

### **Supplemental digital content 3: Cluster analysis for each experimental condition.**

List of significant clusters of voxels showing positive or negative connectivity with each studied consciousness network as defined in the methods section of the manuscript.

Footnote applying to all tables: This analysis was performed using CONN functional connectivity SPM toolbox (version 14.I; Gabrieli Lab. McGovern Institute for Brain Research, Massachusetts Institute of Technology; <http://www.nitrc.org/projects/conn>, Susan Whitfield-Gabrieli and Alfonso Nieto-Castanon) for each experimental condition, namely W1 = waking baseline condition, S1 = light ketamine sedation, and S2 = deep ketamine sedation. It was also performed for the correlation analyses (CORR.) defined in the methods section of the manuscript and seeking at correlations between connectivity within each studied network and depth of sedation. The analysis was performed using a FDR-correct two-sided height threshold p value of 0.05 for voxels, except for the correlation analyses were a 0.001 uncorrected p value was chosen. The FWE-corrected two-sided cluster threshold p value was always 0.05. Each cluster is defined by the x, y, and z Montreal Neurological Institute standard space coordinates of significance peaks, the number of concerned voxels (k), the corresponding FWE-corrected p value (FWE), the peak FWE-corrected p value (Peak FWE), the effect size (beta) and its 95% CI, as well as the corresponding T value and its FDR-corrected p value (p-FDR). Identified cerebral regions, their Broadman area number (BA) and side (R/L) are also listed. Those regions are listed in descending order according to the number of cluster voxels located within each of them. When corresponding to pre-defined region of interest (ROI), clusters are identified by the ROI name and abbreviation used in the text. When not corresponding to pre-defined ROI, clusters are labeled ‘New’. Clusters are numbered according to the number of voxels they contain, in descending order, and taking account of the two-sided nature of cluster analysis (positive and negative clusters).

**Table 1: Default Mode network (DMn) – W1**



Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
7	64 -18 28	1625	0.0002	1.0000	-0.08	-0.09 -0.07	-12.03	1.0000	40 - R - supramarginal g. 7 - R - somatosensory association c. 2 - R - primary somatosensory c. 13 - R - insular c. 5 - R - somatosensory association c. 1 - R - primary somatosensory c. 3 - R - primary somatosensory c. 31 - R - dorsal posterior cingulate c.
8	56 0 4	1624	0.0002	1.0000	-0.08	-0.09 -0.06	-10.84	1.0000	13 - R - insular c. 44 - R - IFC pars triangularis 6 - R - premotor c. 9 - R - dorsolateral prefrontal c. 22 - R - superior temporal g. 43 - R - subcentral area 4 - R - primary motor c. 45 - R - IFC pars triangularis 42 - R - primary auditory c.
9	-2 6 52	1486	0.0002	1.0000	-0.07	-0.08 -0.06	-11.82	1.0000	6 - R - premotor c. 6 - L - premotor c. 24 - L - ventral anterior cingulate c. 24 - R - ventral anterior cingulate c. 32 - R - dorsal anterior cingulate c. 32 - L - dorsal anterior cingulate c. 33 - L - anterior cingulate c. 31 - L - dorsal posterior cingulate c.
10	-48 -38 44	1482	0.0002	1.0000	-0.08	-0.09 -0.07	-10.32	1.0000	40 - L - supramarginal g. 7 - L - somatosensory association c. 13 - L - insular c. 42 - L - primary auditory c. 41 - L - primary auditory c. 43 - L - subcentral area 2 - L - primary somatosensory c. 31 - L - dorsal anterior cingulate c.
11	-54 -2 6	1078	0.0002	1.0000	-0.08	-0.09 -0.07	-21.55	1.0000	13 - L - insular c. 6 - L - premotor c. 22 - L - superior temporal g. 9 - L - dorsolateral prefrontal c. 44 - L - IFC pars triangularis 43 - L - subcentral area 4 - L - primary motor c.
16	-36 34 22	310	0.0081	1.0000	-0.07	-0.08 -0.06	-11.00	1.0000	9 - L - dorsolateral prefrontal c. 10 - L - anterior prefrontal c. 46 - L - dorsolateral prefrontal c. 32 - L - dorsal anterior cingulate c.
18	-30 -8 44	218	0.0316	1.0000	-0.05	-0.07 -0.04	-8.59	1.0000	6 - L - premotor c. 4 - L - primary motor c. 3 - L - primary somatosensory c.

**Table 2: Default Mode network (DMn) – S1**



**Table 3: Default Mode network (DMn) – S2**

**Table 4: Default Mode network (DMn) – CORR.**

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
2	-52 -32 30	187	0.0004	1	-0.23 -0.27	-0.19	-9.12	0.9999	40 – L - supramarginal g.
3	-58 -20 24	179	0.0005	1	-0.20	-0.24 -0.17	-10.40	0.9999	40 – L - supramarginal g. 42 – L - primary auditory c. 41 – L - primary auditory c. 43 – L subcentral area 13 – L - insular c. 2 – L - primary somatosensory c. 22 – L - superior temporal g. 1 – L - primary somatosensory c. 3 – L - primary somatosensory c.
4	8 -62 -24	134	0.0016	1	-0.15	-0.17 -0.12	-10.31	0.9999	Cerebellum
5	62 -32 36	118	0.0027	1	-0.25	-0.31 -0.20	-7.63	0.9999	40 – R - supramarginal g.
6	-22 -70 34	111	0.0035	1	-0.17	-0.19 -0.14	-10.75	0.9999	7 – L - somatosensory association c. 31 – L - dorsal posterior cingulate c.
7	60 -48 2	101	0.0050	1	-0.17	-0.19 -0.15	-13.4	0.9999	22 – R - superior temporal g. 21 – R - middle temporal g. 37 – R - fusiform g.
8	58 8 4	95	0.0064	1	-0.17	-0.19 -0.15	-12.93	0.9999	13 – R - insular c. 44 – R - IFC pars opercularis 22 – R - superior temporal g. 6 – R - premotor c.
10	10 8 50	59	0.0367	1	-0.16	-0.20 -0.13	-8.38	0.9999	6 – R - premotor c. 24 – R - ventral anterior cingulate c. 32 – R - dorsal anterior cingulate c.

**Table 5: Left Executive Control network (LECn) – W1**

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
9	-24 -34 16	187	0.0253	1	-0.05	-0.06 -0.04	-7.46	0.9999	29 – L retrosplenial cingulate c.

**Table 6: Left Executive Control network (LECn) – S1**

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
7	24 -50 16	140	0.0211	1	-0.07	-0.09 -0.06	-7.89	0.9999	29 – R - retrosplenial cingulate c.

**Table 7: Left Executive Control network (LECn) – S2**

**Table 8: Left Executive Control network (LECn) – CORR.**

**Table 9: Right Executive Control network (RECn) – W1**

Positive clusters – continued										
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region	
5	-28 52 -4	547	0.0004	0.3461	0.07	0.06 0.08	10.61	0.0000	10 – L - anterior prefrontal c. 46 – L - dorsolateral prefrontal c. 47 – L - inferior prefrontal g. 45 – L - IFC pars triangularis 32 – L - dorsal anterior cingulate c.	
<b>Left dorsolateral prefrontal cortex (LDLPC)</b>									Thalamus	
6	4 -12 0	228	0.0113	0.4004	0.08	0.07 0.09	11.58	0.0000		
<b>Left and right thalamus (LThal, Rthal)</b>									Cerebellum	
7	-62 -50 4	211	0.0153	0.9993	0.07	0.06 0.09	9.5	0.0000		
<b>New</b>										
9	-22 -66 -30	194	0.0211	1	0.07	0.05 0.08	6.33	0.0002		
<b>Cerebellum (Cere)</b>									35 – R - perirhinal c. 28 – R - posterior entorhinal c.	
10	8 -28 -24	189	0.0232	0.5120	0.09	0.07 0.10	8.44	0.0000		
<b>Brain stem (BrSt)</b>										

Negative clusters									
#	x y z	k	FWE	Peak FWE	Beta	95% CI	T	p-FDR	BA - R/L - concerned region
8	28 -50 6	204	0.0174	1	-0.04	-0.05 -0.04	-7.98	0.9999	30 – R - cingulate c. 19 – R - associative visual c. 37 – R - fusiform g. 18 – R - secondary visual c.
									30 – L - cingulate c. 29 – L - retrosplenial cingulate c.
11	-24 -44 12	175	0.0309	1	-0.05	-0.06 -0.04	-7.54	0.9999	

**Table 10: Right Executive Control network (RECn) – S1**



**Table 11: Right Executive Control network (RECn) – S2**

**Table 12: Right Executive Control network (RECN) – CORR.**

Positive clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
None									

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
1	28 -30 54	149	0.0010	1	-0.15	-0.17 -0.12	-9.71	0.9999	3 – R - primary somatosensory c. 4 – R - primary motor c. 5 – R - somatosensory association c. 40 – R - supramarginal g. 2 – R - primary somatosensory c.
2	48 -10 12	55	0.0449	1	-0.15	-0.16 -0.13	-13.14	0.9999	13 – R - insular c. 43 – R - subcentral area

**Table 13: Salience network (SALn) – W1**

Positive clusters - continued										
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region	
									38 – R - temporopolar area 45 – R - IFC pars triangularis 21 – L - middle temporal g. 38 – L - temporopolar area 33 – L - anterior cingualte c. 33 – R - anterior cingualte c. 5 – L - somatosensory association c. 5 – R - somatosensory association c. 39 – L - angular g. 37 – L - fusiform g. 39 – R - angular g. 19 – R - associative visual c. 34 – R - anterior entorhinal c. 19 – L - associative visual c. 1 – L - primary somatosensory c. 1 – R - primary somatosensory c. 21 – R - middle temporal g.	
3	-10 -14 -8	756	0.0004	0.2838	0.06	0.05 0.07	8.13	0.0001	Thalamus    	
Left and right thalamus (LThal-2, RThal-2)										
Left and right hypothalamus (LHypo, RHypo)										
Periaqueductal grey (PAG)										
Left and righ ventral tegmental area (LVTA, RVTA)										

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
4	32 -30 -8	220	0.0357	1	-0.03	-0.03 -0.02	-9.55	0.9999	30 – R - cingulate c. 36 – R - parahippocampal c. 27 – R - piriform c. 28 – R - posterior entorhinal c. 29 – R - retrosplenial cingulate c. 35 – R - perirhinal c. 37 – R - fusiform g.
2	-16 -36 10	974	0.0002	1	-0.04	-0.05 -0.03	-7.84	0.9999	30 – L - cingulate c. 31 – L - dorsal posterior cingulate c. 29 – L - retrosplenial cingulate c. 23 – L - ventral posterior cingulate c. 23 – R - ventral posterior cingulate c. 31 – R - dorsal posterior cingulate c. 30 – R - cingulate c. 19 – L - associative visual c. 29 – R - retrosplenial cingulate c. 36 – L - parahippocampal c. 27 – L - piriform c. 7 – L - somatosensory association c. 7 – R - somatosensory association c. 37 – L - fusiform g. 35 – L - perirhinal c.

**Table 14: Salience network (SALn) – S1**

Positive clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
1	10 12 32	8021	0.0001	0.0337	0.08	0.07 0.10	8.77	0.0001	6 – R - premotor c. 6 – L - premotor c. 13 – R - insular c. 24 – L - ventral anterior cingulate c. 40 – R - supramarginal g. 9 – R - dorsolateral prefrontal c. 32 – L - dorsal anterior cingulate c. 32 – R - dorsal anterior cingulate c. 24 – R - ventral anterior cingulate c. 10 – R - anterior prefrontal c. 8 – L - dorsal frontal c. 8 – R - dorsal frontal c. 46 – R - dorsolateral prefrontal c. 44 – R - IFC pars opercularis 9 – L - dorsolateral prefrontal c. 31 – L - dorsal posterior cingulate c. 3 – R - primary somatosensory c. 2 – R - primary somatosensory c. 41 – R - primary auditory c. 4 – R - primary motor c. 22 – R - superior temporal g. 43 – R - subcentral area 45 – R - IFC pars triangularis 7 – R - somatosensory association c. 47 – R - inferior prefrontal g. 31 – R - dorsal posterior cingulate c. 33 – R - anterior cingulate c. 33 – L - anterior cingulate c. 19 – R - associative visual c. 39 – R - angular g. 23 – R - ventral posterior cingulate c. 23 – L - ventral posterior cingulate c. 42 – R - primary auditory c. 1 – R - primary somatosensory c.
2	-46 2 6	2637	0.0001	0.4455	0.07	0.05 0.08	8.5	0.0001	40 – L - supramarginal g. 6 – L - premotor c. 13 – L - insular c. 4 – L - primary motor c. 22 – L - superior temporal g. 2 – L - primary somatosensory c. 3 – L - primary somatosensory c. 43 – L - subcentral area 7 – L - somatosensory association c. 44 – L - IFC pars opercularis 47 – L - inferior prefrontal g. 39 – L - angular g. 9 – L - dorsolateral prefrontal c. 38 – L - temporopolar area 19 – L - associative visual c. 45 – L - IFC pars triangularis 1 – L - primary somatosensory c. 42 – L - primary auditory c.



**Table 15: Salience network (SALn) – S2**

**Table 16: Salience network (SALn) – CORR.**

**Table 17: Auditory network (AUDn) – W1**

Positive clusters - continued									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
									32 – L - dorsal anterior cingulate c. 23 – R - ventral posterior cingulate c. 47 – L - inferior prefrontal g. 38 – L - temporopolar area 36 – R - parahippocampal c. 45 – R - IFC pars triangularis 37 – R - fusiform g. 1 – L - primary somatosensory c. 45 – L - IFC pars triangularis 17 – R - primary visual c. 34 – R - anterior entorhinal c.
2	50 -56 -2	1020	0.0002	0.3782	0.08	0.06 0.09	10.10	0.0000	37 – R - fusiform g. 19 – R - associative visual c. 39 – R - angular g. 18 – R - secondary visual c. 21 – R - middle temporal g.
Right visual cortex (RVC)									

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
3	-2 -30 12	288	0.010	1	-0.07	-0.08 -0.05	-7.95	0.9999	29 – L - retrosplenial cingulate c.

**Table 18: Auditory network (AUDn) – S1**

Positive clusters - continued									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
4	-8 -8 64	763	0.0001	0.5798	0.12	0.10 0.15	9.37	0.0000	6 – L - premotor c. 24 – R - ventral anterior cingulate c. 24 – L - ventral anterior cingulate c. 6 – R - premotor c. 31 – R - dorsal posterior cingulate c. 31 – L - dorsal posterior cingulate c.
Anterior cingulate cortex (ACC)									
5	24 -28 58	134	0.0073	0.9119	0.07	0.06 0.07	15.89	0.0000	7 – R - somatosensory association c. 3 – R - primary somatosensory c. 5 – R - somatosensory association c. 40 – R - supramarginal g. 4 – R - primary motor c.
6	30 -12 62	106	0.0182	0.9282	0.07	0.06 0.08	15.15	0.0000	6 – R - premotor c. 4 – R - primary motor c.

**Table 19: Auditory network (AUDn) – S2**

Positive clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
1	-56 0 12	310	0.0000	0.0135	0.20	0.18 0.22	15.50	0.0000	13 – L - insular c. 43 – L - subcentral area 6 – L - premotor c. 4 – L - primary motor c. 44 – L - IFC pars opercularis 22 – L - superior temporal g.
<b>Left superior transverse temporal gyrus (LSTTG)</b>									
2	58 -8 14	98	0.0001	0.0482	0.19	0.17 0.22	12.73	0.0000	13 – R - insular c. 43 – R - subcentral area 6 – R - premotor c.
<b>Right superior transverse temporal gyrus (RSTTG)</b>									
3	-6 -72 8	57	0.0003	0.9999	0.13	0.11 0.15	10.69	0.0000	18 – L - secondary visual c. 30 – L - cingulate c. 19 – L - associative visual c. 30 – R - cingulate c.
<b>Left visual cortex (LVC)</b>									
4	-2 -82 34	53	0.0004	0.2110	0.22	0.18 0.25	10.86	0.0000	18 – L - secondary visual c. 18 – R - secondary visual c. 19 – R - associative visual c. 19 – L - associative visual c.
<b>Left and right visual cortex (LVC, RVC)</b>									
5	-44 -30 22	36	0.0020	0.9999	0.15	0.13 0.17	11.2	0.0000	13 – L - insular c.
<b>Left visual cortex (LVC)</b>									
6	-20 -72 44	27	0.0061	0.9999	0.12	0.10 0.14	11.72	0.0000	7 – L - somatosensory association c. 19 – L - associative visual c. 31 – L - dorsal posterior cingulate c.

**Table 20: Auditory network (AUDn) – CORR.**

**Table 21: Visual network (ViSnn) – W1**

Positive clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
1	10 -68 -4	13653	0.0001	0.0080	0.24	0.21 0.27	14.58	0.0000	18 – L - secondary visual c. 18 – R - secondary visual c. 19 – R - associative visual c. 19 – L - associative visual c. 17 – L - primary visual c. 30 – R - cingulate c. 17 – R - primary visual c. 37 – R - fusiform g. 31 – R - dorsal posterior cingulate c. 37 – L - fusiform g. 30 – L - cingulate c. 31 – L - dorsal posterior cingulate c. 23 – L - ventral posterior cingulate c. 36 – R - parahippocampal c. 23 – R - ventral posterior cingulate c. 7 – R - somatosensory association c. 39 – L - angular g. 20 – R - inferior temporal g. 7 – L - somatosensory association c. 36 – L - parahippocampal c. 39 – R - angular g. 20 – L - inferior temporal g. 27 – R - piriform c. 29 – R - retrosplenial cingulate c.
<b>Left and right primary visual cortex (LPVC, RPVC)</b>									
<b>Left and right secondary visual cortex (LSVC, RSVC)</b>									
<b>Left and right associative visual cortex (LAVC, RAVC)</b>									
3	-50 -14 50	123	0.0338	1	0.08	0.06 0.10	6.61	0.0003	3 – L - primary somatosensory c. 4 – L - primary motor c. 2 – L - primary somatosensory c. 6 – L - premotor c.

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
2	52 -42 26	167	0.0107	1	-0.07	-0.08 -0.06	-12.03	0.9999	40 – R - supramarginal g. 22 – R - superior temporal g. 13 – R - insular c.
4	8 -56 38	119	0.0381	1	-0.07	-0.08 -0.06	-11.67	0.9999	31 – R - dorsal posterior cingulate c. 7 – R - somatosensory association c.

**Table 22: Visual network (ViSnn) – S1**

**Table 23: Visual network (VISn) – S2**

**Table 24: Visual network (VISn) – CORR.**

Positive clusters									
#	x y z	k	FWE	Peak FWE	Beta	95% CI	T	p-FDR	BA - R/L - concerned region
None									

Negative clusters									
#	x y z	k	FWE	Peak FWE	Beta	95% CI	T	p-FDR	BA - R/L - concerned region
	-16 -64 -20	99	0.0026	1	-0.27	-0.32 -0.22	-8.81	0.9999	Cerebellum
	0 -52 -20	86	0.0045	1	-0.20	-0.23 -0.17	-12.05	0.9999	Cerebellum
	22 -52 -22	50	0.0351	1	-0.19	-0.23 -0.15	-8.74	0.9999	Cerebellum 37 – R – fusiform g.

**Table 25: Sensory Motor network (SMn) – W1**

Positive clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
1	6 -16 44	16779	0.0001	0.0021	0.22	0.20 0.24	15.17	0.0000	40 – L - supramarginal g. 6 – R - premotor c. 6 – L - premotor c. 4 – R - primary motor c. 40 – R - supramarginal g. 4 – L - primary motor c. 7 – L - somatosensory association c. 7 – R - somatosensory association c. 3 – L - primary somatosensory c. 3 – R - primary somatosensory c. 31 – L - dorsal posterior cingulate c. 5 – L - somatosensory association c. 5 – R - somatosensory association c. 31 – R - dorsal posterior cingulate c. 24 – L - ventral anterior cingulate c. 13 – R - insular c. 13 – L - insular c. 24 – R - ventral anterior cingulate c. 2 – L - primary somatosensory c. 2 – R - primary somatosensory c. 41 – L - primary auditory c. 41 – R - primary auditory c. 43 – R - subcentral area 23 – L - ventral posterior cingulate c. 23 – R - ventral posterior cingulate c. 33 – R - anterior cingulate c. 42 – R - primary auditory c. 22 – L - superior temporal g. 43 – L - subcentral area 1 – L - primary somatosensory c. 9 – R - dorsolateral prefrontal c. 32 – L - dorsal anterior cingulate c. 33 – L - anterior cingulate c. 1 – R - primary somatosensory c. 32 – R - dorsal anterior cingulate c.
Left and right primary motor cortex (LPrMC, RPrMC) Supplementary motor area (SMA)									
4	50 -62 0	152	0.0249	0.7562	0.09	0.08 0.11	9.7	0.0000	37 – R - fusiform g. 19 – R - associative visual c.

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
2	-24 -36 24	230	0.0050	1	-0.10	-0.12 -0.08	-7.21	0.9999	29 – L - retrosplenial cingulate c. 30 – L - cingulate c.
3	16 -38 12	214	0.0067	1	-0.10	-0.13 -0.08	-6.64	0.9999	29 – R - retrosplenial cingulate c.

**Table 26: Sensory Motor network (SMn) – S1**

**Table 27: Sensory Motor network (SMn) – S2**

Negative clusters									
#	x y z	k	FWE	Peak FWE	beta	95% CI	T	p-FDR	BA - R/L - concerned region
	14 -34 18	261	0.0034	1	-0.14	-0.17 -0.11	-7.94	0.9999	29 – R - retrosplenial cingulate c.

**Table 28: Sensory Motor network (SMn) – CORR.**