# Article information:

Mitochondrial dynamics in cancer stem cells - PubMed
<https://pubmed.ncbi.nlm.nih.gov/33580834/>

# Article summary:

1. Cancer stem cells (CSCs) demonstrate distinctive metabolic signatures from the more differentiated surrounding tumor bulk, which can confer resistance to traditional chemotherapeutic regimens and potential for tumor relapse.

2. Mitochondrial dynamics are regulated by constant cycles of mitochondrial fusion and fission, and recycling of mitochondria through mitophagy in CSCs is associated with maintenance of reactive oxygen species levels that dictate gene expression.

3. The protein machinery that drives mitochondrial dynamics may represent attractive new therapeutic avenues to target CSC metabolism and selectively eradicate tumor-generating cells to reduce the risks of metastasis and relapse for a variety of tumor types.

# 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 is generally reliable and trustworthy, as it provides an overview of the current understanding of mitochondrial dynamics in cancer stem cells (CSCs). It cites relevant research studies to support its claims, such as Wang et al.'s study on elevated levels of mitochondrial reactive oxygen species via fatty acid β-oxidation in CSCs promoting cancer metastasis by inducing epithelial-mesenchymal transition, Gammon et al.'s study on sub-sets of CSCs differing intrinsically in their patterns of oxygen metabolism, Praharaj et al.'s study on dysregulation of mitophagy and mitochondrial homeostasis in CSCs being a novel mechanism for anti-cancer stem cell-targeted cancer therapy, Aguilar et al.'s study on metabolic reprogramming and dependencies associated with epithelial CSCs independent of the epithelial-mesenchymal transition program, and Praharaj et al.'s study on mitochondrial rewiring through mitophagy and mitochondrial biogenesis in CSCs being a potential target for anti-CSC cancer therapy.

The article does not appear to be biased or one-sided; it presents both sides equally by providing an overview of the current understanding as well as potential therapeutic avenues targeting CSC metabolism. It also does not appear to contain any promotional content or partiality towards any particular viewpoint or opinion. Furthermore, possible risks are noted throughout the article; for example, it mentions that targeting CSC metabolism may have unintended consequences such as increased drug resistance or toxicity due to off-target effects.

In conclusion, this article is generally reliable and trustworthy; however, further research is needed to explore counterarguments or missing points of consideration regarding its claims.

# Topics for further research:

* Mitochondrial dynamics in cancer stem cells
* Metabolic reprogramming in cancer stem cells
* Mitophagy and mitochondrial homeostasis in cancer stem cells
* Mitochondrial rewiring in cancer stem cells
* Epithelial-mesenchymal transition in cancer stem cells
* Anti-cancer stem cell-targeted cancer therapy

# Report location:

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