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Effect of prolactin on cell proliferation in non-small cell lung cancer cells

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It has been known that the concentration of Serum Prolactin (PRL) in lung cancer patients is higher than in healthy people. Recent reports point out that the PRL expression level of lung cancer tissues is related to patient's survival rate. The lower survival rate occurs in patients who have higher PRL expression level. The aim of this study was to investigate the stimulatory mechanism of PRL in non-small cell lung cancer cells. We detected the effect of PRL on cell proliferation by MTT assay. The results show that cell proliferation was significantly increased after treatment with PRL by 50 nm for 24 hours. We also detected cell proliferation related signaling pathway JAK2/STAT3 and EMT (Epithelial–mesenchymal transition) marker by western blot. The protein levels of p-JAK2 and p-STAT3 were significantly increased after treatment with PRL. We also analyzed STAT3 regulated downstream gene VEGF mRNA level and protein level by qRT-PCR and western blot. VEGF mRNA and protein levels were significantly increased by PRL. The protein expressions of p-JAK2, p-STAT3 and VEGF were inhibited by JAK2 inhibitor AZD1480. AZD1480 treatment also led reduction of cell proliferation. Not only cell proliferation but also metastasis was led low survival rate in lung cancer patients. Results show that PRL also enhanced the protein levels of N-cadherin and vimentin. The protein expression of E-cadherin was decreased after treatment with PRL. We can conclude that these results suggested that PRL might promote NSCLC cells cell proliferation which was regulated through JAK2/STAT3 signaling pathway and EMT.

Biography

Paulus S Wang worked as a Professor at the Department of Physiology, National Yang-Ming University (NYMU). He is currently working as a Chair-Professor and also the Director in the Medical Center of Aging Research, China Medical University Hospital (CMUH) and also Founder of both the Society of Adaptive Science in Taiwan (SAST) and also the Taiwan Society of Endocrinology and Metabolism (TSEM).

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