Fig. 8


RightsLink
Help
Live Chat
Bone marrow mesenchymal stem cell-derived exosomes protect cartilage damage and relieve knee osteoarthritis pain in a rat model of osteoarthritis
SPRINGER NATURE
Author: Lei He et al
Publication: Stem Cell Research & Therapy
Publisher: Springer Nature
Date: Jul 10, 2020
Copyright © 2020, The Author(s)
Creative Commons
This is an open access article distributed under the terms of the Creative Commons CC BY license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
You are not required to obtain permission to reuse this article.
CC0 applies for supplementary material related to this article and attribution is not required.

Fig. 9

ELSEVIER LICENSE
TERMS AND CONDITIONS

Oct 05, 2022

This Agreement between Zichang Liu ("You") and Elsevier ("Elsevier") consists of your license details and the terms and conditions provided by Elsevier and Copyright Clearance Center.

License Number	5402521090687
License date	Oct 05, 2022
Licensed Content Publisher	Elsevier
Licensed Content Publication	Biomaterials
Licensed Content Title	MSC exosomes alleviate temporomandibular joint osteoarthritis by attenuating inflammation and restoring matrix homeostasis
Licensed Content Author	Shipin Zhang,Kristeen Ye Wen Teo,Shang Jiunn Chuah,Ruenn Chai Lai,Sai Kiang Lim,Wei Seong Toh
Licensed Content Date	Apr 1, 2019
Licensed Content Volume	200
Licensed Content Issue	n/a
Licensed Content Pages	13
Start Page	35
End Page	47
Type of Use	reuse in a journal/magazine
Requestor type	academic/educational institute

Fig. 9

Portion	figures/tables/illustrations
Number of figures/tables/illustrations	4
Format	both print and electronic
Are you the author of this Elsevier article?	No
Will you be translating?	No
Title of new article	Breakthrough of extracellular vesicles in pathogenesis, diagnosis, and treatment of osteoarthritis
Lead author	Zichang Liu, Yu Zhuang, Lianfei Fang, Kaili Lin
Title of targeted journal	Bioactive Materials
Publisher	Elsevier
Expected publication date	Oct 2022
Portions	Figures 2,3,5,8
Requestor Location	Zichang Liu Room1404, building 24, Shiquan Road 300 Shanghai, 200061 China Attn: Zichang Liu
Publisher Tax ID	GB 494 6272 12
Total	0.00 USD

Fig.10

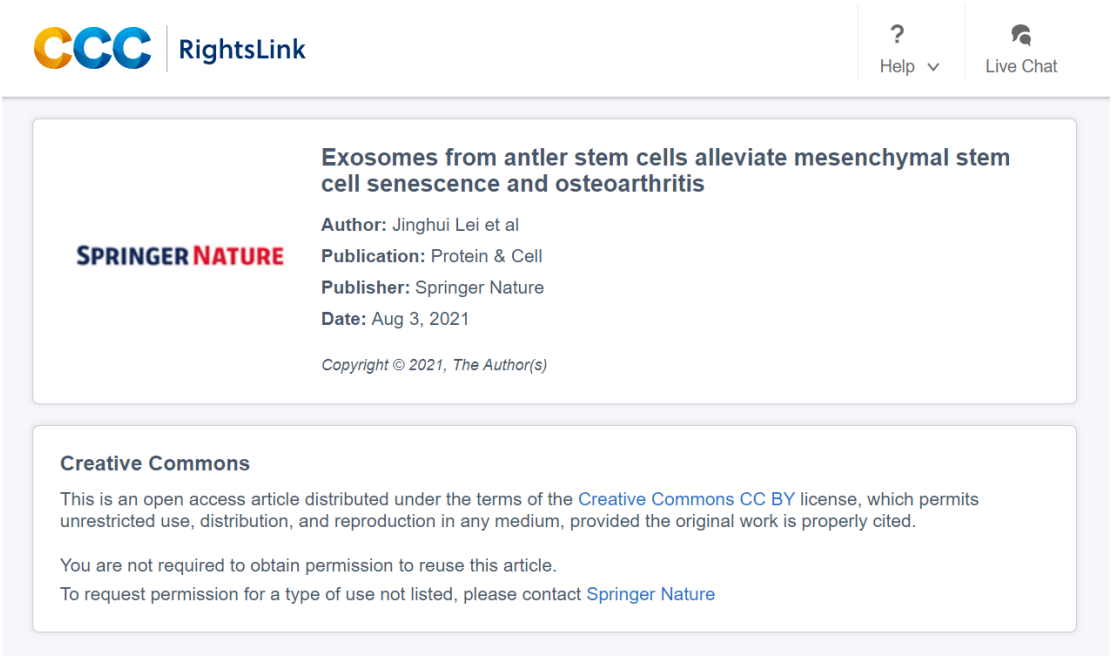
RightsLink
Help
Live Chat
Exosomes from antler stem cells alleviate mesenchymal stem cell senescence and osteoarthritis
Author: Jinghui Lei et al
Publication: Protein & Cell
Publisher: Springer Nature
Date: Aug 3, 2021
Copyright © 2021, The Author(s)
Creative Commons
This is an open access article distributed under the terms of the Creative Commons CC BY license, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
You are not required to obtain permission to reuse this article.
To request permission for a type of use not listed, please contact Springer Nature

Fig.12

Help

Live Chat

Curcumin-primed human BMSC-derived extracellular vesicles reverse IL-1β-induced catabolic responses of OA chondrocytes by upregulating miR-126-3p

Author: Shushan Li et al

Publication: Stem Cell Research & Therapy

Publisher: Springer Nature

Date: Apr 29, 2021

Fig.13

CLINICAL AND TRANSLATIONAL MEDICINE
Open Access

RESEARCH ARTICLE | Open Access

The umbilical cord mesenchymal stem cell-derived exosomal lncRNA H19 improves osteochondral activity through miR-29b-3p/FoxO3 axis

Litao Yan, Gejun Liu, Xing Wu

First published: 13 January 2021 | https://doi.org/10.1002/ctm2.255 | Citations: 17

Fulltext @SJTU

Litao Yan and Gejun Liu contributed equally to this work.

SECTIONS PDF TOOLS SHARE

Abstract

Background

Our previous study revealed that the exosomal lncRNA H19 derived from umbilical cord mesenchymal stem cells (UMSCs) plays a pivotal role in osteochondral regeneration. In this study, we investigated whether the exosomal lncRNA H19 could act as a competing endogenous RNA (ceRNA) to potentiate osteochondral activity in chondrocytes.

Methods

Dual-luciferase reporter assay, RNA pull-down, RNA immunoprecipitation (RIP), and fluorescence in situ hybridization (FISH) were carried to verify the interaction between miR-29b-3p and both lncRNA H19 and the target mRNA FoxO3. Chondrocytes were treated with UMSC-derived exosomes, which highly expressing lncRNA H19 expression, followed by apoptosis, migration, senescence, and matrix secretion assessments. An in vivo SD rat cartilage defect model was carried out to explore the role and mechanism of lncRNA H19/miR-29b-3p.

Volume 11, Issue 1
January 2021
e255
This article also appears in:
Clinical and Translational Medicine Top Cited Articles Published in 2020 and 2021

Figures References Related Information

Details

Fig. 14-Left

ELSEVIER LICENSE
TERMS AND CONDITIONS

Oct 05, 2022

This Agreement between Zichang Liu ("You") and Elsevier ("Elsevier") consists of your license details and the terms and conditions provided by Elsevier and Copyright Clearance Center.

License Number	5402530505552
License date	Oct 05, 2022
Licensed Content Publisher	Elsevier
Licensed Content Publication	Biomaterials
Licensed Content Title	Exosome-mediated delivery of kartogenin for chondrogenesis of synovial fluid-derived mesenchymal stem cells and cartilage regeneration
Licensed Content Author	Xiao Xu,Yujie Liang,Xingfu Li,Kan Ouyang,Manyi Wang,Tong Cao,Wencui Li,Jianquan Liu,Jianyi Xiong,Biquan Li,Jiang Xia,Daping Wang,Li Duan
Licensed Content Date	Feb 1, 2021
Licensed Content Volume	269
Licensed Content Issue	n/a
Licensed Content Pages	1
Start Page	120539
End Page	0
Type of Use	reuse in a journal/magazine
Requestor type	academic/educational institute

Fig. 14-Left

Portion	figures/tables/illustrations
Number of figures/tables/illustrations	3
Format	both print and electronic
Are you the author of this Elsevier article?	No
Will you be translating?	No
Title of new article	Breakthrough of extracellular vesicles in pathogenesis, diagnosis, and treatment of osteoarthritis
Lead author	Zichang Liu, Yu Zhuang, Lianfei Fang, Kaili Lin
Title of targeted journal	Bioactive Materials
Publisher	Elsevier
Expected publication date	Oct 2022
Portions	Scheme 1 and Figures 3,5
Requestor Location	Zichang Liu Room1404, building 24, Shiquan Road 300 Shanghai, 200061 China Attn: Zichang Liu
Publisher Tax ID	GB 494 6272 12
Total	0.00 USD

Fig.14-Right

Reversing the surface charge of MSC-derived small extracellular vesicles by εPL-PEG-DSPE for enhanced osteoarthritis treatment

Kai Feng, Xuetao Xie, Ji Yuan, Liangzhi Gong, Zhaochen Zhu, Juntao Zhang, Haiyan Li, Yunlong Yang, Yang Wang

First published: 01 November 2021 | https://doi.org/10.1002/jev2.12160 | Citations: 1

Fulltext @SJTU

SECTIONS PDF TOOLS SHARE

Abstract

Mesenchymal stem cell-derived small extracellular vesicles (MSC-sEVs) possess a great therapeutical potential for osteoarthritis (OA) treatment. However, the steric and electrostatic hindrance of cartilage matrix leads to very limited distribution of MSC-sEVs in cartilage and low bioavailability of MSC-sEVs after intra-articular injection. To overcome this, a strategy to reverse the surface charge of MSC-sEVs by modifying the MSC-sEVs with a novel cationic amphiphilic macromolecule namely ε-polylysine-polyethylene-distearyl phosphatidylethanolamine (PPD) was developed in this study. Through incubation with 100 μg/ml PPD, positively charged MSC-sEVs (PPD-sEVs) were obtained, and the modification process showed nearly no disturbance to the integrity and contents of sEVs and exhibited good stability under the interference of anionic macromolecules. A more effective cellular uptake and homeostasis modulation ability of PPD-sEVs than unmodified MSC-sEVs to chondrocytes was demonstrated. More importantly, PPD-sEVs demonstrated significantly enhanced cartilage uptake, cartilage penetration, and joint retention capacity as compared to MSC-sEVs. Intra-articular injection of PPD-sEVs into a mouse OA model showed significantly improved bioavailability than MSC-sEVs, which resulted in enhanced therapeutic efficacy with reduced injection frequency. In general, this study provides a facile and effective strategy to improve the intra-articular bioavailability of MSC-sEVs and has a great potential to accelerate the clinical practice of MSC-sEVs based OA therapy.

Figures References Related Information

Details

Research Funding

Fig.15

IVYSPRING INTERNATIONAL PUBLISHER

Theranostics

2022; 12(11): 4866-4878. doi: 10.7150/thno.69368

Research Paper

Chondrocyte-specific genomic editing enabled by hybrid exosomes for osteoarthritis treatment

Yujie Liang[1,2*], Xiao Xu[1*], Limei Xu[1*], Zoya Iqbal[1], Kan Ouyang[1], Huawei Zhang[3], Chunyi Wen[4,5], Li Duan[1]✉, Jiang Xia[2]✉

1. Department of Orthopedics, the First Affiliated Hospital of Shenzhen University, Shenzhen Second People's Hospital, Shenzhen 518035, China.
2. Department of Chemistry, the Chinese University of Hong Kong, Shatin, Hong Kong SAR, China.
3. Department of Biomedical Engineering, South University of Science and Technology of China, Shenzhen, 518055, China.
4. Department of Biomedical Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, China.
5. Research Institute of Smart Ageing, The Hong Kong Polytechnic University, Hong Kong SAR, China.

*These authors contributed equally to this work.

✉ Corresponding authors: E-mail: jiangxia@cuhk.edu.hk (J.X.); duanl@szu.edu.cn (L.D.).