Supplementary Material

Motor and non-motor effects of acute MPTP in adult zebrafish: insights into Parkinson's disease

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Supplementary Tables

Supplementary Table S1. List of primers used for qPCR

Gene	ZFIN Acc number	GenBank Acc number	Sequence		Amplicon length
comtb	ZDB-GENE-040724-164	NM 001083843	FW RV	5'-ACTCGACCACAGCGTCTGCT 5'-AGCCCATTCGCGGTGTCTGC	108 bp
dbh	ZDB-GENE-990621-3	NM_001109694	FW RV	5'-TGCAACCAGTCCACAGCGCA 5'-GCTGTCCGCTCGCACCTCTG	156 bp
mao	ZDB-GENE-040329-3	NM_212827.3	FW RV	5'-GCAGTCAGAGCCCGAATC 5'-CACACCCATAAACTTGAGGAATC	106 bp
ppiaa	ZDB-GENE-030131-8556	NM_212758.1	FW RV	5'-GGGTGGTAATGGAGCTGAGA 5'-AATGGACTTGCCACCAGTTC	179 bp
slc6a3	ZDB-GENE-010316-1	NM_131755	FW RV	5'-AGACATCTGGGAAGGTGGTG 5'-ACCTGAGCATCATACAGGCG	151 bp
th1	ZDB-GENE-990621-5	NM_131149.1	FW RV	5'-GACGGAAGATGATCGGAGACA 5'-CCGCCATGTTCCGATTTCT	95 bp
th2	ZDB-GENE-050201-1	NM_001001829.1	FW RV	5'-CTCCAGAAGAGAATGCCACATG 5'-ACGTTCACTCTCCAGCTGAGTG	110 bp
vmat2	ZDB-GENE-080514-1	NM_001256225.2	FW RV	5'-TGGAGCTCTGCAGCTTTTTGTGC 5'-AACGCCGGCTCCAGCATAGC	159bp

Supplementary Table S2. Profile of catecholaminergic neurochemicals in the brain of control and MPTP-treated (3 x 150 mg/kg bw. i.p.) adult zebrafish. Concentrations of each chemical are presented in pg/mg brain.

	Tyrosine	L-DOPA	Dopamine	3-MT	DOPAC	NE	Normetanephrine
Control 1	67022.9	63.9	197.2	1806.8	797.8	797.8	147.2
Control 2	54473.0	62.2	232.0	5377.9	737.0	737.0	123.2
Control 3	49449.5	55.2	128.3		443.5	443.5	64.2
Control 4	56601.2	93.3	92.3	3977.1	733.9	733.9	61.7
Control 5	58532.3	69.1	72.9	10537.1	549.5	549.5	90.4
Control 6	47763.3	66.9	138.5	1611.8	545.5	545.5	103.5
MPTP 1	40720.9	35.9	80.4	4191.4	203.9	203.9	40.9
MPTP 2	14080.8	43.8	157.5	2350.5	161.2	161.2	34.9
MPTP 3	25739.2	24.1	73.6	2125.0	176.2	176.2	27.0
MPTP 4	61788.2	27.2	65.5	1077.5	178.4	178.4	29.4

Supplementary Table S3. Expression profile of tyrosine hydroxilases (*th1* and *th2*), monoamine oxidase (*mao*). catechol-O-methyltransferase b (*comtb*), dopamine-β-hydroxilase (*dbh*), dopamine transporter (*slc6a3*), and vesicular monoamine transporter (*slc18a2*) in the brain of control (CN) and MPTP-treated (3 x 150 mg/kg bw. i.p) adult zebrafish. Housekeeping: *ppia*

	Cps								**Log2 ΔΔCT values**						
	ppia	***th1***	***th2***	***mao***	***comtb***	***dbh***	***slc6a3***	***slc18a2***	***th1***	***th2***	***mao***	***comtb***	***dbh***	***slc6a3***	***slc18a2***
CN 1	27.06	30.44	33.77	29.05	31.93	31.20	33.83	32.34	-0.2252	-0.0333	-0.8139	0.0269	0.8443	0.0848	0.0956
CN 2	23.31	27.62	29.78	24.90	28.90	29.28	30.14	29.53	-1.1619	0.2033	-0.4272	-0.6998	-0.9991	0.0181	-0.8511
CN 3	24.09	27.71	29.30	25.90	29.06	29.29	30.86	29.62	-0.4719	1.4633	-0.6439	-0.0698	-0.2191	0.0815	-0.1544
CN 4	24.77	28.71	31.41	26.04	29.96	30.17	32.24	30.64	-0.7885	0.0267	-0.1039	-0.2965	-0.4257	-0.6252	-0.5011
CN 5	26.03	28.50	33.68	27.31	31.53	30.99	32.67	31.55	0.6848	-0.9767	-0.1139	-0.5998	0.0209	0.2115	-0.1478
CN 6	26.91	29.86	34.57	28.01	31.40	31.88	35.30	32.82	0.1981	-0.9933	0.0694	0.4035	0.0009	-1.5452	-0.5378
CN 7	24.47	27.71	30.29	25.61	29.59	30.00	31.41	30.08	-0.0852	0.8617	0.0328	-0.2148	-0.5441	-0.0835	-0.2261
CN 8	27.06	29.58	36.07	27.05	31.47	30.96	32.31	30.96	0.7515	-2.2167	1.2994	0.6069	1.1976	1.7181	1.6006
CN 9	25.72	27.77	30.73	26.19	29.77	30.57	32.43	30.37	1.0981	1.6650	0.7011	0.8435	0.1243	0.1398	0.7222
MPTP1	24.55	28.17	33.64	26.87	30.16	30.52	33.43	31.83	-0.3469	-2.2917	-1.0222	-0.5881	-0.8674	-1.9102	-1.7761
MPTP2	26.93	30.87	34.11	27.99	31.34	32.58	34.78	33.30	-0.6435	-0.3583	0.2544	0.6352	-0.5307	-0.8535	-0.8494
MPTP3	27.30	30.72	32.48	29.07	31.72	33.00	38.58	31.93	-0.0885	1.6767	-0.4239	0.6569	-0.5457	-4.2485	0.9222
MPTP4	24.42	28.03	30.36	25.05	29.12	30.08	30.80	30.18	-0.3269	0.8650	0.6778	0.3319	-0.5474	0.6065	-0.2461
MPTP5	27.03	30.32	34.63	29.07	32.27	32.39	33.90	32.69	-0.1419	-0.9267	-0.8706	-0.3431	-0.3791	-0.0219	-0.2878
MPTP6	23.44	26.60	27.03	24.52	28.66	28.40	29.55	28.59	-0.0085	3.0767	0.0894	-0.3265	0.0176	0.7315	0.2256
MPTP7	24.73	27.61	30.05	25.31	29.13	30.20	32.11	29.88	0.2681	1.3550	0.5861	0.4935	-0.4957	-0.5302	0.2272
MPTP8	24.99	28.04	30.73	26.15	29.58	30.48	31.76	30.21	0.0981	0.9300	0.0111	0.3035	-0.5157	0.0748	0.1572
MPTP9	24.17	**27.93**	29.47	26.40	29.91	29.81	31.03	30.14	-0.6085	1.3733	-1.0556	-0.8381	-0.6574	-0.0119	-0.5894

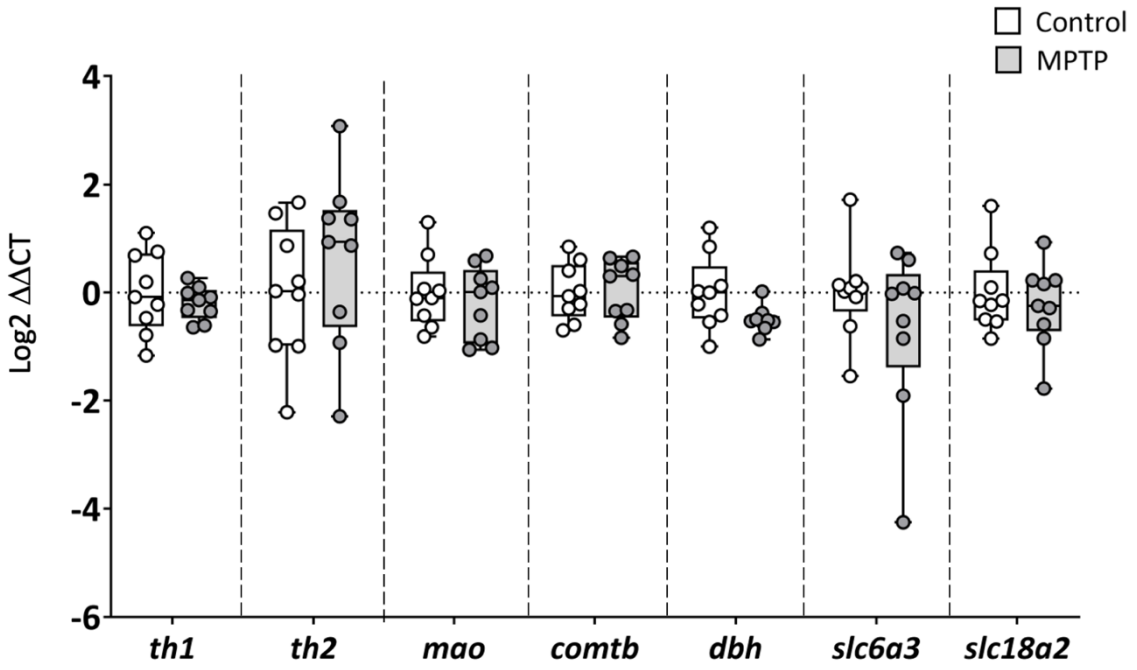
Supplementary Table S4. Total distance (cm) traveled by control (CN) and MPTP-treated adult zebrafish during 10 min in the Open Field Test.

	24 h after 2 injections		24 h after 3 injections		48 after 3 injections		72h after 3 injections	
	CN	**MPTP**	**CN**	**MPTP**	**CN**	**MPTP**	**CN**	**MPTP**
Experiment 1	11457	5916.04	10272	2144.05	11644.4	7573.58	9577.08	7845.81
	11445.5	7622.22	7784.6	5471.1	9429.78	6326.11	1994.51	6202.84
	8449.84	5121.86	7205.8	4533.66	10007.6	5575.54	6929.35	1504.26
	4483.68	6858.85	5150.56	3496.95	5551.1	4142.13	11346.2	5347.85
	9173.25	206.765	3490.72	2083.46	4456.72	2083.46	11335.2	5690.13
	7416.4	6810.54	5062.15	1485.7	6651.91	2656.02	6789.87	6880.86
	9096.61	3820.29	779.785	1363.66	8859.41	9626.02	4602.62	6947.76
	6565.92	3400.06	6418.05	426.496	7803.55	6340.5	946.571	3654.49
	8238.54	9530.59	2272.33	3173.06	5121.75	3625.98	5244.75	
	13265.5	5358.7	10914.8	2664.76	12077.8	3041.11	9943.07	
	5146.65	6744.8	3194.63	281.349	2922.58	6827.76	6516.81	
	8951.4	3955.79	8569.94	1034.96	9382.08	1362.59	4364.12	
Experiment 2	5675.27	3722.17	2249.45	3997.08				
	7517.75	995.825	8627.51	462.057				
	2425.48	4094.66	8290.66	5290.09				
	709.945	2282.33	3000.9	7597.6				
	1425.58	7361.5	1697.26	4834.35				
	4700	939.423	8981.55	4361.31				
	7400.25	2524.18	7421.97	5466.52				
	8354.26	2645.85	5078.52	3909.52				
	5196.97	1821.76	6305.51	1584.34				
	7258.97	598.637	7193.4	3185.02				
	3950	2995.88	4171.94					
	7868.69		6832.07					

Supplementary Table S5. Kinematic parameters of the C-bend during the acoustic startle response in control and MPTP-treated adult zebrafish

Latency (ms)		Duration (ms)		Curvature (°)		Angular velocity (average, °/ms)		Angular velocity (maxima, °/ms)	
Control	MPTP	Control	MPTP	Control	MPTP	Control	MPTP	Control	MPTP
11	10	11	11	100.23	106.39	9.11	9.67	15.85	19.68
10	11	48	12	120.81	96.25	2.52	8.02	28.69	20.95
11	12	11	14	103.13	118.47	9.38	8.46	17.78	18.75
12	11	10	13	94.45	111.15	9.44	8.55	16.17	18.21
10	11	9	89	79.78	120.93	8.86	1.36	15.7	24.95
10	12	14	11	113.53	96.15	8.11	8.74	16.61	16.85
10	10	39	17	148.62	119.2	3.81	7.01	17.06	18.26
10	11	8	15	69.66	118.47	8.71	8.94	19.48	17.53
12	10	12	12	133.88	114.32	11.16	9.53	22.75	18.39
10	10	90	11	108.87	95.85	1.21	8.71	166.82	16.9
13	11	8	9	71.38	83.71	8.92	9.3	17.61	16.53
10	11	14	13	100.67	108.07	7.19	8.31	16.01	16.75
10	10	13	12	92.67	97.06	7.13	8.09	16.8	16.68
10	12	10	7	70.76	65.34	7.08	9.33	12.49	12.82
10	10	10	12	68.39	124.32	6.84	10.36	15.66	24.92
11	10	13	13	162.42	98.43	12.49	7.57	68.99	15.35
9	10	12	89	92.87	123.04	7.74	1.38	20.56	20.76
10	10	9	11	87.41	99.37	9.71	9.03	20.06	16.62
10	10	10	12	85.32	125.66	8.53	10.47	15.52	18.08
10	13	15	9	87.17	71.67	5.81	7.96	13.29	21.67
11	10	8	14	65.03	113.76	8.13	8.13	20.88	16.05
12	10	12	65	97.85	132.38	8.15	2.04	24.64	17.07
12	10	88	10	75.67	101.57	8.13	10.16	146.03	16.02
10	11	15	11	121.94	94.51	8.13	8.59	16.54	15.95
10	12	11	12	111.06	82.21	10.1	6.85	22.65	21.58
11	14	12	7	101.02	59.04	8.42	8.43	18.48	20.59
12	11	10	9	107.24	87.21	10.72	9.69	21.59	18.44
11	11	12	41	82.91	171.45	6.91	4.18	12.13	22.32
10	11	14	13	110.98	120.01	7.93	9.23	15.02	16.44
11	13	13	26	107.56	131.97	8.27	5.08	13.92	14.73
11	9	11	12	108.16	91.23	9.83	7.6	19.65	14.42
10	10	13	16	101.34	161.71	7.8	10.11	21.02	21.16
9	12	16	12	107.98	100.93	6.75	8.41	14.33	14.86
10	10	8	10	69.62	82.49	8.7	8.25	19.78	14.78
11	10	8	11	66.45	101.72	8.31	9.25	16.32	25.07
8	13	12	14	87.95	100.06	7.33	7.15	15.9	11.96
10	10	9	39	88.99	87.44	9.89	2.24	19.38	20.57
10	8	8	13	84	117.27	10.5	9.02	21.38	21.69
9	11	14	20	96.25	153.05	6.88	7.65	14.49	16.38
10	10	14	11	164.67	76.72	11.76	6.97	18.02	15.65
10	10	8	12	107.62	125.79	13.45	10.48	20.79	17.51
10	11	12	15	112.32	116.19	9.36	7.75	17.95	14.24
14	9	9	18	59.12	107.02	6.57	5.95	16.43	19.73
10		9		104.45		11.61		18.41	
9		60		111.55		1.86		33.25	
9		11		98.06		8.91		20.04	
9		9		78.66		8.74		15.29	
9		55		123.17		2.24		30.82	
15		4		29.99		7.5		12.74	

Supplementary Figures



Supplementary Figure S1. No significant differences in the expression of catecholaminergic system-related genes 24 h after acute MPTP exposure (3 x 150 mg/kg bw, i.p.). Boxplot representation of ΔΔCt values, with the box indicating the 25th and 75th percentiles and the whiskers the maximum and minimum values and showing all data. The thin line within the box marks the mediane.