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Basic Study

Influence of donor age on differentiation and division capacity of human adipose-derived stem cells

Horinouchi CDS *et al*. Donor age influence on hASCs behavior

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Abstract

BACKGROUND

Human adipose-derived stromal/stem cells (hASCs) are one of the most useful types of mesenchymal stromal/stem cells, which are adult multipotent cells with great

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[PDF] Journal of Stem Cell Research & Therapy
https://www.longdom.org/open-access/influence-of...
Adipose-derived stem/stromal **cells** (ASCs) are considered a promising cell source for therapeutic angiogenesis because the **cells** can be prepared following a minimally invasive procedure and because they secrete a variety of angiogenic cytokines. In the present study, the **influence of donor age** and passage number on angiogenic
Cited by: 4 **Author:** Takahiro Nakamura, Tomohiko Kazama, Yu...
Publish Year: 2015

Donor age negatively impacts adipose tissue-derived ...
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3895760
Keywords: Adipose tissue, Mesenchymal **stem cells**, **Donor age**, Regenerative potential, Growth kinetics, In vitro **differentiation** potential Background The average **human** life expectancy has significantly increased due to advances in medical research and improvements in general life style.
Cited by: 371 **Author:** Mahmood S Choudhery, Mahmood S Chou...
Publish Year: 2014

Impact of Age on Human Adipose Stem Cells for Bone Tissue ...
https://www.ncbi.nlm.nih.gov/pubmed/29113460
Adipose-derived stem cells (ASCs) demonstrate several advantages over those from bone marrow, including a less invasive harvesting procedure, a higher number of **stem** cell progenitors from an equivalent amount of tissue harvested, increased proliferation and **differentiation** capacities, and better angiogenic and osteogenic properties in vivo.
Cited by: 65 **Author:** Denis Dufrane
Publish Year: 2017

The Influence of Aging on the Regenerative Potential of ...
https://www.hindawi.com/journals/sci/2016/2152435
Tissue regeneration using **human adipose derived** mesenchymal **stem cells** (hASCs) has significant potential as a novel treatment for many degenerative bone and joint diseases. Previous studies have established that **age** negatively affects the proliferation status and the osteogenic and chondrogenic **differentiation** potential of mesenchymal **stem cells**.
Cited by: 125 **Author:** Monika Marędziak, Krzysztof Marycz, Krzy...
Publish Year: 2016

Influences of donor and host age on human muscle-derived ...
https://stemcellres.biomedcentral.com/articles/10.1186/s13287-018-1066-z
Nov 21, 2018 · **Human** muscle-derived **stem cells** (hMDSCs) have been shown to regenerate bone efficiently when they were transduced with Lenti-viral bone morphogenetic protein 2 (LBMP2). However, whether the **age** of hMDSCs and the animal host affect the bone regeneration **capacity** of hMDSCs and mechanism are unknown which prompted the current study. We isolated three gender-matched young ...
Cited by: 2 **Author:** Xueqin Gao, Aiping Lu, Ying Tang, Johanne...
Publish Year: 2018

Impact of Age on Human Adipose Stem Cells for Bone Tissue ...
https://journals.sagepub.com/doi/full/10.1177/0963689717721203
Nov 08, 2017 · To overcome the effect of age on the autologous source of stem cells, a new source of MSCs with a lower impact of donor age has been proposed. Adipose-derived stem cells (ASCs) were recently demonstrated to have several advantages over those from bone marrow, including a less invasive harvesting procedure, a **higher number of stem cell progenitors** from an equivalent amount of ...

Effect of neuron-derived neurotrophic factor on ...
https://pubmed.ncbi.nlm.nih.gov/31287219
Human adipose-derived stem cells (hADSCs) were obtained from donors age ranged from 17 to 92 years old. The effects of age on the biological characteristics of hADSCs and the expression of ageing-related genes were investigated. The effects of transplantation of NDNF over-expression stem cells on heart repair after myocardial infarction (MI) in adult mice were investigated. The proliferation, migration, **adipogenic** and osteoge**nic** differenti**ation** ...

Human adipose-derived stem cells: Isolation ...
https://www.sciencedirect.com/science/article/pii/S2211425411000069
Jun 01, 2011 · **Cells** exhibit characteristics similar to those of mesenchymal **stem cells**, i.e., they have the **capacity** for self-renewal, as **cells** can be expanded in vitro for more than 20 population doublings (i.e., around 30 passages in our hands so far) while maintaining a normal diploid karyotype and the potential to undergo **differentiation** into adipocytes ...

Adipose Derived Stem Cell - an overview | ScienceDirect Topics
https://www.sciencedirect.com/topics/medicine-and...
Adipose-derived stem cells (ADSCs) are mesenchymal **stem cells** (MSCs) found within the stromal–vascular fraction of subcutaneous adipose tissue [17]. ADSCs self-renew, display a multilineage developmental plasticity, and have been used in a variety of tissue repair and ...

The influence of fibroblast growth ... - Stem Cells Journals
https://stemcellsjournals.onlinelibrary.wiley.com/doi/full/10.1002/sctm.19-0234
Dec 16, 2019 · The **influence** of fibroblast growth factor 2 on the senescence **of human adipose-derived** mesenchymal **stem cells** during long-term culture Yin Cheng Department of Surgery, National Taiwan University Hospital and College of Medicine, Taipei, Taiwan

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A **donor age over 60 years affected the proliferative capacity of ASCs at passage 4 and later**. ASC-CM significantly enhanced HUVEC tube formation, and this response was not influenced by donor age.
Cited by: 4 **Author:** Takahiro Nakamura, Tomohiko Kazama, ...
Publish Year: 2015

Donor age negatively impacts adipose tissue-derived ...
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3895760
The **number of MSC colonies formed was found to be inversely proportional to donor age**. Overall, cells from young and adult cultures produced larger colonies containing more cells while AT-MSC from aged donors produced smaller **colonies**, although these results did not reach statistical significance (data not **shown**).
Cited by: 371 **Author:** Mahmood S Choudhery, Mahmood S Ch...
Publish Year: 2014

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