Supplemental Figure Captions

Figure S1. T_2-weighted MRI images of control and ethanol-exposed fetuses at G85

Following rigid-body transformation to a G85 T_2-weighted brain template, T_2-weighted images of (a) control and (b) ethanol-exposed fetal brains are shown for the a sagittal and a coronal slice. No gross anomalies were found in the ethanol-exposed fetuses. Scale bar in a = 10 mm.

Figure S2. T_2-weighted MRI images of control and ethanol-exposed fetuses at G110

Following rigid-body transformation to a G110 T_2-weighted brain template, T_2-weighted images of (a) control and (b) ethanol-exposed fetal brains are shown for the a sagittal and a coronal slice. Significantly enlarged lateral ventricles (red arrow heads) were found in one (F10283) of the ethanol-exposed fetuses. Scale bar in a = 10 mm.

Figure S3. T_2-weighted MRI images of control and ethanol-exposed fetuses at G135

Following rigid-body transformation to a G135 T_2-weighted brain template, T_2-weighted images of (a) control and (b) ethanol-exposed fetal brains are shown for the a sagittal and a coronal slice. Significantly enlarged lateral ventricles (red arrow heads) were found in one (F10290) of the ethanol-exposed fetuses. Scale bar in a = 10 mm.

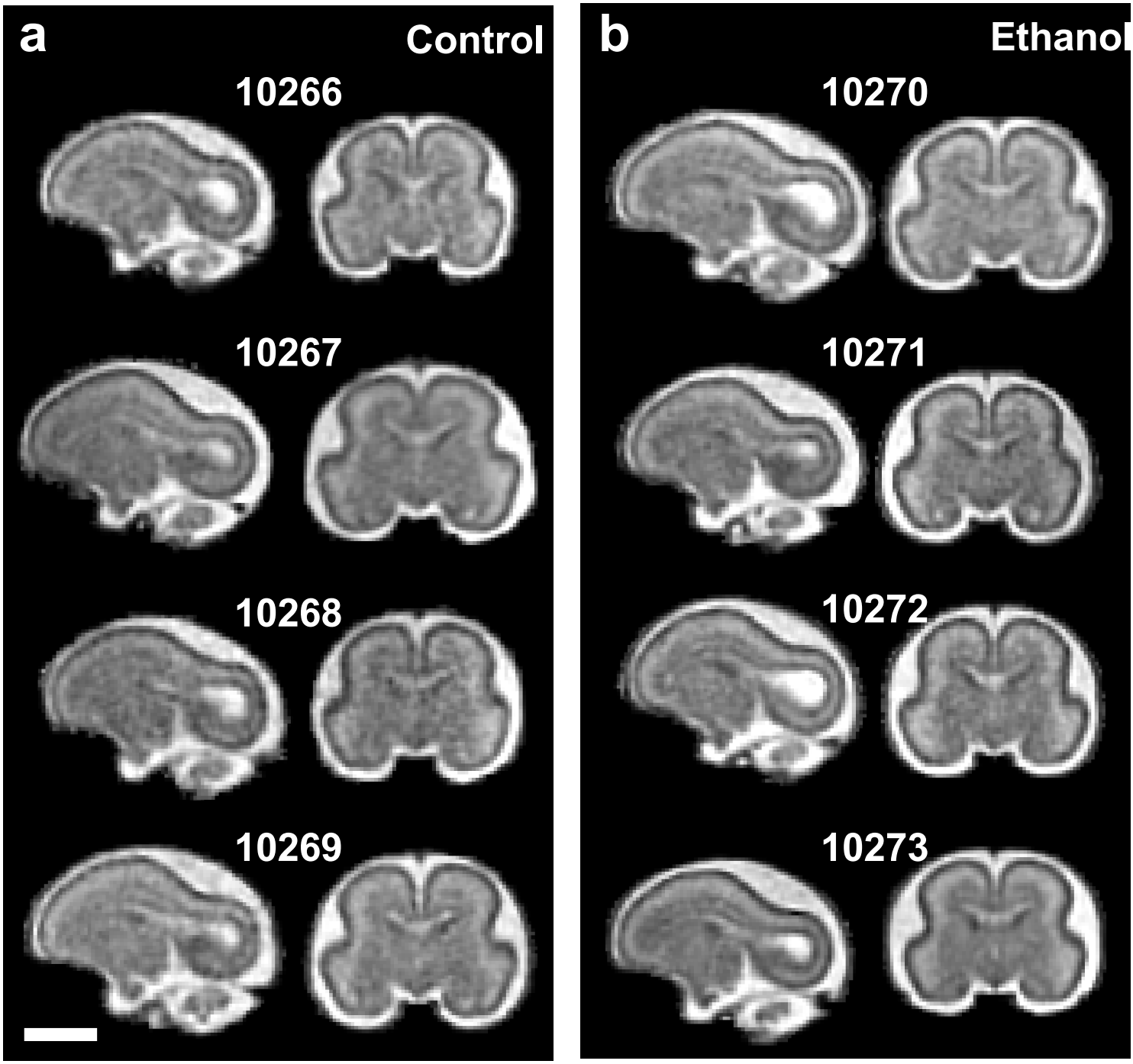
a
Control
10266
10267
10268
10269
b
Ethanol
10270
10271
10272
10273

Figure S1

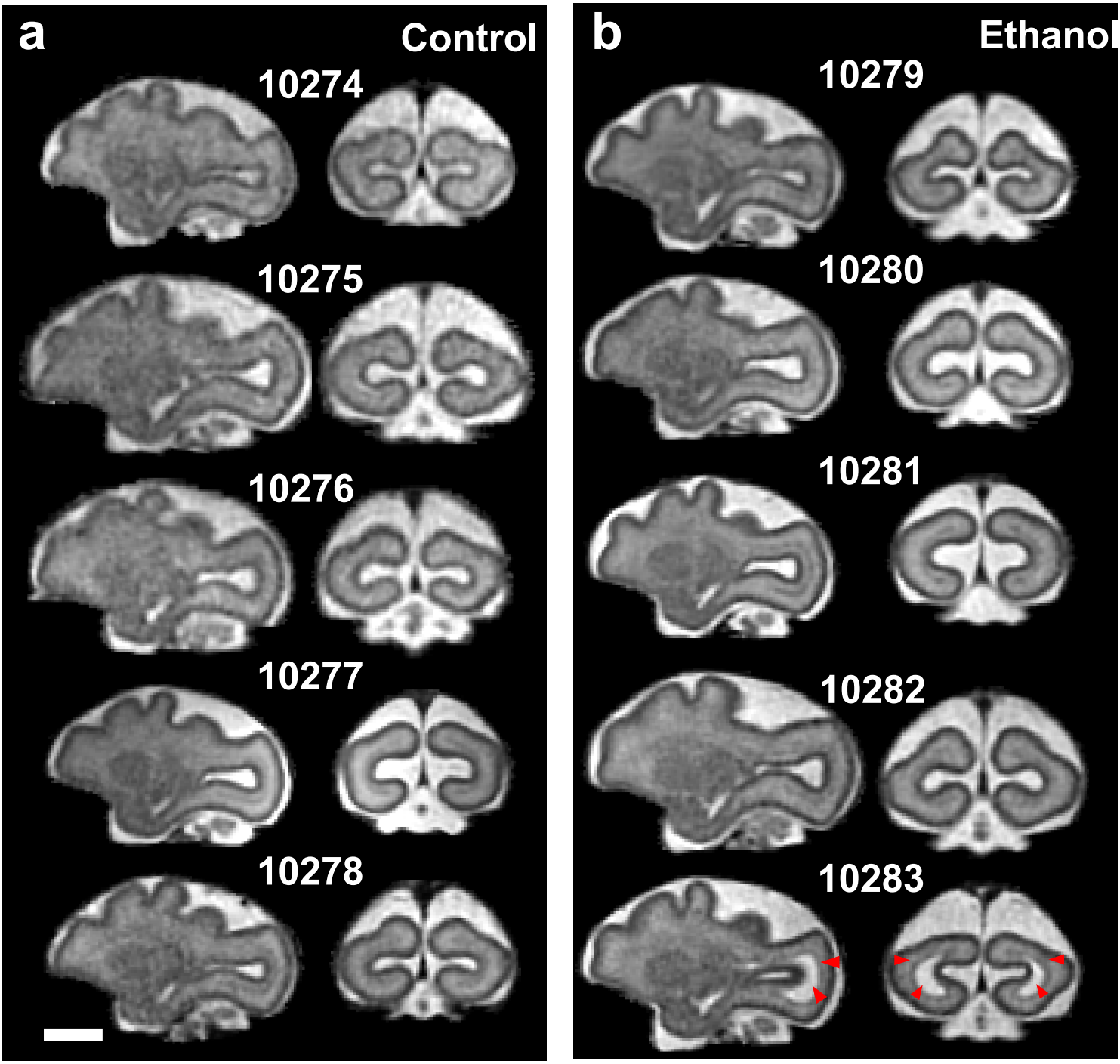
a
Control
10274
10275
10276
10277
10278
b
Ethanol
10279
10280
10281
10282
10283

Figure S2

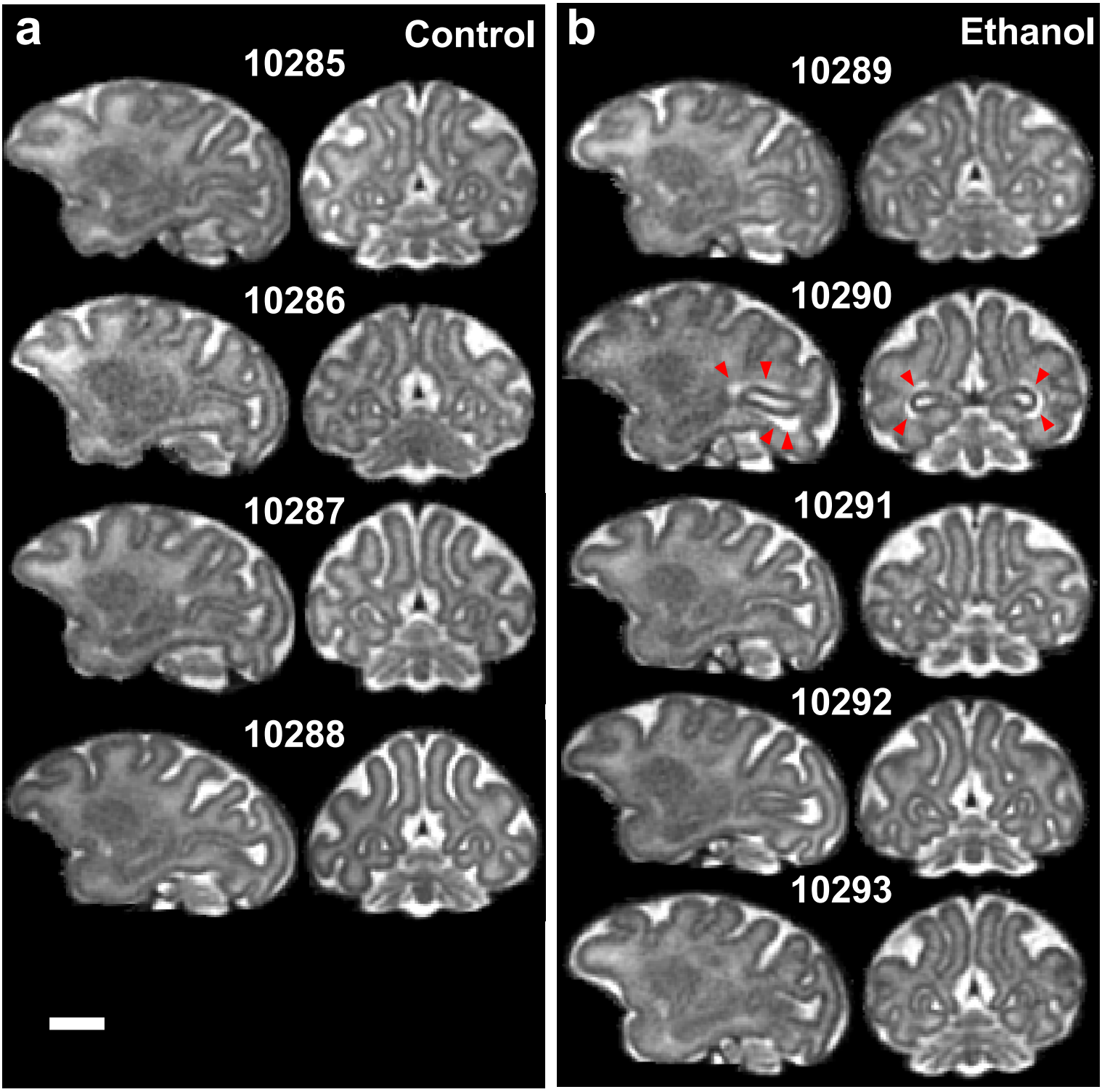
a
Control
10285
10286
10287
10288
b
Ethanol
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Figure S3

Table S1. ROI-based volumetric comparisons at G85

Structures	Control	Ethanol
Cortical Plate	2.49 ± 0.29	2.39 ± 0.20
Subplate & IZ	3.90 ± 0.39	3.87 ± 0.38
Striatum	0.16 ± 0.02	0.15 ± 0.01
Thalamus	0.31 ± 0.03	0.30 ± 0.03
Brainstem	0.45 ± 0.03	0.45 ± 0.03
Cerebellum	0.19 ± 0.03	0.18 ± 0.01
Whole brain	8.05 ± 0.82	7.88 ± 0.74

Table S2. ROI-based volumetric comparisons at G110

	Control	Ethanol
Cortical Plate	8.07 ± 1.48	8.24 ± 1.07
White Matter	9.36 ± 0.95	9.40 ± 1.30
Striatum	0.61 ± 0.07	0.63 ± 0.07
Thalamus	0.69 ± 0.06	0.73 ± 0.07
Brainstem	0.81 ± 0.08	0.83 ± 0.09
Cerebellum	0.71 ± 0.10	0.68 ± 0.08
Whole brain	20.72 ± 2.6	21.05 ± 2.67

Table S3. ROI-based group comparisons of FA at G110.

ROI	Control	Ethanol
CC	0.49 ± 0.12	0.49 ± 0.10
ALIC	0.28 ± 0.06	0.29 ± 0.04
PLIC	0.34 ± 0.08	0.34 ± 0.06
AC	0.29 ± 0.09	0.30 ± 0.02
Fornix	0.32 ± 0.06	0.35 ± 0.02
CST	0.30 ± 0.08	0.29 ± 0.07
SCP	0.27 ± 0.05	0.27 ± 0.06
MCP	0.30 ± 0.11	0.28 ± 0.04

Table S4. Pearson's correlation coefficients and associated p-values between BEC and MRI-derived metrics at G85.

Volumes	r	p
Cortical Plate	-0.32	0.44
Subplate & IZ	-0.19	0.65
Striatum	-0.34	0.40
Thalamus	-0.39	0.34
Brainstem	-0.25	0.56
Cerebellum	-0.34	0.41
Whole brain	-0.25	0.55

Table S5. Pearson's correlation coefficients and associated p-values between BEC and MRI-derived metrics at G110.

Volumes	r	p
Cortical Plate	0.23	0.52
White Matter	0.17	0.63
Striatum	0.32	0.36
Thalamus	0.56	0.10
Brainstem	0.35	0.31
Cerebellum	0.07	0.86
Whole brain	0.26	0.47
FA	**r**	**p**
CC	0.092	0.80
ALIC	0.21	0.57
PLIC	0.048	0.90
AC	0.25	0.49
Fornix	0.42	0.23
CST	0.084	0.82
SCP	0.028	0.94
MCP	-0.071	0.84

Table S6. Pearson's correlation coefficients and associated p-values between BEC and MRI-derived metrics at G135.

Volumes	r	p
Cortical Plate	-0.40	0.30
White Matter	-0.56	0.12
Striatum	-0.20	0.60
Thalamus	**-0.70**	**0.03**
Brainstem	**-0.67**	**0.05**
Cerebellum	-0.57	0.11
Whole brain	-0.61	0.08
FA	**r**	**p**
CC	**-0.77**	**0.02**
AC	-0.65	0.06
ALIC	**-0.71**	**0.03**
PLIC	**-0.74**	**0.02**
Fornix	-0.65	0.06
CST	**-0.84**	**0.004**
SCP	**-0.70**	**0.04**
MCP	-0.63	0.07
EC	-0.62	0.08
PTR	-0.46	0.21
Cereb.Ped.	-0.58	0.10

Table S7. Pearson's correlation coefficients and associated p-values between white matter FA and sEPSC frequencies recorded from the SS, putamen, and caudate.

	SS sEPSC Frequency		**Putamen sEPSC Frequency**		**Caudate sEPSC Frequency**	
	r	p	r	p	r	p
CC	0.40	0.37	0.0059	0.99	0.45	0.31
ALIC	0.47	0.29	0.29	0.48	0.32	0.48
PLIC	0.54	0.20	0.13	0.76	0.42	0.34
AC	-0.019	0.97	0.34	0.41	-0.074	0.87
Fornix	0.68	0.10	0.29	0.48	0.61	0.14
CST	0.35	0.45	-0.062	0.88	0.13	0.78
SCP	0.38	0.40	0.31	0.45	0.10	0.83
EC	0.57	0.18	0.045	0.92	0.51	0.24
PTR	0.45	0.31	0.29	0.49	0.70	0.077
Cereb. Ped.	0.46	0.30	0.29	0.48	0.34	0.45
MCP	0.50	0.26	0.50	0.21	0.37	0.41

Table S8. Pearson's correlation coefficients and associated p-values between white matter FA and sIPSC amplitudes recorded from the SS, putamen, and caudate.

	SS sIPSC Amplitude		**Putamen sIPSC Amplitude**		**Caudate sIPSC Amplitude**	
	r	p	r	p	r	p
CC	0.29	0.53	0.062	0.88	-0.45	0.30
ALIC	0.44	0.32	0.019	0.96	-0.57	0.18
PLIC	0.42	0.35	0.060	0.89	-0.61	0.24
AC	0.35	0.44	-0.017	0.97	-0.57	0.18
Fornix	0.69	0.085	0.67	0.068	0.30	0.52
CST	0.43	0.33	0.023	0.96	-0.30	0.51
SCP	0.40	0.38	0.11	0.80	-0.50	0.26
EC	0.20	0.67	-0.16	0.71	-0.65	0.11
PTR	0.12	0.80	0.051	0.90	-0.59	0.16
Cereb. Ped.	0.42	0.35	0.077	0.86	-0.62	0.14
MCP	0.59	0.16	0.32	0.45	-0.47	0.29

Table S9. Pearson's correlation coefficients and associated p-values between white matter FA and sIPSC frequencies recorded from the SS, putamen, and caudate.

	SS sIPSC Frequency		Putamen sIPSC Frequency		Caudate sIPSC Frequency	
	r	p	r	p	r	p
CC	0.40	0.37	0.0059	0.99	0.16	0.73
ALIC	0.47	0.29	0.29	0.48	0.44	0.32
PLIC	0.55	0.20	0.13	0.76	0.38	0.40
AC	-0.019	0.97	0.34	0.41	0.078	0.87
Fornix	0.68	0.10	0.29	0.48	0.49	0.27
CST	0.35	0.45	-0.062	0.88	0.029	0.95
SCP	0.38	0.40	0.31	0.45	0.15	0.74
EC	0.57	0.18	0.045	0.92	0.36	0.42
PTR	0.45	0.31	0.29	0.49	0.56	0.19
Cereb. Ped.	0.46	0.30	0.30	0.48	0.47	0.29
MCP	0.50	0.26	0.50	0.21	0.61	0.14