



## Phospho-Specific Antibody to Study Circadian Rhythm Gene PER2

**WARF: P130048US01**

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing antibodies that can detect phosphorylated forms of PER2 protein, which impacts sleep regulation and tumor suppression.**

### Overview

Circadian rhythms refer to the 24-hour cycles of biological processes that promote daily functioning. The synchronization of an organism's internal clock to external cues like light and darkness is called entrainment. In mammals, entrainment is critically influenced by the gene known as PERIOD2 (or PER2). Mutation of this gene can lead to lifelong sleep abnormalities. Specifically, mutations can result in differently phosphorylated proteins.

Previous studies have not been able to directly identify PER2 proteins phosphorylated at specific residue sites *in vivo*. To do so could help clarify the mechanisms and role of PER2 phosphorylation on healthy functioning.

### The Invention

UW–Madison researchers have developed phospho-PER2 antibodies that recognize PER2 protein phosphorylated by the enzyme casein kinase 1. The antibodies selectively recognize forms of the protein phosphorylated on Serine-662, -665 and -668.

### Applications

- Reagent for studying PER2 regulation in response to circadian and noncircadian cues

### Key Benefits

- Only phospho-PER2 antibody in existence
- Selectively recognizes phosphorylated forms of PER2 *in vivo*

### Additional Information

#### Related Technologies

- [WARF reference number P04048US describes a phospho-specific antibody that can be used to monitor stress-induced phosphorylation of the CREB transcription factor.](#)

#### Publications

- Shanware N.P., Hutchinson J.A., Kim S.H., Zhan L., Bowler M.J. and Tibbetts R.S. 2011. Casein Kinase 1-Dependent Phosphorylation of Familial Advanced Sleep Phase Syndrome-Associated Residues Controls PERIOD2 Stability. *J. Biol. Chem.* 14, 12766–12774.

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- [Research Tools : Antibodies](#)

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