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STAT3 as a molecular target for prostate cancer prevention and therapy

Prostate cancer (PCa) is one of the most commonly diagnosed cancers worldwide. Currently available therapies for metastatic PCa are only marginally effective; hence novel treatment modalities are urgently required. Our group has recently analyzed the potential anticancer effects of nimbolide (NL), a limonoid triterpene derived from *Azadirachta indica*, against PCa cell lines and *in vivo* models. Data from the *in vitro* studies indicated that NL could significantly inhibit cell viability, induce apoptosis and suppress cellular invasion and migration. Interestingly, NL also abrogated STAT3 activation, and this effect was found to be mediated via increased accumulation of reactive oxygen species (ROS) due to GSH/GSSG imbalance. NL administration also significantly suppressed the tumor growth and metastasis in transgenic PCa mouse model without any significant adverse effects. Overall present studies demonstrate critical role of GSH/GSSG imbalance-mediated ROS production contributing to STAT3 inhibitory and tumor suppressive effect of NL in PCa.

Biography

Gautam Sethi after completion of his Postdoctoral training at University of Texas MD Anderson Cancer Center, joined Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore in 2008 as an Assistant Professor and was promoted to Associate Professor in 2015. The focus of his research over the past few years has been to elucidate the mechanism(s) of activation of oncogenic transcription factors such as NF-kB/STAT3 by carcinogens and inflammatory agents and the identification of novel inhibitors of these proteins for prevention and therapy for cancer. The findings of his research work have so far resulted in more than one hundred and fifty scientific publications in high impact factor peer reviewed journals and several international awards. He currently serves as an Academic Editor for PLOS, editorial board member of Scientific Reports, and ad-hoc reviewer for several other international journals.

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