EuroSciCon

June 17-18, 2019
London, UK

13th Edition of International Conference on

Advances in Tissue Engineering and Biomaterials Science

Asma Alanazi et al., J Biomedical Sci 2019, Volume 08

Comparative adhesive and migratory properties of mesenchymal stem cells from different tissues

Asma Alanazi[1,3], Hafsa Munir[1], Mohammed Alassiri[1,3], Lewis S.C. Ward, Helen M. McGettrick[2] and **Gerard B. Nash[1]**

[1]King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia

[2]University of Birmingham, UK

[3]Abdulaziz University for Health Sciences, KSA

Mesenchymal stem cells (MSC) are used in therapy, often by injection into the blood. We aimed to compare the adhesive and migratory properties of MSC from umbilical cords (UCMSC), bone marrow (BMMSC) or trabecular bone (TBMSC), which might influence delivery to injured tissue.MSC were perfused through glass capillaries coated with matrix proteins, collagen or fibronectin, or albumin. Adherent cells were counted microscopically and their spreading analysed over time. MSC migration through 8µm pore filters coated with the same proteins was analysed. The number of MSC adhering to collagen was greater than fibronectin, decreased as wall shear rate increased from 17 to 70s-1, and was in the order UCMSC>BMMSC>TBMSC. Conversely, spreading was more effective on fibronectin and was in the order BMMSC>TBMSC UCMSC. Migration was promoted by coating the lower surface of filters with either matrix protein, with UCMSC migrating more efficiently than BMMSC. MSC show origin-dependent variations in their efficiency of capture from flow and subsequent spreading or ability to migrate on matrix proteins. UCMSC showed most efficient capture from flow, which was followed by less spreading, but more rapid migration. These responses might be associated with more effective delivery from the circulation into damaged tissue.

Biography

Asma Alanazi, assistant professor of Physiology in College of Medicine at King Saud bin Abdulaziz University for Health Sciences, Riyadh, KSA.

as4asma2@hotmail.com