

## **Effects of Casein Kinase 2 Alpha Subunit on the Proliferation, Invasion and Migration of Pancreatic Cancer PANC-1 Cells via the PI3K/Akt/GSK-3 $\beta$ Pathway**

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**ABSTRACT** The researchers aimed to evaluate the functions of casein kinase 2 alpha subunit (CK2a) expression silencing in influencing pancreatic cancer (PC) PANC-1 cells from the aspects of invasion, proliferation and migration. As PC-1, PC PANC-1 and SW1990 cells exhibited significantly reduced CK2a mRNA expression level in contrast to normal pancreatic cells HPDE6-C7, while PC tissues displayed raised expression level compared with adjacent tissues ( $P < 0.05$ ). CK2a mRNA expression had significant correlations with nerve infiltration, lymph node metastasis, tumor differentiation degree and tumor-node-metastasis stage. After interfering with the expression of CK2a in PANC-1 cells, p-PTEN had elevated expression, while p-Akt473, p-GSK-3 $\beta$ , p-c-Raf, p-Akt308, p-PDK1, Snail and Vimentin,  $\beta$ -catenin had significantly down-regulated expressions, impeding cell growth, decreasing the number of healing wounds and invading cells. Moreover, the transplanted tumors were inhibited in terms of growth. For PC PANC-1 cells, their metastasis, proliferation and invasion were modulated by CK2a probably through regulating the PI3K/Akt/GSK-3 $\beta$  pathway that targeted epithelial-mesenchymal transition.