


Chapter 5

Current Update on Natural Agents Against Triple Negative Breast Cancer

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ABSTRACT

Breast cancer (BC) is sub-categorized into several well-recognized subtypes including estrogen receptor (ER), progesterone receptor (PR), and HER2 triple-negative breast cancer (TNBC). It is a heterogeneous disease entity constituting about 15% of breast cancer cases worldwide. TNBC is associated with poor prognosis and lack of sustained response to conventional chemotherapeutic agents. Although no approved targeted therapy is available for TNBCs, molecular-profiling efforts have revealed promising molecular targets such as the Wnt/ β -catenin, STAT3, VEGF,

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EGFR, polyadenosine ribose polymerase inhibitors (PARPi) and DNA repair pathway, androgen pathway, and NOTCH pathway. Moreover, more research needs to be performed in the area of TNBC aiming at dissecting potential pathways and identifying potential molecular signatures to develop new targeted biologic modifiers. Natural agents are the abundant chemical compounds available from diverse plants. The authors aimed to summarize the current evidence and discuss the natural agents that target TNBC using different pathways.

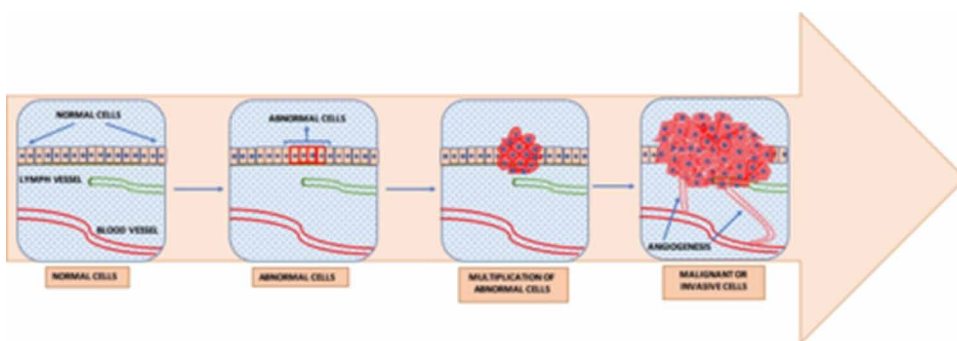
INTRODUCTION

Cancers can be precisely defined as an abnormal growth of cells which are usually derived from a single aberrant cell. These cancerous cells tend to lose their normal control mechanisms and multiplies incessantly to form a multitude of cancerous tissue called tumor which besieges the nearby tissues, traverses to varied regions of the body from the primary site (metastasis) and promotes growth of new blood vessels from which the cells procure nutrients (Pandurangan *et al.*, 2015).

In short, cancer is the chaotic proliferation of cells with the following eminent features - lack of differentiation of cells, local seizure of tissues in proximity and metastasis. Tumors can either be malignant or benign. Benign tumors are restricted to one area and do not metastasize. Whereas, malignant tumors, made up of cancerous cells can easily metastasizes within the body by traversing through the bloodstream or lymphatic system (lymph fluid).

Amidst greater than 100 different cancer types, most cancers derive their name from the site of origin in the body. For instance, lung cancer begins from the lungs and breast cancer is triggered from the breasts.

Figure 1. Understanding breast cancer



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