

Drome-PER -----MEGGESTESTHNTKVSDS-----  
Tal-PER MVLGDHRTSNGSSCTQEAMEVLPKLEEAGNQSLPSGVPTDQHVSNSPPESQEDTAAASA  
Ep-PER -----MDTGTPHEDVPSE-----  
Peram-PER -----MEETATHNTKISDS-----

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Drome-PER -----AYSNSCSNSQSQRS-GSSKSRLSGSHSSGSSGYGK-PSTQASSSD  
Tal-PER IESDPEGRRQPQNGQDPTNPCSQADQGYGSTESSFNG-QSRKSSSYSGGSLTKSRNSG  
Ep-PER -----DHTLEEGDSKNPSCQQESAYGSLESSSNG-QSQKS----FGGSGSKSLNSG  
Peram-PER -----AYSNS-SNSQSQRSSGSSKSRHS--NSSGSSGYCGHSSIQSSNE

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Drome-PER -----MIKRNKDKSRKKKKNKGAGQGAGQAQTLISASTSLEGRDEEKPRPSGTGCVEQQ  
Tal-PER SSQSSGFGEQHKKDAHTASITSSDKESATRAPHIDTQHSNDGNTTEELTDNLAAISCKSKS  
Ep-PER SSHSSGFGDQNDFKG-----IHLHEAKHIALKKKKTGKGGEKVAEIPFQTASEAE  
Peram-PER PFPQPSVTKRNKDKHEKHKKLLKSSVTTAATATVTSVTVSEYTEHENGTSHMSLGVSGT

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Drome-PER ICRELQDQOHGEDHSEFQAIEQLQEEEEEDQSGSESEADRVEGV-----  
Tal-PER SSVGVDKLHDGAHYGSSTPREKRTKEQKLRDFKRKKVEESHYQTYDSFPRPESYSFAAA  
Ep-PER LSS-----KGNETEKEKETSLEESPAAKEEAIIE-----  
Peram-PER VVPLSGTVAEETEITEAGSEGSVISSHAGVALGAAGVVPATTPG-----

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Drome-PER -----  
Tal-PER AARASDLPDKHVENFTAPLISLQTKDEFREPLRNFSGPSCSKNDYAIGSKATCLQSASM  
Ep-PER -----  
Peram-PER -----

Drome-PER -----AKSEAAQSFPIPSPLSVTIVPPSMGGCGGVGHAA  
Tal-PER PSASGVKRSLDSSVPGAQQSFFSQCAASTSYTVSSSCRVKNEITDQPTLIYTQALNYIR  
Ep-PER -----KESRYIHPRNSFFEERHGSQTSLVYQTALNYIR  
Peram-PER -----PENEAHQMASLTQTLNSIKMKMKMK---DLSTDI

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Drome-PER GLDSGLAKFDKTWEAGPGKLESMTGVGAAAAGTGQRGERVKEDSFCCVISMHDGIVLYTT  
Tal-PER RIKEGFTNKGQVFQSP--REHLSSNQSEAIADFIKSGSNQRGFTMVLSIRDGTIIRVS  
Ep-PER KIKERSAEQGVFPFASPY--LDQLSSNQ-EDI TEFFKSFISS-RGFTVAISIQDGSVLQVS  
Peram-PER PEETEGHSFSLPMVAEE-KE EHIRNSFDAEPPAHNEGE-----FCVVVSMQDGVVVFTT

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Drome-PER PSITDVLGYPRDMWLGRSFIDFVHLKDRATFASQITTGIP IAESRGS---VPKDAKSTFC  
Tal-PER TNISEVLGFPEDMVVGHSFIDFVYPRDSVHFSSKIVSGMSLFTKNSSTRAESLMP--PFY  
Ep-PER PTITDILGFPKDMLLGQSFIDFVYPKDSINFSSKIINGLNIIPFRN-SAIKDTHTGT--TFE  
Peram-PER PSITDVVGFPKDMWLGRSFIDFVHPRDRTAFAFHITSGVITPLSNSNPKGGSHPGKNSFY

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Drome-PER VMLRRYRGLKSGGFGVIGRPVSYEPFRLGLTFREAP-----EEARPDMVMSNGTN-M  
Tal-PER CRVRENKCYQASAFDMRGK-NSYKPKITLKFNDTLT----PLEEEVMAPISPFHLPTSD  
Ep-PER CRLRMYGHLKNTGYGIRNKTKLYKPKCIFKSQDAAR----FTDSKSVAHSS-----  
Peram-PER CCLRRYRGLKSTGYGVTEKEVSYLPFQLNMTFRELLPHSNPLEVEGNTSPESVPGGCNSM

\* : : . : : : \* \* : : . . .

Drome-PER LLVICATPIKSSYKVPDEILSQKSPKFAIRHTATGIISHVDSAAVSALGYLPQDLIGRSI  
Tal-PER VLLAEVIPVPSFYQVPDEVIN--GGNFVIRHSASCNFSEYDPAIPFLGHLPQDLTGNSI  
Ep-PER LIIAEIPIESAYKETDEATA--MGSFIRHSASCNFSEYDPEAIPYLGHLPQDLTGNSI  
Peram-PER FLVITAKLIC SAYKHAGETCA--SPKFVTRHLATCKLNVVDPECMPYLGYPHEMLGNSV

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Drome-PER MDFYHHEDLSVMKETYETVMKKGQTAGASFC SKPYRFLIQNGCYVLETEWTSFVNPWSR  
Tal-PER FDCYHPEDLPLLLTIYREIREE---GKPFRESYRFRTFNGSWVLETEWLCFVNPWTR  
Ep-PER FDCYHPEDMSKLNIVYIVKHQ---GKPYRSEPYRFRTFNNSWVTLIETWLCFVNPWTK  
Peram-PER LDFYHPEDLPFLKEVYQIVMQEN---GAPFR SKPYRFRSHNGGYILLETEWSSFVNPWSK

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Drome-PER KLEFVVGHRVFGPEKQCNVFEEA-APTCKLKISEEAAQSRNTRIKEDIVKRLAETVSR---  
Tal-PER KIDSIIGQHKVIKGP RDISIYMEQCEGSLSTYSEEVCI IARKARREI IDLLSRPVAASLA  
Ep-PER RIESIIGQHRILKVP KDINLFMDPSDKALSPLPEDILLEAQAQKEI LDLLMKPVTS---  
Peram-PER KLEFVVGQHRVVLKGE ENADVFMAPVEDDTLQISEEVLKESKIIQEEIRSLSEMVKN---  
: : : \* : \* : \* : \* \* : : : \* : : \* : \* : \* : \* : \* : \*

Drome-PER -----PSDTVQEVSRRCQALASFMETLMDEVSRADLKLELPHENEL  
Tal-PER EVLRHETRHPTVSPMQHENCVGIKVPASKRRRTLAEMMSCLVNDIHAQGMKNLTSAAKIS  
Ep-PER -----YQDPCKEPMVKKRRRTLADIMSPFVEELDNIKKNSGDYHQTN  
Peram-PER -----NGHLEKQQMSKRCRDLATFMESLMDDITKPDCLKLELPQE-EH  
\* : \* : \* \* : \* . : : : : \*

Drome-PER TVSER-----DSVMLGEISPHHDYDYSKSSSTE  
Tal-PER TLPTSGISTSTSTAVTTSAAINNSMAVQTSAPARNAVEPSASA AVTQAAKGESLLSSSE  
Ep-PER LSMSCGVGRKSVGVS IANEGHMGHGTPLHKNS-LRHCGSGVMP SIIITPGQ--ESLNSSIE  
Peram-PER SFSEH-----DSVMLGEISPHHDYDYSKSSSTE  
\* : \* : \* \* : \* . : : : : \*

Drome-PER TPPSYNQLNYNENLLRFFNSKPV TAPAE LDPKTEPPEPRGTCVSGASGPMSPVHEGSGG  
Tal-PER SPSTYSRLNYSATMLRFFQSNPRTASTD-----ASAESKMESSIRGSVDEAKSSSP  
Ep-PER TPSSYQQLNYSATLQRFRRSNPKTVSSD-----ESGDSKMEISHPESIGFSTSASA  
Peram-PER TPPSYNQLNYNDNIQRFFESKPKTTLS D-----ESGESKIEANRSLMSTDEEGKSG  
: \* : \* : \* \* \* . : : \* \* : \* \* . : : : : . .

Drome-PER SGSSGNFTTASNIHMSV TNTSIAGTGGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGT  
Tal-PER KQOYCKFNSVPSGVNKSL-----YMSGYSGSGSDTIYLTRK  
Ep-PER NRKSQSQSQSQSQTQS Q-----SGSGSGSGDNNFNFSNS  
Peram-PER PAADSSLGSSNRKCCSPVN-----GSGSGSGSGHSSGS-----  
\* : \* : \* \* : \* . : : : : \*

Drome-PER TGTGTGTGNGTNSGTGTGTA SSSKGGSAI PPVTLTE SLLNKHND EMEKFM LKKHRESR -  
Tal-PER YGSKDVTDSGSGESASGPSSASGGAGSANYRHVPLTEEVLSRHNQEMQLFMERQKKN TV  
Ep-PER FRKSNTKCKFAKNEESG---EGQSTDDQPYMLPLTEE ILSRHNQHMQKQFM ECQRKNER  
Peram-PER ---AGIGGSAESRRDTSATNTSHG---SYKPPLTEALLCRHNEDMEKMKVQKHREQR-  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : : \*

Drome-PER -----GRTGEKSKKSANDTLKMLEYSGPGHG IKRGGSHSWEGEANKPK  
Tal-PER AITTPSRQRERLSRQKLKQVKKASRKPPSKCALKRPNSSGSRGDNRAHKFFPIEKTS AKQ  
Ep-PER ILNSNK-----YDFKTRTFKKHTKKRERSYAMKRSC TPKVYEGN-AHKTHINSSAANS  
Peram-PER -----NKGSERESK-LKKCVHDKLLQE QCHGVKRS GSHSWEGEVYK--  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : \*

Drome-PER QQLTLGTDAIKGAAGSAGGAVGTGGVSGGAGVAGGGGSGTGVAGTPEGRATTTSGTGT P  
Tal-PER SEQTGPSHLPGPLHTTHGNKLTINSFHSGSGSRADHVTRRTDLAVPVI PATCSSEQPQAP  
Ep-PER NKTLHISAMNTAKSS IAPGNEGSKREKSFSS---PMVSRQVPNI PDGR TMKGEAGPSFQ  
Peram-PER -----ASKHPHVEGGKELNPGSGGGGGVTSGLSQC LQVAAAT--GKQYSGVGSVPP  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : \*

Drome-PER GGAGGGGGAGAAAAAGASSVGSSTPGPSSYPTCTQININLWPPFSVGITPPVHSTHTAMA  
Tal-PER YFFPGHPLPTPSNGFQNTSLPSNPSTLSQEPQLPSNPHYPMT PMMMGP HQTHFMT PQG  
Ep-PER RVLPNYI IHANHTSSPVKSTEP IVGHSTLPPCPVSSAGTFFSAPPLMPPQTTF LPSQP-  
Peram-PER IFQGG-----TNVNLWPPFSVTVTP-----  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : \*

Drome-PER -QSSFSSAGLFPTFFYI PASLTPTS PTRSPRMH KHPHKG GTDMPTTSQQAAAAAAQA---  
Tal-PER LALPLHYMGAYPGMYI PHPSFNQAMYGAGFLMMSNMMMPHFFIQST SADPLHVSPTNLN  
Ep-PER --LPIQYVTGLPGVIYQP--IAPPLFSAPPVMLPNLVFQHTLVQPPMGHMVQVILTD---  
Peram-PER -----LQPTPCSTHG FATN-----NIPTP-----  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : \*

Drome-PER -----MPLQY MAGVMY PPHSLFYTHPAAAAATAMMY  
Tal-PER TPSRQADNQS YIAQVAPVERSSQSLQQRHTDHHHTSHHQQQAQLQQLP LPHPKSPHG VVH  
Ep-PER -----ERRYFTESEHETTETHQATKSLQTDKQVVT  
Peram-PER -----PHMASMI PVYY  
\* : \* : \* \* : \* . : : \* \* : \* \* : \* : : : \*

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Drome-PER      QPMFPFGMANALQI PERPLGSQSAYN-----KSVYTTT
Tal-PER        LKRSDSRATSVKVEPGSVRGSVASASGQLRCSMSHRPESLRSETDEPGHAEQGLVYVPE
Ep-PER         LR-RPDSQATSVKAEPGSVRGSNASASCKVNAAESIRSYVDDL SLLQNI PNSKQDRSHTP
Peram-PER      IEKRAPNFKNN-----

Drome-PER      PASMTKKVPGAFHFSVTTPAQVQRPSSQSASVKTEPGSSAAVSDPCKKEV-----
Tal-PER        VASHASHFSRSTSVLGEAEFSIASPDKRPSGMEDQHAE--NSSDTVMSDS-----
Ep-PER         NYSQVSPFQSSTSVIAEPESVRSPEKQDRLVEDTETKKNYNSSDMILSMDSYSGPDDKSD
Peram-PER      -----

Drome-PER      -----PDSSPIPSVMGDYNSDPPCSSSNPANNKKYTDSNGNSDDMDGSSFSFYSSFI
Tal-PER        ----SPAQDSMPMLSEFSVDTSESIGVIQPPCDDR PVLHDFAWLDHIEVTPQLLFYQLH
Ep-PER         EDSPSPDMGT SKDLEEDNERRD GSKMSMKRKDGTRPVLCEPPWIEDVKVTPPELLFRYQLK
Peram-PER      -----

Drome-PER      KTTDGSSESPDTEKDPKHKRKLKSMSTSES KIMEHPEEDQTQHGDG-----
Tal-PER        TKELVDVLKNDMAALKTLNQPALVEDQLSSLYQELEIDGELQLDEGITSSSGEMLDVS
Ep-PER         TSELVDVLRQDMDLLKNTKQVKMNMWYKACWIKFNRTYYTQRNRAHICV-----
Peram-PER      -----

Drome-PER      -----
Tal-PER        TKTSSEAGAARGAKKARSSRYFDKQAILHEVEAAIPPPDL SISHISPYSVARRLPNKHKS
Ep-PER         -----
Peram-PER      -----

Drome-PER      -
Tal-PER        S
Ep-PER         -
Peram-PER      -

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**Figure S2. Putative *Talitrus saltator* PERIOD (PER) protein**

Alignment of *Drosophila melanogaster* PER (Drome-PER; Accession No. AAF45804) with the *T. saltator* PER (Tal-PER) deduced from the Trinity *de novo* transcriptome assembly, together with the top two tblastn species homologue sequences *Eurydice pulchra* PER (Ep-PER; Accession No. KC885967) and *Periplaneta americana* (Peram-PER; Accession No. U12772). '\*' indicates identical amino acid residues in the two proteins, '.' and ':' indicate similar amino acid residues between the two proteins. In this figure SMART identified domains of two PAS domains, one PAC domain and one Period C domain are highlighted in yellow, green and blue respectively. The region of Ep-PER that corresponds to the PAC domain is shown in green text, though no PAC domain *per se* was identified in this protein using SMART. Drome-PER DBT/CK1ε binding site is highlighted in pink. Dark red text indicates Drome-PER CLK/CYC inhibitory domain (CCID). Pink text indicates regions in Tal-PER, Ep-PER and Peram-PER corresponding to sequence within both the overlapping Drome-PER DBT/CK1ε binding site and CCID regions.