Supplementary Materials

Supplementary Notes regarding behavior studies, Fig. S1, S3 and S5:

Granule cell precursor proliferation assay

The activity of the single batch of SAG used in our experiments, was compared to the concentration that caused similar GCP proliferation as 5 nM of dually lipidated Shh (Shh-Np) in an in vitro assay (Fig. S1) with isolated GCPs from P6-P7 cerebella. We note that absolute values of GCP responsiveness are influenced by differences in genetic background, age or maturity of the mice and do not necessarily provide a reproducible metric for comparison across laboratories. However, all four previous reports of in vivo SAG response used the same or a similar final dose of 20 µg/g (*10, 16-18*) that were administered to the mice used in our experiments..

Morris Water Maze Strategy Choice

As demonstrated here, a single treatment with SAG at P0 normalized performance of adult Ts65Dn mice in the MWM (Fig. 2). Recent studies have highlighted a role for the cerebellum in spatial learning, proposing that it is necessary in the acquisition of optimal strategies for spatial learning in tasks such as the MWM hidden platform (*33*). Accordingly, we analyzed search strategies used by control and SAG treated trisomic mice based on the path to the platform (Fig. S5). Scores correlated significantly with the latency for all groups (Spearman's rho>0.80), indicating that reduced latencies for both TsSAG and EuVeh compared to TsVeh were due to the use of improved strategies for platform finding.

TsVeh mice frequently showed a behavior in which they continued to swim against the wall in a single quadrant and did not seem to be making an attempt to look for the platform at all. This behavior is a form of thigmotaxis which has been noted previously in Ts65Dn mice (*35*). This behavior was added to the 10 point scale of Petrosini et al. (*38*) and given a score of 11.

Search pattern 11 was seen predominantly in TsVeh animals (Fig. S5b). All the scores were based on spatial strategy, except score 11 which could be a mixture of behavior and spatial learning. All trajectories were scored by investigators blinded to genotype and treatment, as well as to trial number (attempt number within a trial was differentiated using color coding) to remove any bias.

Supplementary Figures

Fig. S1.

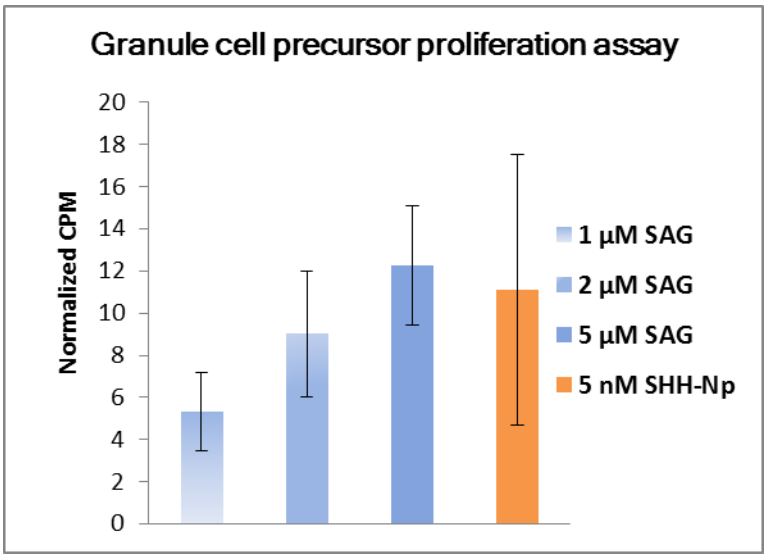
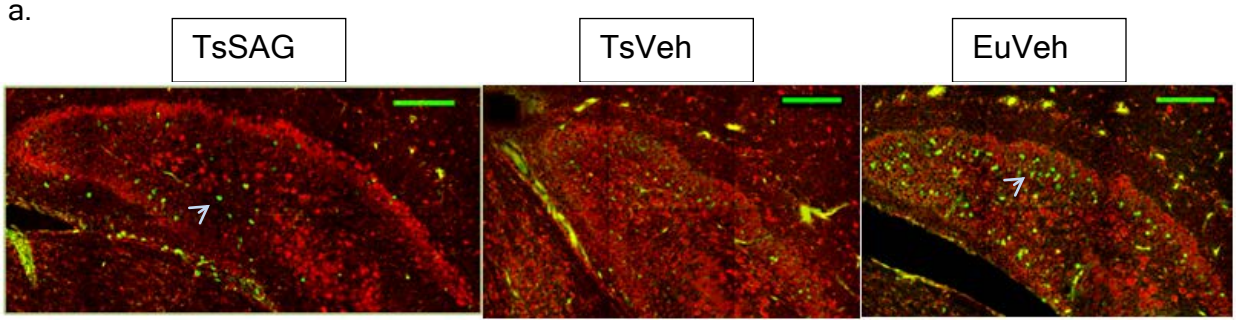


Fig. S1. Mitogenic activity of SAG in primary GCP cultures. Granule cell precursors (GCPs) isolated from P6-P7 pups as described (*10*) were exposed to 1 µM, 2 µM and 5 µM SAG, with each concentration present in three technical replicates in the same plate. GCPs treated with dually lipidated SHH (SHH-Np) acted as the positive control. Blue and orange bar(s) display the incorporation of tritiated thymidine by cells 8 hrs after exposure to SAG and SHH-Np, respectively. The results shown are the average derived from four independent experiments. CPM, counts per minute.

Fig. S2.

a.



b.

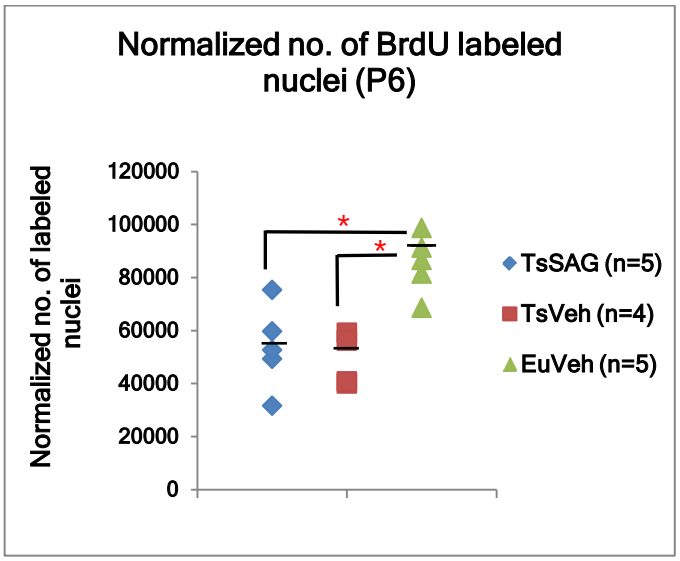
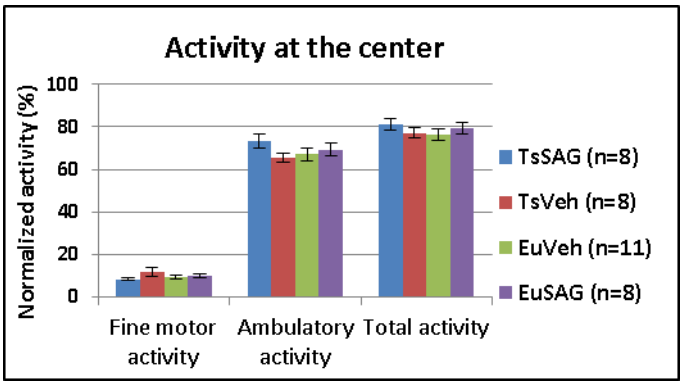


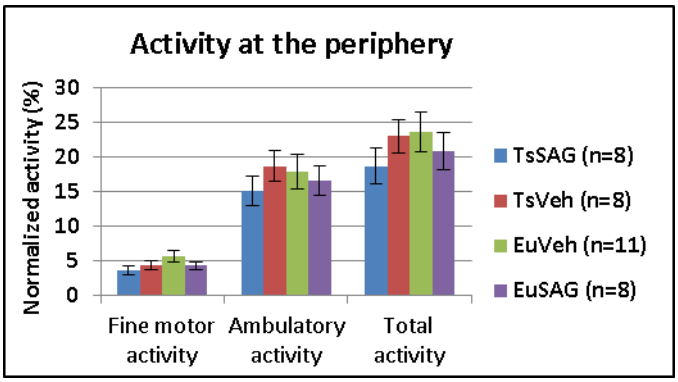
Fig.S2. **Dentate gyrus is not affected by SAG treatment.** Pups were co-injected with SAG and BrdU at P0 and the dentate gyrus was analyzed for cells stimulated to divide (visualized by 'green' signal, indicating BrdU incorporation) at P6. a) Representative high power images from each treatment group, white arrows point to BrdU labeled nuclei. Scale Bar: 100 µm. b) SAG treatment did not change the significant deficit in number of cells in the dentate gyrus, seen in trisomic mice (*Univariate ANOVA $p = 0.002$, was followed by Fisher's LSD for pairwise comparison: EuVeh vs TsSAG $p = 0.003$, Euveh vs TsVeh, $p = 0.001$)).

Fig. S3.

a.



b.



c.

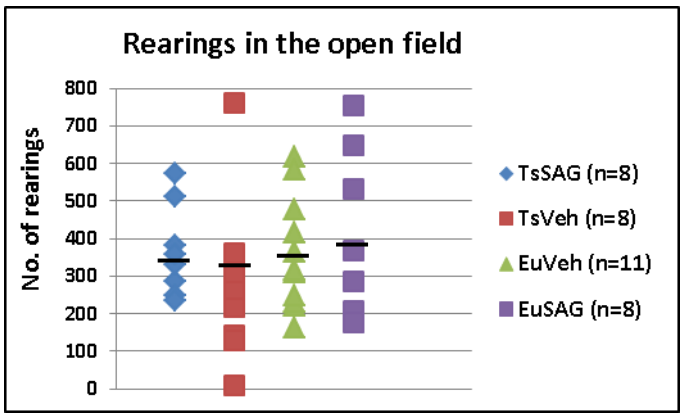
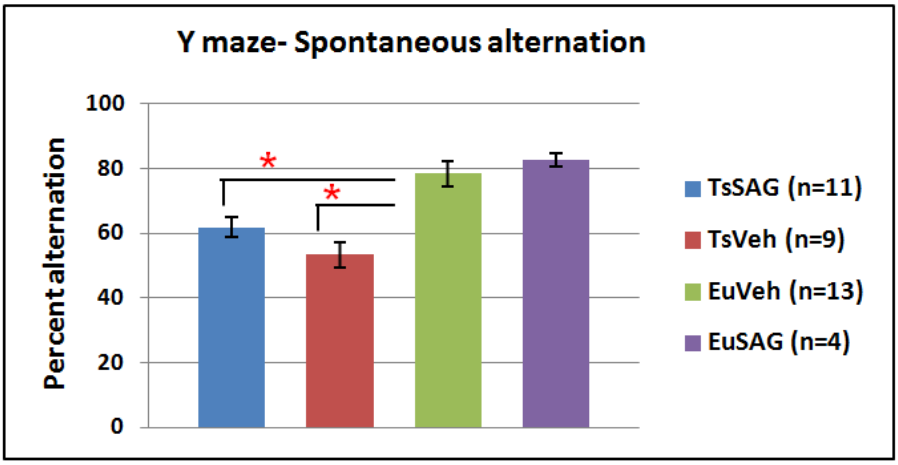


Fig. S3. SAG treatment does not affect open field performance. Normalized activity was defined as the number of beam breaks (when a part or whole of the mouse body interrupted one or more laser beams) at the center or periphery divided by the total number of beam breaks by the mouse. This was further categorized as fine motor activity (if the same beam was broken

twice sequentially) or ambulatory activity (if contiguous beams were broken). Data shown are from both phases of open field testing. a-c) Ts65Dn mice showed little or change in activity in open field measures at the center or at the periphery of the arena and were unaffected by SAG treatment. SAG also had no demonstrable effect on the performance of euploid mice. There was also no significant difference in the number of rearings between the four test groups (MANOVA, Wilk's Lambda = 0.590, p value = 0.621). P values in pairwise comparisons using Fisher's LSD for: ambulatory motor activity at the center: EuVeh vs TsSAG = 0.157, TsSAG vs TsVeh = 0.100, EuVeh vs TsVeh = 0.705; ambulatory activity at the periphery: EuVeh vs TsSAG = 0.426, TsSAG vs TsVeh = 0.346, EuVeh vs TsVeh = 0.825; fine motor activity at the center: EuVeh vs TsSAG = 0. 520, TsSAG vs TsVeh = 0.109, EuVeh vs TsVeh = 0.267; fine motor activity at the periphery: EuVeh vs TsSAG = 0.072, TsSAG vs TsVeh = 0.554, EuVeh vs TsVeh = 0.228; number of rearings EuVeh vs TsSAG = 0.930, TsSAG vs TsVeh = 0.292, EuVeh vs TsVeh = 0.294.

Fig. S4.

a.



b.

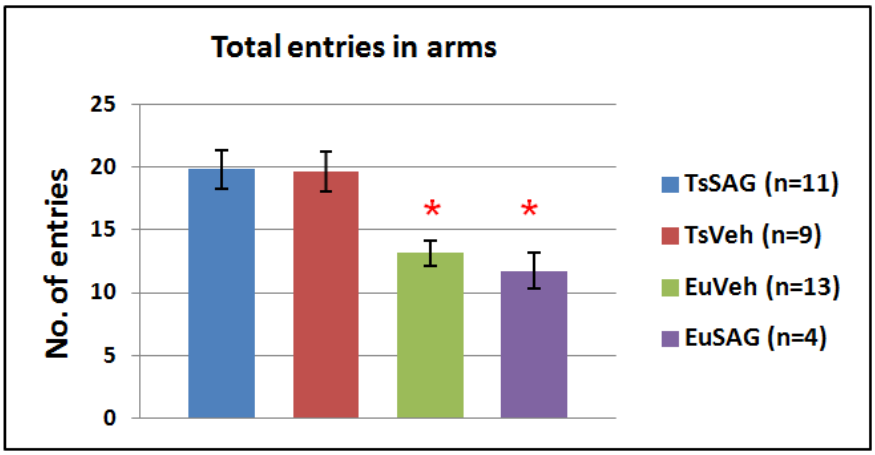
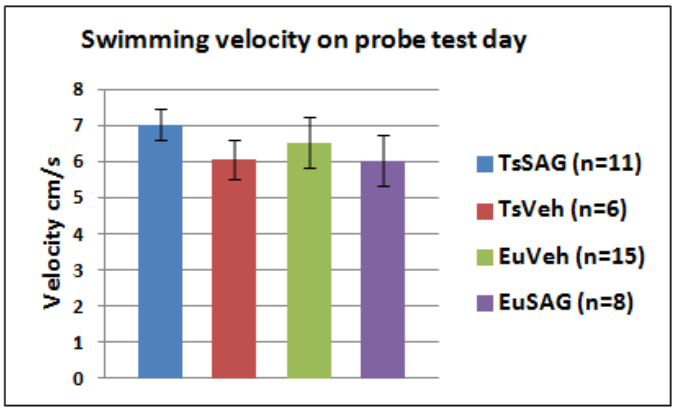


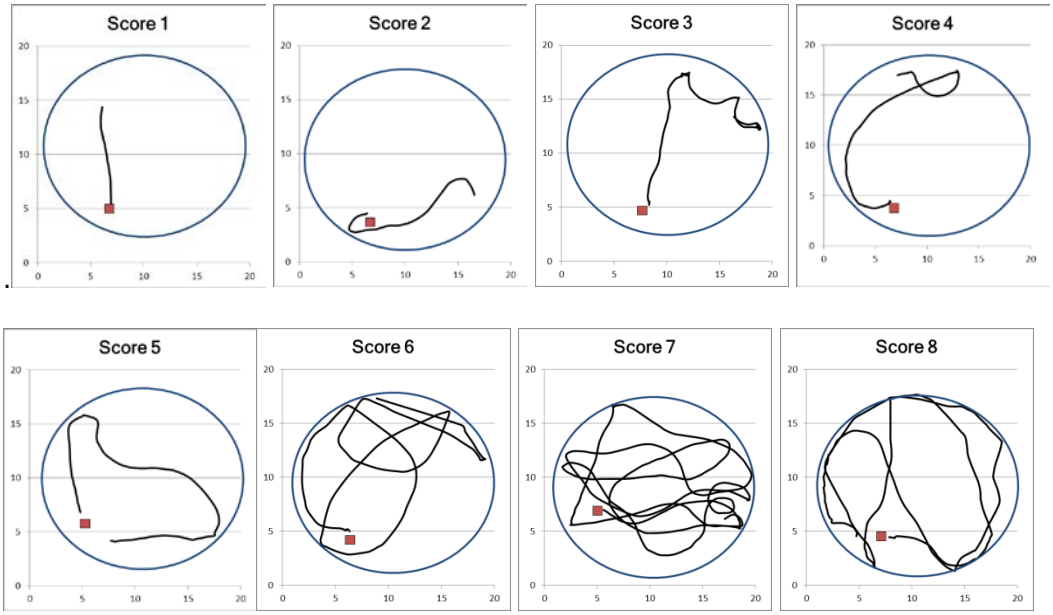
Fig. S4. **SAG treatment does not improve Y maze performance in Ts65Dn mice.** a) SAG-treated Ts65Dn mice did not show a significant improvement in the Y maze spontaneous alternation task for working memory (* EuVeh vs TsSAG, p value = 0.010; EuVeh vs TsVeh p value = 0.0001). b) Ts65Dn mice showed significantly more arm entries than do euploid mice, and this increased activity was not affected by SAG treatment (* EuVeh vs TsSAG, p value = 0.003; EuVeh vs TsVeh p value = 0.006). For the Y maze, spontaneous alternation and number of entries in the arms were tested using MANOVA. We determined the value of Wilks' Lambda (Wilk's Lambda= 0.011, p value = 0.0001) followed by multiple pairwise comparisons using the Bonferroni method. Error bars are SEM.

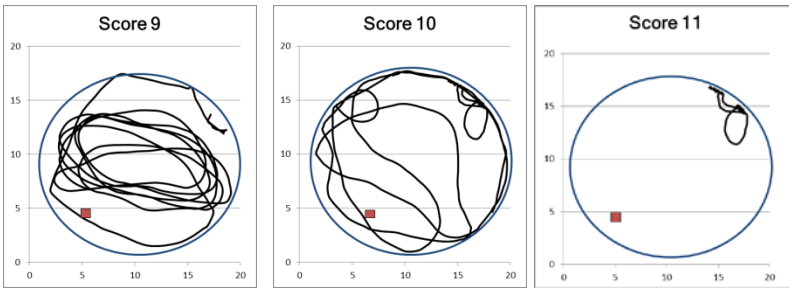
Fig. S5.

a.


Swimming velocity on probe test day
Velocity cm/s
0
1
2
3
4
5
6
7
8
TsSAG (n=11)
TsVeh (n=6)
EuVeh (n=15)
EuSAG (n=8)

b.


Score 1
Score 2
Score 3
Score 4
Score 5
Score 6
Score 7
Score 8



c.

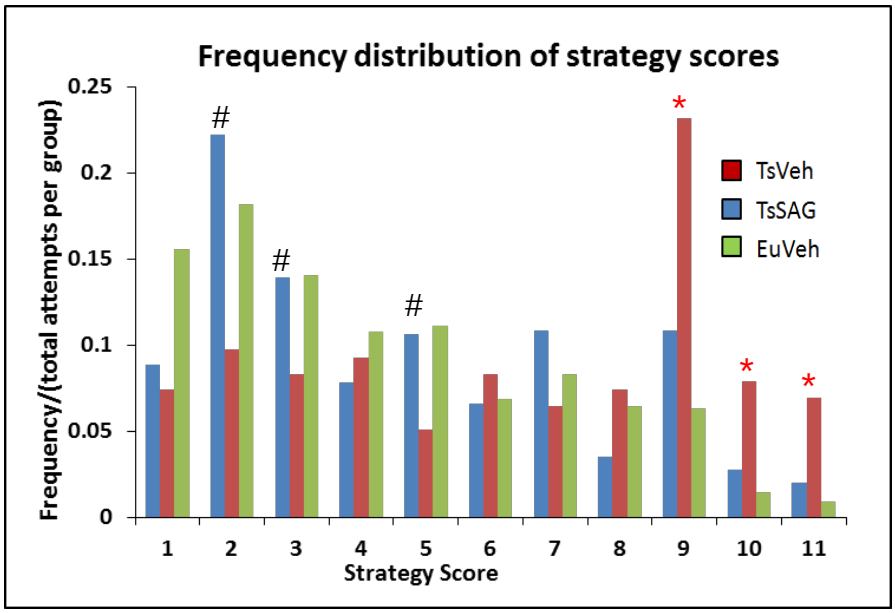


Fig. S5.SAG treatment normalizes search strategies of Ts65Dn mice in the MWM.

a) Swimming speed was not significantly different for any group. b) MWM search strategies used on day 3 of testing representing each of 11 categories. Shown are actual trajectories of individual mice recorded during the testing phase. Red square represents the platform position. c) Analysis of strategy scores for the three test groups demonstrates consistent use of efficient (short pathway) strategies by EuVeh and TsSAG, and impaired strategies including thigmotaxis (Score 9, 10 and 11) by TsVeh. * increased frequency seen in TsVeh compared to TsSAG, p value in Fisher's exact test, two-tailed: strategy score 9 = 6.07E-05 , strategy score 10 = 0.0049, strategy score 11 = 0.003. # increased frequency in TsSAG compared to TsVeh, p values for

Fisher’s exact test, two-tailed: TsSAG vs TsVeh: strategy score 2 = 0.00015., strategy score 3 = 0.049, strategy score 5 = 0.023. In all scores except strategy score 1 (for which TsSAG vs EuVeh p value = 0.0027), TsSAG and EuVeh showed no significant difference in frequency of occurrence.

Supplementary Tables.

TableS1. Cerebellar morphological measurements.
TsSAG (n=8), TsVeh (n=5) and EuVeh (n=8).

Animal no.	Group ID	GC density (no. of cells per μm^2)	Cb area (mm^2)	Normalized Cb area	Total Brain area (mm^2)
59	TsSAG	0.0227	7.568	0.168	45.03
65	TsSAG	0.0198	7.474	0.163	45.73
7	TsSAG	0.0231	7.035	0.166	42.41
11	TsSAG	0.0182	6.8735	0.142	48.24
12	TsSAG	0.0218	6.5595	0.165	39.65
13	TsSAG	0.0235	8.1515	0.172	47.36
20	TsSAG	0.0213	7.859	0.156	50.32
21	TsSAG	0.0230	8.307	0.161	51.56
54	TsVeh	0.0205	6.388	0.143	44.57
55	TsVeh	0.0166	6.888	0.146	47.06
56	TsVeh	0.0197	7.859	0.134	58.76
61	TsVeh	0.0178	7.607	0.147	51.66
62	TsVeh	0.0175	7.049	0.144	48.84
58	EuVeh	0.0198	8.061	0.159	50.68
63	EuVeh	0.0220	8.7575	0.178	49.23
64	EuVeh	0.0186	8.8045	0.179	49.27
22	EuVeh	0.0245	6.0415	0.143	42.22
25	EuVeh	0.0263	7.217	0.170	42.51
32	EuVeh	0.0227	7.7665	0.167	46.55
18	EuVeh	0.0256	7.4895	0.178	41.99
19	EuVeh	0.0249	7.4235	0.193	38.37

Table S2. Dentate gyrus granule cell number is not affected at P6 (hematoxylin stained).
TsSAG (n = 5), TsVeh (n = 3), EuVeh (n = 4) and EuSAG (n = 8).

Animal no.	GroupID	GC no.
1	EuSAG	685204
2	EuSAG	726377
3	EuSAG	616688
4	EuSAG	636527
5	EuSAG	561985
6	EuSAG	640313
7	EuSAG	725676
8	EuSAG	582229
9	EuVeh	679578
10	EuVeh	819879
11	EuVeh	558644
12	EuVeh	669963
13	TsSAG	518310
14	TsSAG	617336
15	TsSAG	634008
16	TsSAG	496466
17	TsSAG	549149
18	TsVeh	556397
19	TsVeh	606261
20	TsVeh	449645

Table S3. BrdU positive cells in the dentate gyrus at P6.
TsSAG (n = 5), TsVeh (n = 4) and EuVeh (n = 5).

Animal no.	Group ID	Normalized no. of BrdU positive cells in DG
S7-3	EuVeh	98722.83
S7-1	EuVeh	86637.69
S7-4	EuVeh	91305.45
T33-3	EuVeh	81510.48
T45-1	EuVeh	68591.12
T48-2	TsSAG	75355.13
T30-4	TsSAG	49345.49
T44-2	TsSAG	31655.94
T48-3	TsSAG	52680.66
T30-3	TsSAG	59719.37
T33-1	TsVeh	40043.92
T33-2	TsVeh	59180.10
T45-2	TsVeh	40812.71
S7-2	TsVeh	56219.73

Table S4. Electrophysiological measurements from cerebellar Purkinje cells (number of cells).

(a) Measurements from Lobule III

	Euploid		Ts65Dn	
	vehicle	SAG	vehicle	SAG
Rise time (ms)	3.57 ± 0.55 (12)	3.10 ± 0.93 (6)	3.13 ± 0.75 (13)	2.97 ± 0.60 (14)
Decay tau (ms)	18.31 ± 4.59 (12)	18.79 ± 4.34 (6)	16.91 ± 5.71 (13)	14.26 ± 4.62 (14)
Paired-pulse ratio	1.93 ± 0.26 (12)	1.84 ± 0.30 (6)	1.63 ± 0.12 (13) p=0.001 vs.EuVeh p=0.042 vs.EuSAG	1.70 ± 0.23 (14) p=0.024 vs.EuVeh
*EPSC after LTD induction	0.89 ± 0.17 (12)	0.83 ± 0.22 (8)	0.84 ± 0.18 (13)	0.66 ± 0.18 (14) p=0.003 vs.EuVeh p=0.019 vs.TsVeh

(b) Measurements from Lobule IX

	Euploid		Ts65Dn	
	vehicle	SAG	vehicle	SAG
Rise time (ms)	3.76 ± 0.93 (16)	4.08 ± 0.33 (7)	3.78 ± 1.01 (15)	3.53 ± 0.59 (14)
Decay tau (ms)	21.04 ± 11.30 (16)	24.13 ± 7.94 (7)	20.31 ± 8.00 (15)	19.45 ± 5.95 (14)
Paired-pulse ratio	1.86 ± 0.28 (16)	1.50 ± 0.17 (7) p=0.005 vs.EuVeh	1.52 ± 0.20 (15) p=0.001 vs.EuVeh	1.72 ± 0.32 (14)
*EPSC after LTD induction	0.77 ± 0.32 (16)	0.61 ± 0.13 (9)	0.66 ± 0.24 (15)	0.73 ± 0.16 (14)

* Normalized amplitude of EPSCs 35 minutes after the LTD induction.

Table S5. Open field activity

	Center			Periphery			
GroupID/ no.	Fine motor activity	Amb. activity[a]	Total activity	Fine motor activity	Amb. Activity	Total activity	Rearings
TsSAG1	6.2	89.3	95.5	0.6	3.9	4.5	574.0
TsSAG 2	8.5	72.3	80.8	4.1	15.1	19.2	285.0
TsSAG 3	4.6	84.6	89.2	1.5	9.3	10.8	250.0
TsSAG 4	7.3	68.7	76.1	3.8	20.2	23.9	513.0
TsSAG 5	11.2	61.0	72.3	5.6	22.1	27.7	330.0
TsSAG 6	8.1	76.7	84.8	2.7	12.5	15.2	381.0
TsSAG 7	10.5	68.1	78.5	5.4	16.1	21.5	236.0
TsSAG 8	8.7	64.5	73.2	5.4	21.4	26.8	358.0
TsVeh1	6.7	61.0	67.7	4.7	27.6	32.3	361.0
TsVeh2	6.7	74.8	81.5	2.3	16.2	18.5	144.0
TsVeh3	11.5	66.4	77.8	3.9	18.3	22.2	218.0
TsVeh4	7.6	64.6	72.2	4.3	23.6	27.8	130.0
TsVeh5	9.3	56.9	66.2	6.8	27.0	33.8	266.0
TsVeh6	7.9	74.7	82.6	3.1	14.3	17.4	760.0
TsVeh7	23.4	58.8	82.1	7.0	10.8	17.9	8.0
TsVeh8	19.6	66.2	85.8	2.5	11.7	14.2	311.0
EuVeh1	10.4	72.9	83.3	6.0	10.7	16.7	163.0
EuVeh2	10.6	69.9	80.6	4.1	15.3	19.4	311.0
EuVeh3	9.3	70.1	79.4	5.0	15.6	20.6	364.0
EuVeh4	4.3	84.4	88.8	0.9	10.4	11.2	619.0
EuVeh5	9.4	79.8	89.2	2.0	8.8	10.8	582.0
EuVeh6	13.6	61.8	75.4	7.5	17.1	24.6	221.0
EuVeh7	7.3	61.5	68.8	6.6	24.6	31.2	477.0
EuVeh8	14.2	65.8	80.0	4.6	15.4	20.0	231.0
EuVeh9	5.3	49.4	54.7	6.1	39.2	45.3	417.0
EuVeh10	8.4	59.1	67.5	8.3	24.2	32.5	316.0
EuVeh11	10.4	62.5	72.9	11.5	15.6	27.1	247.0

[a]*Ambulatory activity*

Table S6. Total number of entries and percent alternation in Y maze.
TsSAG (n = 11), TsVeh (n = 9) and EuVeh (n=13).

Animal no.	GroupID	% alternation	Total no. of entries
b2679	TsSAG	66.67	26
b2696	TsSAG	72.73	13
b2624	TsSAG	60.00	17
b2700	TsSAG	52.94	19
b2688	TsSAG	57.14	23
Y-C-11	TsSAG	36.00	27
Y-C-12	TsSAG	73.33	17
Y-C-13	TsSAG	66.67	14
Y-C-7	TsSAG	60.87	25
Y-C-20	TsSAG	69.23	15
Y-C-21	TsSAG	65.00	22
b2685	TsVeh	66.67	17
b2667	TsVeh	42.86	23
b2663	TsVeh	66.67	20
b2669	TsVeh	52.38	23
b2677	TsVeh	57.14	13
b2664	TsVeh	31.82	24
b2682	TsVeh	48.00	27
Y-C-15	TsVeh	50.00	14
Y-C-29	TsVeh	64.29	16
b2666	Euveh	80.00	17
b2668	Euveh	66.67	14
b2670	Euveh	71.43	9
b2673	Euveh	69.23	15
b2674	Euveh	78.57	16
Y-C-22	Euveh	47.37	21
Y-C-16	Euveh	66.67	8
Y-C-17	Euveh	100.00	11
Y-C-25	Euveh	85.71	9
Y-C-32	Euveh	80.00	12
Y-C-26	Euveh	81.82	13
Y-C-27	Euveh	100.00	13
Y-C-28	Euveh	90.91	13

Table S7. Latencies in the MWM Visible platform test (seconds).
TsSAG (n=11), TsVeh (n=6) and EuVeh (n=15).

Animal no.	Group ID	Avg latency Trial 1	Avg latency Trial 2	Avg latency Trial 3
Y-C-7	TsSAG	38.75	16	25.25
Y-C-11	TsSAG	32.75	39.5	8.5
Y-C-12	TsSAG	31.75	39	47
Y-C-13	TsSAG	38	22.5	12.5
Y-C-20	TsSAG	32.5	21	20
Y-C-21	TsSAG	35.75	8	5.25
Y-C-36	TsSAG	22.25	7.15	10.55
Y-C-37	TsSAG	17	5.7	16.25
Y-C-38	TsSAG	38.15	18.35	3.3
Y-C-41	TsSAG	60	27.45	58.6
Y-C-45	TsSAG	26.3	6.3	5.3
Y-C-15	TsVeh	27	31.5	25.75
Y-C-29	TsVeh	32	19	58.75
Y-C-33	TsVeh	12.2	12.2	4.75
Y-C-46	TsVeh	22.55	8.6	15.85
Y-C-51	TsVeh	37.65	35.35	12.15
Y-C-52	TsVeh	34.9	15.55	12.2
Y-C-16	EuVeh	20.5	12.5	14.25
Y-C-17	EuVeh	38.75	28	22
Y-C-18	EuVeh	60	27	29.5
Y-C-19	EuVeh	23.25	18	8
Y-C-22	EuVeh	45.5	30	21.5
Y-C-25	EuVeh	33	7.5	18.75
Y-C-26	EuVeh	60	14.75	25.25
Y-C-27	EuVeh	41.75	23.5	18.25
Y-C-28	EuVeh	47.25	19.75	16.25
Y-C-32	EuVeh	22.5	17	18
Y-C-35	EuVeh	21.95	22.25	22.25
Y-C-47	EuVeh	56.95	28.25	8.85
Y-C-48	EuVeh	12.1	16.3	8.95
Y-C-49	EuVeh	6.9	9.25	3.5
Y-C-50	EuVeh	14.6	7.95	25.85

Table S8. Latency in the MWM hidden platform test (seconds).
TsSAG (n=11), TsVeh (n=6) and EuVeh (n=15) over three training days and a total of 9 trials.

Animal no.	Group ID	Day 1, Trial 1 latency (s)	Day 1, Trial 2 latency (s)	Day 1, Trial 3 latency (s)	Day 2, Trial 1 latency (s)	Day 2, Trial 2 latency (s)	Day 2, Trial 3 latency (s)	Day 3, Trial 1 latency (s)	Day 3, Trial 2 latency (s)	Day 3, Trial 3 latency (s)
Y-C-7	TsSAG	14.75	19.5	9.25	13.25	13.5	6.75	11.5	12	15.75
Y-C-11	TsSAG	39.75	15.75	14.25	31.25	47.75	48.5	23.75	16.8	15.75
Y-C-12	TsSAG	47.5	32.25	46.25	41	45	54.75	47	31.5	43.75
Y-C-13	TsSAG	29.5	15.5	16.75	16.25	12.5	11.75	11.75	13	11.25
Y-C-20	TsSAG	25.25	8.5	9.75	10.25	12.25	7.5	11.25	6.75	8
Y-C-21	TsSAG	17.5	9.25	18.75	15.75	14.5	9.75	13.5	4.5	10.25
Y-C-36	TsSAG	32.05	55.75	28.55	12.2	51.9	31	37	29.1	36.55
Y-C-37	TsSAG	60	47.6	32.9	60.05	44.05	38.35	26.65	36.4	25.95
Y-C-38	TsSAG	29.75	45.15	13.45	22.9	26.75	13.4	29.45	24.2	22.7
Y-C-41	TsSAG	8.35	12.6	25.25	28.5	5.35	21	12.6	10.7	21
Y-C-45	TsSAG	48.45	16.55	44.3	45.45	33.15	38.55	50.55	60.2	44.4
Y-C-15	TsVeh	50.75	53.5	31.5	48.75	40.5	44.5	27.5	40.8	37
Y-C-29	TsVeh	58.5	22.94	46.25	24	35.25	47.25	51	42.3	33.25
Y-C-33	TsVeh	45.2	37.2	41.95	48.65	37.15	34.85	54.2	55.6	60
Y-C-46	TsVeh	43.65	28.85	12	37.15	33.85	40.8	39	23.1	18.25
Y-C-51	TsVeh	30.85	55.2	53.65	20	38.9	33.35	31.05	30.9	50.55
Y-C-52	TsVeh	52.25	55.4	38.45	22.9	35.7	37.1	33.9	52.3	29.95
Y-C-16	EuVeh	17	19.25	15.25	11	12.25	6.5	6.25	13.3	3.25
Y-C-17	EuVeh	32.5	31.75	29.5	33.75	23.75	33.25	22.5	31.3	19.5
Y-C-18	EuVeh	41	56	24.25	44.5	41	19.25	21.5	15.3	7
Y-C-19	EuVeh	12.5	6.75	8.25	3.25	11.25	9.25	8	9	7
Y-C-22	EuVeh	39.25	23.25	11.5	14.25	8.5	8.5	16.25	9.5	11.5
Y-C-25	EuVeh	32.75	27.25	13.5	23.25	18.75	11.5	11	13.5	14
Y-C-26	EuVeh	40.75	16	19.75	17	21	18.25	13.25	20.3	8
Y-C-27	EuVeh	24.5	27	29.5	37.75	17.25	26	15.5	14.5	21
Y-C-28	EuVeh	31.25	15.13	25.805	12	24.75	20.5	33	6	18
Y-C-32	EuVeh	58	9	21	17.25	11.5	8	12.5	8.25	6
Y-C-35	EuVeh	33.5	34.05	22.15	13.75	15.8	26.55	6.25	6.1	13.28
Y-C-47	EuVeh	8.5	27.75	8.75	24.15	25.35	18.95	9.8	9.45	14.75
Y-C-48	EuVeh	43.65	46.9	32.6	60	52.4	50.2	44.55	53.8	50.45
Y-C-49	EuVeh	31.55	40.95	14.65	6.5	15.9	11.85	20.4	24.1	8.05
Y-C-50	EuVeh	42.05	32.55	12.7	15.1	31.15	37.67	13.7	12.3	26.3

Table S9. Time spent in the correct quadrant in the MWM probe test (seconds). TsSAG (n=11), TsVeh (n=6) and EuVeh (n=15).

Animal no.	Group ID	% time in correct quadrant
Y-C-7	TsSAG	42.17
Y-C-11	TsSAG	34.50
Y-C-12	TsSAG	51.17
Y-C-13	TsSAG	51.50
Y-C-20	TsSAG	66.33
Y-C-21	TsSAG	45.28
Y-C-36	TsSAG	27.33
Y-C-37	TsSAG	30.00
Y-C-38	TsSAG	33.22
Y-C-41	TsSAG	54.56
Y-C-45	TsSAG	26.78
Y-C-15	TsVeh	26.56
Y-C-29	TsVeh	23.89
Y-C-33	TsVeh	23.33
Y-C-46	TsVeh	23.61
Y-C-51	TsVeh	22.22
Y-C-52	TsVeh	26.44
Y-C-16	EuVeh	50.22
Y-C-17	EuVeh	29.11
Y-C-18	EuVeh	27.72
Y-C-19	EuVeh	48.11
Y-C-22	EuVeh	48.17
Y-C-25	EuVeh	44.83
Y-C-26	EuVeh	31.28
Y-C-27	EuVeh	36.28
Y-C-28	EuVeh	42.78
Y-C-32	EuVeh	42.33
Y-C-35	EuVeh	45.50
Y-C-47	EuVeh	48.44
Y-C-48	EuVeh	34.06
Y-C-49	EuVeh	44.11
Y-C-50	EuVeh	32.89

Table S10. Strategy scores of animals in hidden platform test, by day and trial no.

Three trials were conducted every day for three consecutive days and each trial was composed of four attempts. All the attempts in each trial over the three days were scored for every animal.

Group ID	Animal no.	Day1 Trial	Score attempt 1	Score attempt 2	Score attempt 3	Score attempt 4	Day 2 Trial	Score attempt 1	Score attempt 2	Score attempt 3	Score attempt 4	Day 3 Trial
TsVeh	15	1	3	10	9	7	1	3	4	9	10	1
TsVeh	15	2	11	9	4	9	2	9	9	2	4	2
TsVeh	15	3	4	2	3	10	3	5	9	9	1	3
TsVeh	29	1	8	10	9	10	1	9	2	4	1	1
TsVeh	29	2	3	2	1	9	2	9	2	1	4	2
TsVeh	29	3	9	9	8	4	3	9	7	9	2	3
TsVeh	33	1	10	10	9	1	1	8	10	10	5	1
TsVeh	33	2	6	8	8	6	2	8	8	1	8	2
TsVeh	33	3	8	9	1	9	3	6	2	3	7	3
TsVeh	46	1	8	5	9	8	1	8	3	9	8	1
TsVeh	46	2	9	6	2	8	2	9	6	7	5	2
TsVeh	46	3	2	5	2	6	3	2	9	9	6	3
TsSAG	13	1	7	5	6	2	1	3	1	4	2	1
TsSAG	13	2	2	4	3	5	2	2	2	2	3	2
TsSAG	13	3	3	6	5	3	3	1	2	2	1	3
TsSAG	11	1	6	7	4	9	1	7	1	9	6	1
TsSAG	11	2	4	2	3	2	2	11	9	2	9	2
TsSAG	11	3	3	1	6	4	3	7	3	7	9	3
TsSAG	12	1	9	9	9	2	1	11	2	9	4	1
TsSAG	12	2	3	11	1	4	2	7	8	2	10	2
TsSAG	12	3	10	2	3	10	3	9	6	11	11	3
TsSAG	20	1	5	7	5	6	1	2	2	5	2	1
TsSAG	20	2	6	3	3	2	2	2	5	1	2	2
TsSAG	20	3	2	5	3	5	3	2	2	1	2	3
TsSAG	7	1	8	2	5	6	1	4	5	2	2	1
TsSAG	7	2	3	6	6	7	2	7	5	3	2	2
TsSAG	7	3	2	5	3	2	3	1	2	3	2	3
TsSAG	21	1	1	7	5	8	1	5	5	4	5	1
TsSAG	21	2	1	4	4	2	2	4	2	3	8	2
TsSAG	21	3	2	5	3	7	3	5	2	5	2	3
TsSAG	36	1	1	7	7	9	1	1	6	3	2	1
TsSAG	36	2	9	9	9	7	2	9	9	9	5	2
TsSAG	36	3	8	4	7	7	3	4	7	1	6	3
TsSAG	37	1	8	10	7	7	1	9	9	7	7	1
TsSAG	37	2	9	5	9	9	2	5	9	3	8	2
TsSAG	37	3	9	4	6	9	3	7	7	8	3	3
TsSAG	38	1	1	8	3	9	1	7	3	3	7	1
TsSAG	38	2	9	9	1	9	2	5	7	10	1	2
TsSAG	38	3	2	6	7	1	3	3	6	1	5	3
TsSAG	45	1	10	10	9	5	1	10	9	2	7	1

TsSAG	45	2	5	4	1	4	2	2	9	6	1	2
TsSAG	45	3	10	9	7	1	3	3	7	9	3	3
TsSAG	41	1	2	3	2	2	1	7	7	1	7	1
TsSAG	41	2	4	4	2	3	2	3	5	1	2	2
TsSAG	41	3	9	3	2	5	3	5	4	7	5	3
EuVeh	16	1	3	7	7	1	1	4	1	2	5	1
EuVeh	16	2	4	3	2	7	2	5	1	1	3	2
EuVeh	16	3	8	3	3	2	3	1	2	2	2	3
EuVeh	19	1	2	4	8	5	1	1	1	2	2	1
EuVeh	19	2	2	3	4	3	2	5	3	2	5	2
EuVeh	19	3	2	6	1	4	3	3	3	2	1	3
EuVeh	32	1	9	7	9	9	1	7	4	2	5	1
EuVeh	32	2	2	5	4	2	2	8	2	3	5	2
EuVeh	32	3	5	7	2	6	3	1	1	3	4	3
EuVeh	18	1	5	2	10	9	1	3	4	9	10	1
EuVeh	18	2	7	9	9	9	2	4	9	9	2	2
EuVeh	18	3	2	9	3	1	3	1	2	5	2	3
EuVeh	27	1	7	4	1	6	1	7	8	1	5	1
EuVeh	27	2	2	1	5	7	2	1	6	1	8	2
EuVeh	27	3	7	5	5	8	3	5	4	8	4	3
EuVeh	25	1	9	5	6	4	1	7	8	1	6	1
EuVeh	25	2	3	4	7	4	2	1	1	3	9	2
EuVeh	25	3	1	6	8	6	3	5	2	5	3	3
EuVeh	28	1	7	7	1	1	1	5	2	8	2	1
EuVeh	28	2	5	1	5	3	2	8	2	2	10	2
EuVeh	28	3	3	2	7	4	3	2	8	3	8	3
EuVeh	26	1	7	7	7	1	1	4	5	1	8	1
EuVeh	26	2	6	1	3	4	2	1	7	5	8	2
EuVeh	26	3	5	3	1	5	3	7	3	1	5	3
EuVeh	35	1	4	7	5	9	1	6	3	6	1	1
EuVeh	35	2	9	1	6	9	2	8	2	8	3	2
EuVeh	35	3	6	5	6	3	3	9	6	5	3	3
EuVeh	47	1	5	2	5	6	1	3	5	6	7	1
EuVeh	47	2	9	1	2	7	2	4	6	1	6	2
EuVeh	47	3	6	3	2	1	3	7	3	1	4	3
EuVeh	48	1	2	10	9	7	1	9	11	9	10	1
EuVeh	48	2	5	9	9	5	2	9	7	4	7	2
EuVeh	48	3	9	7	3	2	3	3	7	6	10	3
EuVeh	49	1	9	3	7	1	1	4	3	3	1	1
EuVeh	49	2	9	1	9	7	2	3	6	1	2	2
EuVeh	49	3	4	6	1	6	3	4	1	5	2	3
EuVeh	50	1	6	9	7	4	1	2	5	7	6	1
EuVeh	50	2	6	7	3	7	2	10	8	2	7	2
EuVeh	50	3	5	3	2	5	3	3	6	8	8	3

Table S11. Relationship between fiber volley (FV) amplitude and fEPSP slope.

Input-output curve

EuVeh											
cell	FV amplitude (X-axis)					cell	fEPSP slope (Y-axis)				
#1	0.187	0.288	0.383	0.496	0.589	#1	0.621	0.804	1.010	1.247	1.411
#2	0.207	0.307	0.406	0.489	0.630	#2	0.614	0.777	0.953	1.082	1.230
#3	0.198	0.269	0.403	0.492	0.599	#3	0.649	0.843	1.090	1.269	1.400
#4	0.192	0.280	0.398	0.494	0.600	#4	0.695	0.819	1.059	1.183	1.402
#5	0.199	0.308	0.406	0.508	0.603	#5	0.569	0.781	0.916	1.109	1.214
#6	0.222	0.312	0.424	0.503	0.605	#6	0.554	0.738	0.945	1.128	1.346
#7	0.230	0.312	0.396	0.507	0.613	#7	0.534	0.693	0.854	1.002	1.259
#8	0.229	0.320	0.391	0.517	0.585	#8	0.608	0.800	0.996	1.231	1.359
#9	0.209	0.305	0.393	0.503	0.593	#9	0.612	0.787	0.964	1.167	1.257
#10	0.215	0.302	0.399	0.497	0.597	#10	0.628	0.750	0.977	1.225	1.452
#11	0.198	0.305	0.401	0.490	0.600	#11	0.592	0.790	1.002	1.240	1.447
#12	0.233	0.301	0.388	0.477	0.580	#12	0.835	0.794	0.980	1.252	1.426
#13	0.223	0.284	0.381	0.504	0.576	#13	0.641	0.782	1.024	1.308	1.395
#14	0.216	0.308	0.382	0.481	0.594	#14	0.557	0.781	0.992	1.232	1.400
mean (X)	0.211	0.300	0.397	0.497	0.598	mean (Y)	0.622	0.781	0.983	1.191	1.357
SEM	0.004	0.004	0.003	0.003	0.004	SEM	0.020	0.010	0.016	0.023	0.022
n	14	14	14	14	14	n	14	14	14	14	14

TsVeh											
cell	FV amplitude (X-axis)					cell	fEPSP slope (Y-axis)				
#1	0.218	0.302	0.393	0.489	0.621	#1	0.687	0.795	1.004	1.220	1.422
#2	0.215	0.298	0.385	0.483	0.595	#2	0.655	0.825	1.027	1.275	1.464
#3	0.223	0.297	0.381	0.501	0.576	#3	0.630	0.794	1.007	1.276	1.365
#4	0.197	0.309	0.408	0.515	0.617	#4	0.581	0.798	0.960	1.186	1.327
#5	0.212	0.307	0.420	0.514	0.590	#5	0.614	0.799	0.928	1.159	1.370
#6	0.215	0.292	0.408	0.507	0.594	#6	0.608	0.762	0.933	1.169	1.355

#7	0.192	0.297	0.425	0.516	0.606	#7	0.611	0.751	0.952	1.148	1.330
#8	0.204	0.300	0.397	0.507	0.609	#8	0.597	0.764	0.901	1.171	1.338
#9	0.205	0.295	0.407	0.499	0.599	#9	0.584	0.750	0.907	1.148	1.346
#10	0.198	0.301	0.407	0.502	0.617	#10	0.580	0.718	0.951	1.155	1.326
#11	0.215	0.267	0.386	0.503	0.600	#11	0.643	0.775	1.097	1.255	1.329
#12	0.202	0.283	0.381	0.505	0.634	#12	0.609	0.748	1.023	1.168	1.371
#13	0.215	0.299	0.416	0.506	0.607	#13	0.608	0.766	0.998	1.156	1.309
#14	0.211	0.297	0.404	0.514	0.607	#14	0.619	0.777	0.995	1.212	1.368
#15	0.198	0.292	0.398	0.523	0.605	#15	0.652	0.803	0.929	1.230	1.334
#16	0.190	0.289	0.378	0.513	0.604	#16	0.699	0.927	1.061	1.243	1.338
#17	0.207	0.287	0.406	0.496	0.610	#17	0.675	0.845	1.066	1.226	1.403
#18	0.200	0.296	0.386	0.501	0.580	#18	0.588	0.832	1.023	1.242	1.394
#19	0.208	0.298	0.381	0.503	0.587	#19	0.690	0.861	0.993	1.245	1.384
#20	0.198	0.289	0.389	0.513	0.588	#20	0.616	0.847	1.073	1.359	1.415
#21	0.202	0.295	0.391	0.486	0.593	#21	0.659	0.842	1.028	1.223	1.443
#22	0.213	0.282	0.398	0.493	0.600	#22	0.624	0.736	1.012	1.298	1.377
#23	0.206	0.291	0.399	0.493	0.587	#23	0.601	0.850	1.094	1.288	1.453
#24	0.223	0.304	0.395	0.499	0.618	#24	0.661	0.855	0.985	1.201	1.441
mean (X)	0.207	0.294	0.397	0.503	0.602	mean (Y)	0.629	0.801	0.998	1.219	1.375
SEM	0.002	0.002	0.003	0.002	0.003	SEM	0.007	0.010	0.012	0.011	0.009
n	24	24	24	24	24	n	24	24	24	24	24

TsSAG											
cell	FV amplitude (X-axis)					cell	fEPSP slope (Y-axis)				
#1	0.193	0.285	0.388	0.499	0.575	#1	0.691	0.839	1.027	1.207	1.349
#2	0.193	0.289	0.383	0.493	0.607	#2	0.699	0.785	1.007	1.178	1.282
#3	0.210	0.307	0.402	0.504	0.614	#3	0.661	0.769	0.972	1.150	1.274
#4	0.196	0.280	0.371	0.474	0.591	#4	0.692	0.799	1.053	1.395	1.646
#5	0.204	0.280	0.400	0.496	0.608	#5	0.698	0.731	0.997	1.246	1.387
#6	0.190	0.306	0.394	0.470	0.570	#6	0.682	0.815	1.032	1.237	1.542
#7	0.208	0.268	0.398	0.513	0.587	#7	0.666	0.764	1.022	1.237	1.360

#8	0.189	0.289	0.388	0.520	0.588	#8	0.611	0.782	0.977	1.238	1.399
#9	0.224	0.284	0.409	0.504	0.594	#9	0.632	0.718	0.971	1.132	1.163
mean (X)	0.201	0.288	0.392	0.497	0.593	mean (Y)	0.670	0.778	1.007	1.225	1.378
SEM	0.004	0.004	0.004	0.006	0.005	SEM	0.010	0.013	0.010	0.025	0.048
n	9	9	9	9	9	n	9	9	9	9	9

Table S12. Paired Pulse Ratio.

EuVeh					
interval (ms)	30	60	90	120	150
#1	1.261	1.300	1.215	1.171	1.142
#2	1.276	1.285	1.210	1.196	1.143
#3	1.286	1.284	1.219	1.165	1.132
#4	1.308	1.303	1.218	1.194	1.152
#5	1.224	1.332	1.246	1.163	1.121
#6	1.285	1.295	1.207	1.188	1.145
#7	1.243	1.280	1.261	1.158	1.150
#8	1.296	1.303	1.236	1.195	1.135
#9	1.277	1.328	1.226	1.196	1.166
#10	1.269	1.313	1.220	1.183	1.148
#11	1.265	1.328	1.242	1.218	1.171
#12	1.287	1.304	1.205	1.172	1.150
#13	1.278	1.305	1.211	1.144	1.124
#14	1.284	1.334	1.206	1.122	1.076
mean	1.274	1.307	1.223	1.176	1.140
SEM	0.006	0.005	0.005	0.007	0.006
n	14	14	14	14	14

TsVeh					
interval (ms)	30	60	90	120	150
#1	1.315	1.358	1.317	1.232	1.180
#2	1.314	1.337	1.303	1.203	1.147

#3	1.286	1.282	1.251	1.154	1.150
#4	1.317	1.350	1.278	1.219	1.193
#5	1.315	1.337	1.260	1.226	1.195
#6	1.298	1.340	1.272	1.224	1.191
#7	1.311	1.327	1.250	1.228	1.190
#8	1.272	1.305	1.233	1.162	1.096
#9	1.253	1.309	1.168	1.133	1.092
#10	1.236	1.291	1.185	1.168	1.093
#11	1.264	1.293	1.231	1.158	1.093
#12	1.253	1.284	1.179	1.155	1.096
#13	1.244	1.266	1.147	1.122	1.082
#14	1.233	1.276	1.153	1.121	1.099
#15	1.259	1.248	1.173	1.127	1.080
#16	1.263	1.255	1.183	1.131	1.081
#17	1.288	1.265	1.207	1.135	1.071
#18	1.288	1.288	1.267	1.148	1.147
mean	1.278	1.301	1.225	1.169	1.126
SEM	0.007	0.008	0.012	0.010	0.011
n	18	18	18	18	18

TsSAG					
interval (ms)	30	60	90	120	150
#1	1.26	1.31	1.12	1.14	1.11
#2	1.27	1.29	1.20	1.16	1.10
#3	1.27	1.39	1.28	1.23	1.14
#4	1.27	1.46	1.28	1.20	1.11
#5	1.25	1.24	1.23	1.15	1.12
#6	1.26	1.25	1.21	1.18	1.12
#7	1.26	1.27	1.23	1.17	1.14
#8	1.27	1.25	1.20	1.16	1.14
#9	1.27	1.26	1.21	1.16	1.13
#10	1.27	1.25	1.22	1.15	1.14
#11	1.26	1.25	1.20	1.16	1.13

mean	1.27	1.29	1.22	1.17	1.12
SEM	0.00	0.02	0.01	0.01	0.00
n	11	11	11	11	11

Table S13. TBS-LTP enhanced by SAG in slices from Ts65Dn mice.

EuVeh															
time(min)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	**mean**	**SEM**	**n**
-28	94.249	96.703	100.039	102.111	101.025	98.076	93.891	94.574	98.180	98.025	97.697	94.125	97.391	0.804	12
-26	93.987	97.904	102.038	103.319	102.488	97.030	97.996	99.373	98.279	100.156	98.115	94.715	98.783	0.834	12
-24	97.046	100.376	100.454	100.449	100.594	96.517	98.240	94.537	100.277	103.162	96.651	96.588	98.741	0.721	12
-22	99.179	98.426	99.093	99.040	96.529	98.320	96.561	98.772	97.674	99.236	97.551	98.215	98.216	0.277	12
-20	98.192	101.280	99.145	97.001	99.072	100.697	100.714	94.985	98.112	100.954	101.647	99.109	99.242	0.569	12
-18	100.647	102.249	97.158	98.492	102.019	98.899	103.417	96.875	100.133	99.174	99.294	100.251	99.884	0.575	12
-16	98.131	102.768	100.575	100.943	98.817	102.195	99.000	102.750	101.377	101.367	99.653	100.534	100.676	0.443	12
-14	99.525	102.795	98.609	100.220	99.235	101.726	99.094	100.363	100.724	98.999	100.883	100.545	100.226	0.354	12
-12	97.833	102.122	101.423	98.082	99.358	99.328	103.497	103.316	99.698	99.254	104.006	102.207	100.844	0.628	12
-10	100.529	101.024	103.589	100.237	101.287	100.910	101.584	102.062	103.888	100.283	101.207	103.200	101.650	0.367	12
-8	103.335	97.262	100.497	99.619	99.334	103.954	101.073	105.199	100.251	100.379	101.514	102.044	101.205	0.631	12
-6	105.160	97.919	99.674	100.672	100.655	101.277	101.364	102.620	99.271	100.036	101.447	102.413	101.042	0.535	12
-4	103.571	100.098	97.894	100.354	101.518	100.306	104.136	102.096	100.482	99.935	100.578	100.776	100.979	0.484	12
-2	105.406	100.757	99.713	100.569	98.572	100.181	99.577	101.476	102.279	100.298	101.467	103.425	101.143	0.537	12
0	105.996	98.671	99.678	98.892	98.775	100.583	99.856	99.345	99.374	100.303	99.528	100.383	100.115	0.564	12
2	226.435	180.040	187.383	165.648	170.245	168.803	199.625	160.062	201.699	187.593	170.317	191.073	184.077	5.481	12
4	207.245	169.090	178.325	154.938	150.917	159.739	180.601	155.846	181.087	179.171	157.133	171.210	170.442	4.637	12
6	193.510	156.613	164.630	146.222	141.751	151.383	177.109	142.725	170.467	172.489	148.964	156.607	160.206	4.558	12
8	182.747	150.587	158.756	142.152	133.734	143.605	174.362	140.819	165.166	162.902	143.625	151.066	154.127	4.289	12
10	176.288	147.204	156.681	136.403	129.350	143.454	169.334	136.894	158.114	158.498	142.532	146.101	150.071	4.038	12
12	169.609	142.322	156.525	135.295	127.978	145.337	167.001	132.797	152.839	154.262	137.793	143.756	147.126	3.803	12
14	166.619	138.927	149.539	135.169	124.092	148.161	165.400	136.020	152.543	152.094	140.602	141.945	145.926	3.579	12
16	164.904	138.309	147.717	132.990	126.179	138.900	171.807	131.424	152.112	149.467	139.444	139.738	144.416	3.904	12
18	161.908	135.810	146.843	133.804	120.624	139.020	167.006	135.327	150.643	146.986	135.852	138.450	142.689	3.698	12
20	159.674	133.149	143.662	130.400	120.892	136.025	163.335	138.070	147.146	144.758	136.462	137.934	140.959	3.425	12
22	161.272	133.660	143.184	131.458	121.490	134.256	166.697	136.114	145.984	146.270	136.340	136.529	141.105	3.657	12
24	157.205	133.622	140.268	128.349	122.802	137.438	169.717	132.007	146.757	146.366	136.206	140.640	140.948	3.705	12
26	159.898	134.008	139.677	130.622	117.715	137.506	167.236	136.300	144.701	142.059	134.969	134.286	139.915	3.756	12

28	156.822	129.923	137.636	130.958	122.060	136.192	167.950	136.990	143.607	140.527	136.018	132.817	139.292	3.560	12
30	152.340	129.870	138.946	127.764	121.454	136.858	166.531	132.095	143.514	141.200	136.452	136.711	138.645	3.417	12
32	155.724	127.133	138.900	124.401	121.051	138.643	169.478	129.111	142.158	140.534	133.468	139.960	138.380	3.914	12
34	154.640	128.723	140.304	127.612	119.562	137.431	167.695	131.896	140.295	142.195	133.271	139.097	138.560	3.670	12
36	152.819	127.475	136.725	125.958	116.852	137.114	166.686	135.599	140.578	139.459	131.021	137.180	137.289	3.699	12
38	151.319	126.347	136.930	125.821	120.996	133.280	167.527	131.704	140.996	135.684	133.244	131.469	136.277	3.620	12
40	150.823	125.737	140.225	123.974	117.652	134.656	167.801	125.914	136.119	134.506	132.652	134.918	135.415	3.843	12
42	151.170	125.528	131.961	121.729	116.770	135.184	161.755	133.581	138.607	134.844	130.059	133.647	134.569	3.507	12
44	149.665	125.736	131.382	127.109	117.534	131.900	164.701	131.465	138.055	135.260	128.736	130.371	134.326	3.536	12
46	151.595	123.428	131.354	122.943	115.953	129.240	166.297	127.727	137.933	133.917	129.364	129.505	133.271	3.924	12
48	150.835	120.863	132.850	122.196	112.953	133.289	163.732	125.138	136.471	137.278	128.131	133.063	133.067	3.935	12
50	150.837	122.683	130.353	123.013	114.840	132.105	163.971	124.079	134.211	136.154	127.115	133.697	132.755	3.840	12
52	146.463	120.683	132.234	120.738	115.831	131.444	163.124	129.638	138.057	138.328	130.298	132.433	133.273	3.652	12
54	146.494	119.819	131.294	122.864	112.950	132.304	166.744	122.664	137.911	133.284	127.017	130.516	131.989	4.048	12
56	143.949	120.431	128.799	120.548	114.925	133.280	162.446	126.125	134.775	134.652	127.363	127.323	131.218	3.613	12
58	145.235	118.481	126.110	121.002	112.337	132.470	167.405	124.327	136.287	134.607	125.369	131.039	131.222	4.152	12
60	145.743	118.867	130.953	120.802	115.675	129.333	165.847	122.839	136.008	132.849	128.488	130.833	131.520	3.911	12
62	140.776	118.414	126.819	119.168	111.995	127.728	165.665	121.525	135.714	133.609	126.176	130.026	129.801	3.999	12
64	143.069	117.361	128.591	118.608	111.953	128.173	163.708	123.668	136.218	131.724	129.112	131.456	130.303	3.903	12
66	141.113	114.918	121.177	119.480	112.425	129.508	162.878	125.441	134.990	134.879	127.248	129.544	129.467	3.896	12
68	139.740	117.041	125.867	120.364	111.631	125.950	168.296	114.705	135.289	133.096	128.865	129.896	129.228	4.316	12
70	142.386	118.246	125.163	120.733	111.007	130.415	160.664	119.246	132.471	132.382	127.551	128.262	129.044	3.721	12
72	139.894	115.608	122.370	119.747	114.593	126.522	163.685	122.430	131.680	131.803	128.722	127.673	128.727	3.797	12
74	138.301	115.969	125.653	119.192	115.221	122.903	158.721	121.322	133.015	130.313	128.878	130.096	128.299	3.422	12
76	138.983	115.803	123.507	117.060	114.384	127.300	165.459	118.873	131.476	134.148	126.350	127.471	128.401	4.019	12
78	137.707	117.150	122.729	120.394	115.215	123.903	162.650	120.280	129.439	131.561	125.974	125.332	127.694	3.654	12
80	139.285	115.974	120.771	119.937	114.266	121.811	161.559	119.259	131.194	130.222	126.513	126.299	127.257	3.726	12
82	137.664	116.341	122.823	118.517	116.608	120.316	162.947	118.995	131.798	131.357	127.076	122.530	127.248	3.781	12
84	136.679	115.311	122.584	118.826	113.067	123.084	162.909	117.030	130.067	129.556	124.313	127.146	126.714	3.831	12
86	135.979	113.735	122.375	116.876	112.506	119.643	159.155	115.831	131.837	127.761	126.428	123.134	125.438	3.706	12
88	136.697	112.797	121.404	117.729	115.133	118.026	162.682	119.122	128.832	133.276	127.347	125.311	126.530	3.905	12
90	132.526	113.166	125.778	118.581	114.613	119.432	163.289	117.961	130.626	131.936	129.531	124.581	126.835	3.847	12
92	137.851	112.969	118.781	118.538	111.848	115.472	151.495	118.677	127.228	131.625	126.876	123.676	124.586	3.312	12

Table S14. Current-voltage relationship.

Eu							
Vm (mV)	-80	-60	-40	-20	0	20	40
#1	-2.987	-1.884	-1	-0.430	0.064	0.613	1.098
#2	-2.099	-1.561	-1	-0.250	0.312	0.729	1.259
#3	-3.227	-2.269	-1	-0.184	0.031	0.523	0.668
#4	-2.483	-1.779	-1	-0.485	-0.036	0.608	1.185
mean	-2.699	-1.873	-1	-0.337	0.093	0.618	1.052
SEM	0.253	0.148	0	0.071	0.076	0.042	0.132
n	4	4	4	4	4	4	4

Ts							
Vm (mV)	-80	-60	-40	-20	0	20	40
#1	-2.237	-1.770	-1	-0.501	0.045	0.489	0.638
#2	-1.803	-1.430	-1	-0.464	-0.279	0.215	0.537
#3	-3.844	-2.307	-1	0.072	0.220	1.098	1.439
#4	-2.360	-1.709	-1	-0.388	0.182	0.760	1.284
mean	-2.561	-1.804	-1	-0.320	0.042	0.641	0.974
SEM	0.444	0.183	0	0.133	0.113	0.189	0.227
n	4	4	4	4	4	4	4

Table S15. NMDA: AMPA ratio.

EuVeh			
cell	**AMPAR-mediated currents at -70mV**	**NMDAR-mediated currents at +40mV**	**NMDA/AMPA ratio**
#1	296.403	109.410	0.369
#2	312.454	79.301	0.254
#3	435.591	338.207	0.776
#4	513.744	167.617	0.326
#5	403.828	338.604	0.838
#6	316.566	79.068	0.250
#7	248.218	72.403	0.292
#8	246.740	73.261	0.297
#9	437.489	161.537	0.369
#10	273.486	91.298	0.334
#11	269.163	66.617	0.248
#12	362.005	90.527	0.250
#13	263.010	133.375	0.507
mean			0.393
SEM			0.055
n			13

TsVeh			
cell	**AMPAR-mediated currents at -70mV**	**NMDAR-mediated currents at +40mV**	**NMDA/AMPA ratio**
#1	356.783	4.018	0.011
#2	366.265	24.544	0.067
#3	284.423	14.053	0.049
#4	317.706	23.151	0.073
#5	255.078	5.871	0.023
#6	311.629	15.338	0.049
#7	400.896	5.780	0.014
#8	345.408	24.990	0.072
#9	309.176	43.218	0.140
#10	263.839	26.005	0.099

#11	328.711	24.297	0.074
mean			0.061
SEM			0.011
n			11

TsSAG			
cell	**AMPAR-mediated currents at -70mV**	**NMDAR-mediated currents at +40mV**	**NMDA/AMPA ratio**
#1	461.656	73.548	0.159
#2	334.212	54.275	0.162
#3	311.701	24.125	0.077
#4	170.940	15.272	0.089
#5	206.167	54.201	0.263
#6	238.622	37.419	0.157
#7	317.473	81.446	0.257
#8	363.234	17.367	0.048
#9	308.092	136.531	0.443
#10	339.516	89.272	0.263
#11	318.082	39.080	0.123
mean			0.186
SEM			0.034
n			11