

## PER2

The PER2 gene [encodes](#) the period circadian protein homolog 2 protein in humans.

PER2 contains glucocorticoid response elements (GREs) and a GRE within the core clock gene PER2 is continuously occupied during rhythmic expression and essential for glucocorticoid regulation of PER2 in vivo. Mice with a genomic deletion spanning this GRE expressed elevated [leptin](#) levels and were protected from glucose intolerance and insulin resistance on glucocorticoid treatment but not from muscle wasting. PER2 is an integral component of a particular glucocorticoid regulatory pathway and that glucocorticoid regulation of the peripheral clock is selectively required for some actions of glucocorticoids.

The expression of Per1 and Per2 in [glioma cells](#) was much lower than in the surrounding non-glioma cells. Therefore, disturbances in Per1 and Per2 expression may result in the disruption of the control of normal circadian rhythm, thus benefiting the survival of glioma cells. Differential expression of circadian clock genes in glioma and non-glioma cells may provide a molecular basis for the chemotherapy of gliomas <sup>1) 2)</sup>.

<sup>1)</sup>

Xia HC, Niu ZF, Ma H, Cao SZ, Hao SC, Liu ZT, Wang F. Deregulated expression of the Per1 and Per2 in human gliomas. Can J Neurol Sci. 2010 May;37(3):365-70. PubMed PMID: 20481271.

<sup>2)</sup>

Fan W, Chen X, Li C; Yongluo, Chen L, Liu P, Chen Z. The analysis of deregulated expression and methylation of the PER2 genes in gliomas. J Cancer Res Ther. 2014 July-September;10(3):636-640. doi: 10.4103/0973-1482.138202. PubMed PMID: 25313752.

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