

Figure S1: Immunocytochemistry of cultured rat cerebellar granule neurons with an anti-DAO antibody. A. Punctate anti-DAO immunofluorescent labeling was strongly detected in shafts and moderately detected in spines of rat CGNs. Immunofluorescence was abolished when the anti-DAO antibody was omitted (B), or when the anti-DAO antibody was pre-incubated with the immunogenic peptide at 1.4 $\mu\text{g}/\text{ul}$ (C). Anti-DAO was visualized with a goat anti-rabbit fluorescent secondary antibody conjugated to Alexa-fluor 596 (Invitrogen).

Figure S2: Asc-1 and SRR do not coimmunoprecipitate with BSN. To test the hypothesis that BSN acts as a scaffold for serine-related enzymes such as DAO, Asc-1 and SRR, rat cerebellar lysates were subjected to immunoprecipitation with the anti-BSN antibody and eluted material was immunoblotted with antibodies to Asc-1 (upper panel) and SRR (lower panel). An antibody to Asc-1 detected an immunoreactive band at the expected molecular weight in the input lane but not in the lane containing anti-BSN immunoprecipitates. An antibody to SRR strongly detected an immunoreactive in the input lane, which was displaced by preincubation with 2 $\mu\text{g}/\text{ml}$ of the immunogenic peptide. However, a SRR-specific immunoreactive band was not detected in the lane containing anti-BSN immunoprecipitates

Figure S3: BSN inhibits DAO's enzymatic activity in HEK293 cells. BSN constructs that were previously found co-immunoprecipitate DAO partially inhibited DAO's enzymatic activity. Specifically the full length BSN, 95-3263, 1692-3263, and 27153263 co-immunoprecipitated with DAO and significantly inhibited DAO enzymatic activity. BSN 95-609 and GFP, which were found not to coimmunoprecipitate with DAO, did not affect DAO's enzymatic activity. These data suggests that BSN may regulate DAO enzymatic activity within the presynaptic active zone. *** $p < 0.001$ by one way ANOVA followed by Dunnett's multiple comparison against GFP-transfected cells.

Table S1: Complete list of putative DAO interacting proteins identified from co-immunoprecipitation experiments.

Table S2: Presynaptic active zone DAO interacting proteins organized by % protein coverage. The % protein coverage is used as a proxy for the strength of the interaction. As a control DAO was found at 30% suggesting that BSN at 29% may be a strong interacting partner.

Figure S1.

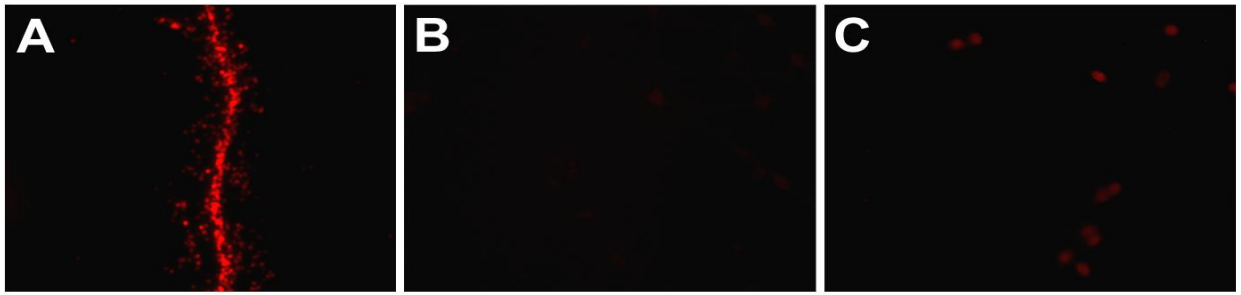


Figure S2.

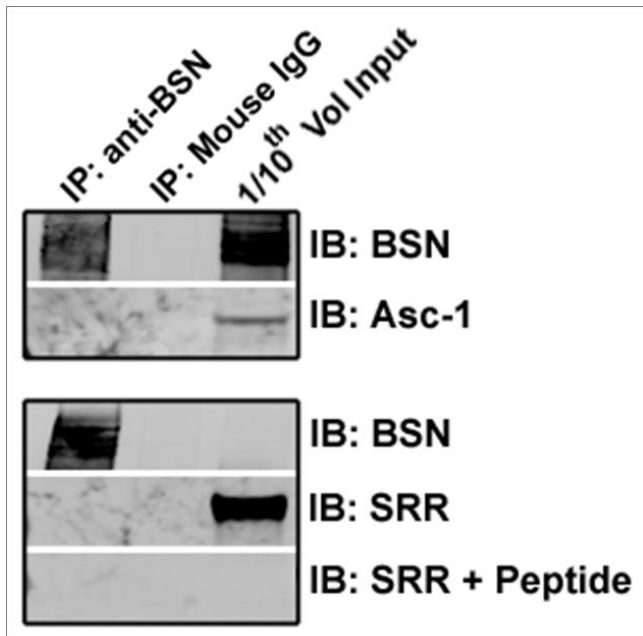


Figure S3.

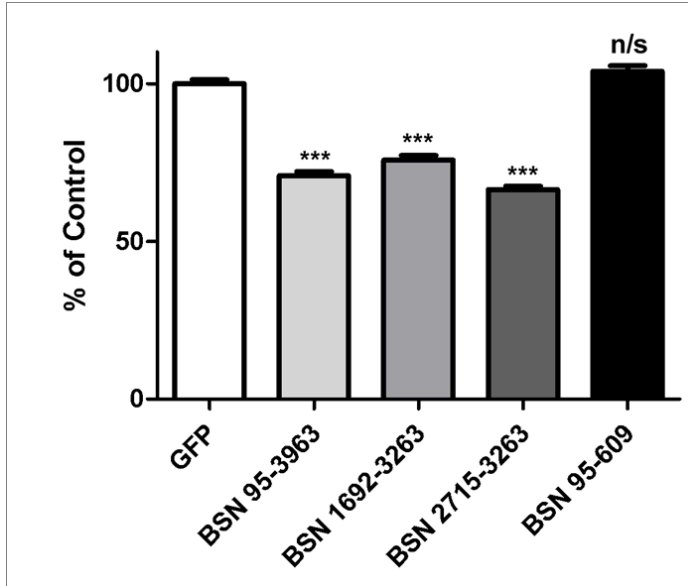


Table S1.

Protein Name	GI number	Sample									
		PBS Wash						RIPA Supplemented Wash			
		A (IgG)		B (Peptide blocked)		C (DAO)		D (Peptide blocked)		E (DAO)	
		Unique	Total	Unique	Total	Unique	Total	Unique	Total	Unique	Total
DYNC1H1	294543	4	4	2	2	149	202	2	2	41	53
BSN	51315687	0	0	2	3	52	94	0	0	32	60
BAT2D1	109498088	0	0	0	0	46	100	0	0	19	46
PCLO	24212076	0	0	0	0	41	79	0	0	16	27
SACS	109501781	0	0	0	0	29	30	0	0	3	3
MYH10	123261983	0	0	0	0	20	22	2	2	4	4
ACZ	15139360	0	0	0	0	19	47	0	0	15	27
ATP6V0A1	123237393	1	1	2	2	17	51	0	0	0	0
DEPDC2	109474572	0	0	0	0	15	19	0	0	2	3
ATP6V1A	109494307	2	2	0	0	15	18	2	2	1	1
AP2A1	109461873	1	1	0	0	14	16	2	2	5	7
PRKCG	74190393	0	0	1	1	14	16	0	0	5	5
IMMT	77917546	0	0	0	0	14	16	1	1	2	3
SNIP	42559551	0	0	0	0	13	24	0	0	17	24
PC	146345499	0	0	1	1	13	14	0	0	6	7
DAO	56972124	0	0	0	0	13	28	0	0	5	7
ATP6V1B2	74177659	1	1	0	0	13	15	4	4	4	4
SDHA	52782765	2	2	0	0	13	16	0	0	0	0
NDUFA9	109474252	1	1	1	1	12	19	0	0	1	1
ANK1	109503539	1	1	0	0	12	12	0	0	1	1
AP2B1	119600539	1	1	0	0	11	11	2	2	7	8
RPS3	12847921	0	0	0	0	11	13	1	1	0	0
RAPGEF4	109468297	0	0	1	1	10	11	1	1	12	14
CEP97	109494268	0	0	0	0	10	12	0	0	4	4
SLC4A4	9437326	0	0	1	1	10	17	1	1	3	4
ARBP	38541406	0	0	1	2	10	23	1	1	1	1
MAP1A	13591886	1	1	1	1	10	13	1	1	1	1
LOC684558	109504000	0	0	0	0	10	12	0	0	1	1
SLC12A5	123240068	0	0	1	1	10	21	0	0	0	0
ERLIN2	109504272	0	0	0	0	10	13	0	0	0	0

CNTNAP1	17432925	1	1	0	0	10	13	0	0	0	0
NDUFS2	58865384	0	0	2	2	10	10	0	0	0	0
AP2A2	13591908	0	0	1	1	9	10	3	3	6	8
AP1B1	119580203	1	1	0	0	9	9	2	2	6	6
PHYHIP	77046155	0	0	0	0	9	18	0	0	5	7
MAP1B	109465851	0	0	0	0	9	12	0	0	4	4
PABPC1	119612223	1	1	2	2	9	12	0	0	4	4
PYGB	109471016	0	0	0	0	9	9	3	3	4	4
1BG3B	5542104	0	0	0	0	9	9	3	3	2	2
C1QBP	122065146	0	0	0	0	9	11	0	0	1	1
AQP4	459951	0	0	0	0	9	85	0	0	0	0
NCAM1	124517683	1	1	0	0	9	11	1	1	0	0
ANK1	1360744	0	0	0	0	9	9	0	0	0	0
YLPM1	146134507	0	0	0	0	8	12	0	0	16	26
YLPM1	109479674	0	0	0	0	8	11	0	0	16	25
AP1B1	8392872	1	1	0	0	8	8	1	1	6	6
NAPB	109470977	1	1	0	0	8	10	2	2	4	4
DAO	110815857	0	0	0	0	8	16	0	0	2	2
TFSM	109482048	0	0	0	0	8	18	0	0	1	1
NDUFA9	13543186	1	1	1	1	8	13	0	0	1	1
MYO5A	13431673	0	0	0	0	8	9	1	1	1	1
MYH9	13431671	0	0	0	0	8	8	0	0	1	1
SLC1A2	10121878	1	1	0	0	8	21	0	0	0	0
MTCH2	109468417	0	0	0	0	8	14	0	0	0	0
ATP8A1	109500484	0	0	0	0	8	14	0	0	0	0
NDUFB5	109466500	0	0	0	0	8	10	0	0	0	0
ATP6V1C1	13384916	0	0	0	0	8	9	0	0	0	0
PRKCB	117558040	0	0	0	0	8	8	0	0	0	0
NDUFV1	55741424	0	0	1	1	8	8	1	1	0	0

ARF5	124376432	1	1	1	2	7	12	2	3	7	8
RAPGEF4	25455682	0	0	0	0	7	8	0	0	7	8
SFXN3	20139873	1	1	0	0	7	14	1	1	4	4
PPP1CB	119620935	0	0	0	0	7	7	0	0	4	6
NAPA	38648848	1	1	1	1	7	8	2	2	3	3
PYGB	1172226	0	0	0	0	7	7	2	2	3	3
RPS18	119624100	0	0	0	0	7	13	0	0	1	1
SFXN1	20139869	1	1	0	0	7	12	0	0	1	1
RAB7A	119599708	0	0	0	0	7	8	0	0	1	1
ANK2	109467596	0	0	0	0	7	7	0	0	1	1
KIF5C	109469894	0	0	0	0	7	7	0	0	1	1
NDUFB10	109490345	0	0	0	0	7	10	0	0	0	0
NEGR1	11067409	0	0	0	0	7	10	0	0	0	0
ILF2	119573671	0	0	0	0	7	9	0	0	0	0
RPS8	119627428	0	0	0	0	7	9	0	0	0	0
FLOT1	13124118	0	0	0	0	7	8	0	0	0	0
IGSF8	15593237	0	0	1	1	7	7	1	1	0	0
NDUFV2	83305118	0	0	0	0	7	7	0	0	0	0
CRMP1	40675740	1	1	0	0	6	8	1	1	16	26
CRMP1	1518520	1	1	0	0	6	8	1	1	13	24
ARF4	109730919	1	1	1	2	6	10	2	3	5	6
CHAINA	110590707	0	0	1	1	6	8	2	4	5	6
ERC1	120300971	0	0	0	0	6	8	0	0	5	5
GNB4	193714	1	2	1	2	6	10	1	1	3	5
MAP1B	6678946	0	0	0	0	6	9	0	0	3	3
PPP1CC	119618344	0	0	0	0	6	6	1	1	3	4
MFF	40254163	0	0	0	0	6	7	0	0	2	2
ANK2	119626695	0	0	0	0	6	6	0	0	2	2
DMX2	94387180	0	0	0	0	6	6	0	0	2	2
MAP1B	123207791	0	0	1	1	6	9	0	0	1	1

ELALV1	109496377	0	0	1	1	6	8	0	0	1	1
ATP6VH1	62078587	0	0	1	1	6	8	0	0	1	1
DNM1L	68566301	0	0	0	0	6	7	1	1	1	1
RBM14	109463348	0	0	0	0	6	6	0	0	1	1
NDUFS4	119850879	0	0	0	0	6	6	0	0	1	1
NDUFB7	109508678	0	0	0	0	6	10	0	0	0	0
NDUFA12	109481873	0	0	0	0	6	9	0	0	0	0
RPS19	119577477	1	1	0	0	6	8	0	0	0	0
MAOA	109511497	0	0	0	0	6	7	0	0	0	0
DDX5	119614609	1	1	0	0	6	7	1	1	0	0
MTX2	56605654	0	0	0	0	6	7	0	0	0	0
STOML2	72255527	0	0	0	0	6	7	0	0	0	0
NDUFB8	109463999	0	0	0	0	6	6	0	0	0	0
RPL7	109475998	0	0	0	0	6	6	0	0	0	0
NDUFB11	109511448	0	0	0	0	6	6	0	0	0	0
CACNA2D1	109732367	0	0	0	0	6	6	0	0	0	0
DPP6	12408298	0	0	0	0	6	6	0	0	0	0
BIN1	134053947	0	0	0	0	6	6	0	0	0	0
CACNA2D2	28212250	0	0	0	0	6	6	0	0	0	0
SCCPDH	73919297	0	0	0	0	6	6	0	0	0	0
CLINT1	113865873	0	0	0	0	5	6	0	0	4	4
RAB2A	119607234	0	0	0	0	5	7	0	0	3	5
ENTH	109490556	0	0	0	0	5	6	0	0	3	3
EEF1A2	119595666	0	0	1	1	5	5	3	3	3	5
ANK2	1703310	0	0	0	0	5	5	0	0	3	3
DNM3	119611321	0	0	0	0	5	5	3	3	2	2
LMNB1	17865475	0	0	0	0	5	5	2	2	2	2
SYN1	206933	1	1	0	0	5	5	2	2	2	2
RPL30	119612175	0	0	1	1	5	10	0	0	1	1
RPL14	12621122	0	0	0	0	5	6	0	0	1	1
PYGM	109463456	0	0	0	0	5	5	1	1	1	1
ELAVL1	119589355	0	0	1	1	5	5	0	0	1	1

UQCRB	17380333	1	1	0	0	5	5	0	0	1	1
NDUFA5	37748465	0	0	0	0	5	5	0	0	1	1
ATP2A3	1438541	1	1	0	0	5	10	0	0	0	0
RAP1B	52138628	0	0	0	0	5	9	2	2	0	0
NDUFS8	109463301	0	0	0	0	5	7	0	0	0	0
NFASC	1842429	0	0	0	0	5	6	1	1	0	0
HP1BP3	40018592	0	0	1	1	5	6	0	0	0	0
CAR4	67677927	0	0	0	0	5	6	0	0	0	0
KCTD12	109501957	0	0	0	0	5	5	0	0	0	0
GRIA4	119587472	0	0	0	0	5	5	0	0	0	0
RPS4X	119592221	0	0	0	0	5	5	0	0	0	0
RAA	119614529	0	0	0	0	5	5	0	0	0	0
NDUFC2	57164133	0	0	0	0	5	5	0	0	0	0
	348418	0	0	0	0	5	5	0	0	0	0
YLPM1	146134388	0	0	0	0	4	7	0	0	9	14
DYNLL2	119614889	0	0	1	1	4	5	0	0	6	6
NCOA6	109471142	0	0	0	0	4	4	0	0	4	5
IDH3B	119630986	0	0	0	0	4	4	3	3	4	4
PURB	81863556	0	0	0	0	4	4	1	1	3	3
SLC1A6	14091748	1	1	0	0	4	7	0	0	2	2
LOC679221	109507032	1	1	0	0	4	6	0	0	2	3
MYL6	109481431	0	0	0	0	4	6	0	0	2	2
RGD1565289	109510841	0	0	1	1	4	6	0	0	2	2
GNAQ	13591957	0	0	0	0	4	6	2	2	2	2
RAB5C	109491867	0	0	0	0	4	5	1	1	2	2
RTN4	17367410	0	0	0	0	4	5	0	0	2	2
TUFM	109462848	0	0	0	0	4	4	0	0	2	2
MGST3	109498993	0	0	0	0	4	4	0	0	2	2
VAPA	122066700	0	0	0	0	4	8	1	1	1	1

TARDBP	123248910	0	0	1	1	4	7	0	0	1	1
GJA1	51859470	0	0	0	0	4	7	0	0	1	1
RPLP2	71795613	1	1	0	0	4	7	0	0	1	1
LOC685320	109511446	0	0	0	0	4	6	0	0	1	1
SEC22B	116256065	0	0	0	0	4	5	1	1	1	1
ERC2	51701368	0	0	0	0	4	5	0	0	1	1
LOC679739	109504524	0	0	0	0	4	4	0	0	1	1
DDX3X	109511507	0	0	0	0	4	4	0	0	1	1
CADM3	114149321	0	0	1	1	4	4	1	1	1	1
ANKG119	1167996	0	0	0	0	4	4	0	0	1	1
CYFIP2	119582010	0	0	0	0	4	4	0	0	1	1
NDUFA11	52000746	0	0	0	0	4	4	0	0	1	1
UQCRFS1	57114330	1	1	0	0	4	4	0	0	1	1
FAM162A	81905494	0	0	0	0	4	4	0	0	1	1
GRIA1	121430	0	0	0	0	4	4	0	0	1	1
APOE	202959	1	1	0	0	4	7	0	0	0	0
RPS2	109150084	1	1	0	0	4	6	0	0	0	0
SLC32A1	109471222	0	0	0	0	4	6	0	0	0	0
THY1	207310	1	1	0	0	4	6	0	0	0	0
INPP5A	109463119	0	0	1	1	4	5	0	0	0	0
LOC683655	109473039	0	0	1	1	4	5	0	0	0	0
SDHB	109477603	0	0	0	0	4	5	0	0	0	0
RPL3	119580714	0	0	0	0	4	5	0	0	0	0
ITPR3	119624149	1	1	0	0	4	5	0	0	0	0
MAOA	123230076	0	0	0	0	4	5	0	0	0	0
MAOB	124028639	0	0	0	0	4	5	0	0	0	0
STX7	146345521	0	0	0	0	4	5	0	0	0	0
AMPH	14916529	0	0	0	0	4	5	1	1	0	0
NTM	31982044	0	0	0	0	4	5	0	0	0	0
MYH14	109461889	1	1	0	0	4	4	0	0	0	0

Table S2.

Protein	Protein MW (kDa)	% Protein Coverage
Bassoon	418	29
Piccolo	552	18
Epac2	123	25
ELKS	128	12
Munc13-1	196	5
RIM1	110	10
Liprin-a-3	149	3
DAO	39	30