



## THE EFFECT OF CRYOPRESERVATION ON WHARTON JELLY-DERIVED MESENCHYMAL STEM CELLS

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### ARTICLE INFO

Published: 26<sup>th</sup> August 2018

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### KEYWORDS

Cryopreservation;  
Stemness;  
Differentiation;  
Mesenchymal stem cells

### SUMMARY

Wharton jelly-derived mesenchymal stem cells (WJMSCs) isolated from umbilical cord have shown tremendous potentials in the applications of regenerative medicine, tissue engineering and immune therapy. Cryopreservation is commonly used to ensure its availability; however, this technique may result in the alteration of its self-renewal and stemness properties. This study is to investigate the effects of cryopreservation on the characteristics of WJMSCs. The morphology and proliferation of WJMSCs were examined under light microscope and trypan blue exclusion, respectively. Then, the expression of genes associated with stemness, differentiation and DNA methylation was analyzed using RT-PCR. WJMSCs used in this study were cultured at passage 6 and 9 and cryopreserved for 2 week and 6 months. The resulting morphology of the fresh and cryopreserved WJMSCs was found to retain their fibroblast-like morphology. There were no significant differences in the proliferation capacity of both cultures. Our preliminary results showed that cryopreservation has altered the expression of NANOG, RUNX2, OCN and DNMT genes. This study has shed light on potential implications of cryopreserved MSCs for clinical applications.

**Acknowledgement:** The authors thank Ministry of Higher Education for funding this project (TRGS0003-SG-2/2014).