The human autocrine growth hormone (GH) dependent activation of NF-κB p65 (RelA) in Epithelial Mesenchymal Transition (EMT) of mammary carcinogenesis

Srinivas Baskari, Paul K Marx and Ch Venkata Ramana Devi
Osmania University, India

Progression of breast cancers is often dependent on hormones. Previous reports have demonstrated that elevated levels of human Growth Hormone (hGH) and/or autocrine hGH expression contributes to breast cancer progression. The association between hormone (Estrogen, progesterone) and NF-κB p65 has been investigated by different scientists with controversial results in ER-positive and ER-negative cell lines. In the present investigation, role of autocrine production of human Growth Hormone (hGH) in the proliferation of mammary carcinoma cells (MCF-7) in vitro and molecular mechanisms responsible for metastatic growth of breast cancer was studied. For this we were stably transfected with an expression plasmid encoding the hGH gene in to MCF-7 cells and these cells (designated MCF-hGH) synthesized hGH in the cell and secreted hGH to the medium. For control purposes, a MCF cell line was generated (MCF-MUT) in which the start codon of the hGH gene was disabled and these cells transcribed the hGH gene without translation to hGH protein. The MCF-hGH cells increased the transcription factor NF-κB p65 which modulates the expression of genes involved in cell proliferation, differentiation, apoptosis and metastasis. Our results indicate that the autocrine Growth Hormone (GH) increases NF-κB p65 activity in breast cancer cell lines by RT-PCR data and western blot when compared with MCF-MUT cells. In addition to that, GH-dependent increase in NF-κB p65 expression results in loss of P- and E-cadherins in breast cancer cell line. This substantiate the hypothesis that certain breast cancer cells rely on NF-κB p65 for aberrant cell proliferation and simultaneously avoid apoptosis thus implicating activated NF-κB p65 as a therapeutic target for breast cancers. Taken findings together further our understanding of the complex actions of autocrine hGH and NF-κB p65 in Epithelial Mesenchymal Transition (EMT) of breast cancer has to be investigated.

Biography
Srinivas Baskari is a PhD Scholar in Osmania University. He qualified Basic Science Research Fellowship (BSR) in 2013. He also qualified GATE in 2012 with 87 percentile. He worked in a project on “Isolation and Characterization of Active Compound with Significant Anti-Bacterial Activity Extracted from Radish” under Dr Uma in JNTU at Hyderabad as a part of MSc thesis.

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