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Name of Journal: *World Journal of Stem cells***Manuscript NO:** 53339**Manuscript Type:** SYSTEMATIC REVIEWS

Stem cell homing, tracking and therapeutic efficiency evaluation for stroke treatment using nanoparticles: A systematic review

Nucci MP *et al.* SC migration and therapy efficiency in stroke

Mariana Penteado Nucci, Igor Salerno Filgueiras, João Matias Ferreira, Fernando Anselmo Oliveira, Leopoldo Penteado Nucci, Javier Bustamante Mamani, Gabriel Nery Albuquerque Rego, Lionel Fernel Gamarra

Abstract

BACKGROUND

Stroke is the second leading cause of death worldwide. There is a real need to develop treatment strategies for reducing neurological deficits in stroke survivors, and stem cell (SC) therapeutics appear to be a promising alternative for stroke therapy that can be used in combination with approved thrombolytic or thrombectomy approaches. However, the efficacy of SC therapy depends on

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Stem cells labeled with superparamagnetic iron oxide ...

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Mar 13, 2015 · This **review** analyzed published data on superparamagnetic iron oxide nanoparticle (SPION)-labeled **stem cells** used for ischemic **stroke therapy**. We performed a **systematic review** and meta-analysis of data from experiments testing the efficacy of cellular **treatment** with SPION versus no **treatment** to improve behavioral or modified neural scale ...

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Mar 12, 2010 · MRI has found extensive applications in **stem cell** imaging both in research and clinical settings [18–20]. MRI **tracking** of **stem cells** has largely relied upon ex vivo pre-labeling of **stem cells** with magnetic **nanoparticles** which can be internalized by the **cells** to generate strong MRI contrast . MRI analysis presents a high spatial resolution and ...

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This **review** discusses potential **therapeutic** mechanisms of **stem cell** transplantation for the **treatment** of **stroke** and the limitations of current therapies. Methods to label transplanted **cells** and existing imaging systems for **stem cell** labeling and in vivo **tracking** will also be discussed.

Cited by: 6**Author:** Yanhong Zhang, Honghong Yao**Publish Year:** 2017

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Cited by: 75**Author:** Chiara Villa, Silvia Erratico, Paola Razi...**Publish Year:** 2010

[Stem Cell-Based Therapies for Ischemic Stroke](#)

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Feb 26, 2014 · Although several clinical studies have shown the high **efficiency** and safety of **stem cell** in **stroke** management, mainly MSCs, some issues regarding to **cell homing**, survival, **tracking**, safety, and optimal **cell** transplantation protocol, such as **cell** dose and time window,



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Stem cell tracking using iron oxide **nanoparticles**. ... This has the possibility to help monitor **stem cell therapy** in the **treatment** of diseases such as myocardial infarctions,23 neurological diseases, ... In this **review**, we have focused on **stem cell tracking using** SPIONs. We have discussed and evaluated the way in which SPIONS are synthesized ...

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Oct 15, 2018 · Despite advances in the prevention **and therapeutic** modalities of ischemic heart disease, morbidity and mortality post-infarction heart failure remain big challenges in modern society. **Stem cell therapy** is emerging as a promising **therapeutic** strategy. **Stem cell homing**, the ability of **stem cells** to find their destination, is receiving more attention. Identification of specific cues and ...

Cited by: 2

Author: Zhonghao Tao, Shihua Tan, Wen Chen, X...

Publish Year: 2018