A Zajkowska et al., J Stem Cell Res Ther 2017, 7:3(Suppl)
http://dx.doi.org/10.4172/2157-7633.C1.024

MicroRNA signature of the B16-F10 melanoma cells infected with adeno-associated viral vectors

A Zajkowska, M Czajka, Ż Słyk, A Kacprzak and **M Małecki**
Medical University of Warsaw, Poland

Background: Strategy of gene delivery using viral vectors based on the adeno-associated virus (AAV) is becoming more and more popular in the field of gene therapy. Despite many advantages of AAV vectors like, ability to infect either dividing and non-dividing cells or lack of pathogenicity, still a great challenge is to improve the efficiency of AAV transduction, which could be modulated by gene expression. It is known, that gene expression is regulated by microRNAs' (miRNA) action. MicroRNAs are a class of endogenous, non-coding RNA, which are able to inhibit translation process via interaction with complementary sequences in targeted mRNA. The aim of this study was to investigate the miRNA profile in melanoma cells transduced with rAAV vectors *in vivo* and *in vitro*.

Materials & Methods: The B16-F10 cells were transduced with rAAV2/2 and rAAV2/6 vectors. For *in vivo* experiments both viral vectors were administrated by intranasal and intraperitoneal injection to B16-F10 melanoma cells metastasized to lungs of the C57BL/6 mice. Total RNA was isolated using TRIZOL reagent. Profile of selected miRNAs was analysed with Custom TaqMan Array microRNA Cards (TLDA).

Results: The rAAV transduction affects the miRNAs profile both *in vitro* and *in vivo* model. The most of detected miRNAs were upregulated in cells transduced with rAAV2/6 (107 gc) and rAAV2/2 (10^5 gc) vectors, whereas cells infection with rAAV2/6 (10^5 gc) and rAAV2/2 (10^7 gc) vectors mainly resulted in downregulation of miRNAs. In *in vivo* studies, we observed that only miRNA-1, miRNA-133 and miRNA-206 were upregulated in the rAAV intranasal infection.

Conclusion: It is worth considering the miRNAs role as potential factors that could have an impact on the efficiency of AAV transduction.

Biography

A Zajkowska is a PhD Scholar at the Department of Applied Pharmacy in the Medical University of Warsaw. She is interested in miRNA molecules and their role in the AAV transduction. Moreover she is working on the miRNAs' role as biomarkers of cardiovascular diseases.

agnieszka.zajkowska@wum.edu.pl

Notes: