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Data Article

Microarray dataset of Jurkat cells following miR-93 over-expression



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ARTICLE INFO

Article history:

Received 23 March 2016

Received in revised form

27 April 2016

Accepted 3 June 2016

Available online 20 June 2016

Keywords:

miR-93

T-lymphocytes

Homo sapiens

Microarray

ABSTRACT

The dataset presented here represents a microarray experiment of Jurkat cell line over-expressing miR-93 after lentiviral transgenic construct transduction. Three biological replicates have been performed.

We further provide normalized and processed data, log₂ Fold Change based ranked list and GOterms resulting table. The raw microarray data are available in the ArrayExpress database (www.ebi.ac.uk/arrayexpress) under accession number ArrayExpress: E-MTAB-4588.

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Specifications Table

Subject area	Biology
More specific subject area	Molecular biology
Type of data	Text, excel file, table
How data was acquired	Affymetrix Human Genome HG U133 Plus 2.0 array
Data format	Raw, processed

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¹ The authors wish it to be known that, in their opinion, the first two authors should be regarded as joint First Authors.

Experimental factors	<i>miR-93 was over-expressed in Jurkat cells by transduction with a lentiviral transgenic construct encoding for miR-93 under a PGK promoter. A cognate vector encoding for a control hairpin was used to generate control cell line.</i>
Experimental features	<i>We analyzed the whole-transcript expression profiling of Jurkat cells (T-ALL cell line) over-expressing miR-93 using a microarray experiment.</i>
Data source location	<i>University of Rome, “La Sapienza”, Rome, Italy</i>
Data accessibility	Data is within this article and microarray data are available through Array Express repository (Accession Number ArrayExpress: E-MTAB-4588)

Value of the data

- A global gene expression analysis of human Jurkat cells (T-ALL cell line) over-expressing miR-93.
 - miR-93 is frequently dysregulated in several human malignancies. This dataset can represent a further insight into gene expression changes and GO Terms associated with miR-93 over-expression.
 - These data can represent a benchmark for further experiments in order to clarify the meaning of the biological processes identified by the in silico data analysis.
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1. Data

The Affymetrix mRNA profile data are provided as.CEL files deposited on Array Express (<http://www.ebi.ac.uk/arrayexpress/arrays/E-MTAB-4588>). RNA was extracted from miR-93 over-expressing Jurkat cells (pRRL-93) and matched control cell line (pRRL-Ctrl). Three biological replicates have been performed. Data have been normalized and processed as described in the following section. The attached excel file ([miR93_all_filtered_genes.xls](#)) represents the filtered dataset with relative adjusted *p*-values.

2. Experimental design, materials and methods

2.1. Cell and culture conditions

Jurkat cells were purchased from Deutsche Sammlung von Mikroorganismen und Zellkulturen (DSMZ) and cultured in RPMI-1640 Medium (SIGMA) supplemented with 10% fetal bovine serum (SIGMA), at 37 °C in a 5% CO₂ atmosphere.

2.2. Construction of a lentiviral vector expressing miR-93

PGK-miR93 expression construct was obtained amplifying a region of about 200 nt containing miR-93 precursor, from human genomic DNA. We used the following primers designed to incorporate RsrII and XbaI restriction sites and 6 bp of extra random sequence to aid in restriction digestion: 5'CGCGCGGGACCGCCACTTCTTAACCTTC-3' (forward), 5'GCGCGTCTAGAGAGTTCAGCTGTCTGTG-3' (reverse). The amplified region was cloned into the RsrII NheI sites of #1074.1071.hPGK.GFP.WPRE.mhCMV.dNGFR.SV40PA (kindly provided by Prof Luigi Naldini). PGK-control was obtained by substituting miR-93 precursor fragment (RsrI–NheI) with a sequence encoding for an hairpin yielding a 22-mer RNA designed to lack homology to any human gene. The lentiviral vector expressing miR-93 and the packing vectors pLP1, pLP2, and pLP/VSVG were co-transfected into HEK293T cells, and culture medium was collected at 48 h. The medium was filtered through 0.45-µm pore nitrocellulose filters and then centrifuged in a Beckman ultracentrifuge (Beckman, Optima™ LE-80K) at 25,000 rpm for 2 h at 4 °C. The precipitate was re-suspended in RPMI complete medium. The viral supernatant and Polybrene 8 µg/ml were added to the Jurkat cells.

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