

Natural Products and Their Attributes in Oncology Area: Hope on the Horizon

Saad Sabbar Dahham*

Colleges of Applied Sciences, Sultanate of Oman, Oman

*Corresponding author: Saad Sabbar Dahham, Assistant Professor, Colleges of Applied Sciences, Sultanate of Oman, Oman, Tel: +60176988685; E-mail: hawk_dijla@yahoo.com

Received date: 06 November 2017; Accepted date: 09 November 2017; Published date: 14 November 2017

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Citation: Dahham SS (2017) Natural Products and Their Attributes in Oncology Area: Hope on the Horizon. Res J Oncol. Vol. 1 No. 1: 5.

Editorial

Cancer is the general name of a heterogeneous group of more than 100 diseases. It arises from dysregulation in normal cellular mechanisms; and it is characterized by alterations in the expression of multiple genes, leading to local tissue invasion, which may eventually turn into metastasis. During carcinogenesis, cells undergo a multistep process to acquire specific characteristics that can promote cancer development, including these six essential hallmarks: evading growth suppressors, sustaining proliferative signaling, and evading apoptosis, inducing angiogenesis, activating invasion and metastasis, and enabling replicative immortality. These six key features of cancer have been recently revised to add two more hallmarks: the ability to reprogram cell metabolism to generate adequate energy, and the ability to avoid immune destruction. Malignant growths are also believed to acquire additional characteristics which enable them to promote inflammation, and genome instability [1]. We are glad to introduce the Research Journal of Oncology which lunches this month with a number of eminent editors and reviewers in the field of cancer biology, discussing new approaches in molecular cancer therapeutics. In this editorial, we hope to guide your articles offering unique insights on the developments and objections in understanding the impact of natural products on developing new anticancer agents. There is some truth to the old adage that the therapeutic use of natural products and their derivatives is as old as the human race. The ancient civilizations provided written evidences to utilize the plant sources and their products to treat various diseases, recent studies shown that most of the plant synthetic derivatives and their phytochemical components have been recommended for cancer treatment. According to the World Health Organization (WHO) report, about 80% of population with in the developing countries depends on herbal medicines for primary health care. Moreover, it has been estimated that 25%-48% of the currently approved medicines by the Food and Drug Administration (FDA) are developed from plants. The Dictionary of Natural product has listed about 200,000 plant secondary metabolites with abroad spectrum of biodiversity and high degree of stereochemistry. However, it is estimated that only 0.5% of the medicinal plants have been chemically thus far, leaving an abundant source for further examination [2]. The capacity of a chemotherapeutic agent to target

malignant cells while preserving normal cells is the hallmark of a promising cancer drug. Despite, there are many therapeutic approaches to treating cancer; results are not fully satisfactory because the cytotoxicity of chemotherapy to solid tumors is nonspecific. Besides, selective anticancer drugs are lacking and some recurring tumors can become resistant to drugs. Thus, the discovery of really effective anticancer drugs is a very important and highly challenging mission. Our research team in EMAN testing and research laboratory- USM- Malaysia works on several plant extracts, like synthetic molecules and pure compounds their activity towards different cancer cells, and what we found is that many plant products have the potentiality to target cancer cells selectively via different mechanism. For example, β -caryophyllene is one of the major terpene found in enormous essential oils plant. It seems to possess strong inhibitory activity against colorectal tumor growth through a mechanism that appears to involve apoptosis induction and angiogenesis suppression [3]. Taken together the multi-functional properties of β -caryophyllene which includes anticancer, antimicrobial, antioxidant and anti-inflammatory activities suggest that such molecules may interact with several components of tumor pathway [4]. With the potential advantages of natural products, we tend to hope to be able to discover and publish new compounds that will be therapeutically helpful against carcinogenesis. This article issue does not aim for a comprehensive coverage of the wide and complex field of natural products. Rather, we hope to stimulate our readership with a number of papers highlighting emerging discoveries in the area of research, and to spot our commitment to covering hot and promising topics.

Research Journal of Oncology aims to be a forum for research and review articles that employ robust models and provide mechanistic insights on the field of oncology. We are highly acknowledging the validation data of key findings using *in vivo* model and molecular imaging. We hope that the scope highlighted here underscore our commitment to publishing strong articles. Finally, we sincerely thank our authors, editors and reviewers for their contribution, and hope you enjoy these papers.

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