Evaluation of β-actin as a Reference Gene for Comparative Expression Analysis of Equine Adipose- and Bone Marrow-Derived Mesenchymal Stem Cells by qRT-PCR

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Background

Bone marrow and adipose tissue are two main sources of mesenchymal stem cells (MSCs). Some of studies suggest that there are some differences in gene expression profile of MSCs-derived from various tissues. To investigate gene expression profile by qRT-PCR, an appropriate reference gene with stable expression level should be chosen for normalizing data. This study was designed to evaluate the stability of β-actin expression as a reference gene for studying comparative gene expression analysis of equine adipose- and marrow-derived MSCs.

Materials and Method:

MSCs were isolated from adipose tissue and bone marrow of two mares and cultured until passage 3 (P3). Total RNA of P3 cells was extracted and purity and quantity of RNA was assessed. cDNA was synthesized and qRT-PCR was performed in triplicate with β-actin primers.

Results:

Our analyses indicated that expression level of β-actin gene is different between adipose- and marrow-derived MSCs significantly. Mean ± SD of Ct was 21.13 ± 0.96 and 16.02 ± 0.88 for bone marrow- and adipose derived MSCs, respectively.

Conclusion: Based on the results, it is suggested that β-actin is not a suitable gene for comparative gene expression analyses of equine adipose- and marrow- derived MSCs.

Keywords: Adipose, Bone marrow, Equine, β-actin, Mesenchymal stem cells.

Poster Presentation

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