

	C diet	LP diet
Casein (g/kg)	230	69
DL-Methionine (g/kg)	3	0.9
Sucrose (g/kg)	431.7	571.8
Corn starch (g/kg)	200	200
Corn oil (g/kg)	52.3	53.9
Cellulose (g/kg)	37.86	57.82
Vitamin mix (g/kg)	10	10
Ethoxyquin (g/kg)	0.01	0.01
Mineral mix (g/kg)	13.37	13.37
Calcium phosphate (g/kg)	16.66	21.6
Calcium carbonate (g/kg)	5.1	1.6
Total energy from protein (kcal/g)	1.0962	0.3294
Total energy from carbohydrate (kcal/g)	2.5256	3.0996
Total energy from fat (kcal/g)	0.5115	0.5115
Total energy (kcal/g)	4.1333	3.9405
Metabolizable energy from protein (kcal/g)	0.8208	0.247
Metabolizable energy from carbohydrate (kcal/g)	2.4852	3.0552
Metabolizable energy from fat (kcal/g)	0.494	0.4978
Metabolizable energy (kcal/g)	3.8	3.8

Table S1. Composition of control (C) and low protein (LP) diets.

	C	LC-P	LP
	Protein intake (g/d)		
E0.5-E9.5	0.652 ±0.100	0.602 ±0.005	0.190 ±0.027
E10.5-Birth	0.758 ±0.083	0.633 ±0.029	0.265 ±0.025
P1-P10	1.151 ±0.496	0.887 ±0.084	0.325 ±0.047
P11-P18	1.486 ±0.194	1.299 ±0.067	0.441 ±0.068
	Carbohydrate intake (g/d)		
E0.5-E9.5	1.977 ±0.305	1.828 ±0.015	2.353 ±0.334
E10.5-Birth	2.299 ±0.250	1.92 ±0.089	3.289 ±0.310
P1-P10	3.493 ±0.150	2.692 ±0.255	4.033 ±0.582
P11-P18	4.510 ±0.589	3.943 ±0.203	5.459 ±0.843
	Fat intake (g/d)		
E0.5-E9.5	0.177 ±0.027	0.163 ±0.001	0.171 ±0.024
E10.5-Birth	0.205 ±0.022	0.171 ±0.008	0.239 ±0.023
P1-P10	0.311 ±0.013	0.24 ±0.023	0.293 ±0.042
P11-P18	0.403 ±0.053	0.352 ±0.018	0.397 ±0.061
	Energy intake (kcal/d)		
E0.5-E9.5	12.198 ±1.881	11.277 ±0.094	11.828 ±1.679
E10.5-Birth	14.184 ±1.545	11.8465 ±0.549	16.531 ±1.558
P1-P10	21.546 ±0.928	16.604 ±1.574	20.273 ±2.923
P11-P18	27.826 ±3.635	24.323 ±1.250	27.442 ±4.237

Table S2. Daily intake of macronutrients and metabolizable energy for each experimental group (C: control; LC-P: low calorie protein; LP: low protein). Means and SD are indicated.

	C	LC-P	LP
Olfactory bulbs	0.279 ± 0.009	0.271 ± 0.015	0.262 ± 0.022
Cerebellum	0.233 ± 0.014	0.227 ± 0.010	0.225 ± 0.013
Corpus callosum	0.340 ± 0.026	0.334 ± 0.038	0.306 ± 0.027
Midbrain	0.256 ± 0.020	0.257 ± 0.015	0.242 ± 0.009
Lateral ventricles	0.251 ± 0.013	0.258 ± 0.010	0.244 ± 0.022
Striatum	0.242 ± 0.012	0.247 ± 0.015	0.219 ± 0.014
Cortex	0.223 ± 0.012	0.219 ± 0.010	0.211 ± 0.006
Hypothalamus	0.246 ± 0.016	0.256 ± 0.017	0.237 ± 0.016
Third ventricle	0.216 ± 0.013	0.213 ± 0.016	0.211 ± 0.016
Hippocampus	0.239 ± 0.011	0.241 ± 0.008	0.225 ± 0.011
Thalamus	0.283 ± 0.018	0.287 ± 0.012	0.258 ± 0.012
Fimbria	0.278 ± 0.027	0.297 ± 0.051	0.283 ± 0.051

Table S3. FA in each ROI per group. Mean ± SD are presented.

Region	Cell composition			Cell density		
	Total cell number	Neurons number	Non-neurons number	Total cell density	Neurons density	Non-neurons density
	t (p-value)	t (p-value)	t (p-value)	t (p-value)	t (p-value)	t (p-value)
Olfactory bulbs	1.093 (0.510)	-0.363 (0.882)	1.452 (0.312)	0.969 (0.451)	-0.093 (0.967)	1.522 (0.277)
Cortex	3.196 (0.025)	-1.014 (0.562)	4.889 (0.005)	1.690 (0.451)	-2.134 (0.098)	3.101 (0.050)
Rest	0.779 (0.551)	-0.882 (0.882)	1.209 (0.312)	-1.171 (0.451)	-2.535 (0.070)	-0.283 (0.802)
Cerebellum	3.785 (0.015)	4.154 (0.010)	-1.061 (0.312)	-0.743 (0.451)	-0.042 (0.967)	-2.140 (0.140)
Hippocampus	0.550 (0.593)	-1.375 (0.493)	-1.198 (0.312)	-1.101 (0.451)	-2.845 (0.070)	-0.257 (0.802)

Table S4. t-test results for comparisons of cell number and density between C and LP. P-values, shown in parentheses, are corrected for multiple comparisons (FDR).

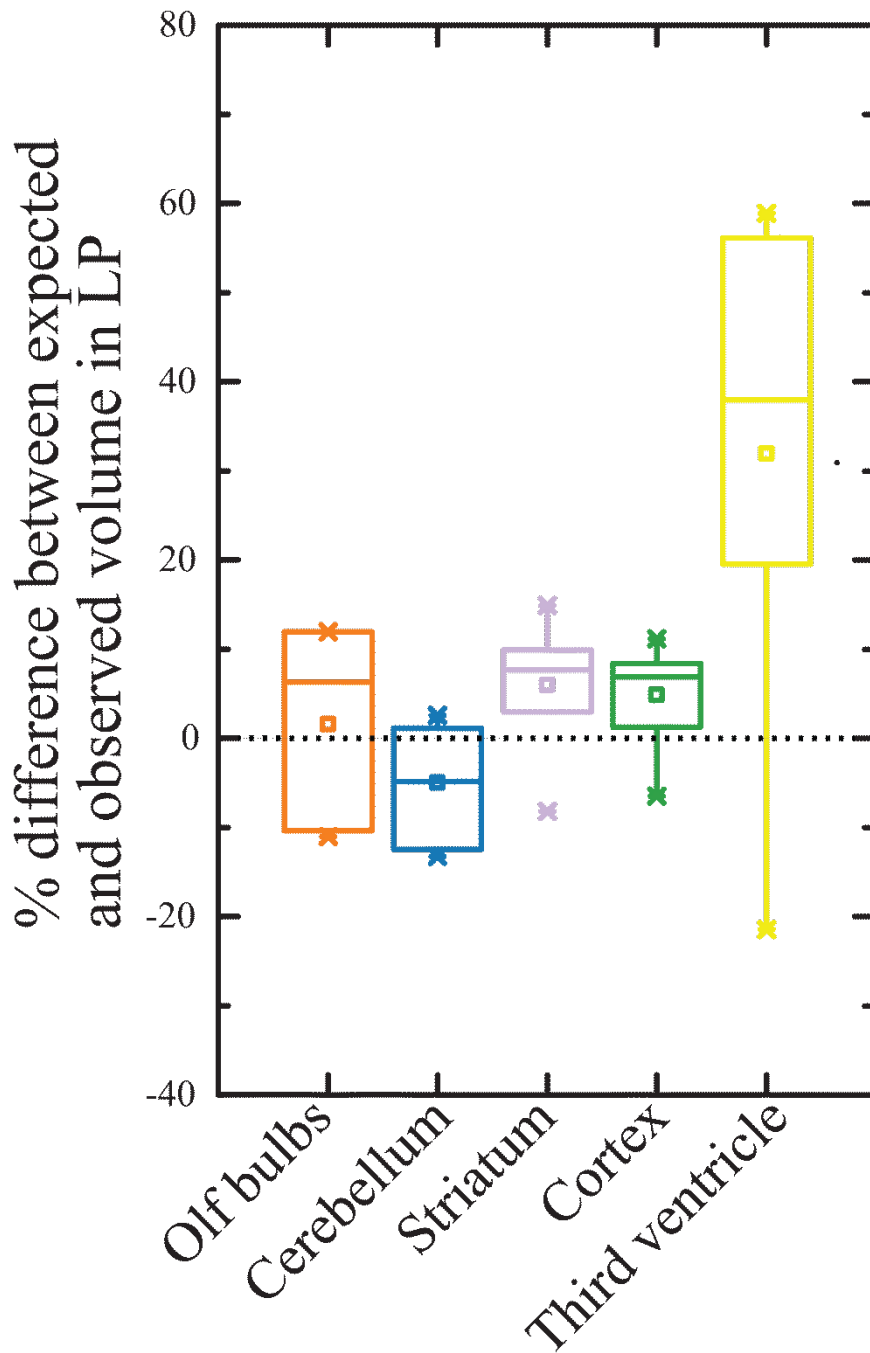


Figure S1. Volume difference (%) between expected values (for a given brain volume in C conditions) and the observed values in LP specimens.

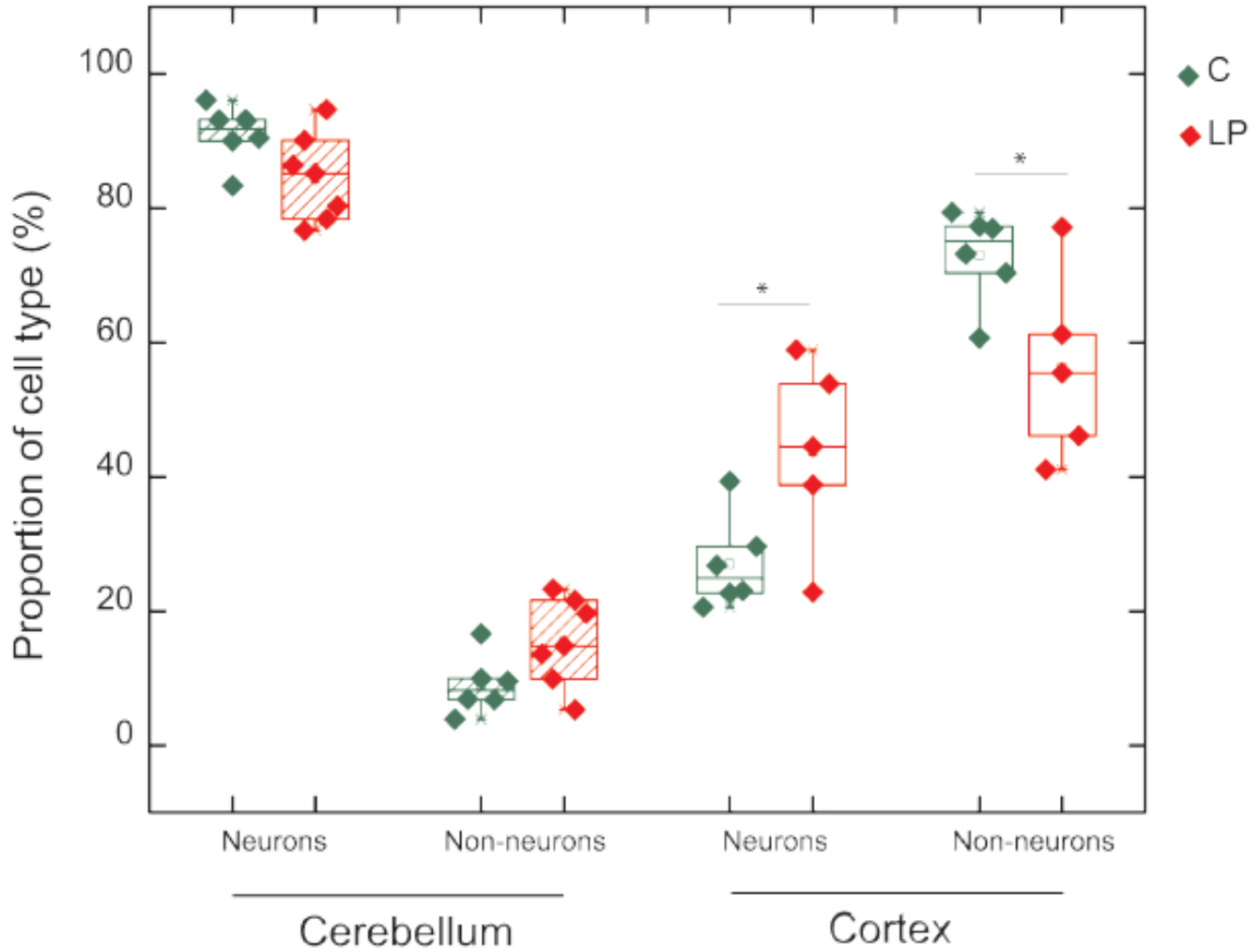


Figure S2. Box-plot showing the proportion of neuron and non-neuron cells for the cortex and the cerebellum. Significant differences between groups after t-test are depicted ** $p < 0.01$, * $p < 0.05$.