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Impelling force and current challenges by chemicals in somatic cell reprogramming a



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## The Promise and Challenge of Induced Pluripotent Stem ...

[basictranslational.onlinejacc.org/content/1/6/510](http://basictranslational.onlinejacc.org/content/1/6/510) ▼

Oct 01, 2016 · **JACC: Basic to Translational Science**. Volume 1, Issue 6, October 2016 DOI: ... **Current Challenges** for the iPSC in Cardiovascular Regeneration. ... **Reprogramming somatic cells** to a pluripotent state involves introducing transgenes, their derivative ribonucleic acid, or protein products with multiple passages in tissue culture. ...

Cited by: 16

Author: Amr A. Youssef, Elsie Gyang Ross, Robe...

Publish Year: 2016

## An Overview of Direct Somatic Reprogramming: The Ins and ...

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov) > ... > *Int J Mol Sci* > v.17(1); 2016 Jan

The direct reprogramming of **somatic cells** to induced pluripotent stem cells ... need for recipient preconditioning and **challenges** in differentiation and **expansion** to functional **hepatocytes** from ... Ambasudhan R., Lin T., Kim J., Zhang K., Ding S. Reprogramming of human primary **somatic cells** by OCT4 and **chemical** compounds. *Cell Stem Cell*. 2010 ...

Cited by: 12

Author: Siddharth Menon, Siny Shailendra, Andre...

Publish Year: 2016

## In Vivo Cellular Reprogramming: The Next Generation: Cell

[https://www.cell.com/cell/fulltext/S0092-8674\(16\)31152-7](https://www.cell.com/cell/fulltext/S0092-8674(16)31152-7) ▼

While a combinatorial code was initially found to reprogram **somatic cells** to pluripotency, a "second generation" of cellular reprogramming involves lineage-restricted transcription factors and microRNAs that directly reprogram one **somatic cell** to another. ... neural stem cells and **hepatocytes** by cell activation and signaling-directed ...

Cited by: 91

Author: Deepak Srivastava, Natalie DeWitt

Publish Year: 2016

## Chemical approaches to stem cell biology and therapeutics

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov) > Journal List > HHS Author Manuscripts

Sep 05, 2013 · Zhu S, Li W, Zhou H, Wei W, Ambasudhan R, Lin T, Kim J, Zhang K, Ding S. Reprogramming of human primary **somatic cells** by OCT4 and **chemical** compounds. *Cell stem cell*. 2010; 7:651–655. [PMC free article]

Cited by: 128

Author: Wenlin Li, Ke Li, Wanguo Wei, Sheng Ding

Publish Year: 2013

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Name of Journal: *World Journal of Stem Cells*

Manuscript NO: 46934

Manuscript Type: REVIEW

Impelling force and current challenges by chemicals in somatic cell reprogramming and expansion beyond hepatocytes

Ge JY *et al.* Chemicals in somatic cell reprograming and expansion

Jian-Yun Ge, Yun-Wen Zheng, Li-Ping Liu, Hiroko Isoda, Tatsuya Oda

### Abstract

In the field of regenerative medicine, generating numerous transplantable functional cells in the laboratory setting on a large scale is a major challenge. However, the *in vitro* maintenance and expansion of terminally differentiated cells are challenging because of the lack of specific environmental and intercellular signal stimulations, markedly hindering their therapeutic application. Remarkably, the generation of stem/progenitor cells or functional cells with effective proliferative potential is markedly in demand for disease modeling, cell-based transplantation, and drug discovery. Despite the potent genetic manipulation of transcription factors, integration-free chemically defined approaches for the conversion of somatic cell fate have garnered considerable attention in recent years. This review aims to summarize the progress thus far and discuss the

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## Chemically induced cell fate reprogramming and the ...

<https://www.sciencedirect.com/science/article/pii/S1367593118302084>

May 30, 2019 - **Chemical reprogramming** efficiency can be further increased if the **reprogramming** steps are divided temporally and controlled more precisely . Not long after the discovery of chemically induced pluripotent stem **cells**, the **chemical reprogramming** approach was extended into direct **cell** lineage **reprogramming**.

**Author:** Yang Zhao    **Publish Year:** 2019

## Stem Cells, the Molecular Circuitry of Pluripotency and ...

[https://www.cell.com/cell/fulltext/S0092-8674\(08\)00115-3](https://www.cell.com/cell/fulltext/S0092-8674(08)00115-3) ▾

Feb 22, 2008 - **Reprogramming** of somatic **cells** to a pluripotent embryonic stem **cell**-like state has been achieved by nuclear transplantation of a **somatic** nucleus into an enucleated egg and most recently by introducing defined transcription factors into **somatic cells**. Nuclear **reprogramming** is of great medical interest, as it has the potential to generate a source of patient-specific **cells**.

**Cited by:** 1440    **Author:** Rudolf Jaenisch, Richard Young

**Publish Year:** 2008

## Chemical approaches to stem cell biology and therapeutics

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3898630>

Sep 05, 2013 - Small molecules that modulate stem **cell** fate and function offer significant opportunities that will allow the full realization of the therapeutic potential of stem **cells**. Rational design and screening for small molecules have identified useful compounds to probe fundamental mechanisms of stem **cell** ...

**Cited by:** 141    **Author:** Wenlin Li, Ke Li, Wanguo Wei, Sheng Ding

**Publish Year:** 2013

## High-efficiency cellular reprogramming with microfluidics ...

[https://www.researchgate.net/publication/301481464\\_High-efficiency\\_cellular...](https://www.researchgate.net/publication/301481464_High-efficiency_cellular...)

Request PDF on ResearchGate | High-efficiency cellular **reprogramming** with microfluidics | We report that the efficiency of **reprogramming** human **somatic cells** to induced pluripotent stem **cells** ...