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Evaluation of the Reelin signaling in cancer stem cells isolated from tumor and peritumor tissue of glioblastoma

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Reelin is a large secreted extracellular glycoprotein that plays a critical role in the regulation of neuronal migration during brain development. Reelin is thought to guide migrating neurons by interacting with cell surface receptors, very low density lipoprotein receptor (VLDLR), apolipoprotein E receptor 2 (ApoER2), and a3 b1integrin, inducing tyrosine phosphorylation of the intracellular adapter protein Disabled-1 (Dab-1) that instructs neurons to reach their correct laminar position in the cortex. Recent evidence supports a role of Reelin in the control of cell proliferation through the activation of mitogen protein kinase (ERK) pathway. We have previously shown, by immunohistochemistry and stereological analysis, the expression of Reelin in both Glioblastoma (GBM) and in peritumor tissue. Moreover, we reported the expression of Reelin in cancer stem cells isolated from both tumor (GCSC) and peritumor tissue (PCSC), suggesting that this protein might contribute to neurosphere formation. Here we investigated by both Real-Time Polymerase Chain Reaction (RT-PCR) and Western Blotting (WB) analysis the gene and protein expression of Reelin and its intracellular adapter Dab-1 in GCSC and PCSC derived from four different patients. Analysis of gene and protein expression indicates higher level of Reelin and DAB-1 in PCSC compared to GCSC. These data suggest a possible role for Reelin and Dab-1 in the control of cell migration and GBM invasiveness.

References:

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Keywords:
Reelin; Dab-1; Cancer stem cells; Glioblastoma.