# Article information:

IJMS | Free Full-Text | Piperine Improves Lipid Dysregulation by Modulating Circadian Genes Bmal1 and Clock in HepG2 Cells  
<https://www.mdpi.com/1422-0067/23/10/5611>

# Article summary:

1. Metabolic disorders are closely associated with the dysregulation of circadian rhythms.

2. Piperine (PIP) has been demonstrated to possess anti-obesity bioactivity by affecting hepatic lipid metabolism-related factors.

3. PIP can activate the SREBP-1c/PPARγ and AMPK/AKT-mTOR signaling pathways in a Bmal1/Clock-dependent manner in HepG2 cells, suggesting that Bmal1 and Clock play important roles in the regulating effect of PIP on hepatic lipid homeostasis.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Piperine Improves Lipid Dysregulation by Modulating Circadian Genes Bmal1 and Clock in HepG2 Cells” is an open access article published in the International Journal of Molecular Sciences (IJMS). The article provides a comprehensive overview of how piperine, a main pungent principle of black pepper, can improve lipid dysregulation by modulating circadian genes Bmal1 and Clock in HepG2 cells. The authors provide evidence for their claims through experiments conducted on oleic acid induced lipid accumulation in HepG2 cells, as well as mechanism studies which showed that piperine could activate the SREBP-1c/PPARγ and AMPK/AKT-mTOR signaling pathways in a Bmal1/Clock-dependent manner.

The article is generally reliable and trustworthy due to its use of scientific evidence to support its claims. The authors have provided detailed descriptions of their experiments and results, as well as clear explanations for their conclusions. Furthermore, they have also included a graphical abstract which helps readers better understand the content of the article.

However, there are some potential biases present in the article which should be noted. Firstly, it is possible that the authors may be biased towards promoting piperine due to its potential health benefits; this could lead to one-sided reporting or unsupported claims being made about its effects on lipid dysregulation without considering any potential risks or side effects associated with it. Additionally, there may be missing points of consideration or unexplored counterarguments which could weaken some of the claims made by the authors; for example, they do not discuss any other potential mechanisms through which piperine could affect lipid dysregulation besides modulating circadian genes Bmal1 and Clock.

In conclusion, while this article is generally reliable and trustworthy due to its use of scientific evidence to support its claims, there are some potential biases present which should be noted when evaluating its trustworthiness and reliability.

# Topics for further research:

* Piperine health risks
* Lipid dysregulation mechanisms
* Oleic acid induced lipid accumulation
* SREBP-1c/PPARγ signaling pathways
* AMPK/AKT-mTOR signaling pathways
* Circadian genes Bmal1 and Clock regulation

# Report location:

<https://www.fullpicture.app/item/d6a070c060df6ce45b05a4cc87a1d70a>