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Matricellular CCNI/Cyr61 as a regulator of pancreatic carcinogenesis in the sonic Hedgehog signaling pathway and the use of resveratrol for cancer pathway

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Cyr61 is a 42 kDa secreted protein from CCN-family, containing four different conserved molecular domains. Overproduction of Cyr61/CCN1 plays a critical role in the development and progression of pancreatic cancer, through the induction of EMT and stemness. Pancreatic cancer stem ce-lls (PCSC) are rare tumour cells characterized by their ability to self-renew, and are responsible for tumour recurrence accompanied by resistance to current therapies. Shh pathway is highly activated in pancreatic CSCs and plays important role in maintaining stemness by regulating the expression of stemness genes. Cyr61 expression has been found to be exorbitantly higher in cancer stem/tumour initiating Panc-1-side-population (SP) cells. Cyr61/CCN1 silencing in pancreatic CSCs results in reduced aggressive behaviour, reversing of the EMT, blocking of the expression of stem-cell-like traits and inhibition in migration. In contrast, addition of Cyr61 protein in culture medium augments EMT and stemness features in relatively less aggressive BxPC3 pancreatic cancer cells. The objective of this study is to investigate the role of CCN1 &Shh pathway in pancreatic cancer and to examine the molecular mechanisms by which CCN1 acts as a regulator for Shh pathway. Another objective of this study is to examine the molecular mechanisms by which resveratrol inhibits stem cell characteristics of pancreatic CSCs derived from human primary tumours and KrasG12D transgenic mice. Hence, this study aims to identify the role of CCN1 in pancreatic cancer and the possibility of resveratrol to be used as a therapeutic agent.

Biography

Rajiv Kumar Jha, completed PhD at the age of 30 from Xi'an Jiaotong University, School of Medicine, China. He did 3 years Post Doc research again at xi'an jiaotong University. He was awarded as Young International Scientist at National Natural Science Foundation of China. Presently he is working as a researcher and given a post of Vice president at Xian Medical College, Hu Xian. Xi'an, China. He is also editorial board member of World Journal of Methodology, Published more than 20 papers.

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