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Energy metabolism in cancer stem cells

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Energy metabolism in the cancer stem cells

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It turns out the **cell metabolism** controls this change, suggesting a possible way in to attack the **stem cells**. **Cells** get **energy** through mitochondria, which depends on oxygen, and through sugar, or glucose. **Cancer stem cells** pull **energy** both ways. In the dormant state, the **cells** use glucose; in the proliferative state, they depend on oxygen.

How Targeting Metabolism Can Defeat Cancer Stem Cells

labblog.uofmhealth.org/lab-report/how-targeting-metabolism-can-defeat-cancer-ste...

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Cancer stem cell metabolism - PubMed Central (PMC)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4879746

May 24, 2016 · There is still no consensus on the **metabolic** characteristics of **cancer stem cells**, with several studies indicating that they are mainly glycolytic and others pointing instead to **mitochondrial metabolism** as their principal source of **energy**. **Cancer stem cells** also seem to adapt their **metabolism** to **microenvironmental** changes by conveniently shifting **energy** production from one pathway to another, or by acquiring intermediate **metabolic** ...

Cited by: 179 **Author:** Maria Peiris-Pagès, Ubaldo E. Martinez-...

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Energy metabolism in cancer stem cells

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Energy metabolism is the foundation of survival for all organisms, and mitochondria are the most important energy-supplying organelles in eukaryotic cells. However, the **mitochondrial and energy/metabolism**-related properties of cancer stem cells (CSCs), the stem cell-like subpopulation in tumor masses, remain unknown.

Mitochondrial and energy metabolism-related properties as ...

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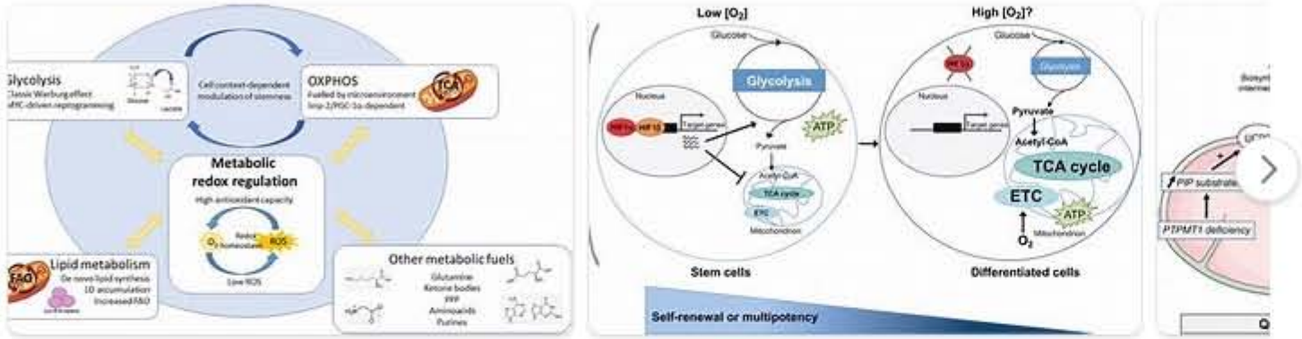

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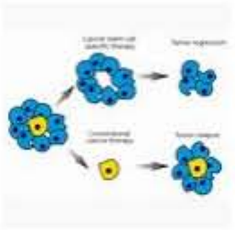
What is the energy consumption of cancer cells?

What are the characteristics of cancer stem cells?

Cancer Stem Cell



Cancer stem cells (CSCs) are cancer cells (found within tumors or hematological cancers) that possess characteristics associated with normal stem cells, specifically the ability to give rise to all cell types found in a particular cancer sample. CSCs are therefore tumorigenic (tumor-forming), perhaps in contrast to other non-tumorigenic cancer cells. CSCs may generate tumors through the stem cell processes of self-renewal and differentiation into multiple cell types. Such cells are hypothesized to persist in tumors as a distinct population and cause relapse and metastasis by giving rise to new tumors. Therefore, development of specific therapies targeted at CSCs holds hope for improvement of survival and quality of life of cancer patients, especially for patients with metastatic disease.

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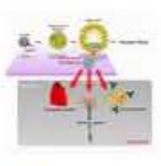
Mesenchymal Stem Cell


Induced Pluripotent Stem Cell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Data from: Wikipedia

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