

BSTR-33

The Search for MicroRNA Targets in the RhoX Family of Homeotic Genes for Fertility and Gametogenesis Regulation

T SHKURAT¹, D ROMANOV¹, N KSENZ¹, E ROGACHEVA², M SHKURAT¹, A PANICH¹

¹Southern Federal University, Russia, ²Rostov State Medical University, Russia

Background & Hypothesis:

Homeotic genes are genes which regulate growth and differentiation processes in an organism. Homeotic genes are important in fertility and gametogenesis. In homeotic genes, clusters are common non-coding RNAs. The aim of this work was to study the micro RNA localisation in the RhoX family of homeotic genes and clusters in cis-regulatory regions.

Methods:

The cis-regulatory regions of RhoX of homeotic genes are *RhoX1*, *RhoX2*, *RhoX2b*, and they were obtained from the NCBI Gene database. MiRNA sequences were obtained from the miRBase. Bio-informatic search was carried out using Mscanner, a miRTarBase software. The similarity index minimum was 0.85.

Results:

A total of 45 different types of sites in homologous mature micro RNA, 23 sites in homologous pre-micro RNAs in the surrounding area of the *RhoX1* family gene, 8 sites in mature micro RNA, and 6 sites pre-micro RNA in the surrounding area of the *RhoX2*, *RhoX2b* family genes were found. Mir-7053 localised in exon *RhoX2* and *RhoX2b* family genes enabled simultaneous regulation of these genes. The cis-regulatory regions of genes discovered 13 copies of *hsa-mir-3929*. The *hsa-mir-3929* is involved in the regulation of female reproductive cycle in humans as shown in the analysis of the miRTarBase database.

Discussion & Conclusion:

The MicroRNA collection further studied the regulation of proliferation and differentiation processes in germ cells, obtaining *mir-3929*, *5096-mir*, *mir-1268*, and *mir-466i*, *mir-619*, *mir-1273*, *mir-5096*, *mir-3473*, *mir-3929*, *mir-566*. Analytical work was carried out on the equipment of Center for collective use High Technology of SFedU. This research was supported by the Ministry of Education and Science of Russia №6.703.2014/K.



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