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Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

Mammalian peripheral tissues have [circadian clocks](#) that keep time by generating daily rhythms of transcription. In an Advanced Online Publication in [Nature](#), Kai-Florian Storch and colleagues at [Harvard Medical School](#) report a comparative analysis of the circadian variation in gene expression in mouse liver and heart (21 April 2002, DOI 10.1038/nature744). They used oligonucleotide microarrays to follow changes in the expression of over 12,000 genes over a 24 hour period. They applied a filtering procedure to eliminate 'noise', including use of a set of 'guide genes' that are known to exhibit circadian regulation; this allowed them to zoom in on a subset of genes (575 in liver and 462 in heart) that appear to exhibit circadian oscillations. Storch *et al.* estimate that 8-10% of expressed genes show circadian regulation. When they compared the sets they found very little overlap, with only 52 genes being common to both tissues. [Gene ontology](#) analysis suggested that, despite the divergence, the clock-regulated genes might be involved in many related or overlapping processes. Genes in the core common set encode transcription factors, chromatin regulators, proteins of the ubiquitin pathway and several secreted factors. This study reveals the extent of circadian gene regulation in peripheral tissues and should lead to a better understanding of what drives daily behavior.

References

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