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***Supplemental Fig1: Effects of Bmal1 Ablation on Long Bone Growth during Embryogenesis.*** (A) A schematic model depicting tamoxifen administration schedule during embryogenesis. The blue arrow indicated the time point of tamoxifen administration at E13.5. The red arrow below the timer shaft indicated the harvest time at E18.5. (B) Image of BMAL1flox/flox and BMAL1CKO embryos at E18.5 and their body length was measured and shown at right (n=5/group). (C) The length of femur, tibia, humerus and vertebra L1-L5 were measured at E18.5 (n=5/group). (D) The whole tibias section of BMAL1flox/flox and BMAL1CKO littermate embryos were stained by HE. The PZ, HZ and bone area was respectively shown by red, blue and green bars. Scale bars=100μm. (E) HE staining of tibia growth plate of BMAL1flox/flox and BMAL1CKO littermate embryos at E18.5 and the growth plate zone heights were quantitatively analyzed, respectively. Scale bars=100μm. (F) Immunohistochemistry with antibody to Col10a in the tibia growth plate of BMAL1flox/flox and BMAL1CKO littermate embryos (E18.5). Scale bars=200μm. (G) The body weight of BMAL1flox/flox and BMAL1CKO littermate mice were measured from birth to 6 weeks age, respectively (n=10/group). Data are expressed as means ± SE in each bar graph. PZ = proliferative zone; HZ = hypertrophic zone.

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***Supplemental Fig2: Rhythmic Gene Expression in the Cultured Primary Chondrocytes.*** The protein expression of Bmal1, HIF1α, Runx2 and MMP13 in BMAL1flox/flox and BMAL1CKO chondrocytes was measured at 4-hour intervals for 24 hours by Western blot (A) and the quantification of protein expression were also shown (B). The protein level was normalized to Actin. Data are expressed as means ± SE in each bar graph. *\*p* < 0.05.