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Title: The Effects of the Obesity-Related Hormones Leptin, Insulin, IGF-I and Adiponectin on Ishikawa and HEC-1A, MCF-7 and SKOV-3 Cancer Cell Lines

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Abstract:

Understanding how obesity influences the activities of dysregulated hormones in overweight women is crucial for managing the increased risk of cancer associated with obesity. Thus, this study aimed to investigate the response of cancer cell lines to obesity-related hormones *in vitro*. **Results:** The study revealed the presence of hormone receptors in all four cell lines. The tumorigenic hormones demonstrated cell line-specific increases in cell proliferation, although the response was minimal in the SKOV-3 ovarian cell line compared to the endometrial and breast cancer cell lines. Notably, adiponectin exhibited a dual effect on cancer cell growth. At low concentrations, it promoted growth, while at high concentrations, it had the opposite effect. The study also observed that alterations in apoptotic levels in cancer cells induced by hormones did not consistently correlate with their effects on cell number or VEGF secretion. Interestingly, in most cases, VEGF secretion was regulated in the opposite direction to proliferation by the peptides. **Conclusion:** Overall, this study underscores the tissue-specific oncogenic effects of the hormones examined, which could be influenced by genetic variations among the four cell lines. It is important to note that the study was conducted *in vitro*, but the findings offer valuable insights into the potential involvement of obesity-related hormones in cancer advancement. The research implies that additional investigations will contribute to a better comprehension of the intricate interactions uncovered. Elucidating the network connecting hormones, cancer cells, and the tumour microenvironment *in vivo* will have significant clinical implications.

Biography (upto 150 words)

Dr. Muthana Majid has completed his PhD from Otago University, New Zealand. He is the director of Scholarships and Cultural Relations Dept. at Mustansiriyah University as well as Lecturer Dr. of Medical Chemistry subject in College of Dentistry. He is a member of RSC, HSP, PSNZ, BBIC, MSCNZ, DWST23 and Iraqi Chemists syndicate.



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