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Data Article

Data on the gene expression of cardiomyocyte exposed to hypothermia

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ABSTRACT

Hypothermia is widely used in neurosurgery and cardiac surgeries. However, little is known about the underlying molecular mechanisms. We previously reported that the transcriptome responses of cardiomyocyte exposed to hypothermia, "The transcriptome responses of cardiomyocyte exposed to hypothermia" [4]. Herein, we provide the hypothermia inhibited proliferation of cardiomyocyte cells in vitro and the details of transcription factors in regulation of differentially expressed genes.

Specifications Table

Subject area	Biology
More specific subject area	Hypothermia and cardiology
Type of data	Tables and figures
How data was acquired	Polymerase Chain Reaction (Applied Biosystems PCR System 7900); Affymetrix GeneChip HTA 2.0 arrays (Affymetrix, Santa Clara, USA) were hybridized with biotin-labeled RNA probes.
Data format	Analyzed
Experimental factors	Adult ventricular cardiomyocyte cells (AC16) was treated with hypothermia

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Experimental features	Cells were cultured at 37 °C or 28 °C with 5% CO_2 for 6 h
Data source location	Shenyang city, Liaoning province, China
Data accessibility	Data are presented in this article

Value of the data

- The data provides the inhibition of hypothermia on the cardiomyocytes in vitro culture.
- This data provides the details of differentially expressed genes (DEGs) of cardiomyocytes exposed on hypothermia.
- The data may stimulate further research on the function of transcription factor (TF) stimulated in cardiomyocytes under hypothermia.

1. Data

The viable cell number was determined by Cell Counting Kit-8 (CCK-8) assay (Fig. 1). As shown in Fig. 1, the relative cell number of hypothermia was decreased as the time of hypothermia culture.

The details of changed genes are listed in Supplementary Table S1.

Pathway enrichment analysis was performed considering the notion that different genes cooperate with each other to exercise their biological functions. The changed pathways are listed in Supplementary Table S2.

The details of TFs in regulation of DEGs are listed in Supplementary Table S3.

Primers for the 11 randomly selected differentially expressed genes are listed in Supplementary Table S4. The amount of 18s, a constitutive transcript (endogenous control) was normalized to check the fold change in the expression of the target genes (Fig. 2).

2. Experimental design, materials and methods

2.1. Experimental design and hypothermia treatment

AC16 human adult ventricular cardiomyocytes were cultured in incubator with normal temperature (37 °C) and 5% CO_2. The hypothermia treated AC16 cells were cultured in another incubator with low temperature (28 °C) and 5% CO_2. The cells incubated for six hours and the RNA was extracted using the TRIzol (Invitrogen) reagent. This experiment was repeated three times ($N=3$). Then, the RNA was isolated by Genminix Co. (Shanghai, China). Finally, the microarray hybridization was completed [4].

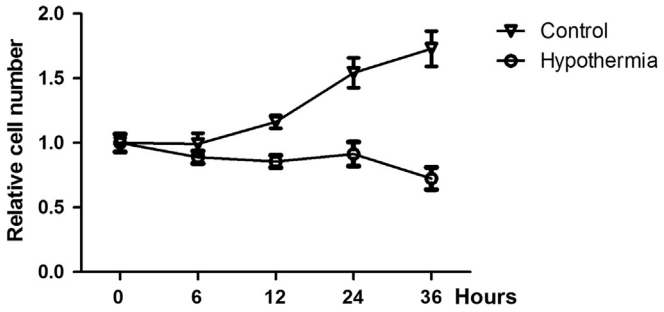

Fig. 1. Hypothermia inhibited proliferation of cardiomyocyte cells.
Cell proliferation was detected by CCK-8 assay at various time points according to the guidance of the manufacturer.