

## The Vital Role of Biochemistry in the Treatment of Cancer

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## Introduction

Over the last few decades the role of biochemistry has become quite obvious in treating cancer. Any rational approach for the treatment of cancer must be based on the understanding of all biochemical mechanisms involved. The goal would be to inhibit the carcinogenesis or to successfully inhibit the expression of the malignant phenotype in the cancerous cell. But in the present scenario we don't have much understanding of certain expressions of phenotype of cancerous cells [1,2]. This is one of the major drawbacks but researchers across the globe are putting their best efforts in decoding the various biochemical pathways & the scientific community is devising new approaches & new therapies to destroy the cancerous cell by inducing zero or very less damage to the host cells. At present we have different therapies to remove cancer either by performing a complicated surgery or by simply destroying/destruction of malignant cells by chemotherapy, phototherapy & radiotherapy. Some of these therapies are quite old & popular. These therapies destroy the cancerous cell but it also inflicts damage to the host cell as a result the patient bear a lot of pain & suffering. Scientists across the globe are exploring a very new method which might have great possibilities in disruption of the nutrient supply to the tumors by interference with their vasculature. Tumor vascular is called to be the result of angiogenesis & attack done on the capillary endothelium may someday prove to be efficient method of inducing necrosis in large tumors [3,4]. The crystal clear goal of this method is to kill or fully eliminate all the cancerous cells at the same time causing no or very few damage to the host cells. This, method may become a therapy of choice in the near about future, may be in a couple of decades. With the advancement of biochemistry in the last century scientists across the globe have found out various cancer related biochemical pathways. Now, we will discuss some important biochemical pathways. For example we will discuss about the multiple signaling pathways which are involved in the cell proliferation, cell cycle growth progression. Now we know that G protein signaling also known as (RGS5) is able to reduce or eliminate the proliferation of the ovarian cancerous cells in rats & mice. Now, we know a lot of things that we previously don't know about various biochemical pathways & how cancerous cells grow. We have evidence that DNA binding factors RBP-Jk and C/EBPβ-2 transcriptionally activates p53 to ensure a very fast & enormous cellular response to DNA damage. Moreover we knew that p53 is associated in different sophisticated networks of mitotic kinase signaling in response to the great mitotic spindle damage to have a proper cell cycle progression. Some researchers across the globe have discussed in details about the mutual regulation of different network that exists in cancerous cells. We now know that the tumor suppressor p16<sup>INK4A</sup> has shown to be implicated in replicative senescence. Some latest discoveries in cancer research discuss a possible existence of a negative regulatory relationship between p53 and  $p16^{{\scriptscriptstyle \rm INK4A}}.$  So, we conclude that if we can cut up the biochemical process of genetic alterations then it will help us in understanding the various mechanisms underlying the genesis & spread of cancerous cells & in the nearby future we will come up with some new strategies like the targeted therapy and tailored cancer management. Last but not the least we deeply believe that advancement in the biochemistry for instance better knowledge & understanding of cellular biochemical pathways will have very crucial innuendo in the management of cancer patients [5].

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