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# EFFECT OF GLUTAMINE DEPRIVATION ON THE EXPRESSION OF *DEK*, *TPD52*, *BRCA1*, *ADGRE5*, *LIF*, *GNPDA1*, AND *COL6A1* GENES IN IRE1 KNOCKDOWN U87 GLIOMA CELLS

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**Introduction.** Glutamine is an important factor of glioma development and a more aggressive behaviour. The aim of this study was investigation of the effect of glutamine deprivation on the expression of genes encoding the key proliferation associated factors on a relation to inhibition of IRE1 in U87 glioma cells.

**Methods.** The expression of *DEK*, *TPD52*, *BRCA1*, *ADGRE5*, *LIF*, *GNPDA1*, and *COL6A1* genes in U87 glioma cells transfected by empty vector pcDNA3.1 (control) and cells without IRE1 signaling enzyme function (transfected by dnIRE1) was studied by qPCR. The data were analyzed by 2-tailed Student's *t*-test.

**Results.** It was shown that glutamine deprivation down-regulated the expression of *DEK*, *BRCA1*, *LIF*, and *COL6A1* genes in control glioma cells (transfected by empty vector), up-regulated *ADGRE5* gene expression, and did not significantly change the expression of *TPD52* and *GNPDA1* genes. Inhibition of IRE1 signaling enzyme activity modified the effect of glutamine deprivation on the expression of *TPD52*, *BRCA1*, *LIF*, *DEK*, *ADGRE5*, and *COL6A1* genes: induces the effect of glutamine deprivation on *TPD52* and *GNPDA1* genes, reduced – on *COL6A1* gene, and enhanced – on *ADGRE5*, *DEK*, and *BRCA1* genes in U87 glioma cells.

**Discussion.** Therefore, this study has demonstrated that glutamine deprivation affects the expression of the majority of the studied genes encoding important proliferation related factors preferentially in the IRE1-dependent manner and that these changes potentially contribute to suppression of glioma cell proliferation upon glutamine withdrawal.

**Conclusions.** Our results demonstrate, that glutamine deprivation affect the expression level of most studied proliferation associated genes in U87 glioma cells in relation to the functional activity of IRE1 signaling enzyme, which is responsible for control of cell proliferation and glioma growth.

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