ML 21-09 (30/03/2021)

Cytotherapy
.
. 2021 Feb 13;S1465-3249(20)30960-9.
doi: 10.1016/j.jcyt.2020.11.007. Online ahead of print.

Mesenchymal stromal cell variables influencing clinical potency: the impact of viability, fitness, route of administration and host predisposition

Jacques Galipeau[1], Mauro Krampera[2], Katarina Leblanc[3], Jan A Nolta[4], Donald G Phinney[5], Yufang Shi[6], Karin Tarte[7], Sowmya Viswanathan[8], Ivan Martin[9]
Affiliations expand

- PMID: 33714704

- DOI: 10.1016/j.jcyt.2020.11.007

Abstract

The International Society for Cell & Gene Therapy mesenchymal stromal cell (MSC) committee has been an interested observer of community interests in all matters related to MSC identity, mechanism of action, potency assessment and etymology, and it has regularly contributed to this conversation through a series of MSC pre-conferences and committee publications dealing with these matters. Arising from these reflections, the authors propose that an overlooked and potentially disruptive perspective is the impact of in vivo persistence on potency that is not predicted by surrogate cellular potency assays performed in vitro and how this translates to in vivo outcomes. Systemic delivery or extravascular implantation at sites removed from the affected organ system seems to be adequate in affecting clinical outcomes in many pre-clinical murine models of acute tissue injury and inflammatory pathology, including the recent European Medicines Agency-approved use of MSCs in Crohn-related fistular disease. The authors further propose that MSC viability and metabolic fitness likely dominate as a potency quality attribute, especially in recipients poised for salutary benefits as defined by emerging predictive biomarkers of response.

Cancer Manag Res

. 2021 Mar 16;13:2539-2548.

doi: 10.2147/CMAR.S302173. eCollection 2021.

RUNX2 as a promising therapeutic target for malignant tumors

Weizhu Zhao[1,2], Haiying Yang[3], Jie Chai[4], Ligang Xing[1]

Affiliations expand

- PMID: 33758548

- PMCID: PMC7981165

- DOI: 10.2147/CMAR.S302173

Free PMC article

Abstract

The transcription factor runt-related protein 2 (RUNX2) has an important impact on the transformation of bone marrow mesenchymal stem cells to osteoblasts. Further studies have shown that RUNX2 plays a key role in the invasion and metastasis of cancers. RUNX2 is a "key" molecule in the regulatory network comprised of multiple signaling pathways upstream and its target downstream molecules. Due to the complex regulatory mechanisms of RUNX2, the specific mechanism underlying the occurrence, development and prognosis of malignant tumors has not been fully understood. Currently, RUNX2 as a promising therapeutic target for cancers has become a research hotspot. Herein, we reviewed the current literature on the modulatory functions and mechanisms of RUNX2 in the development of malignant tumors, aiming to explore its potential clinical application in the diagnosis, prognosis and treatment of tumors.