

Supplementary Materials

Gamma-oryzanol solid dispersion attenuates dexamethasone-induced depressive-like behaviors in rats associated with calbindin-1 and calcium signaling

2.2 Effects of GOSD on depression-related behaviors in rats

2.2.1 Open field test (OFT)

Table S1

The effect of GOSD on locomotor activity.

Group	Total distance (cm)	Number of crossings	%Time spent in central zone	%Time spent in peripheral zone
Control	714.15±97.12	52.8±80.38	11.27±1.95	88.73±1.95
Control-GOSD5	1042.15±89.39	59.60±7.16	15.13±1.54	84.87±1.54
Control-GOSD10	1258.52±172.67	66.88±10.19	19.00±4.16	81.00±3.72
Dx	892.63±138.28	66.60±9.74	13.67±4.79	86.33±4.79
Dx-GOSD5	1076.79±75.42	69.00±9.74	8.53±4.08	91.47±4.08
Dx-GOSD10	1038.11±75.42	55.2+0±10.79	5.80±1.13	94.20±1.13
Dx-Flu	937.61±153.67	72.60±11.50	4.87±1.20	95.13±1.20

Data are shown as mean ± SEM. Statistical analysis was carried out by one-way ANOVA

followed by Dunnett's post hoc test

Table S2

The list of differentially expressed proteins that were upregulated in the Dx/Control and downregulated in Dx-GOSD5/Dx and Dx-GOSD10/Dx.

No	Uniport ID	Gene name	Protein Name	Dx/Control Log2FC	Dx- GOSD5 /Dx Log2F C	Dx- GOSD1 0 /Dx Log2F C
1	D3ZXC1	Itga2b	Integrin subunit alpha 2b	5.1844	-3.3315	-3.9813
2	Q4V8C3	Eml1	Echinoderm microtubule-associated protein-like 1	5.0182	-2.9653	-4.5489
3	F1LW30	Unc5d	Netrin receptor	4.1421	-3.7921	-4.6111
4	F1LNS6	Ccdc146	Coiled-coil domain-containing protein 146	4.1219	-4.0608	-1.6918
5	D3ZHZ3	Osbp13	Oxysterol-binding protein	4.0624	-4.4805	-1.9437
6	O54898	Cacna1g	Voltage-dependent T-type calcium channel subunit alpha-1G	3.5312	-6.8321	-5.9213
7	A0A0G2KA M8	Dcaf1	DDB1 and CUL4 associated factor 1	3.5148	-4.9224	-2.0626
8	E9PTK9	Ankhd1	Eukaryotic translation initiation factor 4E binding protein 3	2.7593	-1.6258	-1.8699
9	A0A0H2UH V1	Carmil3	Capping protein regulator and myosin 1 linker 3	2.7066	-2.1616	-3.0481

		Diaph1				
10	F1M775	Diap1	Protein diaphanous homolog 1	2.568	-1.2807	-1.6911
		Mtmr12				
11	Q5FVM6	Pip3ap	Myotubularin-related protein 12	2.4667	-3.4896	-1.582
		Erc1 Cast2				
		Elks	ELKS/Rab6-interacting/CAST			
12	Q811U3	Rab6ip2	family member 1	2.4295	-5.1625	-1.9418
		Synm				
13	Q810D0	DMN	Desmuslin	2.4101	-3.1114	-1.7556
		LOC28698				
14	Q64599	7	Hemiferrin	2.3082	-5.5441	-3.6936
			ATP-binding cassette sub-family			
			C member 9 (Sulfonylurea			
15	Q63563	Abcc9 Sur2	receptor 2)	2.0791	-2.0889	-2.3097
16	F1LPP8	Chd3	DNA helicase	2.0686	-1.3783	-2.1825
17	F1LPF2	Agrn	Agrin	2.031	-5.9713	-1.223
	A0A0G2K5		SR-related CTD-associated factor			
18	M7	Scaf8	8	1.9474	-4.4775	-4.1181
		Slc4a10				
19	W0NXI0	NCBE	Anion exchange protein	1.8355	-5.0045	-1.5652
			Latent-transforming growth			
20	O35806	Ltbp2	factor beta-binding protein 2	1.7794	-6.3315	-5.5515
		Csnk1e	non-specific serine/threonine			
21	Q9JJ75	rCK1e-3	protein kinase	1.7049	-4.8744	-4.6241

		Aox2 Aoh3				
22	Q5QE78	Aox3l1	Aldehyde oxidase 2	1.5075	-1.5154	-2.6002
			Cholinergic receptor nicotinic			
23	G3V7L7	Chrna6	alpha 6 subunit	1.4965	-3.5882	-2.004
24	Q7TMA5	Apob	Apolipoprotein B-100	1.4467	-2.7386	-1.3245
			Sushi, nidogen and EGF-like			
25	Q5ZQU0	Sned1	domain-containing protein 1	1.4066	-5.393	-5.4201
	A0A0G2JTU		Rho guanine nucleotide exchange			
26	0	Arhgef15	factor 15	1.3343	-2.4174	-2.2506
		Hsp90ab1				
		Hsp84				
27	P34058	Hspcb	Heat shock protein HSP 90-beta	1.2463	-3.8146	-6.1795
		Parp1	ADP-ribosyltransferase			
28	P27008	Adprt	diphtheria toxin-like 1	1.2217	-3.3058	-4.024
	A0A140TA9					
29	4	Chrd	Chordin	1.2162	-2.2189	-1.6415

Table S3

The list of differentially expressed proteins that were downregulated in the Dx/Control and upregulated in Dx-GOSD5/Dx and Dx-GOSD10/Dx.

No	Uniport ID	Gene name	Protein Name	Dx/Control	Dx-	Dx-
					GOSD5	GOSD1
					/Dx	0 /Dx
				Log2FC	Log2F	Log2F
				C	C	C
1	Q5EB94	Myozap	Myocardial zonula adherens protein	-1.3298	3.2662	5.6911
2	D4A055	Cacnb4	Voltage-dependent L-type calcium channel subunit beta-4	-1.4357	3.5485	2.1983
3	Q99NB7	Cach1	Acetyl-coenzyme A thioesterase	-1.5558	1.2816	1.8785
4	D3ZG74	Frem2	FRAS1 related extracellular matrix 2	-1.5877	2.6479	2.5591
5	B4F7B5	56	RGD1564456 protein	-1.6269	4.5926	7.7721
6	F1LVC2	2473.1	Vomer nasal 2 receptor, 30	-1.6411	1.5028	2.0178
7	F1LWZ8	Lemd3	LEM domain containing 3	-1.6513	1.4574	1.4113

		Mpdz				
8	O55164	Mupp1	Multiple PDZ domain protein	-1.6971	1.1276	1.569
			Procollagen-lysine,2-oxoglutarate			
9	Q811A3	Plod2	5-dioxygenase 2	-1.8531	2.8352	1.7547
			ADAM metalloproteinase with			
10	D4A065	Adamts6	thrombospondin type 1 motif, 6	-1.9024	4.4371	2.2787
11	Q63425	Prx	Periaxin	-1.9428	1.8582	2.3866
			Tetratricopeptide repeat and			
12	D3ZSG2	Trank1	ankyrin repeat containing 1	-1.9449	1.2691	1.9147
	A0A0G2K4D					
13	0	Ank3	Ankyrin-3	-2.1323	1.9716	2.89
		Amph				
		LOC10090				
		9679				
	A0A0G2JX3	LOC10091				
14	2	0792	Amphiphysin-like	-2.194	3.9577	5.4435
	A0A0G2JYZ					
15	1	Ttbk2	Tau tubulin kinase 2	-2.2463	2.1383	2.646
		Shtn1				
		RGD13115				
16	D4A6P3	58	Shootin-1	-2.6672	3.1114	3.7631
			Lethal(2) giant larvae protein			
17	Q8K4K5	Llgl1 Rgl1	homolog 1	-2.7027	4.3316	5.1207
	A0A0G2QC4					
18	9	Zfp951	Zinc finger protein 951	-2.7658	1.8902	1.5476

19	P35570	Irs1 Irs-1	Insulin receptor substrate 1	-2.8249	4.6183	5.7324
20	Q63272	Jak3	Tyrosine-protein kinase JAK3	-2.8361	3.2629	2.1414
21	G3V6S2	Aco1	Cytoplasmic aconitate hydratase	-3.1414	3.6015	2.9001
		4931429L1				
		5Rikl				
		LOC50099	Similar to RIKEN cDNA			
22	Q3KR84	0	4931429L15	-3.1761	5.092	5.4336
		A0A096MK5				
23	4	Synm	Synemin	-3.1807	3.0247	3.1282
		G6pdx	Glucose-6-phosphate 1-			
24	P05370	G6pd	dehydrogenase	-3.2188	2.5548	2.27
			Cytoplasmic linker associated			
25	F1LNR0	Clasp1	protein 1	-3.2842	3.4249	4.5048
		A0A0G2K5V	non-specific serine/threonine			
26	8	Dapk1	protein kinase	-3.3091	2.4098	2.9323
			Coiled-coil alpha-helical rod			
27	Q0D2L7	Ccher1 Hcr	protein 1	-3.342	4.6945	4.4718
28	F1LPC8	Ntn1	Netrin-1	-3.3579	1.5663	1.7867
		A0A0G2JT7	Family with sequence similarity			
29	4	Fam149b1	149, member B1	-3.4474	3.4359	4.9413
			Arf-GAP with coiled-coil, ANK			
			repeat and PH domain-containing			
30	D4A346	Acap3	protein	-3.4933	3.4335	5.6301
			Myosin light chain kinase,			
31	D3ZFU9	Mylk	smooth muscle	-3.5642	3.5601	3.402

			C2 calcium-dependent domain			
32	D4A5B3	C2cd5	containing 5	-3.5832	4.6645	2.3345
	A0A0G2K5B		Autophagy and beclin 1 regulator			
33	6	Ambra1	1	-3.6233	2.6456	3.2445
		Pfkm Pfk-	ATP-dependent 6-			
34	P47858	m	phosphofructokinase	-3.6447	3.5086	4.7083
		Rasgrf2				
	A0A0G2JW6	AABR0700	RAS protein-specific guanine			
35	5	7642.1	nucleotide-releasing factor 2	-3.6509	1.9225	3.734
36	P12847	Myh3	Myosin-3	-3.7031	3.5952	7.6201
37	Q9WUI9	Ncoa2 Tif2	Nuclear receptor coactivator 2	-3.7139	2.5796	7.5934
		Exoc4 Sec8				
38	Q62824	Sec8l1	Exocyst complex component 4	-3.7311	2.2557	6.6678
		Pde7b				
39	Q8VIE2	RNPDE7B	Phosphodiesterase	-3.8031	3.1523	3.1119
		Pmfbp1	Polyamine-modulated factor 1-			
40	Q9Z221	Odf3	binding protein 1	-3.871	4.4475	4.4247
41	D4A7C2	Fmn1	Formin 1	-3.9086	2.8382	4.9183
42	Q6S3A0	Plec	Plectin 6	-3.9788	1.8248	1.7049
43	D4A915	Ano1	Anoctamin	-4.0023	3.0431	4.6477
			Spectrin repeat containing, nuclear envelope family member			
44	D3ZD24	Syne3	3	-4.1622	3.4256	1.9517
	A0A0H2UH					
45	X6	Ica11	Islet cell autoantigen 1-like	-4.1832	4.3649	1.8289

			Protein kinase C-binding protein			
46	Q62918	Nell2 Nel	NELL2	-4.1889	1.2761	4.8591
A0A0G2K2V						
47	5	Exoc1	Exocyst complex component 1	-4.2275	1.9901	2.2776
			Pleckstrin homology-like domain			
48	Q63312	Phldb1 L15	family B member 1	-4.2908	2.8495	3.8465
			phosphoenolpyruvate			
49	F1LQJ7	Pck2	carboxykinase (GTP)	-4.5049	4.0174	3.7633
			Cyp1a1			
			CYP450IA			
50	Q80UE2	I	Cytochrome P450 1A	-4.6148	7.1903	7.7175
51	F1M048	Cux2	Homeobox protein cut-like	-4.6915	1.8787	3.1484
52	D3ZEZ9	Svil	Supervillin	-4.77	2.4189	3.1905
53	Q62888	Nlgn2	Neurologin-2	-4.7919	4.4068	5.1549
54	M0RD44	Zfp318	Zinc finger protein 318	-4.9247	3.1504	4.0994
55	P15800	Lamb2	Laminin subunit beta-2	-5.0815	3.1255	3.1632
		Rag1	V(D)J recombination-activating			
56	Q6WDI9	RAG1	protein 1	-5.1006	4.0039	5.5666
57	D3ZW40	Mtmr4	protein-tyrosine-phosphatase	-5.2966	2.9885	2.9569
		A0A0G2K66	Tgap1	GTPase activating protein		
58	5	tGap1	testicular GAP1	-5.5996	5.3916	2.5249
		Brinp1	BMP/retinoic acid-inducible			
59	G3V6Q9	Dbc1	neural-specific protein 1	-5.7225	4.9522	7.4745

			Voltage-dependent L-type			
60	Q8VGC3	Cacnb2	calcium channel subunit beta-2	-5.7514	1.597	5.8545
61	F1M1F5	Megf11	Multiple EGF-like-domains 11	-5.8054	5.3477	3.4499
62	F1M7U2	Capn11	Calpain 11	-6.0062	4.4356	3.5171
			Voltage-dependent N-type		2.2923	
63	F1LQ87	Cacna1b	calcium channel subunit alpha	-6.0062	+	2.874
			Plasma membrane calcium-			
64	Q64542	Atp2b4	transporting ATPase 4	-6.039	2.2923	4.0923
			Multidrug resistance-associated			
65	Q6QMG5	Abcc4	protein 4 splice variant	-6.0707	3.9259	3.9486
			TCDD-inducible poly(ADP-			
66	D3ZMH5	Tiparp	ribose) polymerase	-6.1827	3.1233	1.6975
67	Q6UPE2		Cardiotrophin-like cytokine	-6.2308	4.9021	7.1684
					10.285	
68	Q3ZU82	Golga5	Golgin subfamily A member 5	-6.2827	3	4.0428
69	P97629	Lnpep	Leucyl-cystinyl aminopeptidase	-6.7614	5.9621	4.476
70	P51870	Cyp4f5	Cytochrome P450 4F5	-6.8322	3.939	5.3468

2.4.5 Validation of calcium-binding protein Calb1 expression

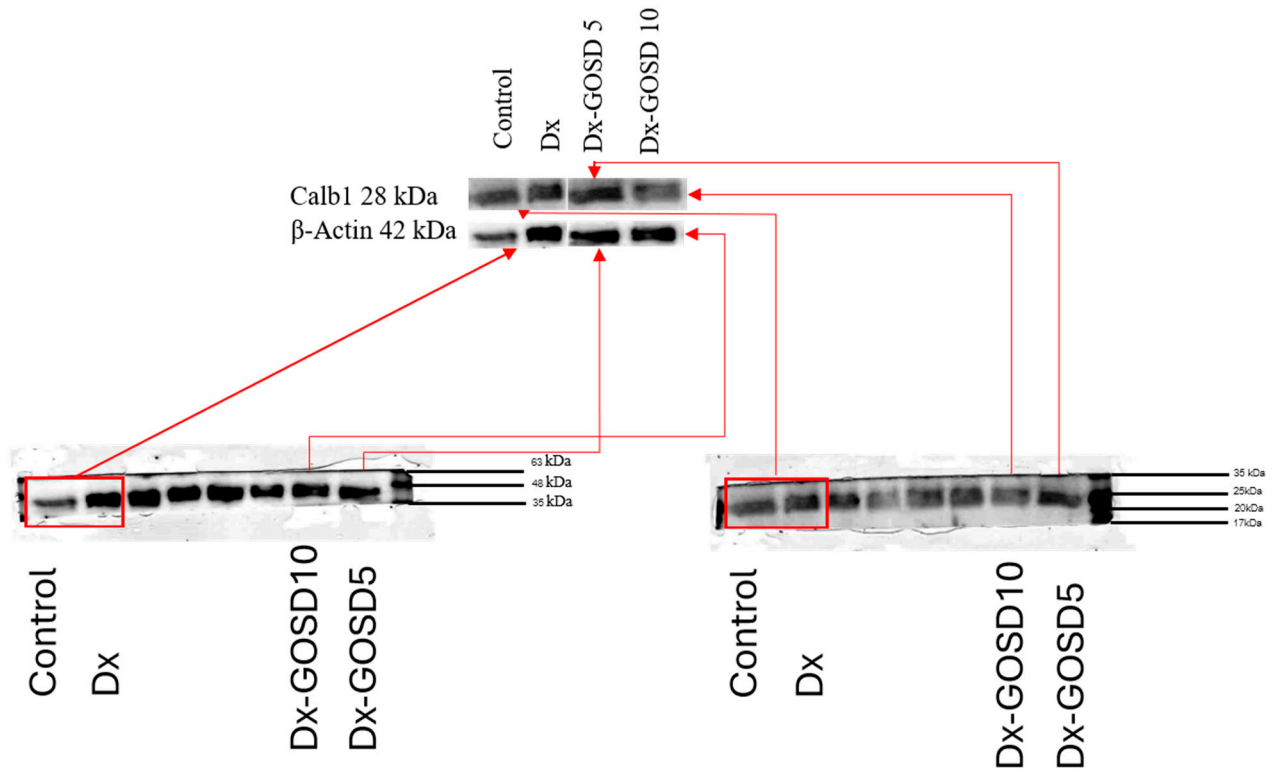


Figure S1. Full-length blots corresponding to Figure 6. Lane 1: Control group; Lane 2: Dx group; Lanes 7: Dx-GOSD10 group; Lane 8: Dx-GOSD5 group.