Degeneration and energy shortage in the suprachiasmatic nucleus underlies the circadian rhythm disturbance in ApoE$^{-/-}$ mice, implications for Alzheimer's disease
Lan Zhou, **Qian Gao**, **Meng Nie**, **Jing-Li Gu**, **Wei Hao**, **Lin Wang and Ji-Min Cao**
Figure S1

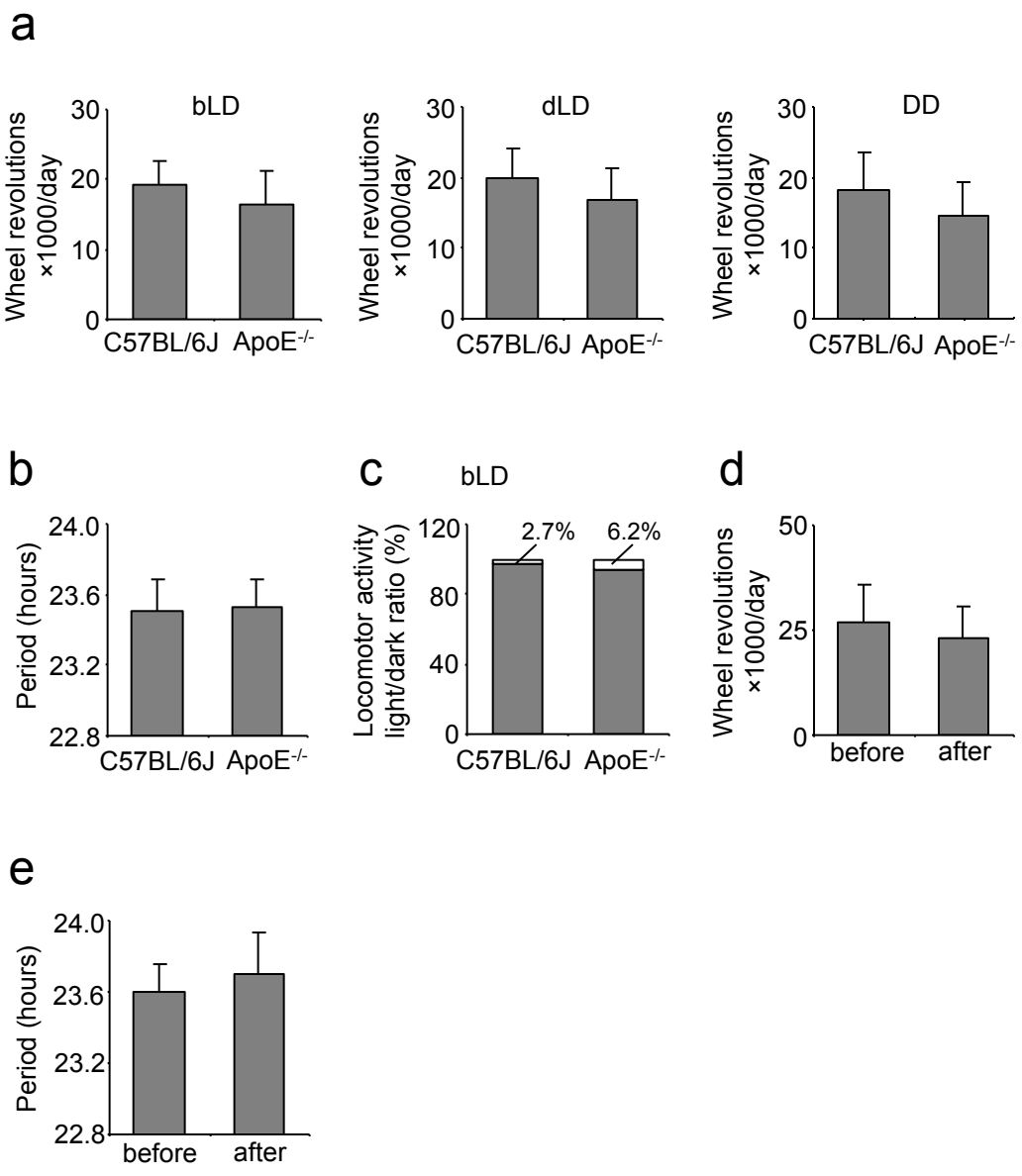

Fig. S1 The free running period and total wheel running activity of ApoE$^{-/-}$ and C57BL/6J mice. **(a)** Total wheel running activity of ApoE$^{-/-}$ and C57BL/6J mice under three lighting conditions. (**b)** The free running period under the DD condition of ApoE$^{-/-}$ and C57BL/6J mice. **(c)** The wheel running activity light/dark ratio in ApoE$^{-/-}$ versus C57BL/6J mice under the bLD condition. **(d,e)** The total wheel running activity and the free running period were not altered after light pulse. In all the experiments, n = 6 for both ApoE$^{-/-}$ and C57BL/6J mice.

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Figure S2

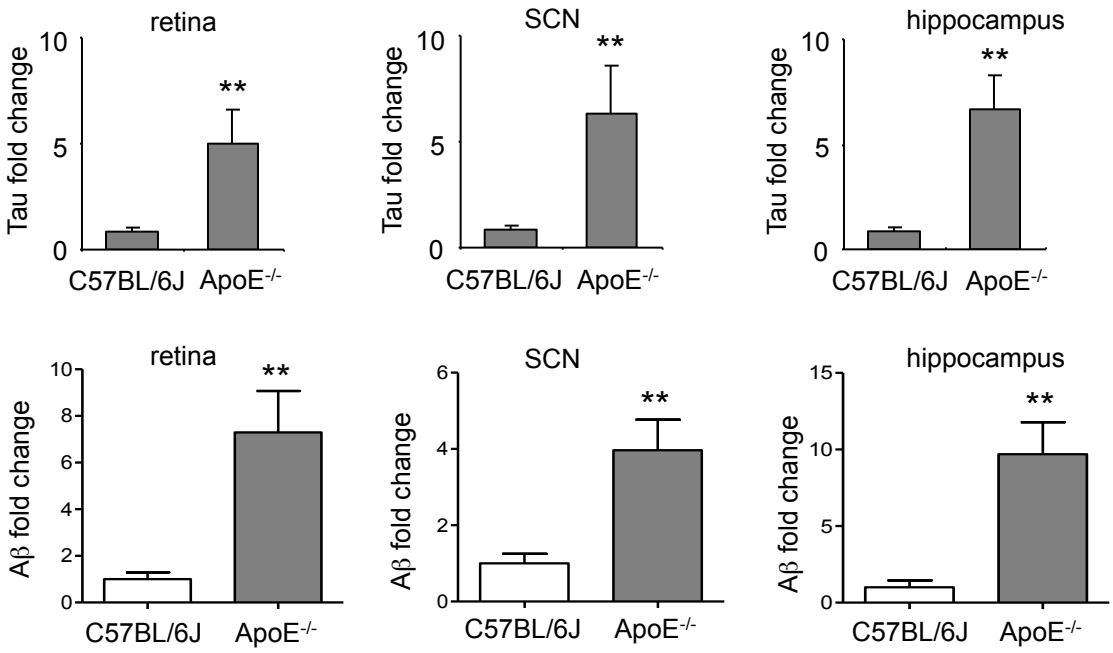

Fig. S2 Quantitation of immunohistochemistry staining of Aβ and tau in the SCN, hippocampus and retina in ApoE$^{-/-}$ and C57BL/6J mice (n = 6, ** indicates P < 0.01)

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Figure S3

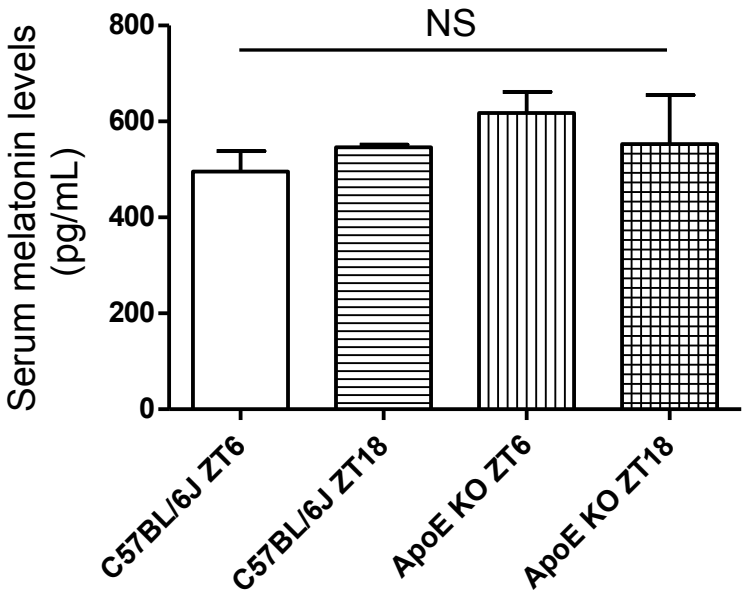

Fig. S3 Serum melatonin levels of ApoE$^{-/-}$ and C57BL/6J mice.
Bar graph shows the mean ± SD of serum melatonin levels of the two strains measured by ELISA at ZT6 and ZT18 (n = 6). Student t-test was performed to confirm that there was no statistical significance between the two strains or between the two ZT points within a strain. NS: not statistically significant.

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Figure S4

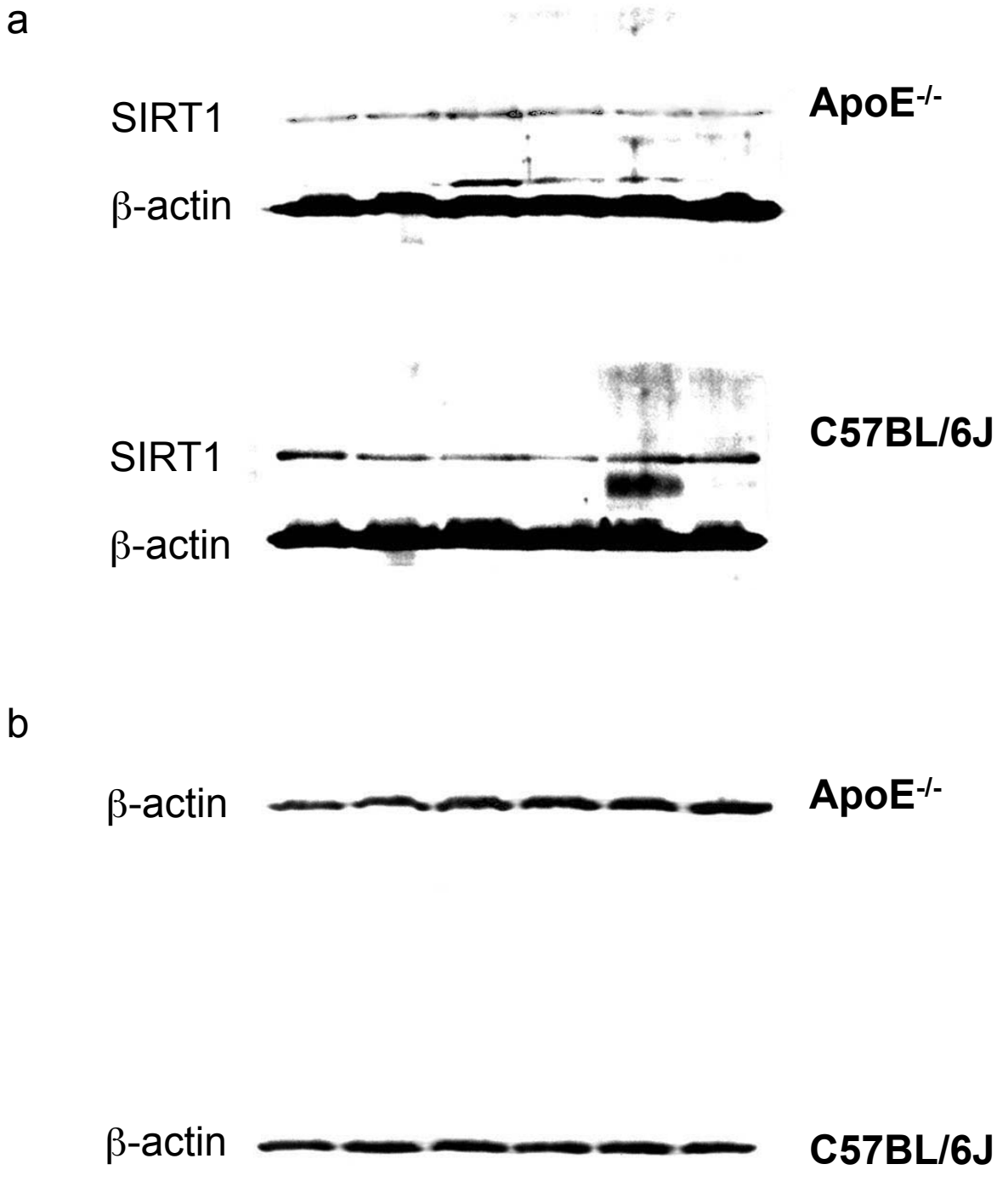

Fig. S4 The full-length blots for SIRT1 and β-actin from ApoE$^{-/-}$ and C57BL/6J SCN.
The images of SIRT1 and β-actin after ECL detection were captured using ImageQuant LAS 4000 mini and a series of exposures were taken. A long (a) and short (b) exposure are shown. Some bands appear none specific. Only the bands with the relevant molecule size were cropped and presented in Fig. 5.

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Figure S5

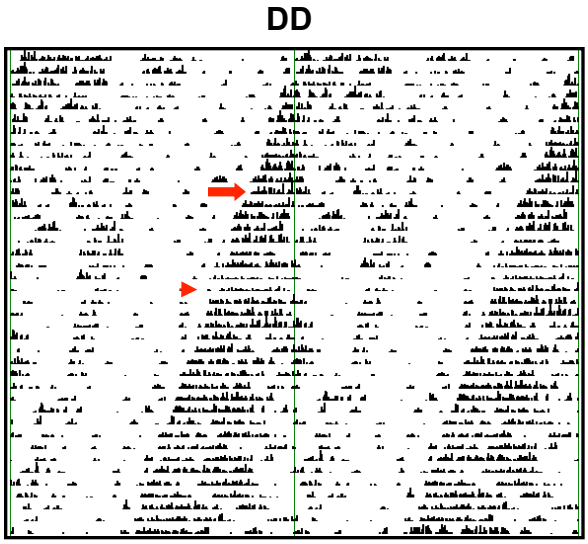

Fig. S5 Glucose supplementation was unable to reverse the CRDs in ApoE$^{-/-}$ mice under the DD condition.

Representative actograph showing the wheel-running activity of ApoE$^{-/-}$ mice fed with regular chow, then switched to regular chow containing 1% of glucose (w/w) for 7 days and finally switched back to regular chow (the start of the treatment indicated by solid arrow and the end of the treatment indicated by arrowhead).

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Figure S6

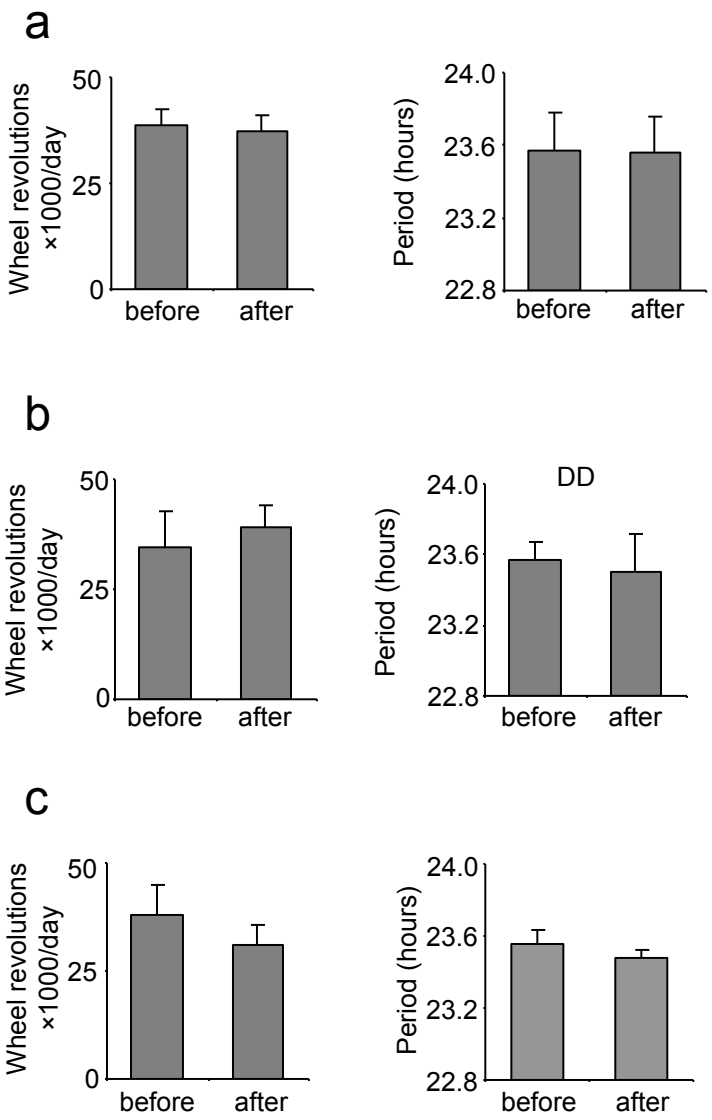

Fig. S6 Total running activities and free running period of ApoE$^{-/-}$ mice after fat or KB supplementation or intraperitoneal administration of nicotinamide.
Oral supplementation with fat **(a)** or KB **(b)** or intraperitoneal administration of nicotinamide **(c)** did not alter total wheel running activities and free running period of ApoE$^{-/-}$ mice (n = 6 for both ApoE$^{-/-}$ and C57BL/6J mice).