# Article information:

C2C12 cell model: its role in understanding of insulin resistance at the molecular level and pharmaceutical development at the preclinical stage | Journal of Pharmacy and Pharmacology | Oxford Academic
<https://academic.oup.com/jpp/article/72/12/1667/6132679>

# Article summary:

1. The use of the myoblast cell line, specifically the mouse-derived C2C12 model, is important in understanding glucose metabolism, insulin signaling mechanisms, insulin resistance, oxidative stress, reactive oxygen species, and glucose transporters at cellular and molecular levels.

2. Recent studies using the C2C12 model have revealed the close relationship between insulin resistance and various metabolic diseases in terms of disease progression, pathogenesis, and therapeutic management. Efforts are being made to explore novel drug compounds and natural herbs that can elicit therapeutic effects at both cellular and molecular levels.

3. The features of the mouse-derived C2C12 model make it a valuable tool in pharmaceutical science and biomedical research for examining skeletal muscle metabolism and differentiation. It has been used to investigate drug- and natural compound-inducible responses of insulin signaling pathways and glucose uptake mechanisms as well as the impact of drug delivery systems on skeletal muscle.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

该文章提供了关于C2C12细胞模型在研究胰岛素抵抗和药物开发方面的应用的综述。然而，该文章存在一些潜在的偏见和不足之处。

首先，该文章没有提及其他可用于研究胰岛素抵抗和药物开发的细胞模型。虽然该文章提到了与C2C12相比较的L6细胞系，但并未对其他可能更适合特定研究领域的细胞系进行探讨。

其次，该文章没有充分考虑到使用C2C12模型进行药物开发时可能存在的风险。例如，某些化合物可能会影响肌肉细胞中的代谢途径，并导致不良反应或副作用。此外，该文章也没有探讨如何评估这些潜在风险以及如何最大程度地减少它们。

第三，该文章缺乏对所提出主张的证据支持。例如，在讨论AMPK、mTOR等信号通路时，该文章未提供任何具体数据或实验结果来支持这些信号通路与葡萄糖摄取和GLUT-4转位之间的关系。

最后，该文章可能存在一些偏袒。例如，该文章强调了C2C12模型在药物开发中的重要性，但未探讨其他可能更适合特定研究领域的细胞系。此外，该文章也没有平等地呈现双方的观点或考虑到可能存在的争议。

总之，尽管该文章提供了有关C2C12细胞模型在研究胰岛素抵抗和药物开发方面的应用的综述，但它存在一些潜在的偏见和不足之处。为了更全面地评估这种细胞模型在药物开发中的应用，需要进一步探讨其优缺点以及可能存在的风险和挑战。

# Topics for further research:

* Other cell models for studying insulin resistance and drug development
* Risks associated with using C2C12 model for drug development
* Evidence supporting the proposed claims
* Potential bias in the article
* Other cell models that may be more suitable for specific research areas
* Controversies and opposing viewpoints in the field

# Report location:

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