

Supplementary data

Table S1. The primers used in this study.

Primer name	Forward primer sequences (5'-3')	Reverse primer sequences (5'-3')
<i>AcCyc</i>	GCGATGCTGCCAGTGAAA	GGAGGGGGAATATCTTGTAG
<i>AcClk-1</i>	TCGAGAACCTGTCCCTTTGG	TGTCCAATCCTCCCCCTTTT
<i>AcClk-2</i>	AAAAGGGGAGGATTGGACA	CCACGGCTCTGATTTTGC
<i>AcClk-3</i>	GCAAAATCAGAGCCGTGG	CGCTAAAATACAAATGGTCCTC
qRT-PCR		
<i>qAcCyc</i>	GCAGAATCTCATAAAGCAGC	CTACAAGATATTCCCCCTCC
<i>qAcClk</i>	GGCACTTGACGGTTTCATAA	GGAAAGTGACCTAACAGGGAA
<i>RPL27</i>	TTCCGCGGTTGGAGTATGTG	ATTTCGGGCCAGCACTAGAA
<i>qAcPer</i>	GGACCTGGCAGCATTTCAT	TCGGTGGAGTTCCTGAAGATGA
<i>qAcTim</i>	TGAAACTAAGCCAACGGGAAAA	CCATAACCGCAATCTGAGG
<i>qAcJHAMT1</i>	TTCTGGGATAGATTTTAGGTATGGG	TTGCTGAAGCCTGGTGGTGA
<i>qAcJHAMT2</i>	CATAGGATGCGGGTCTG	TGGCTCTTGCCTAGTTT
<i>qAcJHAMT3</i>	TCCCACAAGTTGAACATAA	GAAAGAGCGGCTGAAA
<i>qAcVg</i>	TACCGTTGCTCACGCTGAAAGTCCA	TGGACTTTCAGCGTGAGCAACGGTA
<i>qAcMet</i>	GAAAGTGGACAAGACCT	GAAACAACCAATAGCAT
<i>qAcKr-h1</i>	CCAGCACCGCAGAAACC	CGTAAGGCGAGCAGGAA
RNAi experiment		
dsAcCyc	T7-TCACCACGACGGTCAAGGA	T7-GGGGCAGGAAACCAAGAAC
dsAcClk	T7-AAAAGGGGAGGATTGGACA	T7-CCACGGCTCTGATTTTGC
dsGFP	T7-CACAAGTTCAGCGTGTCGG	T7-AGTTCACCTTGATGCCGTTC

T7: (T7 promoter sequence for in vitro transcription of dsRNAs): GATCACTAATACGACTCACTATAGGG

Table S2. Information on the insects included in the phylogenetic analysis for Cycle and Clock.

Species	Unigene ID	Order
<i>Drosophila melanogaster</i>	NP_511126.2	Methoprene-tolerant
<i>Drosophila melanogaster</i>	AAC62234.1	Clock
<i>Arma chinensis</i>	This study	Clock
<i>Arma chinensis</i>	This study	Cycle
<i>Pyrrhocoris apterus</i>	XP_059609357.1	Clock
<i>Anastrepha fraterculus</i>	AQV08516.1	Clock
<i>Anabrus simplex</i>	XP_068082087.1	Clock
<i>Bemisia tabaci</i>	XP_018899499.1	Clock
<i>Cimex lectularius</i>	XP_014245918.1	Clock
<i>Halyomorpha halys</i>	XP_014282120.1	Clock
<i>Laodelphax striatellus</i>	RZF36018.1	Clock
<i>Lutzomyia longipalpis</i>	XP_055688522.1	Clock
<i>Macrosteles quadrilineatus</i>	XP_054274274.1	Clock
<i>Nilaparvata lugens</i>	XP_039284971.1	Clock
<i>Phlebotomus argentipes</i>	XP_059609357.1	Clock
<i>Phlebotomus papatasi</i>	XP_055703322.1	Clock
<i>Riptortus pedestris</i>	BAN20981.1	Clock
<i>Cephus cinctus</i>	XP_015590608.1	Clock
<i>Chelonus insularis</i>	XP_034935432.1	Clock
<i>Frieseomelitta varia</i>	XP_043518506.1	Clock
<i>Phlebotomus argentipes</i>	XP_059609357.1	Clock
<i>Drosophila melanogaster</i>	NP_524168.2	Cycle
<i>Aethina tumida</i>	XP_019873821.1	Cycle
<i>Chrysoperla carnea</i>	XP_044733956.1	Cycle
<i>Chrysoperla nipponensis</i>	WAM46968.1	Cycle
<i>Cimex lectularius</i>	XP_024083958.1	Cycle
<i>Colletes gigas</i>	XP_043260315.1	Cycle
<i>Halyomorpha halys</i>	XP_024218927.1	Cycle

<i>Hylaeus volcanicus</i>	XP_053974749.1	Cycle
<i>Macrosteles quadrilineatus</i>	XP_054274439.1	Cycle
<i>Onthophagus taurus</i>	XP_022917457.1	Cycle
<i>Schistocerca americana</i>	XP_046997855.1	Cycle
<i>Schistocerca cancellata</i>	XP_049784787.1	Cycle
<i>Schistocerca gregaria</i>	XP_049827997.1	Cycle
<i>Schistocerca nitens</i>	XP_049811755.1	Cycle
<i>Tenebrio molitor</i>	XP_068918134.1	Cycle
<i>Tribolium castaneum</i>	XP_064212799.1	Cycle

Figure S1 The potential off-targets of dsAcCyc and dsAcClk were evaluated using "dsRIP". (A) All off-targets for dsAcClk. (B) All off-targets for dsAcCyc.

