Platelet-derived growth factor associated protein-1: A plausible function in Gliomas

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Aim: The aim of this study was to investigate the role of PDAP-1 in PDGF signaling and its effect on PDGF downstream genes/proteins followed by the development of a novel combinatorial approach for the treatment of human malignant gliomas.

Methods: We studied the expression of PDAP-1 in grade III and grade IV glioma cell lines as well as in tissue samples followed by its knockdown in two GBM cell lines (U87MG and U373) with high PDAP-1 expression. We characterize the molecular alterations of PDGF signaling caused by PDAP-1 knockdown in glioma cells using various techniques. Interaction between PDAP-1 and PDGF was also established with different biophysical methods.

Results: We observed that the expression of PDAP-1 increases with the degree of malignancy and it is able to regulate the expression of PDGF-B and its downstream genes/proteins in human gliomas. It was also revealed that both PDAP-1 and PDGF-B are interacting partners which co-localize in the cytoplasm of glioma cells.

Conclusions: So far, there have been no studies showing the direct effect of PDAP-1 on PDGF signaling. Our results suggest that PDAP-1 may regulate the activity of PDGF and it can be used as a therapeutic target for the treatment of human gliomas.

Disclosure: All authors have declared no conflicts of interest.