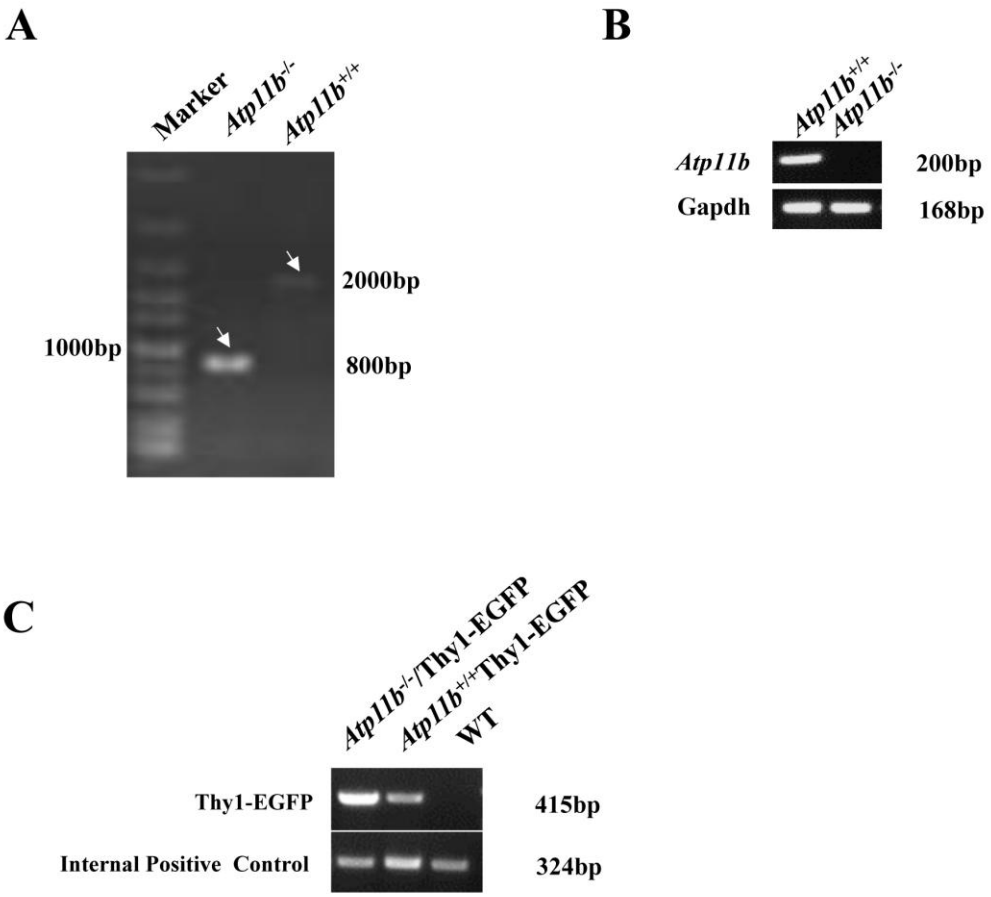
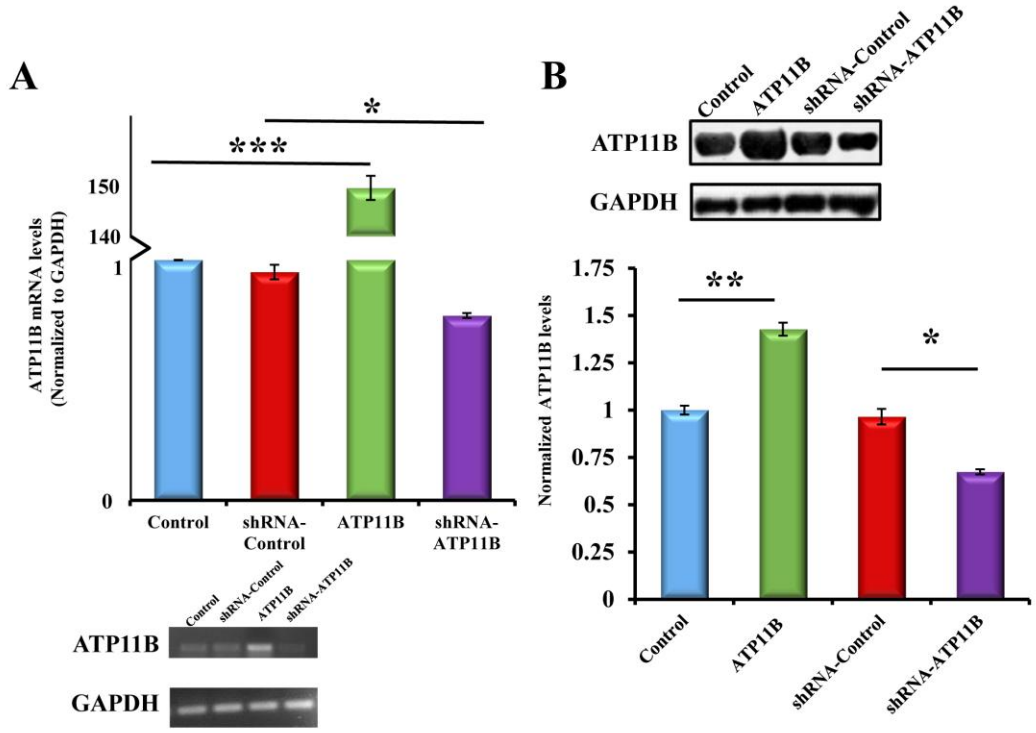


Supplementary Figure S1. The generation of *Atp11b*-knockout mice.

(A) Verification of exon 13–15 deletion at the genomic level by PCR (primer P5/P6). Presence of an 800-bp band and lack of a 2000-bp band indicate removal of exons 13–15 from the genomic DNA. (B) RT-PCR analysis of ATP11B expression. The absence of an ATP11B fragment confirms the gene of *Atp11b* was successfully knockout. (C) *Atp11b*$^{-/-}$/Thy1-EGFP mice were identified by PCR (primer PT upstream/PT downstream and primer PI upstream/PI downstream), with the presence of a 415-bp band and an internal positive control of a 324-bp band. The primer sequences are shown in Supplementary Table S1.



Supplementary Figure S2. Overexpression and knockdown of the *Atp11b* gene in primary hippocampal neurons.

(A) The mRNA expression level of *Atp11b* was assessed by qPCR in primary hippocampal neurons with the following four groups: Control, ATP11B overexpression (ATP11B), shRNA-Control, and ATP11B silencing (shRNA-ATP11B). GAPDH was used as the internal control. Bottom: the qPCR products were separated on the agarose gel. (B) The protein expression level of ATP11B was assessed by Western blotting in primary hippocampal neurons in the following four groups: Control, ATP11B overexpression (ATP11B), shRNA-Control, and ATP11B silencing (shRNA-ATP11B), showing successful overexpression and knockdown of ATP11B protein in primary hippocampal neurons. Bottom: the statistical analysis of the data that are expressed as a percentage of the control relative to GAPDH after background subtraction. Data are expressed as the mean ± SEM. One-way ANOVA; $*P < 0.05$, $**P < 0.01$, $***P < 0.001$.

Table S1: List of primers used for verification of genotype

Gene name	Primer sequence (5’ to 3’)
P5	CATTGAGAGAGATGCTTTCC
P6	TGACAACAGGTTCCCTCAG
Thy1-EGFP (PT)	Upstream : ACAGACACACACCCAGGACA
	Downstream : CGGTGGTGCAGATGAACTT
Internal Positive Control	Upstream : CTAGGCCACAGAATTGAAAGATCT
(PI)	Downstream : GTAGGTGGAAATTCTAGCATCATCC