-10	66	-12	5.5 ± 1.5	5.7 ± 1.7	4 ± 1.4	4.08*	-28.6 ± 29
Middle frontal orbital R	12	52	-6	2.4 ± 0.9	2.6 ± 1	1.9 ± 0.7	4.37*	-24.9 ± 20.1
Superior frontal L	-20	-6	70	3.6 ± 0.5	3.7 ± 0.7	2.6 ± 0.7	5.08*	-29.1 ± 13.6
Superior frontal R	24	20	60	4.2 ± 0.8	4.3 ± 1.1	3.2 ± 0.8	4.85*	-23 ± 14.1
Sup. frontal orbital L	-12	66	-12	5.5 ± 1.4	5.9 ± 1.8	4 ± 1.5	4.17*	-30.1 ± 28.2
Sup. frontal orbital R	22	68	-6	5.6 ± 0.9	5.5 ± 1.1	4.1 ± 1.3	4.77*	-26.4 ± 19.3
<b>Temporal lobe</b>								
Inferior temporal L	-54	-54	-4	5.4 ± 1.4	5.3 ± 1.5	3.8 ± 1.1	4.3*	-26.2 ± 21.3
Inferior temporal R	60	-34	-22	5.9 ± 1.6	5.9 ± 1.6	4.1 ± 1.5	4.39*	-28.4 ± 23.7
Middle temporal L	-54	-56	-2	5.6 ± 1.1	5.4 ± 1.4	3.8 ± 0.9	5.07*	-28.7 ± 17.3
Middle temporal R	52	-60	14	5.4 ± 1.4	5.3 ± 1.3	4 ± 1.2	5.19*	-26 ± 15.9
Superior temporal L	-54	-8	-12	6.4 ± 1.7	6.7 ± 2.3	4.7 ± 1.8	3.92*	-28 ± 29
Superior temporal R	50	-14	2	2.8 ± 0.6	2.7 ± 0.7	2.1 ± 0.6	4.4*	-24.6 ± 21.9
<b>Parietal lobe</b>								
Superior parietal L	-40	-54	64	3.1 ± 1	3.2 ± 1	2.2 ± 0.5	4.38*	-26.8 ± 24.5
Superior parietal R	38	-66	56	3.4 ± 0.6	3.6 ± 0.8	2.6 ± 0.6	5.11*	-25.1 ± 18.4
Inferior parietal L	-34	-42	44	2.5 ± 0.9	2.6 ± 1	1.8 ± 0.7	5.08*	-30.2 ± 17.6
Inferior parietal R	44	-46	58	3.9 ± 0.7	4.1 ± 1	3.2 ± 0.9	4.62*	-21.8 ± 12
Precuneus L	-12	-54	18	1.3 ± 0.4	1.2 ± 0.4	1 ± 0.3	4.31*	-22.5 ± 16.9
Precuneus R	6	-60	28	3 ± 0.5	2.9 ± 0.5	2.3 ± 0.6	4.31*	-21.1 ± 19.8
<b>Occipital lobe</b>								
Cuneus L	-10	-88	24	1.9 ± 0.8	1.9 ± 0.7	1.5 ± 0.6	4.49*	-16.5 ± 18.5
Cuneus R	6	-80	32	2.7 ± 0.6	2.5 ± 0.8	2 ± 0.5	4.31*	-18.5 ± 16.1
Inferior occipital L	-36	-72	-14	3.3 ± 1.2	3.1 ± 1.5	2.3 ± 0.8	3.03*	-22 ± 18.6
Inferior occipital R	48	-72	-4	4.5 ± 1.4	4.4 ± 1.5	3.2 ± 1	3.7*	-21.8 ± 30.2
Middle occipital L	-36	-70	18	2.1 ± 0.9	2.2 ± 0.9	1.7 ± 0.6	4.1*	-20.6 ± 19.5
Middle occipital R	32	-80	32	4.2 ± 1	4 ± 0.9	2.9 ± 0.6	4.66*	-26.7 ± 17.8
Superior occipital L	-12	-90	26	2.3 ± 0.7	2.2 ± 0.8	1.8 ± 0.4	3.44*	-17 ± 25.9
Superior occipital R	22	-82	38	2.6 ± 0.8	2.8 ± 0.8	2 ± 0.7	4.63*	-25.9 ± 21.5
<b>Limbic areas</b>								
Anterior cingulate L	-2	40	20	5.9 ± 1	5.9 ± 1.4	4.3 ± 1.1	4.28*	-25.9 ± 21.7
Anterior cingulate R	2	40	20	5.7 ± 0.9	5.7 ± 1.2	4.1 ± 1.1	4.58*	-26.2 ± 23.9
subgenual L	-2	36	-10	8.5 ± 2.5	7.7 ± 2.3	5.8 ± 2.2	2.69*	-23.1 ± 26.8
subgenual R	6	36	-8	4.4 ± 1	4.3 ± 1	3 ± 1.1	3.77*	-27.5 ± 27.3
Median cingulate L	-2	-36	38	4 ± 0.8	4.1 ± 1.1	3.2 ± 0.8	3.55*	-19.7 ± 22.7
Median cingulate R	4	36	34	4.8 ± 1	4.6 ± 1.3	3.4 ± 0.9	4.54*	-23.6 ± 19.7
Posterior cingulate L	-8	-54	10	2.7 ± 0.6	2.6 ± 0.6	2 ± 0.5	3.59*	-20.9 ± 17.4
Posterior cingulate R	6	-46	28	2.2 ± 0.6	2.2 ± 0.7	1.7 ± 0.5	4.05*	-20.7 ± 23.5
Amygdala L	-26	4	-26	6.2 ± 1.2	6.3 ± 1.7	4.1 ± 1.3	3.91*	-31.8 ± 26.6
Amygdala R	26	4	-24	6.4 ± 1.6	5.6 ± 1.7	4 ± 1.3	2.9*	-26.1 ± 26
Caput hippocampus L	-24	-6	-22	8.5 ± 2.6	8.8 ± 3.2	5.8 ± 2.2	3.03*	-30.6 ± 30.8
Caput hippocampus R	26	-2	-24	5.4 ± 1	4.9 ± 1.1	3.5 ± 1.4	2.86*	-27.8 ± 24.4
Insula L	-40	20	-10	4.3 ± 1.3	4.3 ± 1.2	3.3 ± 1.1	4.44*	-24.6 ± 14.1
Insula R	44	-12	2	4.8 ± 0.9	5 ± 1.4	3.4 ± 1	4.72*	-28.9 ± 24.5
<b>Subcortical areas</b>								
Nucleus caudatus L	-14	6	-10	0.6 ± 0.1	0.6 ± 0.1	0.5 ± 0.1	1,80	-14.5 ± 27.1
Nucleus caudatus R	12	8	-8	0.6 ± 0.2	0.6 ± 0.1	0.5 ± 0.2	2,04	-19.3 ± 44.7
Putamen L	-18	4	-10	0.5 ± 0.1	0.6 ± 0.1	0.5 ± 0.2	2,14	-18.5 ± 29.9
Putamen R	14	8	-8	0.5 ± 0.1	0.5 ± 0.1	0.4 ± 0.2	1,70	-15.8 ± 48.7
Thalamus L	-14	-24	4	0.4 ± 0.1	0.5 ± 0.2	0.4 ± 0.1	2,23	-12.1 ± 37.7
Thalamus R	6	-12	4	0.6 ± 0.2	0.6 ± 0.2	0.5 ± 0.2	2,73*	-16.8 ± 27
<b>Brainstem</b>								
Median raphe nucleus	-4	-34	-20	1.5 ± 0.5	1.4 ± 0.6	1.2 ± 0.4	1,30	-6.5 ± 30.7
Dorsal raphe nucleus	-2	-28	-8	1.2 ± 0.4	1.1 ± 0.5	1 ± 0.3	1,15	-5.7 ± 26.4