The effect of melatonin and Vitamin D3 on the gene expression of P53 in MCF-7 Breast Cancer cell line

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P53 was identified as first tumor suppressor gene actively involved in numerous cellular mechanisms such as initiating DNA repair mechanisms, apoptosis and cell cycle arrest.More than 50% of all human cancers have a mutated nonfunctional p53 expression. Breast cancer(BC) is one of the leading cause of mortality in females and mutated p53 is documented to be the causitive agent in only 20% of them. However, mutation in p53 in BC results in more aggresive form of cancer which is more resistant to the conventional therapies.Recently multiple clinical trials suggested that the combined use of melatonin and vitamin D3 can slow down the growth of breast cancer cells. The genetic and molecular mechanisms through which these compounds initiate the cancerous cells to apoptosis or cell cycle arrest is still not fully understood. This study aims to investigate the effect of melatonin, vitamin D3 and their combined treatment on the proliferation of breast cancer cell line MCF-7 by MTT assay. Our results showed that melatonin,vitamin D3 and combined effect of vitamin D3 + melatonin inhibit proliferation of these cells by upregulating gene and protein expression of p53.

Speaker Biography

Nora Saad Alkeraishan is a Masters students at King Saud University, Riyadh Saudi Arabia.She undertook this Research Project under direct supervision of well known Scientist Dr. Samina Hyder Haq. Her intersting studies on the effect of Melatonin and Vitamin D3 on Breast Cancer Cell line MCF-7 revealed that Melatonin could significantly upregulate p53 gene expression in cultured cells and observed no direct relatioship of Vitamin D3 in upregulating p53 gene expression. Currently she is involved in genotyping the p53 to detect mutations present in the gene itself.

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