

Apoptosis inducing factor

Apoptosis inducing factor (AIF) is a family of mitochondrial **oxidoreductases** that play important roles in **mitochondrial** metabolism and **redox** control. AIF-1 has been demonstrated to exert cell-killing effect via apoptosis in cancer cells, whereas the role of AIF-2 in cancer cells has not been determined.

A study of Chen et al., aimed to investigate the role of AIF-2 in human glioma cells. They found that AIF-2 was upregulated in human glioma tissues and cell lines, especially in U251 cells. Downregulation of AIF-2 using specific siRNA (Si-AIF-2) significantly reduced cell proliferation, induced G1 cell cycle arrest and differently regulated the expression of cell cycle regulator proteins in U251 cells. In addition, the results of Matrigel invasion assay and live-cell tracking assay showed that knockdown of AIF-2 inhibited cell invasion and migration. The results of immunocytochemistry indicated that knockdown of AIF-2 significantly attenuated the nuclear translocation of AIF-1, which was confirmed by western blot analysis. Furthermore, downregulation of AIF-2 resulted in mitochondrial dysfunction in U251 cells, as evidenced by reduced mitochondrial membrane potential (MMP), mitochondrial complex I activity, and mitochondrial Ca²⁺ buffering capacity.

In conclusion, they found that AIF-2 plays a key role in promoting cell proliferation, invasion, and migration via regulating AIF-1-related mitochondrial cascades. Downregulation of the candidate oncogene AIF-2 might constitute a strategy to kill human glioma cells ¹⁾.

Unclassified

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