

Supplementary material: Autistic brain dynamics and responsivity to multi-target pharmacological challenge with Cannabidiol (CBDV)

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Supplementary Table 1. *Baseline Difference in the Core Network Strength of the Executive Control Network.*

	β	SE	t	p
(Intercept)	-0.463	0.222	-2.091	0.046
Autism	0.962	0.396	2.433	0.022*
Age	0.088	0.157	0.560	0.580
IQ	0.126	0.173	0.735	0.469
Mean FD	0.155	0.183	0.845	0.406

Notes. β : The standardized coefficient. SE : The standard error. FD: frame displacement. * $p < 0.05$. Model adjusted $R^2 = .272$. $F(4, 26) = 3.803$, $p = 0.015$.

Supplementary Table 2. *ICN Activity Patterns of Each Transient Brain States.*

Transient Brain State	Features
1	Globally low activity
2	Globally high activity
3	Active anterior DMN, right frontal-parietal network, left frontal-parietal network, dorsal attention network III, occipital pole, language network
4	Active posterior DMN, precuneus-PCC network, executive control network, primary visual network, occipital pole
5	Active right frontal-parietal network, occipital pole, lateral sensorimotor network
6	Active anterior DMN, posterior DMNs, precuneus-PCC network, ventromedial prefrontal cortex (vm PFC), auditory network, basal ganglia, thalamus
7	Active cingulo-opercular network, dorsal attention network II, dorsal attention network III, language network, lateral sensorimotor network, thalamus, primary visual network, cerebellum
8	Active vm PFC
9	Active posterior DMN, right frontal-parietal network, dorsal attention network I, dorsal attention network II, dorsal attention network III, cerebellum
10	Active anterior DMN, executive control network, occipital pole, sensorimotor network, lateral sensorimotor network, auditory network

Supplementary Table 3. Baseline difference in the dwell time and fractional occupancy of State 10 (Active anterior DMN, cingulo-opercular network, executive control network, occipital pole, sensorimotor network, lateral sensorimotor network, auditory network).

	β	SE	t	p
Fractional occupancy				
(Intercept)	-0.450	0.196	-2.300	0.030*
Autism	1.083	0.349	3.102	0.005**
Age	-0.165	0.138	-1.192	0.244
IQ	0.116	0.152	0.758	0.455
Mean FD	-0.528	0.162	-3.267	0.003**
Dwell time				
(Intercept)	-0.621	0.241	-2.574	0.016*
Autism	1.340	0.431	3.109	0.005**
Age	-0.126	0.171	-0.738	0.467
IQ	-0.093	0.188	-0.497	0.623
Mean FD	-0.511	0.200	-2.557	0.017*

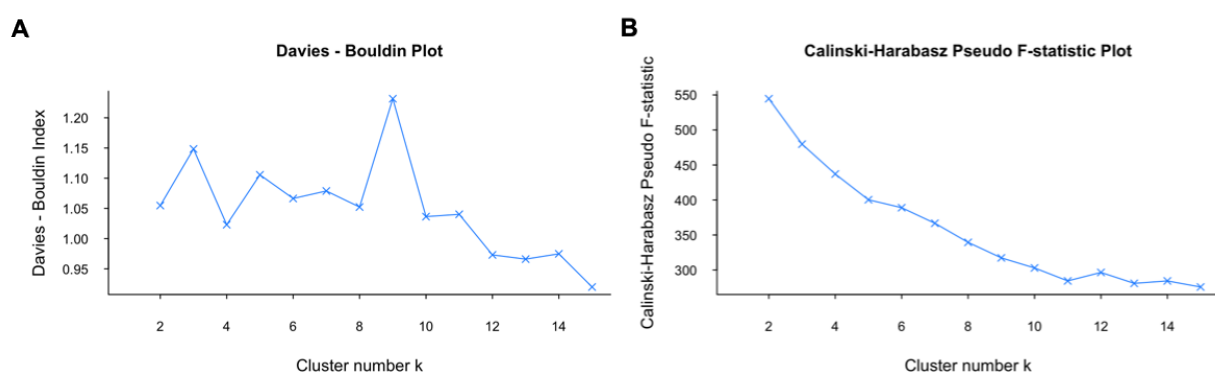
Notes. β : The standardized coefficient. SE : The standard error. Fractional occupancy of State 10: Model adjusted $R^2 = .361$. $F(4, 26) = 5.231$, $p = 0.003$. Dwell time of State 10: Model adjusted $R^2 = .215$. $F(4, 26) = 3.058$, $p = 0.034$. * $p < 0.05$, ** $p < 0.01$.

Supplementary Table 4. *Effects of Drug (Placebo/CBDV) × Group Interaction.*

	β	SE	df	t	p
Dwell time of State 6					
Fixed effects					
(Intercept)	-0.427	0.256	41.337	-1.667	0.103
CBDV	0.624	0.322	23.471	1.936	0.065
Autism	0.956	0.450	39.536	2.123	0.040*
Age	0.039	0.154	25.044	0.192	0.849
IQ	0.023	0.169	27.723	0.134	0.894
Mean FD	-0.158	0.193	34.317	-0.821	0.418
CBDV × Autism	-1.367	0.530	28.664	-2.579	0.015*
Random effects					
	Variance	SD			
Participant (Intercept)	0.252	0.502			
Residual	0.738	0.859			
Dwell time of State 10					
Fixed effects					
(Intercept)	-0.556	0.242	45.000	-2.300	0.026*
CBDV	0.732	0.349	45.000	2.098	0.042*
Autism	1.135	0.420	45.000	2.704	0.010**
Age	0.044	0.133	45.000	0.334	0.740
IQ	-0.131	0.148	45.000	-0.882	0.383
Mean FD	-0.438	0.174	45.000	-2.520	0.015*
CBDV × Autism	-1.430	0.560	45.000	-2.553	0.014*
Random effects					
	Variance	SD			
Participant (Intercept)	0.000	0.000			
Residual	0.891	0.944			

Notes. β : The standardized coefficient. SE : The standard error. SD : The standard deviation.

FD: frame displacement. * $p < 0.05$, ** $p < 0.01$.



Supplementary Figure 1. A) The Davies-Bouldin index corresponding to k from 1 to 15. B) The Calinski-Harabasz pseudo F-statistic corresponding to k from 1 to 15.