

# Clocking salt levels in the blood: A link between the circadian rhythm and salt balance

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New research, conducted by Charles Wingo and his colleagues, at the University of Florida, Gainesville, suggests a link between the circadian rhythm and control of sodium (salt) levels in mice.

The hormone aldosterone regulates levels of [sodium](#) in the blood and thereby helps control [blood pressure](#). Although it is known that aldosterone regulates sodium levels by controlling expression of the alpha-subunit of the epithelial sodium channel (alpha-ENaC) in the kidney, the molecular pathway by which aldosterone modulates alpha-ENaC levels has not been determined.

In a previous study to address this issue, Wingo and colleagues found that aldosterone induced expression of the [circadian clock](#) gene *Per1* in mouse cells, but the effects of this induction were not investigated. In this new study, they have revealed that the protein produced from the *Per1* gene (Period 1) regulates expression of alpha-ENaC in the mouse kidney. Importantly, in the absence of Period 1, expression of alpha-ENaC in the mouse kidney was decreased and sodium loss in the urine was increased.

Since expression from the *Per1* gene seemed to follow a circadian pattern, the authors suggest that the circadian clock has a role in balancing sodium levels in the body.

More information:

[www.the-jci.org/article.php?id=36908](http://www.the-jci.org/article.php?id=36908)

Source: Journal of Clinical Investigation

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