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Project: **Targeting microRNA-143 in Glioblastoma multiforme**

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Abstract:

Glioblastoma (GBM), or grade IV Astrocytoma, is the most malignant and lethal of brain tumors. In the United States, the incidence of GBM is about 17% of all primary brain tumors and about 60-75% of all Astrocytomas (American Brain Tumor Association, 2016). Despite improvements in brain imaging techniques, surgery, radiotherapy, and the advent of targeted therapies, the median survival rate for GBM has remained 15 months for the last 20 years. Thus, the identification of novel targets for GBM therapy are urgently necessary. A promising target for GBM therapy is microRNA-143 (miR-143). MicroRNAs (miRNAs) are small non-coding RNAs of 18-22 nucleotides in length that regulate gene expression at the post-transcriptional level. Deregulation of miRNAs has been associated with GBM initiation, progression, tumor maintenance, and drug resistance. MiR-143 has been shown to have a role in tumor progression, cancer cell growth, and invasiveness of cancer cells, including GBM cells [10; 11]. However, there is a controversy about the role of miR-143 as a tumor suppressor or oncogene in GBM which is a gap in the knowledge we intended to cover in this study.

A miR-143 expression profile from patient formalin-fixed paraffin-embedded samples (FFPE) we performed showed its upregulation in GBM patients compared to controls, which intrigued us to further test the role of this microRNA in GBM tumor progression. Therefore, the objective of this project is to determine the biological, molecular, and therapeutic effects of targeting miR-143 in glioblastoma cell lines and mouse models.