Expression of coronin-3 (coronin-1C) in diffuse gliomas is related to malignancy


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Coronin-3 (coronin-1C), a homotrimeric F-actin binding protein, has been shown to be important for cell migration and brain morphogenesis. Here, we present for the first time a detailed analysis of the expression pattern of coronin-3 in human brain tumours and demonstrate that coronin-3 expression correlates with malignant phenotype in diffuse gliomas. In general, the expression of coronin-3 varies in different brain tumour entities. However, in diffuse gliomas, the number of coronin-3 expressing tumour cells correlates with the degree of malignancy. High-grade gliomas, such as anaplastic astrocytomas, anaplastic oligodendrogliomas, anaplastic oligoastrocytomas and glioblastomas, show high numbers of tumour cells positive for coronin-3, while diffuse low-grade gliomas, such as diffuse astrocytomas, oligodendrogliomas and oligoastrocytomas, exhibit low numbers of coronin-3-positive tumour cells. In order to explore and verify a contribution of coronin-3 to the malignant phenotype of diffuse gliomas, we employed an efficient shRNA-mediated coronin-3 knockdown in U373 and A172 human glioblastoma cells. Coronin-3 knockdown glioblastoma cells exhibited reduced levels of cell proliferation, cell motility and invasion into extracellular matrix compared to control cells. Together, our findings demonstrate evidence for a contribution of coronin-3 expression in the malignant progression of diffuse gliomas.