

				Behavioral testing			Body weight
Cohort	Sex	Genotype	Treatment	Hind-Limb Clapping	Object Exploration	Passive Avoidance	
1	M	+/Y	NO RUN	✓	-	✓	-
1	M	+/Y	NO RUN	✓	-	✓	-
1	M	+/Y	NO RUN	✓	-	✓	-
1	M	+/Y	NO RUN	✓	-	✓	✓
1	M	+/Y	NO RUN	✓	-	✓	✓
1	M	+/Y	NO RUN	✓	-	✓	✓
1	M	+/Y	NO RUN	✓	-	✓	✓
1	M	+/Y	NO RUN	✓	-	✓	✓
2	M	+/Y	NO RUN	✓	✓	✓	✓
2	M	+/Y	NO RUN	✓	✓	✓	✓
2	M	+/Y	NO RUN	✓	✓	✓	✓
3	M	+/Y	NO RUN	-	✓	✓	-
3	M	+/Y	NO RUN	-	✓ Outlier	✓	-
3	M	+/Y	NO RUN	-	✓	✓	-
3	M	+/Y	NO RUN	-	✓	✓	-
4	M	+/Y	NO RUN	✓	✓	✓	✓
4	M	+/Y	NO RUN	✓	✓	✓	✓
4	M	+/Y	NO RUN	✓	✓	✓	✓
5	M	+/Y	NO RUN	✓	✓	✓	✓
5	M	+/Y	NO RUN	✓	✓	✓	✓
5	M	+/Y	NO RUN	✓	✓	✓	✓
5	M	+/Y	NO RUN	✓	✓	✓	✓
1	M	-/Y	NO RUN	✓	-	✓	✓
1	M	-/Y	NO RUN	✓	-	✓	✓
1	M	-/Y	NO RUN	✓	-	✓	✓
1	M	-/Y	NO RUN	✓	-	✓	✓
2	M	-/Y	NO RUN	✓	✓	✓	✓
3	M	-/Y	NO RUN	-	✓	✓	-
3	M	-/Y	NO RUN	-	✓	✓	-
3	M	-/Y	NO RUN	-	✓	✓	-
3	M	-/Y	NO RUN	-	✓	✓	-
3	M	-/Y	NO RUN	-	✓	✓	-
3	M	-/Y	NO RUN	-	✓	✓	-
4	M	-/Y	NO RUN	✓	✓ Outlier	✓	✓
4	M	-/Y	NO RUN	✓	✓	✓	✓
4	M	-/Y	NO RUN	✓	✓	✓	✓
6	M	-/Y	NO RUN	✓	✓	✓	✓
6	M	-/Y	NO RUN	✓	✓	✓	✓
6	M	-/Y	NO RUN	✓	✓	✓	✓
4	M	+/Y	RUN	✓	✓	✓	✓
4	M	+/Y	RUN	✓	✓	✓	✓
4	M	+/Y	RUN	✓	✓	✓	✓
4	M	+/Y	RUN	✓	✓	✓	✓
5	M	+/Y	RUN	✓	✓	✓	✓
5	M	+/Y	RUN	✓	✓	✓ Outlier	✓
5	M	+/Y	RUN	✓	✓	✓	✓
5	M	+/Y	RUN	✓ Outlier	✓	✓	✓
1	M	-/Y	RUN	✓	-	-	✓
1	M	-/Y	RUN	✓	-	-	✓
1	M	-/Y	RUN	✓	-	-	✓
1	M	-/Y	RUN	✓	-	✓	✓
2	M	-/Y	RUN	✓	✓	✓	✓
2	M	-/Y	RUN	✓	✓	✓	✓
2	M	-/Y	RUN	✓	✓ Outlier	✓	✓
2	M	-/Y	RUN	✓	✓	✓	✓
6	M	-/Y	RUN	✓	✓	✓	✓
6	M	-/Y	RUN	✓	✓	✓	✓
6	M	-/Y	RUN	✓	✓	✓	✓
6	M	-/Y	RUN	✓	✓	✓	✓

Table S1. Mouse cohorts used for behavioral tests. For each mouse cohort (1-6) used in the present study: genotype (wild type: +/Y or *Cdkl5* KO: -/Y), type of treatment (sedentary: NO RUN or runner: RUN) and type of behavioral test (performed: ✓ or not performed: -) are reported.