Official Journal of TESMA
Regenerative Research
www.regres.tesma.org.my
E-ISSN 2232-0822
Tissue Engineering and Regenerative Medicine Society of Malaysia

**Regenerative Research 7(1) 2018 132**

# DETERMINING THE QUALITY OF FIBROBLASTS AFTER STORAGE USING GENE EXPRESSION ANALYSIS

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## ARTICLE INFO

Published: 26th August 2018
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## KEYWORDS

Fibroblast in suspension;
Gene expression;
Aesthetic;
Functionality;
Storage

## SUMMARY

**Introduction:** Regenerative medicine is creating a lot of excitement with regards to their potential uses in repairing, replacing and regenerating damaged tissues. Many aesthetic clinics are venturing into using autologous dermal fibroblast solution to correct age-related skin problems. Fibroblast derived from human skin tissue are believed to secrete growth factors and proteins such as type I collage and elastin which gives elasticity and firmness to the skin. As the fibroblast suspension need to be stored at the aesthetic clinic prior to application, it is important to confirm that the functionality of the fibroblast are retained after storage. This is done by evaluating the expression of genes related to fibroblasts functionality for aesthetic application. **Materials & Methods:** Human dermal fibroblasts were cultured until Passage 2. The harvested cells were suspended in F-12:Dulbecco's Modified Eagle Medium (FD Medium) and stored at 4°C for 5, 24, 48, 72 and 96 hours. The cells at 0 hour were used as control. Gene expression using RT-qPCR was carried out at different storage time points. The genes analysed were *bFGF*, *Col1*, *Eln* and *Pcolce* which code for fibroblast growth factor, collagen type 1, elastin and procollagen C-endopeptidase enhancer 1 respectively. **Results and Discussion:** The p-values of *bFGF*, *Col1*, *Eln* and *Pcolce* were found to be 0.9808, 0.9323, 0.9842 and 0.9938 respectively. The results showed that there were no significant differences in gene expression throughout the different storage period. The fibroblasts were shown to retain their ability to express these genes even after 96 hours of storage. **Conclusion:** This study found that human dermal fibroblast can be stored in FD Medium at 4°C for at least 96 hours and still retains their functionality, Therefore, there is no compromise in the cell quality after storage and they are deem fit to be used in aesthetic applications.

**Acknowledgement:** This Demand-Driven Innovation Project by Public-Private Research Network (PPRN) was awarded to Tissue Engineering Centre, University Kebangsaan Malaysia and Cell Tissue Technology Sdn. Bhd. and funded by the Ministry of Education, Malaysia. Grant No: PPRN-2015-006.