# Determination of ADP/ATP translocase isoform ratios in malignancy and cellular senescence

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Cellular senescence has recently been recognized as a significant contributor to the poor prognosis of glioblastoma, one of the most aggressive brain tumors. Consequently, effectively eliminating senescent glioblastoma cells could benefit patients. Human ADP/ATP translocases (ANTs) play a role in oxidative phosphorylation in both normal and tumor cells. Previous research has shown that the sensitivity of senescent cells to mitochondria-targeted senolytics depends on the level of ANT2. In this study, we systematically mapped the transcript and protein levels of ANT isoforms in various types of senescence and glioblastoma tumorigenesis. We employed bioinformatics analysis, targeted mass spectrometry, RT-PCR, immunoblotting, and assessment of cellular energy state to elucidate how individual ANT isoforms are expressed during the development of senescence in non-cancerous and glioblastoma cells. Notably, we consistently observed an elevation of ANT1 protein levels across all tested senescence types, while ANT2 and ANT3 exhibited variable changes. The alterations in ANT protein isoform levels correlated with shifts in the cellular oxygen consumption rate. Our findings suggest that ANT isoforms are mutually interchangeable for oxidative phosphorylation and manipulating individual ANT isoforms could be a potential target for senolytic therapy.