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Fibroblast clocks

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Mammalian circadian clocks are regulated by a series of interacting positive and negative transcription-translation feedback loops in the hypothalamic suprachiasmatic nucleus (SCN). In the April 13 Science, Yagita *et al*. describe an *in vitro* model system that resembles the molecular oscillator in the SCN (*Science* 2001, **292:**278-281). Cultured fibroblasts exhibit cycling circadian gene expression when stimulated with the vasocontracting peptide endothelin-1. Endothelin-1 induced cycling phases of expression of the mammalian clock genes *per1* and *per2*, the cryptochrome gene *Cry1*, and the transcriptional activator *Bmal1*. Experiments with embryonic fibroblasts derived from mice lacking both mCry1andmCry2 genes showed that the *mCry* genes are essential for generating molecular rhythm in fibroblasts, as they are in the SCN clock. Thus, the periodic mRNA expression profiles of clock genes in fibroblasts display key features of an SCN-like timekeeper, providing a model system for exploring circadian rhythms *in vitro*.

References

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