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Supplemental Information

Social play behavior is driven by glycine-dependent mechanisms

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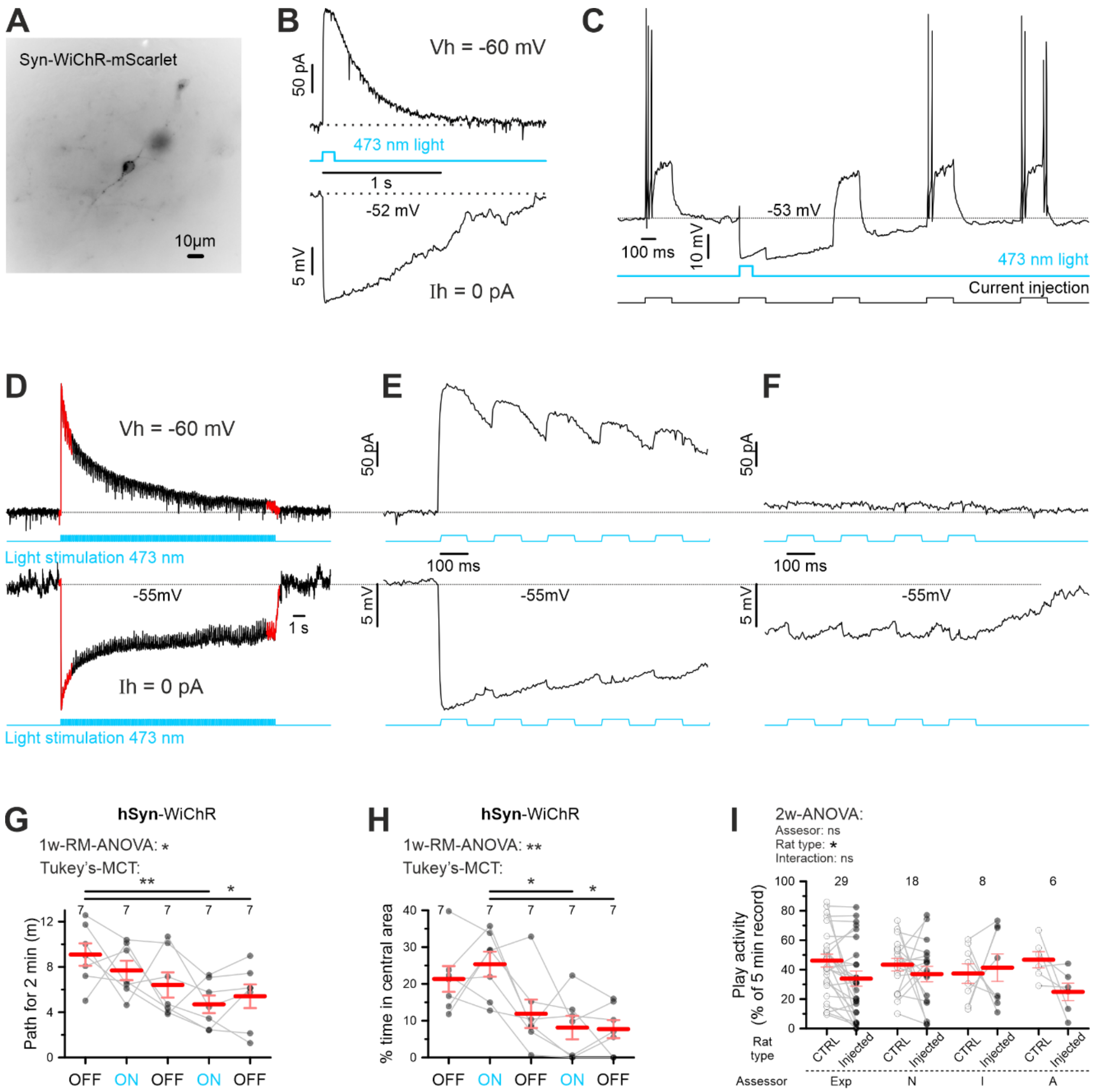
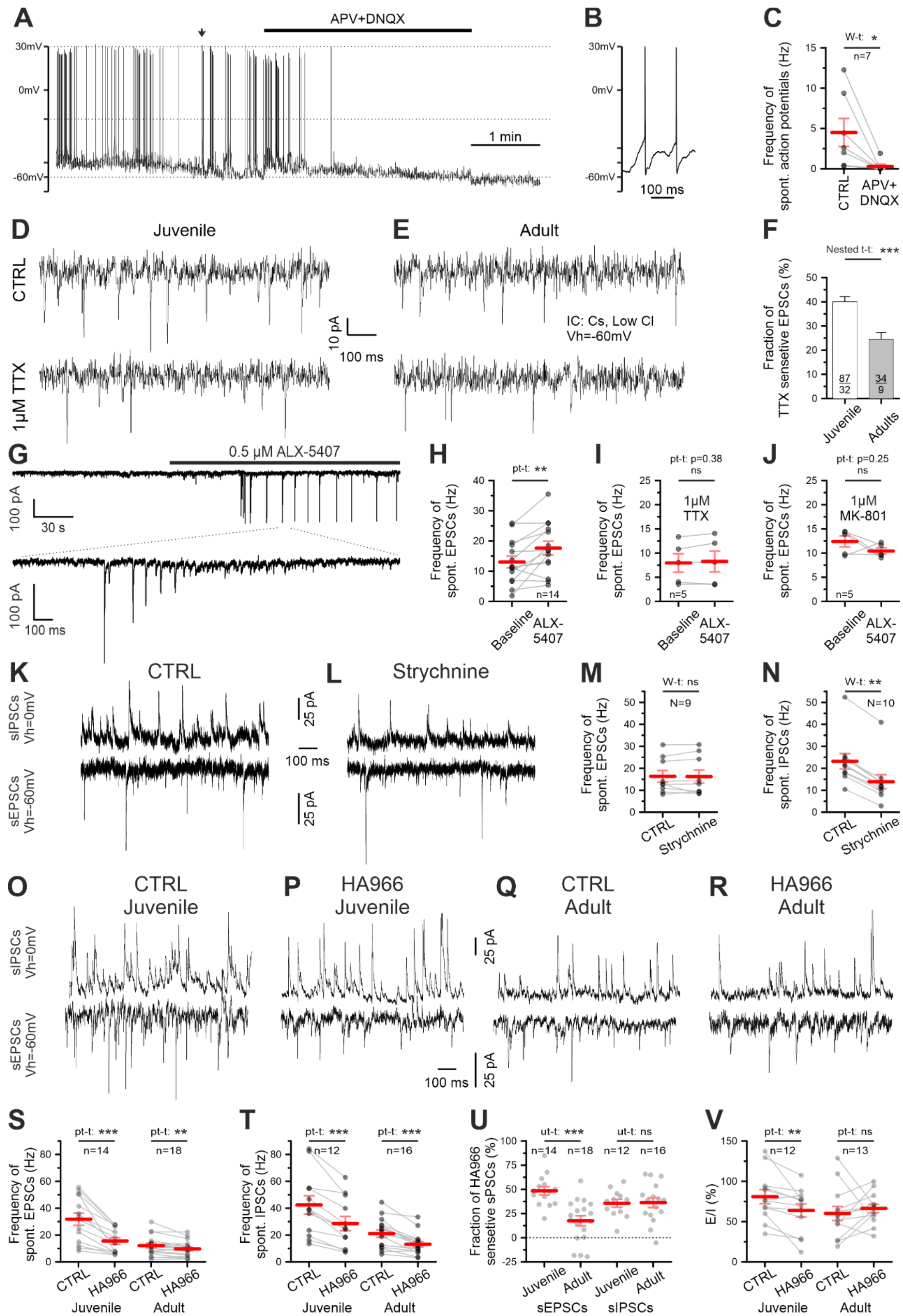


Figure S1. Optogenetic inhibition of PAG neurons by WiChR and its effects in open-field test. Related to Figure 1 and STAR Methods.

A. Dorso-lateral PAG slice image showing expression of Syn-WiChR-mScarlet construct one week after viral injection. **B.** Example traces of membrane currents (top) and potentials (bottom) recorded in dlPAG-neuron in response to a 100 ms pulse of 473 nm light. **C.** Example trace of membrane potentials showing prolong suppression of neuronal firing by a 473 nm light pulse. **D.** Example traces of membrane currents (top) and potentials (bottom) showing inhibition of the dlPAG neuron for 1 min by 300 pulses of 473 nm light applied at 5Hz. The same stimulation protocol was used in optogenetic experiments in vivo. Red marks elements of the traces enlarged in E, F. **E-F.** The enlarged initial (**E**) and final (**F**) fragments of the stimulation shown in D. **G-H.** The results of open-field tests for rats expressing WiChR in all neurons show no significant change between different phases of illumination, but demonstrate a monotonic change over the course of the experiment. **G**) The statistics of the 2 min path, WiChR in all neurons. 1w-RM-ANOVA: $F(2.33, 13.97) = 4.56$, $p = 0.03$. **H**) The statistics of the % time in central area, WiChR in all neurons. 1w-RM-ANOVA: $F(2.52, 15.12) = 6.48$, $p = 0.007$. **I.** Comparison of play activity scoring under control conditions (isotonic NaCl injections in PAG) between different assessors for injected rats and its play partner (CTRL rats).



A
APV+DNQX
30mV
0mV
-60mV
1 min
B
100 ms
C
W-t: *
n=7
Frequency of spont. action potentials (Hz)
CTRL
APV+ DNQX
D
Juvenile
E
Adult
CTRL
1µM TTX
10 pA
100 ms
IC: Cs, Low Cl
Vh=-60mV
F
Nested t-t: ***
Fraction of TTX sensetive EPSCs (%)
87/32
34/9
Juvenile
Adults
G
0.5 µM ALX-5407
100 pA
30 s
100 pA
100 ms
H
pt-t: **
n=14
Frequency of spont. EPSCs (Hz)
Baseline
ALX-5407
I
pt-t: p=0.38
ns
1µM TTX
n=5
J
pt-t: p=0.25
ns
1µM MK-801
n=5
K
CTRL
L
Strychnine
sIPSCs Vh=0mV
sEPSCs Vh=-60mV
25 pA
100 ms
M
W-t: ns
N=9
Frequency of spont. EPSCs (Hz)
N
W-t: **
N=10
Frequency of spont. IPSCs (Hz)
O
CTRL Juvenile
P
HA966 Juvenile
Q
CTRL Adult
R
HA966 Adult
S
pt-t: ***
n=14
pt-t: **
n=18
Frequency of spont. EPSCs (Hz)
CTRL HA966 CTRL HA966
Juvenile Adult
T
pt-t: ***
n=12
pt-t: ***
n=16
Frequency of spont. IPSCs (Hz)
U
ut-t: ***
n=14 n=18
ut-t: ns
n=12 n=16
Fraction of HA966 sensetive sPSCs (%)
Juvenile Adult Juvenile Adult
sEPSCs sIPSCs
V
pt-t: **
n=12
pt-t: ns
n=13
E/I (%)

Figure S2. Spontaneous neuronal and synaptic activity in PAG neurons. Related to Figure 2.

A. Trace of postsynaptic potentials recorded with CC-mode (at $I_{holding}$ = 0 pA) using K-based intracellular pipette solution in neurons from a caudal dl-PAG young rat slice before, during and after application of 50 µM APV + 10 µM DNQX. Note the complete block of neuronal firing after application of ionotropic Glu-receptors blockers. **B.** Traces of two action potentials marked with an arrow in panel A. **C.** Statistics of action potential (AP) frequency counted during the 1 min period before and at the end of APV+DNQX application shows complete suppression of neuronal firing by blockers of ionotropic glutamate receptors. Wilcoxon sum of signed ranks (W) = -28, p = 0.02, Cohen's d = 1.3. **D-E.** Traces of sEPSCs under control conditions (CTRL, top traces) and in the presence of 1 µM TTX (bottom traces) recorded with low-Cl (5mM) intracellular pipette solution in VC-mode ($V_{holding}$= -60 mV) in dlPAG neurons from juvenile (**D**) and adult rats (**E**). **F.** The fraction of TTX sensitive EPSCs show a significant age-dependent decrease. For nested t-test: t = 3.95, df = 39, F(1,39) = 15.58, p = 0.0003, Cohen's d = 0.93. **G.** Trace of sEPSCs recorded in dlPAG neuron from juvenile rat slice before and after application of the GlyT1 inhibitor 0.5 µM ALX-5407 (upper trace). At the bottom is an enlarged fragment of the burst triggered by the ALX-5407 application. **H.** Frequency of sEPSCs recorded before and after ALX-5407 application show a temporal increase in the activity of excitatory inputs in response to the application. t = 3.24, df = 13, p = 0.007, Cohen's d = 0.58. **I.** Blockade of Na+-channels with 1 µM TTX completely blocks the effect of ALX-5407 on the frequency of spontaneous EPSCs. t = 0.99, df = 4, p = 0.38. **J.** Blockade of NMDA-receptors with 1 µM MK-801 completely blocks the effect of ALX-5407 on the frequency of sEPSCs. t = 1.35, df = 4, p = 0.25. **K-L.** Traces of sPSCs under control conditions (**K**) and in the presence of 2 µM strychnine (**L**) recorded with the same pipette solution as in D-E at $V_{holding}$= 0 mV to detect sIPSCs (upper traces) and at $V_{holding}$= -60 mV to detect sEPSCs (lower traces) in dlPAG neurons from juvenile rats. **M.** 2µM strychnine doesn't change sEPSCs frequency. Wilcoxon test: p = 0.82, Sum of signed ranks = 5. **N.** 2µM strychnine reduces sIPSCs frequency. Wilcoxon test: p = 0.002, Sum of signed ranks = 55. **O-R.** Traces of sPSCs under control conditions (**O, Q**) and in the presence of 200 µM HA966 (**P, R**) recorded with the same pipette solution as in D-E at $V_{holding}$= 0 mV to detect sIPSCs (upper traces) and at $V_{holding}$= -60 mV to detect sEPSCs (lower traces) in dlPAG neurons from juvenile (**O, P**) and adult (**Q, R**) rats. **S.** 200µM HA966 reduces sEPSCs frequency in juvenile (t = 5.4, df = 13, p = 0.0001) and adult (t = 3.6, df = 17, p = 0.002) rats. **T.** 200µM HA966 reduces sIPSCs frequency in juvenile (t = 5.7, df = 11, p = 0.0001) and adult (t = 5.3, df = 15, p < 0.0001) rats. **U.** The fraction of HA966 sensitive sEPSCs shows a significant age dependency (t = 4.4, df = 30, p = 0.0001), whereas the fraction of HA966 sensitive sIPSCs is age independent (t = 0.1, df = 26, p = 0.91). **V.** HA966 decreases E/I only in juvenile (t = 3.2, df = 11, p = 0.009), but not in adult (t = 0.7, df = 12, p = 0.51) rats. The gray lines on C, H, -J, M, N, S-V indicate paired measurements.

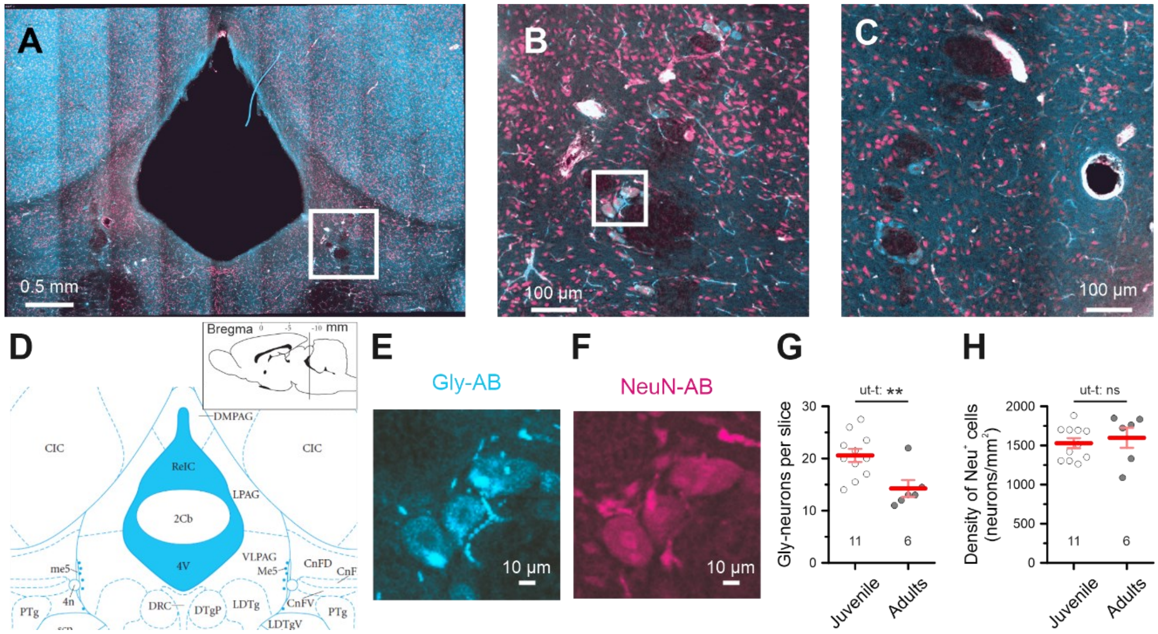


Figure S3. Glycinergic neurons in PAG slices. Related to Figure 3.

A. Confocal image of a coronal midbrain slice with PAG in the center, stained with antibodies to NeuN (red channel) and glycine (green channel). **B.** The enlarged portion of the caudal ventro-lateral PAG, marked with a white square in Figure A, represents a fragment of a brain slice from a juvenile rat. The white square highlights the localisation of glycinergic neurons. **C.** Fragment of caudal ventro-lateral PAG, from an adult rat brain slice corresponding to the area shown in Figure B. **D.** Schematic representation of the slice shown in Figure A, taken from the Paxinos atlas. **E-F.** Glycinergic neurons, highlighted by the white square in Figure B, stained with antibodies to glycine (**E**, green channel) and to NeuN (**F**, red channel). **G.** Comparison of the number of glycinergic neurons in the coronary brain slices of juvenile and adult rats. $t = 3.03$, $df = 15$, $p = 0.008$, Cohen's $d = 1.5$. **H.** The density of $NeuN^+$ neurons does not change significantly with age. $t = 0.54$, $df = 15$, $p = 0.6$, Cohen's $d = 0.27$. Abbreviations: DMPAG - dorsomedial PAG, LPAG - lateral PAG, VLPAG ventrolateral PAG, CIC - central nu. inferior colliculus, 4V - 4th ventricle, DRC - dorsal raphe nu. caudal part, DTgP - dorsal tegmental nu., LDTg - laterodorsal tegmental nu., Me5 - mesencephalic trigeminal tract., 4n - throchlear nerve.

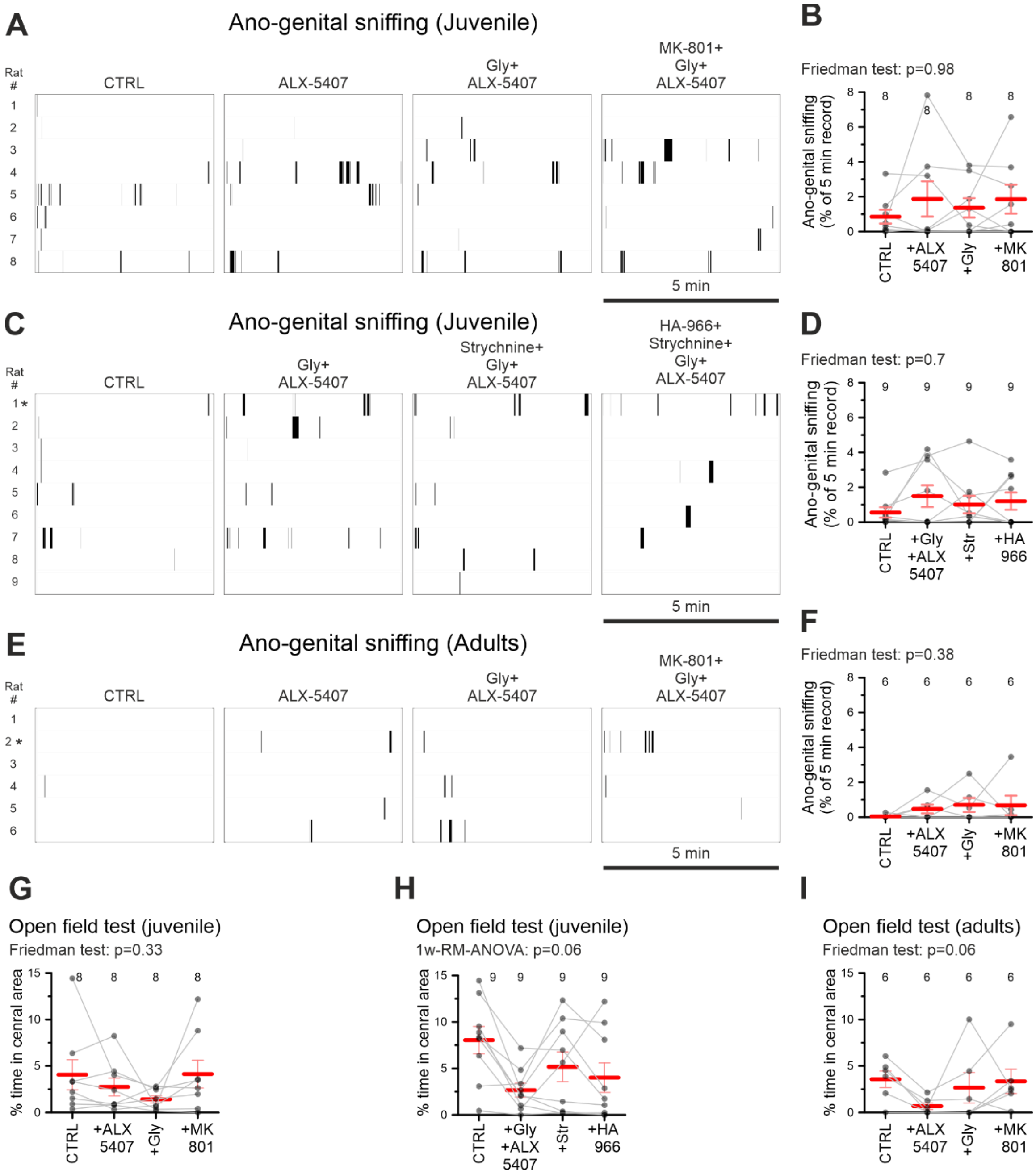


Figure S4. Glycine injected in PAG does not affect either social fear or anxiety. Related to Figure 4 and Figure 5.

A-F: Data for anogenital sniffing is non-playful social interactions inversely characterizing social fear. **A.** Timeline histograms of anogenital sniffing for juvenile rats after injections in PAG via guide cannulas of 0.9% NaCl control solution (CTRL), 2µM ALX-5407, GlyT1 blocker, a mixture of the previous substance with 100µM glycine

(Gly), and a mixture of all of the above with an NMDA receptor blocker, 10μM MK-801. The rats order is the same as on Figure 4A1. **B.** The statistics for the data in Figure A show that neither glycine nor NMDA receptors in PAG are responsible for anogenital sniffing, a non-playful social interaction. Friedman statistic = 0.2, p = 0.98. **C.** Timeline histograms of anogenital sniffing for juvenile rats after injections of control solution (CTRL), a mixture of 2μM ALX-5407 with 100μM glycine, a mixture of the previous substances with 2μM strychnine (Str), and a mixture of all of the above with 400μM HA-966, a blocker of Gly-binding site on NMDA receptor. The rats order is the same as on Figure 4B1. **D.** The statistics for the data in Figure C show that glycinergic receptors in PAG are not responsible for anogenitale sniffing. Friedman statistic = 1.4, p = 0.7. **E.** Timeline histograms of anogenital sniffing for adult rats after injections in PAG via guide cannulas of 0.9% NaCl control solution (CTRL), 2μM ALX-5407, GlyT1 blocker, a mixture of the previous substance with 100μM glycine (Gly), and a mixture of all of the above with an NMDA receptor blocker, 10μM MK-801. The rats order is the same as on Figure 5A. **F.** The statistics for the data in Figure A show that neither glycine nor NMDA receptors in PAG are responsible for anogenitale sniffing in adult rats. Friedman statistic = 3.4, p = 0.38. **G-I.** Statistics of the percentage of time animals spend in the central area in an open field test characterize anxiolytic effects. Note, ALX-5407 and Gly have an anxiogenic tendency. **G.** In the sequence of injections into the PAG of juvenile rats, the solutions 0.9% NaCl (CTRL), 2μM ALX-5407, a mixture of the previous substance with 100μM glycine (Gly), and a mixture of all of the above with 10μM MK-801 don't have significant anxiolytic effects. Friedman statistic = 3.5, p = 0.33. **H.** In the sequence of injections into the PAG of juvenile rats, the solutions 0.9% NaCl (CTRL), a mixture of 2μM ALX-5407 with 100μM glycine, a mixture of the previous substances with 2μM strychnine (Str) and a mixture of all of the above with 400μM HA-966 don't have significant anxiolytic effects. 1w-RM-ANOVA F (1.75, 13.97) = 3.7, p = 0.06. **I.** In the sequence of injections into the PAG of adult rats, the solutions 0.9% NaCl (CTRL), 2μM ALX-5407, a mixture of the previous substance with 100μM glycine (Gly), and a mixture of all of the above with 10μM MK-801 don't have significant anxiolytic effects. Friedman statistic = 7.4, p = 0.06.

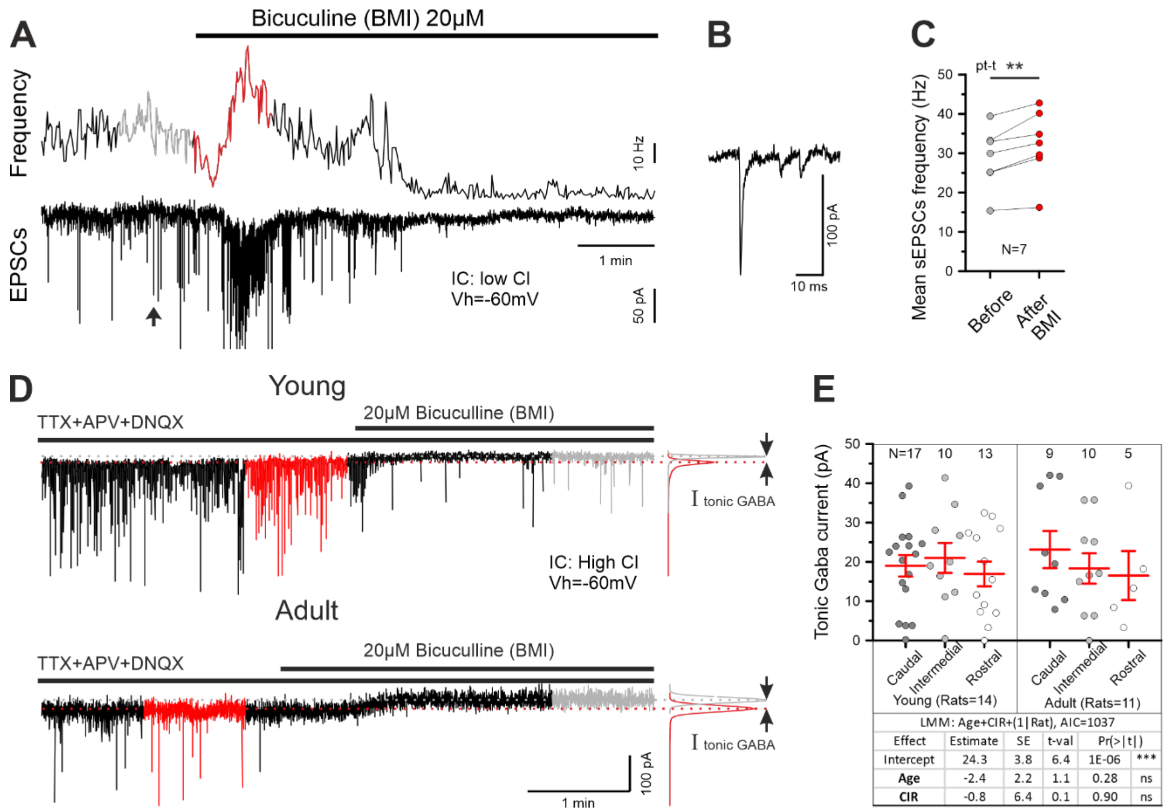


Figure S5. Tonic GABA currents increase inhibition in PAG slices regardless of age. Related to Figure 2.

A. Traces of sEPSCs (bottom trace) and their frequency (top trace) recorded with low Cl intrapipette solution (Vclrev = -60mV) at holding potential -60 mV in PAG neurons before and after application of 20µM bicuculline (BMI) show a temporal increase of sEPSCs frequency in the first minutes after BMI application. The arrow points to the enlarged fragment of the trace shown in figure **B.** The gray and red colors portions of the trace show the regions (1 min before (gray) and after (red) BMI application) used to calculate the mean sEPSCs frequency shown in figure **C** (Paired t-test: t=4.6, p=0.004). **D.** Example traces of mIPSCs recorded with high Cl intrapipette solution in the presence of 50µM APV + 10µM DNQX + 1µM TTX before and after additional application of 20µM bicuculline (BMI) in PAG neurons of juvenile (top trace) and adult (bottom trace) rats. The red (before BMI) and gray (after BMI) marked portions of the traces represent the regions used for the distribution diagrams shown on the right part of the figure. Note the upward shift of the baseline in presence of BMI defined as tonic GABA current. **E.** The statistics of tonic GABA currents measured in different PAG slices of juvenile and adult rats show no significant difference in these groups.

Comment	Parameters			Juvenile rats				Adult rats				Age-dependency				Effects directions	Correlation with playfulness in juvenile rats				
		Slice type	PAG column	Mean	SE	N	Norm. distr.	Mean	SE	N	Norm. distr.	% change	Cohen's d	p-value	Test	Age : Play corr.	r	Norm. distr.	p-value	N	Test
	Age at video shooting															: -	-0.232	No	0.2869	23	Spearman
	Age at in vitro experiment															: -	0.172	Yes	0.4329	23	Pearson
	Time of ano-genital contacts (%)															: -	0.052	Yes	0.8171	22	Pearson
Open field	Path length (m)															: -	-0.360	Yes	0.1554	17	Pearson
Open field	Mean velocity (mm/s)															: -	-0.211	No	0.4153	17	Spearman
Open field	Time of running (%)															: -	-0.066	Yes	0.8026	17	Pearson
Open field	Mean running velocity (mm/s)															: -	-0.147	No	0.5724	17	Spearman
Open field	The number of start/stop events															: -	-0.063	No	0.8115	17	Spearman
K+ IC solution	Max. frequency of action potentials (Hz)	Mixed	vlPAG	35.53	3.92	19	Yes	56.57	12.18	14	Yes			0.0735	ut-t	- :					
K+ IC solution	Reobase (pA)	Mixed	vlPAG	9.65	2.72	19	Yes	22.17	4.23	14	No	130	0.92	0.0235	MW	↑ :					
K+ IC solution	Half max. stimulation current, I50 (pA)	Mixed	vlPAG	71.13	9.46	19	Yes	94.79	20.87	14	No			0.6021	MW	- :					
K+ IC solution	Slope at I_{50} (Hz/pA)	Mixed	vlPAG	0.44	0.15	19	No	0.55	0.18	14	Yes			0.9857	MW	- :					
K+ IC solution	Frequency of action potentials (Hz)	Mixed	vlPAG	0.98	0.34	20	No	0.40	0.22	15	No	-59	0.45	0.0125	MW	↓ :					
K+ IC solution	Max. frequency of action potentials (Hz)	Mixed	dlPAG	59.58	10.62	19	No	63.50	17.15	12	Yes			0.8966	MW	- :					
K+ IC solution	Reobase (pA)	Mixed	dlPAG	10.57	7.34	19	No	35.71	7.97	11	No	238	0.83	0.0236	MW	↑ :					
K+ IC solution	Half max. stimulation current, I50 (pA)	Mixed	dlPAG	110.18	17.22	19	Yes	115.67	20.58	10	Yes			0.8464	ut-t	- :					
K+ IC solution	Slope at I_{50} (Hz/pA)	Mixed	dlPAG	0.40	0.06	19	No	0.51	0.14	10	Yes			0.9461	MW	- :					
K+ IC solution	Frequency of action potentials (Hz)	Mixed	dlPAG	2.09	0.64	27	No	0.76	0.47	12	No	-64	0.46	0.0493	MW	↓ :					
Cs+ IC solution	Tonic GABA-current (pA)	Caudal	dlPAG	19.00	2.74	17	Yes	23.13	4.71	9	Yes			0.4616	ut-t	- : ↑	0.618	No	0.0186	14	Spearman
Cs+ IC solution	Tonic GABA-current (pA)	Intermedial	dlPAG	21.00	3.81	10	Yes	18.34	3.86	10	Yes			0.6289	ut-t	- : -	0.506	Yes	0.2468	7	Pearson
Cs+ IC solution	Tonic GABA-current (pA)	Rostral	dlPAG	16.93	3.15	13	Yes	16.52	6.23	5	Yes			0.9550	ut-t	- : -	-0.134	Yes	0.7111	10	Pearson
Cs+ IC solution	Serial resistance (MOhm)	Caudal	dlPAG	10.92	0.44	63	No	11.32	0.84	15	Yes			0.5466	MW	- : ↓	-0.450	Yes	0.0312	23	Pearson
Cs+ IC solution	Serial resistance (MOhm)	Intermedial	dlPAG	10.33	0.38	64	Yes	11.32	0.37	30	Yes			0.0654	ut-t	- : -	0.104	No	0.6806	18	Spearman
Cs+ IC solution	Serial resistance (MOhm)	Rostral	dlPAG	11.12	0.60	38	No	11.09	0.56	25	Yes			0.5720	MW	- : -	-0.358	No	0.1585	17	Spearman
Cs+ IC solution	Membrane resistance (MOhm)	Caudal	dlPAG	523.56	30.70	63	No	372.78	48.75	15	Yes	-29	0.64	0.0246	MW	↓ : -	-0.224	No	0.3035	23	Spearman
Cs+ IC solution	Membrane resistance (MOhm)	Intermedial	dlPAG	409.34	23.59	64	No	470.67	40.52	30	No			0.2205	MW	- : -	0.154	Yes	0.5422	18	Pearson
Cs+ IC solution	Membrane resistance (MOhm)	Rostral	dlPAG	545.06	33.70	38	Yes	523.32	59.80	25	No			0.3528	MW	- : -	0.005	Yes	0.9846	17	Pearson
Cs+ IC solution	Input resistance (MOhm)	Caudal	dlPAG	534.48	30.82	63	No	384.10	49.18	15	Yes	-28	0.64	0.0254	MW	↓ : -	-0.229	No	0.2927	23	Spearman
Cs+ IC solution	Input resistance (MOhm)	Intermedial	dlPAG	419.67	23.77	64	No	481.99	40.64	30	No			0.2114	MW	- : -	0.155	Yes	0.5392	18	Pearson
Cs+ IC solution	Input resistance (MOhm)	Rostral	dlPAG	556.18	33.83	38	Yes	534.41	59.90	25	No			0.3601	MW	- : -	0.007	Yes	0.9781	17	Pearson
Cs+ IC solution	Membrane capacity (pF)	Caudal	dlPAG	46.03	3.54	63	No	50.12	8.48	15	No			0.5720	MW	- : -	0.132	Yes	0.5497	23	Pearson
Cs+ IC solution	Membrane capacity (pF)	Intermedial	dlPAG	57.46	3.69	64	Yes	39.69	4.27	30	Yes	-31	0.64	0.0024	ut-t	↓ : -	-0.090	Yes	0.7226	18	Pearson
Cs+ IC solution	Membrane capacity (pF)	Rostral	dlPAG	44.38	3.82	38	Yes	36.69	6.17	25	No	-17	0.29	0.0495	MW	↓ : -	0.040	Yes	0.8776	17	Pearson
Cs+ IC solution	sEPSC, Frequency (Hz)	Caudal	dlPAG	19.42	1.47	64	Yes	11.81	1.77	15	Yes	-39	0.69	0.0021	ut-t	↓ : -	0.182	Yes	0.4063	23	Pearson
Cs+ IC solution	sEPSC, Frequency (Hz)	Intermedial	dlPAG	22.46	1.64	64	No	11.21	1.16	30	Yes	-50	0.98	0.0000	MW	↓ : -	-0.376	Yes	0.1236	18	Pearson
Cs+ IC solution	sEPSC, Frequency (Hz)	Rostral	dlPAG	18.21	1.90	38	Yes	9.84	1.51	25	No	-46	0.81	0.0005	MW	↓ : -	0.101	Yes	0.7005	17	Pearson
Cs+ IC solution	sEPSC, Amplitude (pA)	Caudal	dlPAG	22.14	1.15	64	No	24.18	2.12	15	Yes			0.2609	MW	- : ↓	-0.561	No	0.0053	23	Spearman
Cs+ IC solution	sEPSC, Amplitude (pA)	Intermedial	dlPAG	26.97	1.35	64	Yes	22.21	1.12	30	Yes	-18	0.50	0.0081	ut-t	↓ : -	0.204	Yes	0.4165	18	Pearson
Cs+ IC solution	sEPSC, Amplitude (pA)	Rostral	dlPAG	21.14	1.02	38	Yes	23.89	1.74	25	Yes			0.1815	ut-t	- : -	-0.373	Yes	0.1403	17	Pearson
Cs+ IC solution	sEPSC, Baseline (pA)	Caudal	dlPAG	75.48	5.59	64	No	87.46	17.49	15	Yes			0.7998	MW	- : -	-0.067	No	0.7607	23	Spearman
Cs+ IC solution	sEPSC, Baseline (pA)	Intermedial	dlPAG	84.67	9.01	64	No	62.17	7.20	30	No			0.1059	MW	- : -	-0.098	No	0.6987	18	Spearman
Cs+ IC solution	sEPSC, Baseline (pA)	Rostral	dlPAG	70.44	8.22	38	No	74.52	7.80	25	Yes			0.3385	MW	- : -	-0.130	No	0.6192	17	Spearman
Cs+ IC solution	sEPSC, Integral (pA*ms)	Caudal	dlPAG	72.39	3.07	64	Yes	88.99	8.79	15	Yes			0.0918	ut-t	- : ↓	-0.510	No	0.0129	23	Spearman
Cs+ IC solution	sEPSC, Integral (pA*ms)	Intermedial	dlPAG	91.04	4.24	64	Yes	86.19	4.79	30	Yes			0.4515	ut-t	- : -	0.210	Yes	0.4033	18	Pearson
Cs+ IC solution	sEPSC, Integral (pA*ms)	Rostral	dlPAG	72.14	3.45	38	Yes	89.25	6.40	25	Yes	24	0.66	0.0239	ut-t	↑ : -	-0.346	Yes	0.1743	17	Pearson
Cs+ IC solution	sEPSC, Centroid (ms)	Caudal	dlPAG	1.75	0.06	64	Yes	2.20	0.13	15	Yes	26	0.95	0.0063	ut-t	↑ : -	0.190	Yes	0.3852	23	Pearson
Cs+ IC solution	sEPSC, Centroid (ms)	Intermedial	dlPAG	1.84	0.05	64	Yes	2.14	0.14	30	No	16	0.56	0.0006	MW	↑ : -	-0.102	Yes	0.6873	18	Pearson
Cs+ IC solution	sEPSC, Centroid (ms)	Rostral	dlPAG	1.87	0.09	38	Yes	2.36	0.09	25	Yes	26	0.92	0.0004	ut-t	↑ : -	-0.294	No	0.2518	17	Spearman
Cs+ IC solution	sEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Caudal	dlPAG	0.91	0.01	64	Yes	0.90	0.01	15	Yes			0.6316	ut-t	- : -	0.233	Yes	0.2841	23	Pearson
Cs+ IC solution	sEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Intermedial	dlPAG	0.91	0.01	64	Yes	0.93	0.02	30	Yes			0.5007	ut-t	- : -	-0.432	Yes	0.0733	18	Pearson
Cs+ IC solution	sEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Rostral	dlPAG	0.92	0.02	38	Yes	0.89	0.01	25	Yes			0.2831	ut-t	- : -	0.053	Yes	0.8386	17	Pearson
Cs+ IC solution	sEPSC, Decay time to 50% (ms)	Caudal	dlPAG	1.10	0.03	64	No	1.15	0.06	15	Yes			0.4685	MW	- : -	0.164	Yes	0.4533	23	Pearson
Cs+ IC solution	sEPSC, Decay time to 50% (ms)	Intermedial	dlPAG	1.22	0.03	64	Yes	1.22	0.06	30	Yes			0.9683	ut-t	- : ↓	-0.573	Yes	0.0129	18	Pearson
Cs+ IC solution	sEPSC, Decay time to 50% (ms)	Rostral	dlPAG	1.13	0.04	38	Yes	1.13	0.05	25	Yes			0.9755	ut-t	- : -	0.042	Yes	0.8742	17	Pearson
Cs+ IC solution	sEPSC, Tau of monoexp. decay (ms)	Caudal	dlPAG	2.86	0.10	64	Yes	2.22	0.17	15	Yes	-22	0.85	0.0029	ut-t	↓ : -	-0.155	Yes	0.4791	23	Pearson
Cs+ IC solution	sEPSC, Tau of monoexp. decay (ms)	Intermedial	dlPAG	2.71	0.07	64	Yes	2.45	0.13	30	Yes			0.1009	ut-t	- : ↑	0.543	Yes	0.0199	18	Pearson
Cs+ IC solution	sEPSC, Tau of monoexp. decay (ms)	Rostral	dlPAG	2.91	0.15	38	Yes	2.07	0.10	25	Yes	-29	1.06	0.0000	ut-t	↓ : -	-0.034	No	0.8960	17	Spearman
Cs+ IC solution	sEPSC, Tau norm. to capacity (ms/pF)	Caudal	dlPAG	0.09	0.01	63	No	0.06	0.01	15	Yes	-32	0.55	0.0404	MW	↓ : -	-0.190	No	0.3859	23	Spearman
Cs+ IC solution	sEPSC, Tau norm. to capacity (ms/pF)	Intermedial	dlPAG	0.06	0.00	64	No	0.08	0.01	30	No	33	0.49	0.0204	MW	↑ : -	0.028	No	0.9126	18	Spearman
Cs+ IC solution	sEPSC, Tau norm. to capacity (ms/pF)	Rostral	dlPAG	0.09	0.01	38	No	0.08	0.01	25	No			0.9611	MW	- : -	0.221	Yes	0.3947	17	Pearson
Cs+ IC solution, TTX	mEPSC, Frequency (Hz)	Caudal	dlPAG	11.27	1.08	39	No	9.45	2.14	8	Yes			0.5877	MW	- : -	0.293	Yes	0.1744	23	Pearson
Cs+ IC solution, TTX	mEPSC, Frequency (Hz)	Intermedial	dlPAG	12.68	1.44	35	No	7.80	0.86	16	Yes	-39	0.67	0.0346	MW	↓ : -	-0.073	Yes	0.7815	17	Pearson
Cs+ IC solution, TTX	mEPSC, Frequency (Hz)	Rostral	dlPAG	8.72	0.91	21	Yes	7.29	1.70	10	Yes			0.4710	ut-t	- : -	-0.001	Yes	0.9960	15	Pearson
Cs+ IC solution, TTX	mEPSC, Amplitude (pA)	Caudal	dlPAG	16.13	0.63	39	Yes	24.64	3.92	8	Yes			0.0669	ut-t	- : ↓	-0.513	Yes	0.0123	23	Pearson
Cs+ IC solution, TTX	mEPSC, Amplitude (pA)	Intermedial	dlPAG	20.41	1.13	35	Yes	21.05	1.02	16	Yes			0.6786	ut-t	- : -	-0.147	Yes	0.5745	17	Pearson
Cs+ IC solution, TTX	mEPSC, Amplitude (pA)	Rostral	dlPAG	16.08	0.89	21	No	23.31	1.83	10	Yes	45	1.54	0.0003	MW	↑ : -	-0.070	Yes	0.8034	15	Pearson
Cs+ IC solution, TTX	mEPSC, Baseline (pA)	Caudal	dlPAG	106.13	11.59	39	No	224.53	77.65	8	Yes			0.3215	MW	- : -	-0.218	Yes	0.3174	23	Pearson
Cs+ IC solution, TTX	mEPSC, Baseline (pA)	Intermedial	dlPAG	182.32	37.24	35	No	123.64	20.04	16	No			0.6657	MW	- : -	0.265	No	0.3045	17	Spearman
Cs+ IC solution, TTX	mEPSC, Baseline (pA)	Rostral	dlPAG	165.33	44.84	21	No	103.84	22.22	10	No			0.5463	MW	- : -	0.293	Yes	0.2886	15	Pearson
Cs+ IC solution, TTX	mEPSC, Integral (pA*ms)	Caudal	dlPAG	55.78	3.04	39	Yes	88.83	13.97	8	Yes			0.0509	ut-t	- : ↓	-0.474	Yes	0.0225	23	Pearson
Cs+ IC solution, TTX	mEPSC, Integral (pA*ms)	Intermedial	dlPAG	73.38	4.32	35	Yes	80.15	3.15	16	Yes			0.2117	ut-t	- : -	-0.112	Yes	0.6685	17	Pearson
Cs+ IC solution, TTX	mEPSC, Integral (pA*ms)	Rostral	dlPAG	58.16	3.84	21	Yes	90.64	7.80	10	Yes	56	1.62	0.0023	ut-t	↑ : -	-0.111	Yes	0.6931	15	Pearson
Cs+ IC solution, TTX	mEPSC, Centroid (ms)	Caudal	dlPAG	1.66	0.15	39	No	2.37	0.14	8	Yes	42	0.80	0.0012	MW	↑ : -	0.188	No	0.3910	23	Spearman
Cs+ IC solution, TTX	mEPSC, Centroid (ms)	Intermedial	dlPAG	2.00	0.08	35	Yes	2.53	0.08	16	Yes	26	1.28	0.0000	ut-t	↑ : -	-0.390	Yes	0.1218	17	Pearson
Cs+ IC solution, TTX	mEPSC, Centroid (ms)	Rostral	dlPAG	1.96	0.10	21	Yes	2.59	0.09	10	Yes	32	1.54	0.0001	ut-t	↑ : -	-0.033	Yes	0.9074	15	Pearson
Cs+ IC solution, TTX	mEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Caudal	dlPAG	0.86	0.02	39	Yes	0.84	0.01	8	Yes			0.4327	ut-t	- : -	0.271	Yes	0.2107	23	Pearson
Cs+ IC solution, TTX	mEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Intermedial	dlPAG	0.89	0.01	35	Yes	0.89	0.01	16	Yes			0.8060	ut-t	- : -	-0.451	Yes	0.0694	17	Pearson
Cs+ IC solution, TTX	mEPSC, Rise time $_{20\text{-}90\%}$ (ms)	Rostral	dlPAG	0.89	0.03	21	Yes	0.90	0.02	10	Yes			0.8337	ut-t	- : -	0.093	Yes	0.7423	15	Pearson
Cs+ IC solution, TTX	mEPSC, Decay time to 50% (ms)	Caudal	dlPAG	0.97	0.05	39	Yes	1.08	0.06	8	Yes			0.1454	ut-t	- : ↑	0.431	Yes	0.0402	23	Pearson
Cs+ IC solution, TTX	mEPSC, Decay time to 50% (ms)	Intermedial	dlPAG	1.08	0.04	35	Yes	1.17	0.06	16	Yes			0.2221	ut-t	- : -	-0.003	Yes	0.9915	17	Pearson
Cs+ IC solution, TTX	mEPSC, Decay time to 50% (ms)	Rostral	dlPAG	0.96	0.05	21	Yes	1.14	0.05	10	No			0.0534	MW	- : -	0.091	Yes	0.7458	15	Pearson
Cs+ IC solution, TTX	mEPSC, Tau of monoexp. decay (ms)	Caudal	dlPAG	2.76	0.15	39	No	1.47	0.15	8	Yes	-47	1.47	0.0000	MW	↓ : -	-0.294	Yes	0.1736	23	Pearson
Cs+ IC solution, TTX	mEPSC, Tau of monoexp. decay (ms)	Intermedial	dlPAG	2.44	0.12	35	Yes	1.80	0.16	16	Yes	-26	0.95	0.0028	ut-t	↓ : -	0.282	Yes	0.2726	17	Pearson
Cs+ IC solution, TTX	mEPSC, Tau of monoexp. decay (ms)	Rostral	dlPAG	2.93	0.24	21	Yes	1.67	0.17	10	Yes	-43	1.32	0.0002	ut-t	↓ : -	-0.011	Yes	0.9680	15	Pearson
Cs+ IC solution, TTX	mEPSC, Tau norm. to capacity (ms/pF)	Caudal	dlPAG	0.08	0.01	38	No	0.04	0.01	8	Yes	-49	0.86	0.0122	MW	↓ : -	-0.136	Yes	0.5346	23	Pearson
Cs+ IC solution, TTX	mEPSC, Tau norm. to capacity (ms/pF)	Intermedial	dlPAG	0.05	0.01	35	No	0.07	0.01	16	Yes	32	0.42	0.0150	MW	↑ : -	-0.047	Yes	0.8575	17	Pearson
Cs+ IC solution, TTX	mEPSC, Tau norm. to capacity (ms/pF)	Rostral	dlPAG	0.08	0.01	21	No	0.06	0.01	10	Yes			0.3927	MW	- : -	0.265	Yes	0.3400	15	Pearson
Cs+ IC solution	% of TTX sensetive EPSCs	Caudal	dlPAG	39.62	2.88	33	Yes	10.85	3.06	8	No	-73	1.86	0.0000	MW	↓ : -	0.415	Yes	0.0615	21	Pearson
Cs+ IC solution	% of TTX sensetive EPSCs	Intermedial	dlPAG	38.28	3.69	33	Yes	23.17	2.76	16	Yes	-39	0.81	0.0020	ut-t	↓ : -	-0.084	Yes	0.7583	16	Pearson
Cs+ IC solution	% of TTX sensetive EPSCs	Rostral	dlPAG	43.57	4.52	21	Yes	37.65	5.61	10	Yes			0.4200	ut-t	- : -	-0.238	Yes	0.3921	15	Pearson
Cs+ IC solution	sIPSC, Frequency (Hz)	Caudal	dlPAG	26.66	2.20	59	Yes	18.36	3.70	11	Yes			0.0693	ut-t	- : -	0.267	Yes	0.2182	23	Pearson
Cs+ IC solution	sIPSC, Frequency (Hz)	Intermedial	dlPAG	28.22	2.47	51	No	15.58	2.04	22	No	-45	0.81	0.0043	MW	↓ : -	-0.449	Yes	0.0613	18	Pearson

Cs+ IC solution	sIPSC, Frequency (Hz)	Rostral	dlPAG	21.05	2.33	35	No	12.75	1.69	20	No	-39	0.70	0.0298	MW	↓ : -	0.159	Yes	0.5420	17	Pearson
Cs+ IC solution	sIPSC, Amplitude (pA)	Caudal	dlPAG	36.77	2.18	59	No	34.96	4.28	11	Yes			0.8486	MW	- : -	0.118	Yes	0.5905	23	Pearson
Cs+ IC solution	sIPSC, Amplitude (pA)	Intermedial	dlPAG	38.50	2.04	51	Yes	32.53	1.83	22	Yes	-15	0.46	0.0333	ut-t	↓ : ↓	-0.475	Yes	0.0463	18	Pearson
Cs+ IC solution	sIPSC, Amplitude (pA)	Rostral	dlPAG	30.82	1.25	35	Yes	38.46	3.96	20	No			0.0950	MW	- : -	-0.158	Yes	0.5440	17	Pearson
Cs+ IC solution	sIPSC, Baseline (pA)	Caudal	dlPAG	107.97	11.08	59	No	110.93	38.32	11	No			0.9422	MW	- : -	0.194	No	0.3759	23	Spearman
Cs+ IC solution	sIPSC, Baseline (pA)	Intermedial	dlPAG	115.34	12.52	51	Yes	82.40	9.83	22	Yes	-29	0.42	0.0422	ut-t	↓ : -	-0.307	Yes	0.2155	18	Pearson
Cs+ IC solution	sIPSC, Baseline (pA)	Rostral	dlPAG	70.84	11.90	35	No	55.57	7.25	20	No			0.2782	MW	- : -	0.328	No	0.1981	17	Spearman
Cs+ IC solution	sIPSC, Integral (pA*ms)	Caudal	dlPAG	175.83	7.59	59	Yes	189.26	27.43	11	Yes			0.6459	ut-t	- : -	0.034	Yes	0.8768	23	Pearson
Cs+ IC solution	sIPSC, Integral (pA*ms)	Intermedial	dlPAG	186.77	8.86	51	Yes	177.86	9.62	22	Yes			0.4987	ut-t	- : -	-0.365	Yes	0.1365	18	Pearson
Cs+ IC solution	sIPSC, Integral (pA*ms)	Rostral	dlPAG	164.30	10.57	35	No	223.45	19.83	20	Yes	36	0.81	0.0013	MW	↑ : -	-0.132	Yes	0.6135	17	Pearson
Cs+ IC solution	sIPSC, Centroid (ms)	Caudal	dlPAG	2.68	0.11	59	Yes	2.95	0.21	11	Yes			0.2762	ut-t	- : -	-0.300	Yes	0.1644	23	Pearson
Cs+ IC solution	sIPSC, Centroid (ms)	Intermedial	dlPAG	2.41	0.20	51	No	2.95	0.12	22	Yes	23	0.45	0.0219	MW	↑ : -	0.286	No	0.2502	18	Spearman
Cs+ IC solution	sIPSC, Centroid (ms)	Rostral	dlPAG	2.83	0.15	35	Yes	3.51	0.13	20	Yes	24	0.84	0.0014	ut-t	↑ : -	-0.001	Yes	0.9975	17	Pearson
Cs+ IC solution	sIPSC, Rise time $_{20-90\%}$ (ms)	Caudal	dlPAG	1.04	0.02	59	Yes	0.97	0.03	11	Yes	-7	0.65	0.0218	ut-t	↓ : -	0.013	Yes	0.9515	23	Pearson
Cs+ IC solution	sIPSC, Rise time $_{20-90\%}$ (ms)	Intermedial	dlPAG	1.04	0.02	51	Yes	1.03	0.02	22	Yes			0.8135	ut-t	- : -	0.263	No	0.2914	18	Spearman
Cs+ IC solution	sIPSC, Rise time $_{20-90\%}$ (ms)	Rostral	dlPAG	1.04	0.02	35	Yes	0.95	0.02	20	Yes	-9	0.73	0.0038	ut-t	↓ : -	0.449	Yes	0.0709	17	Pearson
Cs+ IC solution	sIPSC, Decay time to 50% (ms)	Caudal	dlPAG	2.18	0.06	59	Yes	1.94	0.13	11	Yes			0.1055	ut-t	- : -	0.129	Yes	0.5585	23	Pearson
Cs+ IC solution	sIPSC, Decay time to 50% (ms)	Intermedial	dlPAG	2.26	0.06	51	Yes	2.02	0.10	22	Yes			0.0560	ut-t	- : -	-0.192	Yes	0.4454	18	Pearson
Cs+ IC solution	sIPSC, Decay time to 50% (ms)	Rostral	dlPAG	2.17	0.09	35	Yes	2.15	0.12	20	Yes			0.8786	ut-t	- : -	0.105	Yes	0.6888	17	Pearson
Cs+ IC solution	sIPSC, Tau of monoexp. decay (ms)	Caudal	dlPAG	5.57	0.16	59	Yes	4.52	0.30	11	Yes	-19	0.87	0.0069	ut-t	↓ : -	-0.015	Yes	0.9473	23	Pearson
Cs+ IC solution	sIPSC, Tau of monoexp. decay (ms)	Intermedial	dlPAG	5.40	0.18	51	Yes	4.86	0.26	22	Yes			0.0942	ut-t	- : -	-0.086	No	0.7354	18	Spearman
Cs+ IC solution	sIPSC, Tau of monoexp. decay (ms)	Rostral	dlPAG	5.49	0.27	35	Yes	4.88	0.38	20	Yes			0.1993	ut-t	- : -	-0.135	No	0.6060	17	Spearman
Cs+ IC solution	sIPSC, Tau norm. to capacity (ms/pF)	Caudal	dlPAG	0.18	0.02	57	No	0.14	0.03	11	Yes			0.4197	MW	- : -	-0.329	Yes	0.1348	22	Pearson
Cs+ IC solution	sIPSC, Tau norm. to capacity (ms/pF)	Intermedial	dlPAG	0.14	0.02	50	No	0.18	0.03	22	No			0.2210	MW	- : -	0.343	Yes	0.1774	17	Pearson
Cs+ IC solution	sIPSC, Tau norm. to capacity (ms/pF)	Rostral	dlPAG	0.17	0.02	34	No	0.22	0.04	20	No			0.1505	MW	- : ↑	0.529	No	0.0350	16	Spearman
Cs+ IC solution, TTX	mIPSC, Frequency (Hz)	Caudal	dlPAG	14.15	1.70	35	Yes	8.14	1.66	7	Yes	-42	0.64	0.0194	ut-t	↓ : ↑	0.691	No	0.0005	21	Spearman
Cs+ IC solution, TTX	mIPSC, Frequency (Hz)	Intermedial	dlPAG	16.47	2.62	34	No	11.11	2.04	15	No			0.3168	MW	- : -	-0.144	Yes	0.6089	15	Pearson
Cs+ IC solution, TTX	mIPSC, Frequency (Hz)	Rostral	dlPAG	11.65	2.11	21	No	9.59	2.06	12	No			0.7191	MW	- : -	0.348	Yes	0.2032	15	Pearson
Cs+ IC solution, TTX	mIPSC, Amplitudes (pA)	Caudal	dlPAG	28.45	1.89	35	Yes	26.60	2.65	7	Yes			0.5798	ut-t	- : -	0.200	Yes	0.3852	21	Pearson
Cs+ IC solution, TTX	mIPSC, Amplitudes (pA)	Intermedial	dlPAG	33.29	2.73	34	Yes	32.25	2.67	15	Yes			0.7874	ut-t	- : -	-0.311	No	0.2597	15	Spearman
Cs+ IC solution, TTX	mIPSC, Amplitudes (pA)	Rostral	dlPAG	29.18	2.31	21	Yes	35.76	4.53	12	No			0.1411	MW	- : -	0.040	Yes	0.8870	15	Pearson
Cs+ IC solution, TTX	mIPSC, Bases (pA)	Caudal	dlPAG	92.40	9.16	35	Yes	91.07	29.85	7	Yes			0.9673	ut-t	- : ↑	0.497	Yes	0.0218	21	Pearson
Cs+ IC solution, TTX	mIPSC, Bases (pA)	Intermedial	dlPAG	128.76	16.68	34	No	86.78	15.81	15	Yes			0.3837	MW	- : -	-0.099	Yes	0.7256	15	Pearson
Cs+ IC solution, TTX	mIPSC, Bases (pA)	Rostral	dlPAG	74.40	12.26	21	Yes	56.01	14.51	12	Yes			0.3420	ut-t	- : -	0.093	Yes	0.7418	15	Pearson
Cs+ IC solution, TTX	mIPSC, Integral (pA*ms)	Caudal	dlPAG	174.69	11.35	35	Yes	137.85	18.75	7	Yes			0.1209	ut-t	- : -	0.099	Yes	0.6689	21	Pearson
Cs+ IC solution, TTX	mIPSC, Integral (pA*ms)	Intermedial	dlPAG	182.71	15.53	34	No	190.57	16.27	15	Yes			0.7287	MW	- : -	-0.511	No	0.0517	15	Spearman
Cs+ IC solution, TTX	mIPSC, Integral (pA*ms)	Rostral	dlPAG	183.98	14.84	21	Yes	206.91	28.20	12	Yes			0.4815	ut-t	- : -	-0.206	Yes	0.4615	15	Pearson
Cs+ IC solution, TTX	mIPSC, Centroid (ms)	Caudal	dlPAG	3.51	0.20	35	No	3.22	0.24	7	Yes			0.8173	MW	- : -	-0.168	Yes	0.4674	21	Pearson
Cs+ IC solution, TTX	mIPSC, Centroid (ms)	Intermedial	dlPAG	3.06	0.15	34	Yes	3.36	0.20	15	Yes			0.2472	ut-t	- : -	-0.226	Yes	0.4177	15	Pearson
Cs+ IC solution, TTX	mIPSC, Centroid (ms)	Rostral	dlPAG	3.63	0.24	21	No	3.37	0.20	12	Yes			0.4217	MW	- : -	-0.350	No	0.2009	15	Spearman
Cs+ IC solution, TTX	mIPSC, Rise time $_{20-90\%}$ (ms)	Caudal	dlPAG	1.09	0.04	35	No	0.91	0.03	7	Yes	-17	0.96	0.0063	MW	↓ : -	0.319	No	0.1580	21	Spearman
Cs+ IC solution, TTX	mIPSC, Rise time $_{20-90\%}$ (ms)	Intermedial	dlPAG	1.03	0.03	34	Yes	1.01	0.03	15	No			0.9061	MW	- : -	-0.439	No	0.1014	15	Spearman
Cs+ IC solution, TTX	mIPSC, Rise time $_{20-90\%}$ (ms)	Rostral	dlPAG	1.09	0.05	21	No	0.93	0.02	12	Yes	-15	0.86	0.0330	MW	↓ : -	-0.135	Yes	0.6305	15	Pearson
Cs+ IC solution, TTX	mIPSC, Decay time to 50% (ms)	Caudal	dlPAG	2.39	0.14	35	Yes	1.54	0.15	7	Yes	-36	1.10	0.0007	ut-t	↓ : -	0.351	Yes	0.1188	21	Pearson
Cs+ IC solution, TTX	mIPSC, Decay time to 50% (ms)	Intermedial	dlPAG	2.18	0.12	34	Yes	2.15	0.18	15	Yes			0.8913	ut-t	- : ↓	-0.605	Yes	0.0169	15	Pearson
Cs+ IC solution, TTX	mIPSC, Decay time to 50% (ms)	Rostral	dlPAG	2.34	0.17	21	Yes	2.00	0.18	12	Yes			0.1766	ut-t	- : -	0.041	Yes	0.8855	15	Pearson
Cs+ IC solution, TTX	mIPSC, Tau of monoexp. decay (ms)	Caudal	dlPAG	6.54	0.39	35	Yes	2.97	0.51	7	Yes	-55	1.62	0.0001	ut-t	↓ : -	-0.199	Yes	0.3881	21	Pearson
Cs+ IC solution, TTX	mIPSC, Tau of monoexp. decay (ms)	Intermedial	dlPAG	5.38	0.32	34	Yes	4.55	0.42	15	Yes			0.1213	ut-t	- : -	0.487	Yes	0.0655	15	Pearson
Cs+ IC solution, TTX	mIPSC, Tau of monoexp. decay (ms)	Rostral	dlPAG	6.45	0.46	21	Yes	3.92	0.40	12	Yes	-39	1.35	0.0002	ut-t	↓ : -	0.038	Yes	0.8920	15	Pearson
Cs+ IC solution, TTX	mIPSC, Tau norm. to capacity (ms/pF)	Caudal	dlPAG	0.21	0.03	35	No	0.09	0.03	7	Yes			0.0791	MW	- : -	-0.251	No	0.2731	21	Spearman
Cs+ IC solution, TTX	mIPSC, Tau norm. to capacity (ms/pF)	Intermedial	dlPAG	0.11	0.01	33	No	0.18	0.03	15	No			0.0819	MW	- : -	0.187	Yes	0.5221	14	Pearson
Cs+ IC solution, TTX	mIPSC, Tau norm. to capacity (ms/pF)	Rostral	dlPAG	0.18	0.03	20	No	0.15	0.03	12	Yes			0.5778	MW	- : -	0.371	Yes	0.1918	14	Pearson
Cs+ IC solution	% of TTX sensetive IPSCs	Caudal	dlPAG	41.97	3.51	28	Yes	30.13	7.57	6	Yes			0.1971	ut-t	- : -	-0.402	Yes	0.0708	21	Pearson
Cs+ IC solution	% of TTX sensetive IPSCs	Intermedial	dlPAG	38.66	4.82	23	No	25.21	5.26	12	Yes			0.1723	MW	- : -	0.312	Yes	0.2779	14	Pearson
Cs+ IC solution	% of TTX sensetive IPSCs	Rostral	dlPAG	45.53	5.82	19	Yes	29.09	4.63	11	Yes	-36	0.74	0.0354	ut-t	↓ : -	-0.492	Yes	0.0742	14	Pearson
Cs+ IC solution	E/I (%)	Caudal	dlPAG	85.22	5.43	54	Yes	66.63	8.57	11	Yes			0.0826	ut-t	- : -	-0.174	No	0.4274	23	Spearman
Cs+ IC solution	E/I (%)	Intermedial	dlPAG	94.06	5.58	47	Yes	76.69	6.53	22	Yes	-18	0.48	0.0485	ut-t	↓ : -	0.443	No	0.0658	18	Spearman
Cs+ IC solution	E/I (%)	Rostral	dlPAG	110.58	9.72	33	No	81.88	5.63	20	Yes	-26	0.61	0.0317	MW	↓ : -	0.060	Yes	0.8179	17	Pearson
Cs+ IC solution, TTX	E/I in presence of TTX(%)	Caudal	dlPAG	98.93	12.13	32	No	112.82	19.17	6	Yes			0.4448	MW	- : -	-0.304	No	0.1805	21	Spearman
Cs+ IC solution, TTX	E/I in presence of TTX(%)	Intermedial	dlPAG	106.72	11.75	31	No	88.00	8.61	15	Yes			0.7282	MW	- : -	0.464	No	0.0813	15	Spearman
Cs+ IC solution, TTX	E/I in presence of TTX(%)	Rostral	dlPAG	101.72	14.56	16	Yes	77.05	7.78	10	Yes			0.1492	ut-t	- : -	-0.222	No	0.4456	14	Spearman
Cs+ IC solution	TTX effect for E/I (%)	Caudal	dlPAG	6.96	8.94	23	Yes	58.26	25.84	5	Yes			0.1195	ut-t	- : ↓	-0.448	Yes	0.0477	20	Pearson
Cs+ IC solution	TTX effect for E/I (%)	Intermedial	dlPAG	0.75	11.23	18	Yes	12.35	12.42	12	Yes			0.4950	ut-t	- : -	0.235	No	0.4183	14	Spearman
Cs+ IC solution	TTX effect for E/I (%)	Rostral	dlPAG	10.66	11.37	15	Yes	4.75	8.14	9	Yes			0.2823	ut-t	- : -	-0.393	No	0.1640	14	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Frequency (Hz)	Caudal	dlPAG	1.31	0.26	30	No	0.37	0.21	16	No	-72	0.76	0.0063		↓ : ↑	0.604	No	0.0062	19	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Frequency (Hz)	Intermedial	dlPAG	1.50	0.37	15	Yes	0.16	0.08	9	No	-89	1.16	0.0029		↓ : -	0.088	Yes	0.7967	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Frequency (Hz)	Rostral	dlPAG	0.62	0.16	18	Yes	0.01	0.00	5	No	-98	1.03	0.0011		↓ : -	-0.079	No	0.7808	15	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Amplitudes (pA)	Caudal	dlPAG	16.17	0.76	30	Yes	16.26	1.54	13	Yes			0.9592		- : -	0.167	No	0.4953	19	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Amplitudes (pA)	Intermedial	dlPAG	17.49	1.30	15	Yes	20.06	5.04	7	Yes			0.6364		- : -	-0.082	Yes	0.8098	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Amplitudes (pA)	Rostral	dlPAG	15.79	1.08	18	Yes	16.75		1						: -	0.032	No	0.9095	15	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Bases (pA)	Caudal	dlPAG	50.34	8.35	27	Yes	32.92	9.04	11	Yes			0.1684		- : ↑	0.605	Yes	0.0061	19	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Bases (pA)	Intermedial	dlPAG	92.37	19.18	11	Yes	12.35	17.11	5	Yes	-87	1.39	0.0086		↓ : -	0.219	Yes	0.5171	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Bases (pA)	Rostral	dlPAG	56.13	10.32	15	Yes									: -	-0.046	Yes	0.8721	15	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Integral (pA*ms)	Caudal	dlPAG	92.13	11.32	27	No	78.9247	17.72	11	No			0.5376		- : -	0.118	No	0.6318	19	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Integral (pA*ms)	Intermedial	dlPAG	94.03	21.20	11	Yes	38.8044	9.999	4	0	-59	0.88	0.0351		↓ : -	-0.201	Yes	0.5543	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Integral (pA*ms)	Rostral	dlPAG	218.68	92.72	15	No									: -	0.211	No	0.4510	15	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Centroid (ms)	Caudal	dlPAG	3.10	0.40	27	No	2.81734	0.29	11	Yes			0.5764		- : -	-0.124	Yes	0.6118	19	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Centroid (ms)	Intermedial	dlPAG	2.59	0.36	11	Yes	1.73491	0.4308	4	0			0.1693		- : -	-0.357	Yes	0.2810	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Centroid (ms)	Rostral	dlPAG	4.15	0.76	15	Yes									: -	0.086	No	0.7613	15	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Rise time $_{20-90\%}$ (ms)	Caudal	dlPAG	0.97	0.07	30	Yes	0.84993	0.0847	13	Yes			0.274		- : -	0.122	Yes	0.6175	19	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Rise time $_{20-90\%}$ (ms)	Intermedial	dlPAG	0.82	0.09	15	Yes	0.76367	0.1347	7	Yes			0.7487		- : -	-0.405	Yes	0.2164	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Rise time $_{20-90\%}$ (ms)	Rostral	dlPAG	0.97	0.10	18	Yes	0.995								: -	-0.259	Yes	0.3506	15	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Decay time to 50% (ms)	Caudal	dlPAG	1.33	0.18	30	No	1.37873	0.2894	13	Yes			0.8949		- : -	0.002	Yes	0.9931	19	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Decay time to 50% (ms)	Intermedial	dlPAG	1.66	0.30	15	Yes	1.9966	0.7373	7	Yes			0.679		- : -	-0.266	Yes	0.4299	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Decay time to 50% (ms)	Rostral	dlPAG	2.21	0.43	18	No	5.30667								: -	0.325	Yes	0.2367	15	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau of monoexp. decay (ms)	Caudal	dlPAG	4.75	0.49	30	Yes	4.49104	0.7849	10	Yes			0.7824		- : -	-0.024	Yes	0.9229	19	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau of monoexp. decay (ms)	Intermedial	dlPAG	4.40	0.73	15	Yes	2.82868	0.6423	5	Yes			0.1276		- : -	0.407	Yes	0.2138	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau of monoexp. decay (ms)	Rostral	dlPAG	5.99	1.21	18	Yes	5.09823								: -	-0.285	Yes	0.3027	15	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau norm. to capacity (ms/pF)	Caudal	dlPAG	0.15	0.03	27	No	0.27403	0.1343	8	No			0.4074		- : -	-0.167	No	0.4953	19	Spearman
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau norm. to capacity (ms/pF)	Intermedial	dlPAG	0.10	0.02	11	Yes	0.07905	0.0361	3				0.6626		- : -	-0.248	Yes	0.4621	11	Pearson
Cs+ IC solution, TTX, BMI	Gly-mIPSC, Tau norm. to capacity (ms/pF)	Rostral	dlPAG	0.18	0.04	15	Yes									: -	0.352	Yes	0.1981	15	Pearson
Cs+ IC solution	Frequency of BMI sensetive mIPSCs (Hz)	Caudal	dlPAG													: -	-0.043	Yes	0.8610	19	Pearson
Cs+ IC solution	Frequency of BMI sensetive mIPSCs (Hz)	Intermedial	dlPAG													: -	-0.065	Yes	0.8500	11	Pearson
Cs+ IC solution	Frequency of BMI sensetive mIPSCs (Hz)	Rostral	dlPAG													: -	0.209	No	0.4738	14	Spearman

Table S1. Age dependency of electrophysiologic parameters in PAG slices and their correlation with playfulness. Related to Figure 2.