Supplementary information

Co-regulation of circadian clock genes and microRNAs in bone metabolism

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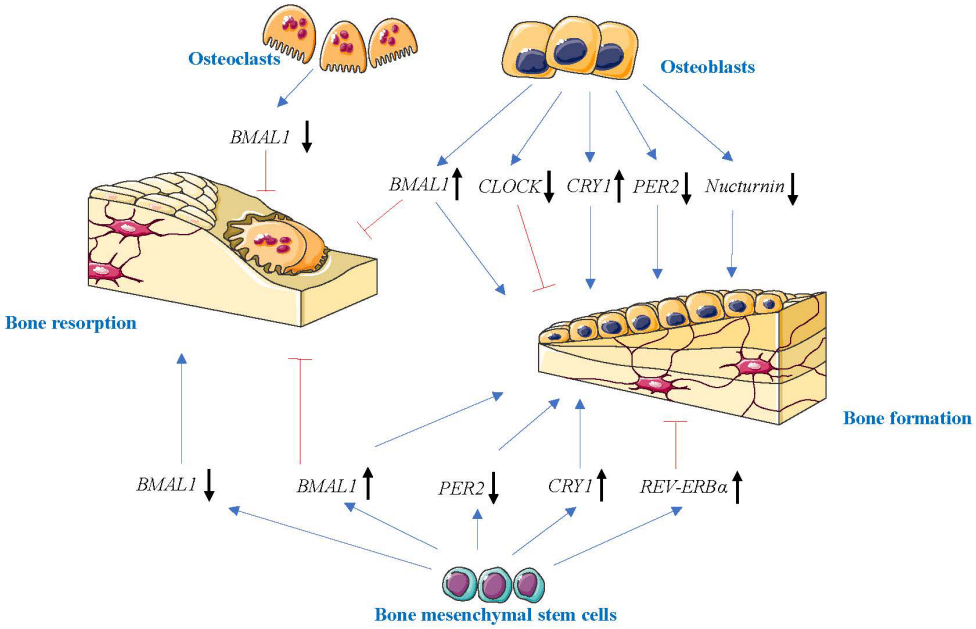

Fig. S1 Schematic representation of circadian clock genes regulating bone metabolism. BMAL1: brain and muscle aryl hydrocarbon receptor nuclear translocator (ARNT)-like 1; CLOCK: circadian locomotor output cycles kaput; CRY1: cryptochrome 1; PER2: period 2; *REV-ERBα*: nuclear receptor subfamily 1 group D 1 (*NR1D1*).

Table S1 Regulatory role of some miRNAs in bone metabolism

MicroRNA	Target	Description	Reference
miR-214	ALP/PTEN	Promotes osteoclast activity	Sun YQ et al., 2019
miR-214	Oterix/ATF4/PTEN/ β-catenin/FGFR1	Attenuates the osteogenic effects of mechanical loading on osteoblasts	Yuan et al., 2019
miR-378		Promotes osteogenesis-angiogenesis coupling	Zhang et al., 2018
miR-19b	PTEN	Increases bone formation	Sun et al., 2020
miR-96	SOST	Promotes osteoblast differentiation and bone formation	Ma et al., 2019
miR-148b-3p		Stimulates osteogenesis of hBMSC	Mollazadeh et al., 2019
miR-181a/b-1		Enhances osteogenesis	Zheng et al., 2019
miR-23a	BMPR1B	Inhibits osteogenesis of PDLSCs	Zhang et al., 2019
miR-1297	WNT5A	Accelerates the progression of osteoporosis	Wang et al., 2019
miR-155	LEPR	Inhibits osteoclast activation and bone resorption	Mao et al., 2019
miR-223	NF1A/FGFR2/IKKα	Regulates the differentiation of both osteoblasts and osteoclasts	Xie et al., 2015
miR-144-5p	Smad1	Reduces bone repair and regeneration	Zhang et al., 2021
miR-214-3p	ATF4	Inhibits osteoblastic bone formation	Li et al., 2016

ALP: alkaline phosphatase; ATF4: activating transcription factor 4; BMPR1B: bone morphogenetic protein receptor type 1B; FGFR: fibroblast growth factor receptor; hBMSC: human bone marrow stromal cells; IKKα: nuclear factor κB kinase subunit-α; LEPR: leptin receptor; NF1A: nuclear factor 1 A-type; PDLSCs: periodontal mesenchymal stem cells; PTEN: phosphatase and tensin homolog; Smad1: SMAD family member 1; SOST: sclerostin; WNT5A: Wnt family member 5A.

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