Name of Journal: *World Journal of Stem Cells*

Manuscript NO: 57906

Manuscript Type: REVIEW

Noninvasive In Vivo Cell Tracking Using Molecular Imaging: A Useful Tool for Developing Mesenchymal Stem Cell-Based Cancer Treatment

Molecular Imaging: Tracking for MSC-based cancer treatment

Abstract

Mounting evidence emphasizes potentials of cell therapies to treat various diseases by restoring damaged tissues or replacing defective cells in the body. Cell therapies become a strong therapeutic modality by applying noninvasive *in vivo* molecular imaging for examining complex cellular processes, understanding pathophysiological mechanisms of diseases, and evaluating kinetics/dynamics of cell therapies. In particular, mesenchymal stem cells (MSCs) have shown promise in recent years as drug carriers for cancer treatment. They can also be labeled with different

29,100 Results Any time

Frontiers | How Non-invasive in vivo Cell Tracking ...

https://www.frontiersin.org/articles/10.3389/fphys.2020.00154/full

In preclinical models, the **use** of reporter genes to detect **cancer** cells **in vivo** (see Section "**Non-invasive** Whole-Body **in vivo Cell Tracking**") can overcome specificity issues of anatomical **imaging**. **Cancer cell tracking** by means of reporter gene **imaging** is frequently performed **using** bioluminescence technology which is cost-effective and fast ...

Cited by: 6 **Author:** Madeleine Iafrate, Gilbert O. Fruhwirth
Publish Year: 2020

Frontiers | Molecular Imaging: A Useful Tool for the ...

https://www.frontiersin.org/articles/10.3389/fimmu.2017.01090/full

Molecular imaging is a relatively new discipline that allows visualization, characterization, and measurement of the biological processes in living subjects, including humans, at a cellular and **molecular** level. The interaction between **cancer** cells and natural killer (NK) cells is complex and incompletely understood. Despite our limited knowledge, progress in the search for immune **cell** ...

Cited by: 17 **Author:** Prakash Gangadaran, Byeong-Cheol Ahn
Publish Year: 2017

Noninvasive in-vivo tracing and imaging of transplanted ...

https://stemcellres.biomedcentral.com/articles/10.1186/s13287-016-0396-y

Sep 23, 2016 · Terminal liver disease is a major cause of death globally. The only ultimate therapeutic approach is orthotopic liver transplant. Because of the innate defects of organ transplantation, **stem cell-based** therapy has emerged as an effective alternative, based on the capacity of **stem** cells for multilineage differentiation and their homing to injured sites. However, the disease etiology, **cell** type ...

Cited by: 6 **Author:** Panpan Cen, Jiajia Chen, Chenxia Hu, Linxi...

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https://www.frontiersin.org/articles/10.3389/fphys.2020.00154/full

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Cited by: 17 **Author:** Prakash Gangadaran, Byeong-Cheol Ahn
Publish Year: 2017

Molecular Imaging in Tracking Tumor Stem-Like Cells

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3335324

3. **Imaging** of **Cancer Stem**-Like (or **Cancer**) Cells. **Noninvasive molecular imaging** technology is an effective and novel approach to visualize living cells **in vivo**. It also plays a critical role in **tracking** the location and activity of CSCs . Now that CSCs are being identified and characterized in different tumor types, they are postulated to be ...

Cited by: 14 **Author:** Tian Xia, Han Jiang, Chenrui Li, Mei Tian,...
Publish Year: 2012

In vivo Cell Tracking Using Non-invasive Imaging of Iron ...

https://link.springer.com/article/10.1007/s11307-019-01440-4