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Analysis of colony-forming unit-fibroblast efficiency from stem cells from umbilical cord equine cryopreserved with different mediums

Leandro Maia, Marianne Dias Camargos, Carolina Nogueira de Moraes, Milena da Silva Machado, Campo Amor Vieira da Cunha Neto and Fernanda da Cruz Landim-Alvarenga

Universidade Estadual Paulista Júlio de Mesquwita Filho, Brazil

The aim of the present work was to evaluate the colony-forming unit-fibroblast (CFU-F) efficiency of mesenchymal stem cells from inter vascular matrix of equine umbilical cord (MSC-UCMI) after cryopreservation with different mediums (M). For this, MSC-UCMI (n=5) previously characterized were cryopreserved using Mr frosty (Nalgene®) with the following protocols: M1: DMEM high glucose, 20% FBS, 10% DMSO; M2 (free from FBS): DMEM high glucose, 10% PVA, 10% DMSO; M3: 90% FBS, 10% DMSO; M4: 90% conditioned medium (DMEM high glucose + 20% FBS), 10% DMSO. After three months storage in liquid nitrogen, samples from M1, M2, M3, and M4 were thawed and seeded in low density (210 cells/ cm^2) for the assay of CFU-F in triplicate. The calculation of CFU-F efficiency was carried out using the formula: CFU-F efficiency= (counted CFU-F /cells originally seeded) x 100. The results obtained for the different protocols (M1, M2, M3 and M4) were analyzed using ANOVA followed by post-test Student-Newman-Keuls Method taking $P<0.05$ as significant. The results revealed good CFU-F efficiency for the cryopreserved samples with M1 (9.9 ± 1.4%), M3 (10.1 ± 1.0%) and M4 (10.9 ± 0.9%) without difference among these protocols ($P>0$, 05). On the other hand, MSC-UCMI cryopreserved with M2 (free from FBS) did not adhere and had no ability to form fibroblast colonies because of the low cell viability observed. It can be concluded that MSC-UCMI cryopreserved with medium containing FBS (M1, M3, and M4) have adequate capacity of *in vitro* self renewal and can be cultured after thawing.

Biography

Leandro Maia Graduated in Veterinary Medicine at Federal University of Viçosa (UFV) - Brazil, with honors. In 2008 completed his Masters in Clinical and Surgery of Large Animals by UFV and later Specialization in Physical Therapy and Veterinary Rehabilitation by the Faculty of Jaguariuna (2011). In 2012 became Doctor in Clinical and Surgery of Large Animals at the Faculty of Veterinary Medicine and Animal Science (FMVZ) UNESP Botucatu, Brazil. He is currently a postdoctoral researcher at FMVZ-UNESP with realization of research activities related to cultivation and stem cell biology, cryopreservation and proteomic analysis.

leandromvet@hotmail.com

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