Targeting and treatment of glioblastomas with human mesenchymal stem cells carrying ferrociphenol lipid nanocapsules

Titre	Targeting and treatment of glioblastomas with human mesenchymal stem cells carrying ferrociphenol lipid nanocapsules
Type de publication	Article de revue
Auteur	Clavreul, Anne [1], Montagu, Angélique [2], Lainé, Anne-Laure [3], Tétaud, Clément [4], Lautram, Nolwenn [5], Franconi, Florence [6], Passirani-Malleret, Catherine [7], Vessieres, Anne [8], Montero-Menei, Claudia [9], Menei, Philippe [10]
Pays	Nouvelle-Zélande
Editeur	Dove Medical Press
Ville	Auckland
Type	Article scientifique dans une revue à comité de lecture
Année	2015
Langue	Anglais
Date	2015
Pagination	1259-71
Volume	10
Titre de la revue	International Journal of Nanomedicine
ISSN	1178-2013
Mots-clés	drug delivery [11], Glioblastoma [12], Mesenchymal Stem Cells [13], nanoparticle [14], targeting [15]
Résumé en anglais	Recently developed drug delivery nanosystems, such as lipid nanocapsules (LNCs), hold great promise for the treatment of glioblastomas (GBs). In this study, we used a subpopulation of human mesenchymal stem cells, "marrow-isolated adult multilineage inducible" (MIAMI) cells, which have endogenous tumor-homing activity, to deliver LNCs containing an organometallic complex (ferrociphenol or Fc-diOH), in the orthotopic U87MG GB model. We determined the optimal dose of Fc-diOH-LNCs that can be carried by MIAMI cells and compared the efficacy of Fc-diOH-LNC-loaded MIAMI cells with that of the free-standing Fc-diOH-LNC system. We showed that MIAMI cells entrapped an optimal dose of about 20 pg Fc-diOH per cell, with no effect on cell viability or migration capacity. The survival of U87MG-bearing mice was longer after the intratumoral injection of Fc-diOH-LNC-loaded MIAMI cells than after the injection of Fc-diOH-LNCs alone. The greater effect of the Fc-diOH-LNC-loaded MIAMI cells may be accounted for by their peritumoral distribution and a longer residence time of the drug within the tumor. These results confirm the potential of combinations of stem cell therapy and nanotechnology to improve the local tissue distribution of anticancer drugs in GB.
URL de la notice	http://okina.univ-angers.fr/publications/ua13176 [16]
DOI	10.2147/IJN.S69175 [17]

Titre abrégé	Int J Nanomedicine
Identifiant (ID) PubMed	25709447 [18]

Liens
[1] http://okina.univ-angers.fr/anne.clavreul/publications
[2] http://okina.univ-angers.fr/publications?f[author]=24981
[3] http://okina.univ-angers.fr/publications?f[author]=10484
[4] http://okina.univ-angers.fr/c.tetaud/publications
[5] http://okina.univ-angers.fr/n.lautram/publications
[6] http://okina.univ-angers.fr/f.franconi/publications
[7] http://okina.univ-angers.fr/c.passirani/publications
[8] http://okina.univ-angers.fr/publications?f[author]=7021
[9] http://okina.univ-angers.fr/c.menei/publications
[10] http://okina.univ-angers.fr/ph.menei/publications
[11] http://okina.univ-angers.fr/publications?f[keyword]=7225
[12] http://okina.univ-angers.fr/publications?f[keyword]=8332
[13] http://okina.univ-angers.fr/publications?f[keyword]=7989
[14] http://okina.univ-angers.fr/publications?f[keyword]=7979
[15] http://okina.univ-angers.fr/publications?f[keyword]=19131
[16] http://okina.univ-angers.fr/publications/ua13176
[17] http://dx.doi.org/10.2147/IJN.S69175
[18] http://www.ncbi.nlm.nih.gov/pubmed/25709447?dopt=Abstract