MicroRNAs and glioblastoma: roles in core signaling pathways and potential clinical implications.

Sana J, Hajduch M, Michalek J, Vyzula R, Slaby O.
Masaryk Memorial Cancer Institute, Department of Comprehensive Cancer Care, Brno, Czech Republic Laboratory of Experimental Medicine, Institute of Molecular and Translational Medicine, Faculty of Medicine and Dentistry, Palacky University and University Hospital in Olomouc, Czech Republic University Cell Immunotherapy Center, Faculty of Medicine, Masaryk University, Brno, Czech Republic Central European Institute of Technology, Masaryk University, Brno, Czech Republic.

Abstract
MicroRNAs (miRNAs) are endogenously expressed small noncoding RNAs that act as post-transcriptional regulators of gene expression. Dysregulation of these molecules has been indicated in the development of many cancers. Altered expression levels of several miRNAs were identified also in glioblastoma. It was repeatedly found that miRNAs are involved in important signaling pathways, which play roles in crucial cellular processes, such as proliferation, apoptosis, cell cycle regulation, invasion, angiogenesis and stem cell behavior. Therefore, miRNAs represent promising therapeutic targets in glioblastoma. In this review, we summarize the current knowledge about miRNAs significance in glioblastoma, with special focus on their involvement in core signaling pathways, their roles in drug resistance and potential clinical implications.

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