

Title:

Long non-coding RNA CRNDE regulates glioma cell growth via EGFR signaling pathway

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Abstract:

Background

CRNDE is a long non-coding RNA that has enhanced expression gliomas, and shows a positive correlation with tumor malignancy grades. However, knowledge is limited about its functions in gliomagenesis as well as the underlying molecular mechanisms. In this study, we aimed to explore the functional roles of CRNDE in regulating glioma cell growth.

Methods and Results

The expression pattern of CRNDE in glioma clinical samples as well as cell lines was first evaluated by using Q-PCR. It was confirmed that CRNDE was highly up-regulated in gliomas as compared to the normal astrocytes, and negatively correlated with the patient overall survival. Functional assay demonstrated that CRNDE knock down by siRNA transfection dramatically inhibited glioma cell growth, including increasing cell apoptosis, arresting cell cycle in G0/G1 phase and impairing cell invasion. Further analysis revealed the significant associations between CRNDE expression and EGFR signaling. Activation of EGFR signaling by EGF or inhibition by EGFR-tyrosine kinase inhibitors (TKI) may further enhance or suppress the CRNDE expression as well cell growth, respectively. These results suggest that the expression and function of CRNDE are EGFR signaling-dependent.

Conclusions

The identification of CRNDE and its oncogenic role in regulating glioma cell growth may provide a potential novel target for glioma therapy.